

Teaching Materials Based Development Of Art Traditional Geometri Kasab Aceh

Ariyani Muljo

*Study Program / Department of Mathematical Education State Islamic Institute (IAIN) Langsa **

Email: ariyanimulyo41@gmail.com

Abstract . This paper aims to develop geometric materials based on the traditional art of aceh chapels that are valid, practical and effective for students and students at SMP N 3 Langsa. This writing method using Development Approach (Development Research) is a Dick and Carey development model that consists of (1) identifying learning objectives; (2) conducting instructional analysis; (3) analyzing student characteristics and learning context; (4) to formulate specific learning objectives; (5) develop assessment instruments; (6) developing learning strategies; (7) developing and selecting teaching materials; (8) design and develop formative evaluation; (9) revision of learning programs; and (10) design and develop a summative evaluation. Activities in the front-rear analysis phase include analyzing subjects taught in mathematics subjects primarily on geometry materials, analyzing textbooks of mathematics especially geometry, merivieu literature on learning with geometry teaching materials, interviews with SMP N 3 Langsa math teachers, and studying characteristics students. Based on the results of back-up analysis has been obtained prototype of teaching materials geometry which then consulted to the experts. This prototype was further validated by 3 (two) experts consisting of 1 (one) instructional design expert from Aceh Adat Council (MAA), 1 (one) expert from IAIN Zawiyah Cot Kala Langsa and 1 (one) expert from SMP N 3 Guru Langsa. At the practical stage of teaching materials geometry tested on students of SMP N 3 Langsa Class VIII. The trial was conducted by 2 (two) teachers of SMP N 3 langsa. The investigation of the effectiveness of geometry teaching materials is done in line with the practicality stage. The observed effectiveness is about students' motivation and learning outcomes. The results show that; (1) the designed geometry teaching material is valid (including the content and validity of the constructs) from the point of view of instructional design experts and mathematics education specialists; (2) geometry teaching materials can be used by students and teachers without meaningful restrictions, in the practical sense of their use according to observers and judgments of students and teachers; and (3) geometric material has been shown effectively from high student motivation and student learning outcomes following learning .

Keywords: Development, Bahana Ajar, Geometri

INTRODUCTION

Human life in every nation and group of any ethnicity has its own culture, customs and habits and has different forms of art in expressing a sense of beauty. Disclosure of the sense of beauty that in many ways both expressed himself with the art of sculpture, literary art , and sound art. Art is the 5th element so often used as a medium for disseminating the teachings of belief and as a medium of entertainment.

Art is a cultural product of a nation, the higher the value of one nation's art the higher the cultural value contained therein. As one important part of culture, art is never separated from society, because art is also one

of the means to realize all forms of human expression, taste and intention. Art as an expression of human creativity will grow and live if people still maintain, provide opportunities to move, and develop creativity.

Art that developed in Indonesia is quite interesting and diverse, one of them in the Aceh region there are many art created by the people. Culture is the whole way of life of society and not just about some way of life that is considered higher and more desirable. It was revealed in anthropology, sociology in Aceh culture and formed etnomatematika (Leonard, 2002).

The Aceh region is located at the tip of Sumatra island. The area covers an area of 53,400 square kilometers. The series of mountains lined the area. Banda Aceh as the capital of the province is located in the northern valley (Rida, 2007). Aceh is the most profound area in the history of Islamic influence in Indonesia. The people of Aceh who can be said to have a historical connection with the Arabs, one of the tribes who love to have a poet who has more innate can feel the words of the rhyme of speech in the form of ordinary sentences. Likewise the forms of art works, especially in the field of craft many use motifs with the stylization of plants, the form of natural objects such as water, clouds, stones and geometric lines.

Motif is a basic element of ornament that serves convey the theme or basic idea. Decorations are deliberately made to decorate an object or product called ornaments. Application of geometric motifs are widely used in wicker handicraft objects (Siam, 2012). Geometry is a branch of mathematics that deals with form and space. Painting of geometry is essentially an attempt to visualize objects of an abstract nature of geometry in order to be more easily conveyed and understood. In order for the concepts and objects presented images and paintings are easily accepted and understood by learners, the manufacture of props and gemometri images must be carefully.

Ideas about geometry have been known to previous students. In everyday life in the environment students recognize various forms of geometry. But in reality there are still many students who have difficulty in studying geometry. The current geometric learning tends to be teacher-oriented, thus less developing children's thinking. In addition, the other source of problems for student learning outcomes is the use of instructional materials that do not change from year to year, the use of ineffective package books and teachers only see examples of the problem alone without developing the book itself when the learning package. So students are less excited or unmotivated to follow the geometry learning. These factors affect the low competence of students, including in the mathematical learning materials geometry wake flat.

Development of teaching materials to be more concrete and real in everyday life of students such as developing materials that are close to the environment, for example as in Aceh culture. Teaching materials are geometric patterns that can be seen from the geometric motifs of objects in the environment around the student or culture. Geometric motifs are widely used in objects such as mats, baskets and bags. For example in the culture of handicrafts Acehnese people who have a geometric motif is the craft of gold thread "Kasab Aceh". Kasab Aceh is one of the Acehnese crafts which is often used in Aceh adat ceremonies and souvenirs are often used as *bungong jaroe* (souvenir). But who would have thought behind the beauty and beauty of this kasab motif turned out to have no motive in the form of geometry. The geometric shapes contained in the cassette are triangles, pentagon, quadrilateral, star, circle and others (Wardani, 2014).

The low achievement of student geometry also occurs in Indonesia. Empirical evidence in the field shows that there are still many students who have difficulty in learning geometry, from basic to university level. Improving and improving the quality of learning processes and learning outcomes through the development of teaching materials correctly and appropriately requires understanding and concrete action by teachers. The accuracy of the use of teaching materials in teaching and learning activities by teachers is the first step of corrective action.

Development of mathematics materials that are appropriate to the surrounding environment will facilitate the understanding and mastery of teaching materials by learners. With the appearance of geometric motifs of Kasab Aceh ornaments on mathematics materials, students can grasp the intentions contained in the matter of wake up flat. While the depiction of simple teaching materials is to show the purpose of learning indicators. So when the

material wake up is applied in the form of problems students will feel no difficulty. These developed materials include 60% of Kasab Aceh-related content and 40% of math-related content.

DISCUSSION

A. Kasab Aceh Ornament

1. Understanding Ornaments

Ornaments are ornaments that are deliberately made to decorate an object or product. In its development, ornaments have several functions, namely (1) purely stethistic function, (2) symbolic function, (3) constructive technical function. The purely stethical function of the goal beautifies the appearance of the decorated shapes into a work of art. Motif is a basic element of ornament that serves convey the theme or basic idea. Repetition of motives are structurally called patterns (Siyam, 2012). The basic form in ornament making is a circle combined with a square and a circle which is combined with a triangle.

2. Kasab Aceh

Embroidery of gold thread in Aceh or often called "Kasab Aceh" was born in Aceh Besar area. This craft first appeared in the residential area or sub-district of Meuraxa Ulee Lheue from the descendants of a Teuku family. M. Yusuf in Dayah Glumpang Ulee Lheue village. Ancient figures in art or craft embroidered thread of gold or Aceh *kasab* , among others , Siti Hawa's mother and her family who have been hereditary menekuni craft. Siti Hawa's mother's family was able to create original Acehnese motifs and new creations. The form of these motifs is generally a stylization of plants in the form of leaves, petals, flowers, fruit or tendrils. In addition to the motifs of plants there is also combined with geometric motifs (Rida, 2007).

Noerbeti is one of the artisan of gold thread or Aceh *branch* . Before making embroidery he noticed the curling lines drawn on the surface of the red velvet fabric attached to a round spanram. The fingers of his hands wrestled with embroidery threads that had been hand-stitched. Hand needles that have no embroidery threads come in from the fabric pores to form a motif (Rida, 2007).

The widely used embroidery in Aceh today is a synthetic golden thread cotton. In the Indian language this thread is *kasab* . Judging from its use, *kasab* is part of the traditional tools of aceh community that serves as decoration. Although as a decoration, *kasab* actually contains the value / meaning itself so that it does not just contain aesthetic value alone. For example, on a typical sieve mounted on the main wall will be decorated with fan amounted to 17 pieces, the number 17 is the number of prostrations in prayer for a day and night as a manifestation of the philosophy of life aceh people who can not be separated from the teachings of shari'a, " *Indigenous dikandong hayat, syariat dikandong body* ".

Such is Aceh, every cultural activity of society always uphold the value of religiosity . So is the case with carvings on *kasab* filled with flora patterns and motifs. The motifs used are usually chosen from the form of fauna and flora has stylized (composed) in addition to other motives the result of imagination embroider itself. A number of Aceh *Kasab* embroidery motifs , among others, called *gigo daruet* (teeth grasshoppers), *pucok reubong* (shoot bamboo shoot), *oun ranub*(betel leaves), *oun pumpkin* (pumpkin leaves), *manouk* (chicken), *ticem* (bird), *oun yam* (sweet potato leaves), *bungong keupula* (flower cape), *bungong jeumpa* (flower cempaka), *bungong seulanga* (kenanga flower), *puta talo* (turn rope),*bungong meulu* (flower melur), *boh aneu* (pineapple), *meuria sisek* (rumbia fruit scales), *dragon sisek* (scales dragon), *oun naku* (fern leaf), *udeung* (shrimp), *star buleun* (moon stars), *meucanek clouds* (clouds or parallel), *bungong mata uro*(flower sun), and there are also pigeon motifs, geese, and others (Alamsyah, Talsya & Jalil, 1990). The selection of this flora motif itself contains a strong religious meaning that contained the values of the teachings of Islamic Shariah so that there is an understanding that there is a ban to

describe the form of living things such as animals or humans. On the other hand Leigh in his book Hands Of Time: The Crafts Of Aceh explains the richness of the floral motifs found in the artworks in Aceh have meaning in the conceptual framework of Islam that links garden and nature to the paradise garden (Wardani, 2014)

B. Geometric Pattern on Kasab Aceh

In addition to the motifs of plants there are also combined with geometric motifs. Among the various types of kasab motifs , it turns out in the form of geometric motifs. Mentioned by Steadman (Wardani, 2014) that the existence of a form according to order geometry, this means that its geometric elements will determine a form, as well as at the conditions of the meeting its elements. To create an expression a good limitation then on the variation of the arrangement of its elements can be conditioned through its role in the composition.

A design process to make kasab required a creativity to produce a design work such as with geometric motifs. In the kasab motif there is an understanding of geometry typology. But who would have thought behind the beauty and beauty of this kasab motif turned out to have no motive in the form of geometry. Geometric shapes contained on the cloth kasab form of triangle, pentagon, quadrilateral, star, circle and others. (Wardani, 2014).

Embroidery items usually in the form of *robes* (pillow head) with various shapes, among others, in the form of rectangle, triangle, oval, round, betel leaf shape, and so forth. *Tampok pillow* or head pillow is placed on the edge of the pillow bolsters, bed pillowcases, cushions and so on. *Kipah* (fan) is one of the tools to fan, usually used in traditional ceremonies such as marriage, ceremony *peusijuk* or fresh flour and so on which is also an embroidered item. The shape is diverse, there are round, oval, triangle, and so on. At the edge of the cloth is yellow, red, blue, and so on and given the tassels from the yarn. On both sides of the fan are embroidered with a variety of motifs in contrast to the basic fabric.



Figure 2.14: Geometric Motif Kasab Aceh

Research methods

According to Borg & Gall development research is a process used to develop and validate educational products. This study follows a step by step cycle. The research or development process steps consist of a review of the product research findings to be developed, product development based on the findings, conducting field trials in accordance with the setting in which the product will be used, and revising the results of field tests (Putra, 2011). Research and development undertaken is to produce products in the form of mathematics materials that are appropriate to the Acehnese cultural environment on the geometry of the junior flat.

The design of research and development of teaching materials used refers to the design of research and development modification of the R & D development model according to Sugiyono which consists of: (1) potentials and problems, (2) research and data collection for planning, (3) design of preparation of printed materials (4) design validation; test of expert validity, (5) product improvement, (6) product trial, (7) product revision, (8) trial usage, (9) revision of final product, and (10) mass product making (Putra, 2011).

R & D steps undertaken by the researcher, its representation as follows:

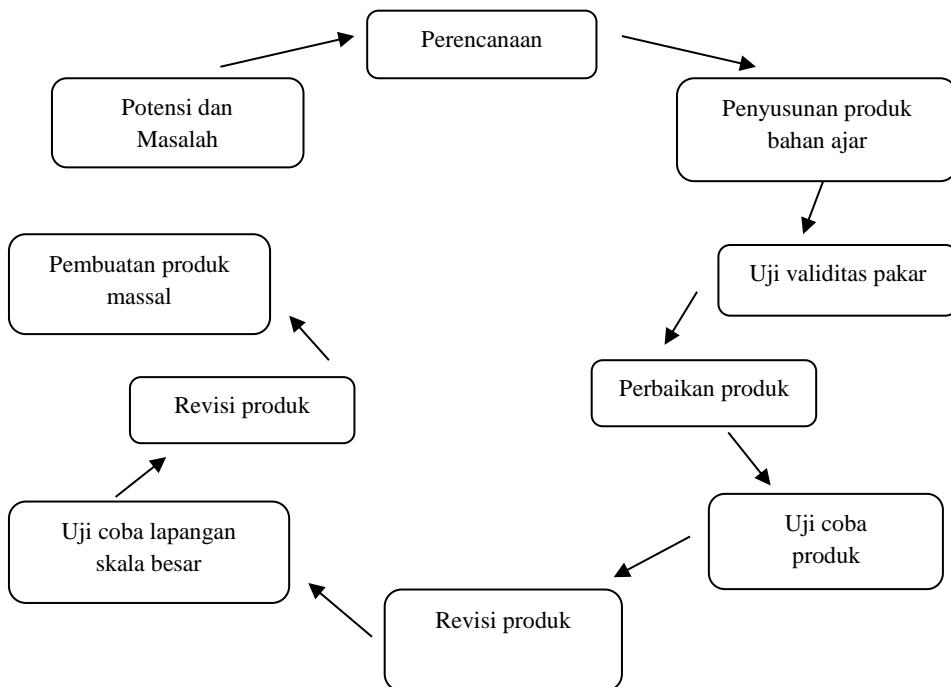


Figure 3.1: The R & D measures used

Research Results and Discussion

3. Validity of development of teaching materials

Validation is done on every point in this aceh kasab teaching material seen in the improvements done in cover and binding, material content framework, introduction, instructional instruction, special learning objectives, description of learning contents, summary, latohan questions and answer key, and source of reading.

4. Praktikalitas development of teaching materials

Furthermore, according to the results of observation of student learning activities are reading teaching materials, writing (relevant), listening to teacher / friend explanations, ask questions / compare, do the exercises on teaching materials, match answers with key answers, or express opinions, defend opinions, conclude, irrelevant behavior, of 9 students observed that all activities always appear well except irrelevant behavior. Students did not bring irrelevant behavior during learning using traditional teaching material based geometry Kasab Aceh.

5. The effectiveness of development of teaching materials

Based on the data of the percentage of student motivation questionnaire is clear that 9 students will have a value of are in the category of enough motivation. Then the test results also showed that from 9 students who use the materials of geometry based on the traditional arts of Aceh Kasab obtained 9 people who get more value ≥ 80 sufficient good value mastery. So the researchers concluded from 9 students who have enough motivation category can give a positive influence on student learning outcomes. Thus, learning by using

geometry teaching materials based on traditional arts of Aceh kasab can be said to be effective in improving students' motivation and learning outcomes.

CONCLUSION

This research is a development research on geometry teaching materials based on traditional arts of Aceh kasab. Result data and discussion of research result can be concluded as follows:

6. Validity of geometry teaching materials

The validity of geometric teaching materials is reviewed from several aspects, namely the content of learning tools / geometry teaching materials and the characteristics of developing geometry teaching materials for grade VII students of SMP Negeri 3 Langsa has been very valid according to the experts.

7. Practicality of teaching materials geometry

Praktikalitas geometry teaching materials in terms of the practicality of the use of geometry teaching materials for students of class VII SMP Negeri 3 Langsa has been practical according to students. This geometry teaching material is easy to use, useful and interesting, the learning process takes place without any constraints or running under normal circumstances.

8. The effectiveness of geometry teaching materials

The use of geometry teaching materials in the learning process is categorized effectively based on students' motivation and learning outcomes. Students' learning outcomes are seen on the results of the quadrilateral triangular and flat matter trials, from the description of student learning outcomes are effective.

Suggestion

1. Development of geometry teaching materials in this study should be used as a guide for teachers , especially for the rectangular and triangular flat building materials in applying the learning of geometry materials by example as the devices that have been produced in this study. However, the device developed in this study can be modified as long as it does not obscure the principles and characteristics of developing geometry teaching materials .
2. The results of this study indicate that learning by using geometry teaching materials developed in this study can improve learning outcomes. Therefore, it can be used as an alternative for teachers and students in learning the matter ofbuilding the rectangle and triangle .
3. Because testing these materials is severely limited to 9 people and the value of learning outcomes is still in terms of the value of 80, should teachers are trying out other parallel classes or for those interested in using and testing thesegeometry materials in institutions of higher education / schools with a variety of conditions so that existing weaknesses can be reduced.
4. Development of geometry teaching materials this does not escape the lack of both in terms of writing, the translation of material and editing the manuscript. Therefore it can be improved for the perfection of developed geometry teaching materials .

Bibliography

1. Alamsyah., Talsya., & Jalil. (1990). Aceh Customary Guidelines. Banda Aceh: Central Aceh Traditional and Cultural Institute.
2. Anas, S. (2001). *Introduction to Educational Evaluation* . Jakarta: Raja Grafindo Persada.
3. Arifuddin. (28-10-2009) (<https://lambitu.wordpress.com/2009/10/28/hubungan-antara-motivasi-with-prestasi-belajar-siswa-pada-mata-pelajaran-geografi-di-class-xi-ips-sma-negeri-2-singaraja/>
4. Arikunto, S. (2006). *Fundamentals of Educational Evaluation*. Jakarta: Earth Literacy.
5. As'ari, A. et al. (2016). Mathematics for SMP / MTS class VII semester 2. Ministry of Education and Culture, revised edition. Jakarta: Kemendikbud.

6. Baehaqi, A. (2009, December). Retrieved 30 March 2017, from <https://baehaqiarif.files.wordpress.com/2009/12/sosiologi.pdf>
7. Hasan, M. Iqbal. (2002). *Principles of Research Methodology Material and Its Application*. Jakarta: Ghilia Indonesia.
8. [Http://ainamulyana.blogspot.com/2015/04/gaya-belajar-siswa.html](http://ainamulyana.blogspot.com/2015/04/gaya-belajar-siswa.html) Student Learning Style, Understanding Tife And Affecting Factors . Posted by education citizenship on Sunday, January 3, 2016
9. Misnawati. (2016). Working Effectiveness of Civil Servants In Marangkayu District Office Kutai Kartanegara Regency. *eJournal Science State Administration*, 2016, 4 (1): 2592 - 2604.
10. Mulia, R., Nurhayati., & Sophiana, A., (February, 2016,.). *Embroidery Application Gold Thread Or Kasab On Women Party Clothing*. Vol 1, No. 2. Retrieved 30 March 2017, from <http://www.jim.unsyiah.ac.id/pkk/article/view/1305>
11. Nugroho, M. (2012). Art Ornament Nusantara As Secondary Skin For Sun Control On Building. *National Symposium RAPI XI UMUS*. ISSN: 1412-9612 A-1.
12. Son, N. (2011). *Research & Development Research and Development: An Introduction*. Jakarta: Raja Grafindo Persada.
13. Rhofy NK, Hobri, Dian. (2015). Ethnomatatic Ethnographic Exploration of the Madurese Tribe In Situbondo . *Student Scientific Articles* , 2015, II (1): 1-4.
14. Rid u wan . 2011. *Variable-variable Measurement Scale Research* . Bandung: Alfabeta.
15. Ridwan. (2004). *Easy Learning For Teachers-Beginners and Researchers* . Bandung: Alfabeta
16. Rosnidar, Noer, F., & Goddess, R. (2016) . *Application of Aceh Motif On Embroidery Craft In Lamnga Village, Montasik District, Aceh Besar District* . Vol 1, No. 2. Retrieved on March 30, 2017, from<http://www.jim.unsyiah.ac.id/pkk/article/view/1374>
17. Selian, R. *HANDICRAFTS OF GOLD YEAR "KASAB ACEH"* (Study on the Style and Function for Acehnese People). Banda Aceh: Syiah Kuala University
18. Siregar, L. (August, 2002). Anthropology and Cultural Concepts. *Journal of Anthropology of Papua* . (ISSN: 1693-2099) Volume 1. No. 1.
19. Sugiyono. (2010). *Quantitative Research Methods, Qualitative and R & D*. Bandung: Alfabeta.
20. Sugiyono. (2010). *Research Methods Administration*. Bandung: Alfabeta.
21. Sugiyono (2011). Qualitative Quantitative Research Methods AND R & D (14th). Bandung: Alfabeta.
22. Sugiyono, (2012). Statistics for Research. Bandung: Alfabeta. Or Sugiyono. (2012). Understanding Qualitative Research. Bandung: ALFABETA.
23. Wardani, S. & Miksalmina, M. *Application of Geometry in Aceh Kasab* . Unsyiah (Has been unfolded in ETNOMATIKA Seminar). 2014. Retrieved on February 10, 2017, from <http://ayiewardani.blogspot.co.id/2014/11/applying-geometry-on-kasab-aceh.html>
24. Tiara., Nurhayati, S., & Shopiana, A. (2016). Tamiang Wedding Traditional Dress Style In Ceremony Perkawinandi Village Garden Land Terban District Karang Baru Aceh Tamiang. *Student Scientific Journal of Family Welfare Education Vol: 1 No: 1*.

