

## THE MAKING OF SOLAR SYSTEMS AS A ONE OF GEOGRAPHY LEARNING MEDIA IN SMA N 2 BATANG ANAI, PADANG PARIAMAN REGENCY AND SMA N 5 BUKITTINGGI, BUKITTINGGI CITY

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**ABSTRACT:** This article aimed to improve the ability of teachers and students to create the miniature media of the solar system and improve teachers` understanding and abilities in terms of understanding pedagogical aspects those could be seen from the process of designing a Learning Implementation Plan (RPP) especially in terms of choosing a model or learning method. This activity was held at SMAN 2 Batang Anai, Padang Pariaman Regency and SMA N 5 Bukittinggi, Bukittinggi City by using training methods, questions and answers, also practices. Participants involved were geography teachers and students representated in each class with 25 people. The form of the activity was conducting training related to designing effective learning media and conducting training related to making miniature solar systems to geography teachers and students. The results of the training carried out at SMAN 2 Batang Anai in Padang Pariaman Regency and SMA N 5 Bukittinggi in Bukittinggi City were in the form of a miniature solar system and increased abilities possessed by teachers and students in making learning media in this case was a miniature solar system. From this training, teachers had increased the understanding / ability of pedagogical aspects which could be seen from the process of designing lesson plans, especially in the terms of choosing a learning model. Geography teachers also understood more about adequate competence in terms of designing and utilizing media so that quality and effective learning was created.

*Keywords: RPP, Pedagogical, Miniature Solar System, Geography, SMAN 2 Batang Anai, SMA N 5 Bukittinggi*

### 1. INTRODUCTION

Education is something that cannot be separated from human life. Every individual has the right to education. This is stated in article 31 of the 1945 Constitution (amendment) which reads "Every citizen has the right to education". Thus education is a human right that must be fulfilled and is very important for everyone. This relates to the purpose of education itself contained in Law (Law) Number 20 of 2003 concerning "National Education System" in Article 3. In this article it is stated that education aims to develop the potential of students to become human beings who believe and devote to God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible [1-3].

The success or failure of an educational process is strongly influenced by ongoing learning. Learning has several components that must be met, one of which is learning media which is one of the important components in supporting the teaching and learning process (PBM). The use of media

should be an important part of the learning process. Media are all forms of intermediaries used by the disseminator of ideas, so the idea that arrive at the receiver. Media learning is a blend between materials and tools or the combination of software and hardware [4]. The existence of learning media is now a means of connecting between a teacher and students, so that the teacher really acts as a facilitator. Aside from being a delivery or introduction system, media is often replaced by the word mediator, with the term media mediator showing its function or role, namely regulating effective relations between the two main parties in the learning process, namely students and the content of the lesson. In summary, the media is a tool that conveys or delivers teaching messages [5] According to [6-8] Media is used to support learning activities to gain knowledge, skills and attitudes.

Geography is related to spatial subjects, so images, maps, symbols and graphs are needed to simplify abstract concepts [9]. Learners can more easily understand the material. Learning media is really needed in stimulating the thoughts, feelings,

attention, interests and motivation of learning so that the learning process can run well and smoothly.

The results of observations that had been made at SMAN 2 Batang Anai, Padang Pariaman Regency and SMA N 5 Bukittinggi, Bukittinggi City, there were problems in the teaching and learning process of geography. The problems included the lack of use of learning media in the learning process and the lack of concrete media development those affected the low level of interaction and attention of students for teaching and learning activities, especially when learning the solar system. This is due to the lack of teachers in developing learning media related to the material of the solar system to make it more interesting. These problems certainly affect the quality of learning with student achievement. Even though the media will make learning more interesting to students, so that, it can foster motivation to learn and students can do more learning activities because not only listen to the teacher's description, but also other activities such as observing, demonstrating, exhibiting, etc [10-13].

The fact was students cannot directly witness the shape of the planets that exist in the universe in their lives . Students could only imagine how the actual arrangement of planetary shapes maked it very difficult for students to learn. Things like this show the importance of the media in the learning process of teaching, especially teaching geography was a factor that`s important, so that the various media could be used in presenting the material geography, because of the nature of learners prefer an enjoyable learning through activity that was in the classroom.

Based on observations and interviews with subject teachers of geography in SMA N 2 Batang Anai there were some problems those occurred in learning geography, that`s the minimum of availability of instructional media in learning geography affect the low level of interaction and attention of students to the activities teaching and learning especially on solar system learning.

The problem`s faced by teachers and students would be things that would affect the achievement of quality education. In accordance with the objectives of the activities those were expected to be achieved through this activity were 1) conducted training to improve the ability to develop geography learning media in the form of miniature solar systems , and 2) increased teachers` understanding and ability in terms of understanding pedagogical aspects that could be seen from the process of designing lesson plans, especially in terms of choosing a learning model/method.

## 2. METHOD

This activity was carried out at SMAN 2 Batang Anai, Padang Pariaman Regency and SMAN 5 Bukittinggi, Bukittinggi City, West Sumatra Province using a qualitative approach with training methods, questions and answers, and practice. Participants involved in these service are geography teachers and students in classes X and XI. Where this training were attended by geography subject teachers as well as students from class X and XI of SMA N 2 Batang Anai and SMA N 5 Bukittinggi, amounting to 50 people. The implementation plan could be seen in the following Table 1.

Table 1 Plan for the implementation of activities

No	Problem	Solution to problem	Activity
1	The low ability of teachers to create and develop geography learning media.	Increasing knowledge about designing effective learning media.	Conducting training related to designing effective learning media.
2	Lack of development of concrete media that affects the low level of interaction and attention of students to teaching and learning activities, especially when learning the solar system .	Increasing acquisition and utilization of instructional media in the form of miniature solar system	Conducting training related to the making of the solar system to geography teachers and students.

## 3. RESULTS AND DISSCUSSIONS

This miniature solar system training activity were held on Saturday 27 July 2019 at 09.00 WIB - 12.00 WIB in SMA N 2 Batang Anai and 10 August 2019 at 09.00 – 12.00. The training was held in two classes that acted as training instructors, Deded Chandra, S.Si, M.Sc., who was accompanied by the devotion team Ratna Wilis, S.Pd, MP, Bigharta Beki Susetyo, S.Pd, M.Pd,

Lailatur Rahmi , S.Pd, M.Pd , Dian Adhetya Arief, S.Pd, M.Pd, and Bayu Wijayanto, S.Pd, M.Pd. The training was attended by two geography subject teachers in SMA N 2 Batang Anai namely Fevi Despita, S.Pd and Nanda Putra Pratama, S.Pd as well as students from class X and XI totaling 25 people. While in SMA N 5 Bukittinggi was attended by two geography subject teachers namely Zulfa Yetti Marni, S.Pd and Reni Susanti, S.Pd as well as students from class X and XI

totaling 25 people. Following are images of activities:



Fig 1. Opening of training making miniature solar system



Fig 2. Explanation process of making miniature solar system



Fig 3. Process of making miniature solar system



Fig 4. Results of the miniature solar system

The trainings of making the miniature solar system in high school N 2 Batang Anai and SMA N 5 Bukittinggi were increase the teachers` and learners` soft skills to be more aware and understand of making a medium of learning that concerned with the material astronomical geography. Teachers and students were very enthusiastic about these training activity, which indicated that the activities were necessarily. Other than teaching activities at school can be interspersed with activities such as workshops, coaching clinics and other activities. Students could express creativity and interactive with each other. The practice of making media was one of

the lessons learned by the 2013 Curriculum which requires active students and teachers as facilitators.

This training also had made a geography teachers in SMA N 2 Batang Anai and SMA N 5 Bukittinggi increase the understanding / skills in pedagogic aspects that could be seen from the process of designing the lesson plan, especially in terms of selecting a learning model. Geography teachers also understood better about adequate competence in terms of designing and utilizing media so as to create quality and effective learning. Teachers are also aware that with the media, students could be more relaxe in learning which maked teachers did not need to always lecture as they did before.

This training also aimed to familiarize students with applying the knowledge gained in classroom learning. If there was no application of the knowledge gained, students would only imagine and quickly forget what they learned. SMAN 2 Batang Anai and SMA N 5 Bukittinggi had few activities and practical learning, teachers still used conventional learning models where learning was boring for students if it was not interspersed with

other models. This training activity showed that students were more enthusiastic and express their creativity by using project-based learning or called Project Based Learning. Students were not bored and led up a very high curiosity about new things, such as students exchanging ideas, students often asked the teacher, and so far. Also, teachers could be easier in the learning process undertaken.



Fig 5. Interaction between students

Holding activities of training at SMAN 2 Batang Anai and SMA N 5 Bukittinggi were based on the awareness of the importance of helping teachers to be really have the ability to make the media not only two dimensions, such as power point but was able to make the media a real like a miniature solar system . Learners would easily record and draw in their memories about material related to the solar system, especially geography which was very related to astronomy, which generally many students did not know and had not drawn in their minds.

As sophisticated and modern the life with the support of technology, would not be able to control the role and functions of the teacher in the classroom. Teachers who were favored by students were teachers who were not monotonous in teaching, for these efforts the teacher in learning using media in the form of maps arised so that the learning atmosphere becomes lively and enjoyable by students. Because of the strategic roles and functions of teachers, the training was felt to be very necessary and had to be carried out sustainably both with the guidance of lecturers from tertiary institutions and independently through each MGMP forum.

This activity has been carried out in SMA N 2 Batang Anai and SMA N 5 Bukittinggi very well. There were a number of important notes from the implementation of this service that need attention from various parties. 1) the teachers and students felt great benefits from this dedication. This was revealed from the service team interview with the trainees. Teachers and students were very enthusiastic in participating in this training because they had not been maximized in making learning media. Teachers were very rarely used instructional media during the learning process and

2) the training of media making miniature solar system took time and effort, but the benefit was greater than just learning lecture only.

A teacher who has high professionalism will try how the students they teach are easy to understand material with high creativity to make and use media from home even though simple but very useful and helpful. Teachers must understand the models and lesson plans that fit the needs of the students of they teach.

#### 4. CONCLUSION

Participants in this activity were Geography teachers at SMA N 2 Batang Anai and SMA N 5 Bukittinggi and students in totally 50 people. In accordance with the objectives of the implementation of community service activities, it was expected that after the implementation of the activities by teachers and students conduct an increasing ability in terms of mastery to make 3 dimensions in the form of miniature solar systems . The advantages of these medias, students could immediately know and make the arrangement of the solar system that was made into a miniature. These medias were also made with low costs so that it did not burde students. These introduction and training activity Subject teachers could also continue the exercise for making other 3-dimensional media which`re not only miniature of the solar system but other objects in the learning material, teachers were also advised to implement 3-dimensional media in the form of embossed maps in the teaching and learning process, and teachers were advised to implement project-based learning. Geography teachers understood more about adequate competence in terms of designing

and utilizing media so as to create quality and effective learning

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#### REFERENCE

- [1] E.R. Wati, E. R, "Ragam Media Pembelajaran". Kata Pena: Yogyakarta, 2016
- [2] Rahmanelli, "Meningkatkan Kecerdasan Spasial Mahasiswa Melalui Teknik Media Peta Puzzle dalam [] Pembelajaran Geografi Regional". Jurnal Pejuang Pendidikan, 3(3), 313-316, 2017.
- [3] M.A. Hamid, M. Nurtanto, A. Rahmat, A. Mutolib, S. Nurhaji, M. Fawaid, dan S.U. Rizal, "The Analysis of Learning Implementation Plan (LIP) in Vocational Subjects Based on 2013 Curriculum". International Conference on Issues in Social and Education Research (ICISER 2017). Atlantis Press, 2017.
- [4] Sadiman, Arief S. dkk. Media Pendidikan. PT Raja Grafindo Persada : Jakarta, 2009
- [5] Arsyad, " Media Pembelajaran". PT Raja Grafindo Persada : Jakarta, 2010.
- [6] Pribadi dan A. Benny A. "Media dan Teknologi dalam Pembelajaran". Kencana : Jakarta, 2017.
- [7] Hermon, D., & Dalim, Y. (2005). Penggunaan Media Audio Visual untuk Meningkatkan Kreatifitas Belajar. Jurnal Pembelajaran, 28(3), 266-276.
- [8] Hermon, D., & Dalim, Y. (2006). Penerapan Kuliah Lapangan untuk Meningkatkan Hasil Belajar Mahasiswa. In Forum Pendidikan (Vol. 28, No. 3, pp. 156-161).
- [9] Rahmanelli, "Wujud Kecerdasan Keruangan (Spatial Intellegence) Dalam Kajian Geografi Regional", 2016.
- [10] N. Sudjana, dan A. Rivai, "Media pengajaran". Bandung: sinar baru Algensindo, 2010.
- [11] Rohani, Ahmad. Media Instruksional Edukatifi. Rineka Cipta : Jakarta, 1997
- [12] Putra, A. (2010). Penerapan Pembelajaran Kooperatif Model Group Investigation Pada Mata Pelajaran IPS Geografi. Laporan Penelitian Tindakan Kelas.

- [13] Chandra, D., Wilis, R., Frananda, H., Rahmi, L., Arif, D. A., Wijayanto, B., & Putra, A. (2019). Pembuatan Peta Timbul Sebagai Media Pembelajaran Geografi [Making Embossed Maps as Learning Media for Geography]. PEDAGOGIA: Jurnal Pendidikan, 8(2), 211-221.