Preliminary analysis of edupark fluid learning tool in Mifan water park in Padang Panjang city

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Abstract. Visiting Geopark (natural park) or natural attractions has become a community lifestyle, but the visit is still limited to tourist visits and their activity is nothing more to capture the moment (selfie) or for recreation only. Geopark or tourism object as a source of learning has not been fully utilized, including Mifan Water Park Padang Panjang. A prelude to clicking earthy analysis learning device Edupark Fluid needs in Mifan Water Park Padang Panjang. The type of research is developing research using the development model of Plomp at the preliminary research stage. The data in this study were taken with questionnaires and interviews of teachers and learners in SMAN 2 Padang Panjang. While the concept of Fluid Concepts to be discussed, obtained by way of direct observation to Mifan Water Park. Data analysis techniques used descriptive percentages. The results of research at a preliminary research stage this will reveal whether or not the development of Edupark is necessary Fluid in Mifan Water park Padang Panjang based on a tailored learning model.

1. Introduction

One of the Indonesian people's lifestyles end-the end is doing a tourist destination at any moment given moment. Garden many tours are visited both natural and artificial. Day-a day or a week's holiday, be it children, teenagers or parents prefer to fill a weekend or moment of their vacation by making a tourist visit. The visitors always perpetuate each side of the landscape by taking pictures of nature and or self-image (selfie).

Contextual learning is a learning that helps teachers connect the content of subject matter with real-world situations that are useful for motivating learners in making the relationship between knowledge and application with their lives as family members, society and work environment [1]. Empirically never carried out by Prima Cristi Crismono revealed that the use of media and learning resources of nature around the existing school environment can increase the passion, enthusiasm and spirit of learners towards learning Mathematics, then did students easily understand the contents of the materials for learners directly to learning practice or contextual [2]. In this research, the real situations that learners use in implementing contextual learning are natural attractions or artificial. Tourist destinations as real-world situations in order contextual learning is something that is still rare in physics learning.

Natural entity can be a source of learning to understand the concept of physics, because learning high school physics is a lesson that studies natural phenomena through a series of scientific processes built on scientific attitudes and the results in the form of scientific products both artificial and natural.
Mifan Water Park Padang Panjang is one of the many tourism rides that apply the concept of physics in a given game infrastructure facilities.

Based on their exposure to the landscape and learning activities that it can be fun to directly observe the phenomenon in nature, then the conducted a preliminary analysis on the development of learning tools edupark fluid at Mifan Water Park Padang Panjang.

2. Method

The research was conducted in SMA 2 Padang Panjang with the subject of the study of students of class XI MIPA 3 and Physics Teacher. While the object of research is Mifan Water Park Padang Panjang. The type of research used in this study is to use the Research and Development method with the development model used adapted from the Plomp Model. Of the three phases of the development model of Plomp, this study uses only invest trunk early phase (preliminary research) [3]. The planning phase begins by doing Analysis of graduated competency standard, analytical learners, analysis of learning activities and assessment analysis can be obtained by use 3 questionnaire that is questionnaire analysis of students’ appraisal, analysis questionnaire standard of graduate competence and questionnaire assessment analysis as well as interviews. Questionnaire analysis of the learners consists of 7 aspects: spiritual attitudes, social attitudes, knowledge, skills, early ability, learning style and motivation. Questionnaire on standard competence of graduates and an analysis assessment contains questions on the right attitude aspect, the aspect knowledge and skills aspects. For these three questionnaires, a Likert scale is used with 4 terms of t and values, namely: Never (1), Sometimes (2), often (3) and always (4). Each aspect in the questionnaire translated into several indicator.

Mifan Water Park a tourist spot was inaugurated on October 1, 2008 [6]. Water located at an altitude between 650 mdpl to 850 mdpl. Mifan Silaing Bawah Water Park is occupying an area of 9.8 ha. Mifan location when viewed from the map can be seen in Figure 1.
Mifan Water Park provides recreation is a vehicle of dry and wet games. Dry the game in the form of Trains Tours, Show 4-D movie, Sauna, Kabana and Gajebo, outbond, Boat Bemper, Ferris wheel, Carousel, UFO flying saurces, etc. While the water rides (Water Park) that exist at the site is the Batang anai Lazy River, Legend Beach, Multi Race Slider, Sled Tower, The Coal Pool Spilled, Semi Olimpic Pool, etc., as shown in the picture-image below:
The game game that is used as research object is limited to, wet game rides only. In general physics concepts contained in the vehicle include: Pressure, Force, Energy, Power, Fluid Concepts, the nature of material elasticity, etc. In this case, in accordance with the demand of 2013 Curriculum in the odd semester of XI will be limited to the concept of physical concepts that exist in the fluid alone.

The data retrieval technique is by making an observation instrument that is tailored to the vehicle rides that available water. The purpose of this observation is to know the potential development of Edupark Fluida learning devices at Mifan Water Park Padang Panjang.

3. Results and Discussion

Preliminary analysis conducted in this study is an analysis of learner analysis of graduate competency standard, analysis and learning activity analysis assessment. Student analysis includes 7 aspects of spiritual attitudes, social attitudes, knowledge, skills, ability and motivation as shown on Table 2.

| No | Aspect            | (%) Results | Category |
|----|-------------------|-------------|----------|
| 1  | Spiritual Attitude| 84.02       | Good     |
| 2  | Social Attitude   | 72.38       | Enough   |
| 3  | Knowledge         | 66.73       | Enough   |
| 4  | Skills            | 70.2        | Enough   |
| 5  | Initial Ability   | 62.84       | Enough   |
| 6  | Learning Style    | 71.01       | Enough   |
| 7  | Motivation        | 72.49       | Enough   |

Based on Table 2 can be seen the percentage of students' spiritual attitudes 84.02% with good category. This is caused by the guidance to learners in the form of meeting adolescents organized by Padang Panjang Government in cooperation with BKPRMI (Badan Komunikasi Pemuda dan Remaja Masjid) causing big name a mecca port city increasingly thick. With the attitude of spiritual attitudes the learning process in natural attractions will be easier to implement. But the social attitudes of student with enough categories, therefore it is expected that learning in nature can improve student’s social attitudes. In the aspect of knowledge, students get a percentage of 66.73% with category enough. Based on observation in the game facilities and infrastructure available that can be used for the knowledge of the student, but so far it has not been utilized. This is also revealed by physics teacher interviews. On the other hand, physics learning is also done not to hone the skills of students with grades obtained in 70.2% which with category enough. The low percentage value of these students cannot be separated from.

One of the activities that can increase knowledge and the learner's skill is a practicum, because the physics learning process that has not utilized natural phenomena, technology and regional potential. With a practicum it can happen, improving science process skills during learning [7]. To increase knowledge and the skills of students, the teacher must be brave and want to innovate in learning Physics including bringing open students. Where do ojek from outdoor physics learning can reflect the principles, laws and theories of physics so that the experience of thinking, using the tools of physics and other objects, students' views of the scientific world, the ability and attitude of students to physics can be improved [8].

The initial acquisition of students is 62.84%, with enough criteria. Initial ability is very useful for teachers to start from where to implement learning. Garner's theory states that from birth human beings have many intelligence windows. There are eight windows of intelligence, according to Garner’s on every individual born and all of them have the potential to be developed [9]. However, in the development and growth of individuals only capable at most have only four kinds of eight kinds of intelligence they have. So, there are no stupid learners but, they are just different in intelligences that is the task of educators to know the initial ability of the learners. So, the educators can use some methods and what strategy which is suitable for physics, that can minimize problems that occur in the
field. While the percentage of learning style and motivation of students in senior high school 2 Padang Panjang XI Science Grade as a sample, respectively 71.01% and 72.49% with enough category. Implementing a practicum on tourist objects is expected to represent the learning styles of the learners. In making the students more motivated to learn, the physics itself should be more related to the student life as possible as it can, so it can link physics with the other disciplines [10].

In addition to filling out questionnaires to learners, the authors also conducted interviews with learners. Based on the results of interviews of the authors with learners about physics learning process obtained learners said physics lessons are still considered difficult that is 77.78% and their level of pleasure with the physical learning of 52.3%. Learners do not like the subject of physics because the learning of physics in the classroom, teachers does not pay attention to learners. To save teachers time using the Direct Instruction method and drill problem system. Activity of learners in learning is only in the form of answering the active practice of individual questions are discussed with the group, while for solving physics problems in the context of everyday life is rarely done, so that less physical learning contexts and not in accordance with the demands of physics learning in SMA according to Curriculum 2013 [11]. So, to overcome the assumption that physics is a difficult lesson and overcome students who are not happy to learn physics teachers can try other alternatives in learning is to invite students learning.

In the 2013 Curriculum, the graduate competency standards consist of three aspects: attitude, knowledge and skills. The results of the analysis of the acquisition of questionnaires to graduate competency standards are given as in Table 3.

| No | Aspect  | % Results | Category |
|----|---------|-----------|----------|
| 1  | Attitude| 65,28     | Enough   |
| 2  | Knowledge| 58,33    | Enough   |
| 3  | Skills  | 62,5      | Enough   |

Table 3 informs acquisition aspect of attitude of learners is 65,28%. In the activity in school learners according to the teacher there are still many learners who are not yet orderly and obedient to school rules and regulations learners are still not being true to themselves. Students are still not honest with themselves. Cheating is still a culture that is difficult to eliminate. There are still learners who ignore it when passing by the teacher. Besides that, students' self-confidence must be trained more. In the aspect of knowledge the percentage obtained is 58,33%, lower than attitude and skill aspect. Learners are still not able to express facts related to the subject matter. In learning learners are still difficult to find concepts and associate new knowledge possessed with previously owned. Competency Standards Graduates from skills aspect accounted for 62,5%. Learners are still less independent in conducting the experiment, unfamiliar with the concept of practicum, communicating experimental results is still rare. In addition, LKPD used by teachers has not been representative of the learning process that activates the organs of the eye, ear, mouth, and other limbs.

In addition to analyzing the competency standards of graduates, also analyzed the learning activities undertaken by teachers. Two physics teachers said learning that was often done was direct learning. Method still dominate the discourse varied learning, only one time a teacher wearing other learning models. Meanwhile, regarding the completeness of teaching, teachers only use LKPD sold in the market. If observed LKPD in terms of appearance less interesting. Content only contains a little theory and only loaded a matter of course, no visible model of learning used. Teachers also do not have their own modules, if any, the module used is a module from colleagues.

Based Permendikbud No. 23 of 2016 on the standard of educational assessment, noted that aspects of assessment of learning outcomes of students in the form of attitudes, knowledge and skills. The purpose of the implementation is to conduct and evaluate the process, learning, and improvement of learners' learning outcomes on an ongoing basis. Besides to assess the achievement of graduate competency standards, as well as to assess the achievement of graduate competence nationally.
Table 4 shows the results of the learner’s assessment analysis conducted at SMAN 2 Padang Panjang through a questionnaire given to two physics teachers.

| No | Aspect                                    | % Results | Category |
|----|-------------------------------------------|-----------|----------|
| 1. | Attitude Assessment                        |           |          |
|    | a. Attitude Assessment, Planning           | 83.30     | Good     |
|    | b. Implementation Assessment, Attitude     | 57.14     | Enough   |
|    | c. Utilization of Attitude Appraisal Results | 79.17     | Good     |
| 2. | Knowledge Assessment                       |           |          |
|    | a. Knowledge Planning Assessment            | 56.25     | Enough   |
|    | b. Implementation of Knowledge Assessment  | 80.00     | Good     |
|    | c. Utilization of Knowledge Assessment Results | 62.50     | Enough   |
| 3. | Skills Competency Assessment               |           |          |
|    | a. Skills Assessment, Planning             | 56.25     | Enough   |
|    | b. Implementation of Skills Assessment     | 52.08     | Enough   |
|    | c. Utilization of Skills Assessment Result | 60.00     | Enough   |

Based on Table 4 it can be seen that the results of the assessment analysis are generally in enough category, although some of the items indicate good category. Assessment, planning done by the teacher is in good category that is 83.3%. The utilization of the assessment results is good, namely 79.17%. And the implementation of knowledge assessment is also good, that is 80%. While other aspects in the category enough, such as the implementation of attitude assessment of 57.14%. Although the teacher already has an assessment format, but in teaching and learning activities physics teacher rarely does attitude assessment every time meeting. Teachers also rarely record positive and negative behaviour of learners. And in providing strengthening of the character to learners rarely also involve parents of learners. The results of this attitude assessment should be recapitulated and reported to the homeroom teacher, but from the results of the questionnaire, teachers rarely do it. An assessment conducted by the teacher in addition to attitudes is knowledge assessment, in this case in terms of preparation 56.25% obtained with sufficient criteria. Can be illustrated that teachers rarely make lattice grid matter before replication is done. Similarly, teachers rarely do quantitative analysis of the problem, except for archive fulfilment or completion of school filing. On the aspects of skills in planning, implementing, and utilizing an each got a percentage 56.25%, 52.08% and 60%. This skill aspect is lower than other aspects. Teachers are rarely assessed for this skill. Whether in the form of practice, product or project or photo folio. This happens because of the process teacher learning in physics. Teachers only provide direct learning and do not utilize elements other than students such as nature or modelling.

From the data and interviews that have been analyzed to the students, it is found that social attitude, knowledge, skill, early ability, learning style, and motivation of students in SMA 2 Padang Panjang are in enough criteria. Data obtained, learners prefer learning by a practicum. Learning is needed that can accommodate the initial abilities of various kinds of students. And to overcome the boredom of students also needed the creativity of teachers in carrying out learning, one of which is to carry out learning in tourist objects, as the authors propose that is learning physics at Mifan Water Park Padang Panjang. With learning in tourist objects, learners are expected to prefer physics learning. With the beginnings of fun is expected learners do not consider the subject of physics is a difficult lesson and monotonous, because the object of tourism can provide a variety of media and learning resources. Skills of learners can be channelled and learners more motivated. With learning in tourism object is also expected social attitude of learners should be improved. Students are trained to be able to interact and adapt to other people outside themselves, willing to help others, can be invited to cooperate and other social attitudes.

Likewise, with the results of the analysis standard graduate competence from aspects of attitude, knowledge and skills are also included in the category enough. Teachers still carry out direct learning,
LKPD which is used as a medium of learning is far from the criteria set in the curriculum 2013. In this case to overcome in this research will be developed LKPD with Discovery Learning model. Teachers also do not have their own modules and if any of those modules belong to other teachers, and are limited to the teachers themselves, students only use the source books provided by the school. To help teachers in Physics learning, it is necessary to develop a learning module with a particular model. In this case the authors take the model of \textit{Discovery Learning} because based on the characteristics of learners who prefer learning with discussion and practicum. And speaking of the assessment, the assessment of the teacher only focuses on the knowledge aspect only. Whereas the principle in carrying out the assessment is, that is; \(\text{(a) Designed in such a way, (b) Become an internal part of the learning process, (c) Obtained from objective learning outcomes, (d) Followed by follow-up} [12]\). Based on weaknesses, weaknesses need to be developed to assess the knowledge of, attitudes, cognitive and skills contained in the Learning Implementation Plan.

Based on observations made in Mifan Padang Panjang \textit{Water Park}, it turned out that this tourist attraction had 9 wet play rides, namely; Swimming pool (Lazy river anchovy rod), Wave Pool (Legend Beach), Slide 4 (Multi Race Slider), Sled Tower 12 m high and winding, Pool spilled bucket, Semi Olimpic Pool (Niagara Pool), Swimming ladies, warm, Child pool (Kiddy Pol). Some of the Physics concepts that can be expressed from the wet spacecraft can be seen as in Table 5.

| No. | Name               | Physics Concepts                                                                 |
|-----|--------------------|----------------------------------------------------------------------------------|
| 1.  | Legend Beach       | Distance, time, speed, acceleration, kinetic energy, Business, Change Kinetic Energy. |
| 2.  | Skating Tower      | Elevation, Angle, Speed, Angle Acceleration, Sentripetal Style, Centrifugal Style, Friction Style |
| 3.  | Spilled Bucket Pool| Elevation, Effort, Kinetic Energy, Potential Energy, Energy Conservation Law of Mechanical, Debit, |
| 4.  | Flow Pool          | Distance, Transfer, Speed, Acceleration, Kinetic Energy, Debit, Pressure, |
| 5.  | Semi Olimpic Pool  | Distance, Speed, Acceleration, Hydrostatic Pressure, Archimedes' Law, Surface Voltage, Wave Symptoms, Refractive Index, Specific Mass. Pascall's Law, Elasticity, Electrolytes |
| 6.  | Women's Special    | Distance, Speed, Acceleration, Hydrostatic Pressure, Law Archimedes, Surface Tension, Wave Symptoms, Refractive Index, Mass Type, Pascal Law , Electrolyte |
| 7.  | Children's Pool    | Distance, Speed, Acceleration, Hydrostatic Pressure, Law Archimedes, Wave Symptoms , Refractive Index, Mass Type , Electrolyte |
| 8.  | Warm Water Pool    | Temperature, Heat, Heat Transfer, Mass Type, Electrolyte |
| 9.  | Skating 4          | Distance, Speed, Acceleration of Friction Style |

\textbf{4. Conclusion}
Based on the results of preliminary analysis that has been done on the students, analysis of graduate competency standards and assessment analysis and interviews to teachers and learners about the learning process, the authors can take the red thread that required the development of learning tools Fluid edupark in Mifan \textit{Water Park} Padang Panjang. The development of learning tools includes the development of LKPD, Modules, Learning Models so that they can implement the lessons according to the demands of Curriculum 2013. While the analysis of the vehicle rides wet game at Mifan Water Park Padang Panjang proved to contain many concepts of Physics concepts that exist in the vehicle it is necessary to develop the location of Edupark Fluid at Mifan \textit{Water Park} Padang Panjang as a learning resource.
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