

## Development of Batik Modul Based on Local Culture of North Sumatra, Indonesia

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### ABSTRACT

This study aims to develop teaching materials in the form of local culture-based batik moduls that can be used as the development of Medan batik motives at Ardhina Batik Medan. This study uses the Research and Development (R&D) research method and the research model uses the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The results of the study show that the results of the modul feasibility test according to 6 experts. The results of the data analysis carried out stated that the batik modul based on the local culture of North Sumatra at Ardhina Batik Medan was suitable for use with the "very good" criteria from material experts with an average score of 3 experts, namely 131 or 90.8%, and 3 media experts with a mean score of 141 or 88.5% in the very good category. Thus it can be concluded that the batik modul can be used in learning as well as a means to preserve and develop Medan's typical batik motives. With this modul, students can get to know batik and the process of batik as well as modify the typical motives of several regions into one combination motif (stylization).

## INTRODUCTION

Indonesia is a country that is very diverse in culture. Diverse cultures make Indonesia a beautiful country (Lestari et al., 2021). One of Indonesian culture that has been worldwide is Batik. Batik art has long been known as Indonesia's original heritage. Batik in Indonesia has existed since the days of the Majapahit kingdom, and has been approved by UNESCO that batik is an original culture from Indonesia. Indonesian batik has become increasingly popular as a trend since Unesco established batik as a Humanitarian Heritage for Oral and Non-material Culture (masterpieces of the Oral and Intangible Heritage of Humanity) from Indonesia in 2009, and the establishment of Yogyakarta as a World Batik City by the World Craft Council (WCC) during the 50<sup>th</sup> anniversary celebration in Zhejiang, China, October 2014 (Asiatun, 2020). With this recognition, batik culture must always be preserved and developed from generation to generation to the next generation.

According to Iskandar (2020) the most likely perspective (media) to be used as an integrating force for the Indonesian nation is batik. Batik is a product of Indonesian culture and culture. One way to preserve batik culture is through education. According to Nasution (2022) The development of North Sumatran batik is an interesting thing to note, because this industry has the potential to promote local culture and become an alternative choice in the midst of batik trends that are now rapidly and advancing for fashion trends.

This batik owned by the province of North Sumatra has motives taken from the diversity of tribes in North Sumatra. North Sumatran batik is a creation in the form of

motives based on ethnic groups in North Sumatra (Astuti, 2019). The batik motives are adapted to the Batak ethnicities in North Sumatra, namely Mandailing Batak, Toba Batak (North Tapanuli), Middle Tapanuli Batak, Karo Batak, Simalungun Batak and Pakpak Dairi Batak. (Lusiana, 2022). North Sumatra batik motives mostly apply traditional North Sumatran decorative motives (Limpong, 2019). This is what makes batik even more unique because it gives rise to new types of motives to make it easier to introduce local origins.

Ardhina Batik is one of the industries that developed Medan Batik in North Sumatra. Ardhina Batik in collaboration with universities accepts field work students to focus on studying batik and developing Medan batik motives. Initially, Ardhina batik Medan only focused on regional ornamental motives. Currently experiencing changes that can be seen from the development of motives that used to still use Gorga motif and now we have started to choose the motif according to demand consumer. Then the color where the color used was red, black, and white and now the colors used now have been added to yellow, and green and functions that used to be only official or on the mood formal now batik is used for fashion and accessories Motives change because motives are more popular with consumers, namely motives which tends to be simple without patterns superfluous, unobtrusive beauty of clothes (Delila, 2017).

The development of this batik motif must continue to be developed while still applying regional ornaments so that cultural sustainability is maintained. The introduction of typical Medan batik motives should be introduced early in learning batik, especially in Ardhina Batik Medan. Students are expected to be able to develop Medan batik motives by not eliminating the cultural values contained in every ornament on batik. but in fact students still have difficulty in developing batik motives. The difficulty felt by students in learning batik at Ardhina Batik Medan is that there is no learning media that helps students recognize Medan batik motives, especially the development of motives in North Sumatra. One of the learning media is a modul, which is used by teachers in delivering learning materials that must contain local wisdom. The local wisdom of the community is packaged in a learning media modul to be able to convey logistical messages and relate to the material studied at school (Wahyuningtyas, 2020). The learning modul for developing Medan batik motives is very much needed by field work students at Ardhina Batik Medan.

According to Subayani (2018) a modul is a form of teaching material that is packaged in a complete and systematic way, it contains a series of planned learning experiences and is designed to help students master specific learning objectives. With the modul, students can prepare themselves before the learning process and repeating or self-study using the lecture modul. The selection of the modul as a medium because the modul consists of materials and exercises in the form of evaluation questions that are very useful for students (Kusumawati et al., 2021). The modul is one of the teaching materials that can help students and teachers in the learning process, because with the modul students can teach themselves and exercise their own control over the intensity of their learning (Ekayana, et al. 2019).

Yuniarti et al. (2021) conclude that local culture-based moduls can be used in the learning system. Local wisdom-based moduls also received a very good response by students and were able to improve student learning outcomes (Sukaenah et al., 2019). This is also reinforced by the results of Magh'firoh's research (2019), which shows that with the existence of a batik motif design textbook based on the local Trenggalek culture, students are able to understand material about batik and local Trenggalek

culture and are able to be more creative in making batik motif designs. From the results of the research above, it can be concluded that the development of local culture-based moduls can be used in learning. In this study, the modul focuses on local culture, exploring the ethnic groups in North Sumatra. The motives that exist in each of the cultural ornaments of North Sumatra are the basis for the development of batik motives (stylization) typical of Medan.

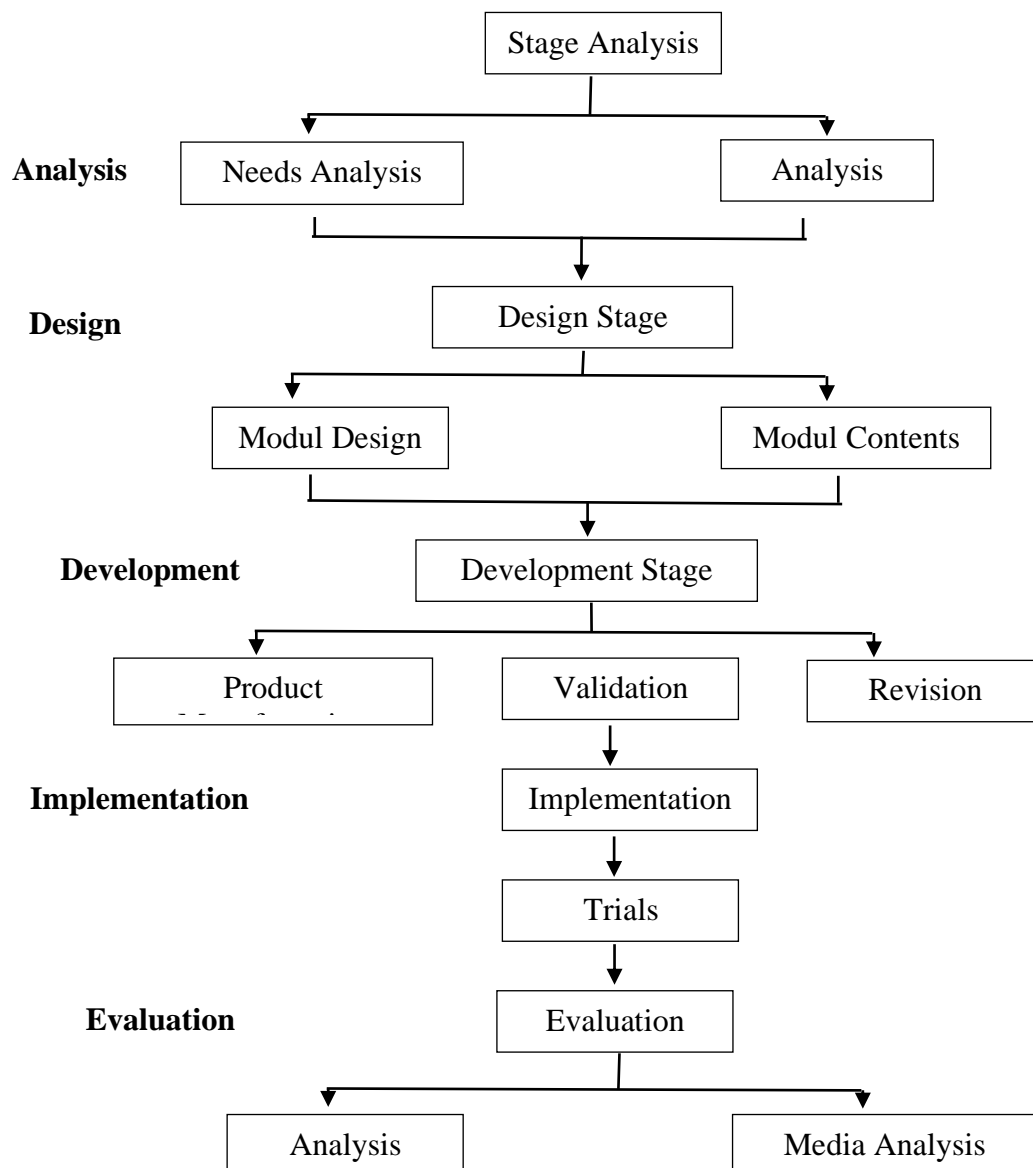
According to Ferawaty (2022) the moduls are arranged based on the abilities and characteristics of students. Therefore, lesson plans and assessments can be adjusted according to students' abilities. The preparation of moduls based on students' abilities in each educational unit makes students interested in learning, reasoning critically and independently. In this study, the development of the modul takes into account the required characteristics, namely: Self instructional, self contained, stand alone, adaptive and user friendly. The moduls are arranged systematically, equipped with learning objectives, concept maps, instructions for use, materials, student activity sheets, student worksheets, student worksheet keys and evaluation sheets. On the student activity sheet, showing activities that are different from usual but using equipment and materials that are easily obtained by students in everyday life. However, the student activity sheet does not always have to be in the form of an experiment, it can be in the form of observation or deepening of concepts through exposure to various images. All of that can be interesting and give students the freedom to be creative and take their own initiative. Likewise, the presentation of student worksheets is a chain of inquiry questions, namely towards the discovery of a complete concept from the concept that is the title of the modul. In addition, the modul is designed as attractive as possible with language that is easily understood by students. The language used is semi-formal and semi-spoken, not very formal textbook language.

The use of local culture-based batik moduls in North Sumatra is very much needed by students in an effort to introduce, develop and preserve Medan batik. Therefore, this study aims to develop teaching materials in the form of moduls that can be used as the basis for developing Medan batik motives at Ardhina Batik Medan.

## RESEARCH METHOD

This research is a Research and Development (R&D) research using the ADDIE development method. One of the teaching materials development designs that is often used is the ADDIE Model through five stages, namely Analysis, Design, Development, Implementation and Evaluation. The development process requires several times of testing by a team of experts, individual research subjects, on a limited scale and on a wide scale (in the field) and revisions in order to improve the final product so that even though the development procedure is shortened, it includes a testing and revision process so that the product developed meets the criteria. product. good, empirically tested and no more mistakes (Cahyadi, 2019).

Development research was conducted at Ardhina Batik Medan. The location is on Jalan Musyawarah Gang Bersama 2, Medan. The research subjects were the participants of the Field Work Practice at Ardhina Batik Medan. The resulting product is a learning media in the form of a Medan batik modul that has passed the validation stage by material experts and media experts. material experts examine aspects of material presentation and learning aspects. media experts examine aspects of media presentation (Kustandi & Darmawan, 2020). The modul can help craftsmen in providing learning media in explaining Medan batik for trainees as in Figure 1.



**Figure 1.** Research flowchart (Kustandi & Darmawan, 2020)

1. Analysis Phase (Analyze)

At this stage, an analysis of the need to develop teaching materials in the form of modules is carried out and analyzes the feasibility. At this stage, two stages are carried out, namely needs analysis and material analysis. A needs analysis is carried out to determine whether the batik modul to be developed is needed as an independent teaching material. Material analysis is carried out to determine indicators of learning achievement.

2. Stage of Design (Design)

At the design stage, it is the stage of drafting and organizing learning materials from a competency or sub-competency into a systematic whole. Writing a draft modul can be done with the following steps:

- Set modul title.
- Determination of the final goal after studying one modul.
- Determine intermediate goals to support the final goal.
- Make an Outline of the Contents of the Modul or outline the modul.

- e. Clarify the material that has been made on the outlines.
- f. Perform control draft that has been prepared.
3. Development Stage
 

At the development stage, it contains the product design realization activities. The activities at the development stage include:

  - a. Product manufacture is the stage of product realization. Modul development at this stage is carried out after making a draft modul.
  - b. Product validation is the process of assessing the feasibility of the modul product carried out by 3 material expert validators and 3 media expert validators.
  - c. Revision of product activities carried out based on the results of the assessment and validation that has been carried out and further criticism and suggestions given will be used as a reference for product improvement.
4. Implementation Phase
 

Product development that has been validated by material experts and media experts is then tested on craftsmen and on Field Work Practice participants. At this stage, limited trials were conducted on five students and further trials were conducted on 34 people consisting of 14 craftsmen and 20 students.
5. Evaluation Stage
 

At this stage the activities carried out are evaluating the products that have been implemented and analyzing instrument data that has been validated by material experts and media experts and has been tested on students.

The data collection technique used in this development research is to use primary data sources and secondary data sources. Primary data sources were obtained from the results of expert validation and observations to Medan batik craftsmen. Secondary data sources are data sources obtained from books and batik research results. As for obtaining valid data, in this study using data collection techniques in the form of observations and questionnaires. Questionnaire is a measuring tool or instrument used to collect data in research. The questionnaire used was made based on the Likert Scale Assessment Criteria on the Table 1.

**Table 1.** Likert skala scale assessment criteria.

Alternative Answer	Score
Very Good	5
Good	4
Pretty good	3
Not good	2
Fail	1

Source: Sugiyono (2019)

After the data is obtained, analysis of the data used in this development research using quantitative descriptive analysis. Quantitative data in the form of statements of Very Good, Good, Fairly Good, Less Good, and Failed were changed to an assessment score of 1 to 5. The results of data collection by respondents were then averaged and used to determine the quality and feasibility of the Medan batik modul using the formula according to Sugiyono (2019).

$$x = \frac{\text{total score obtained}}{\text{the total number of ideal scores of all items}} \times 100\%$$

Based on these calculations, the percentage range and the eligibility test criteria can be applied in Table 2.

**Table 2.** Value intervals.

No	Interval Class	Category	Scor
1	85%-100%	Very good	5
2	69%-84%	Well	4
3	53%-68%	Pretty good	3
4	37%-52%	Not good	2

Source: Sugiyono (2017)

## RESULTS AND DISCUSSION

Based on the observations made, it is known that the typical Medan batik must be maintained, preserved and developed. In this case, students can develop and develop typical Medan batik practices. In this study, five stages were carried out, namely analysis, design, development, implementation, and evaluation stages.

The results of the analysis through filling out questionnaires by Medan batik craftsmen and Field Work Internship participants with the results of questionnaire craftsmen being 94.0% with a very good category saying that the teaching material modul has never been used in development. of Medan typical batik motives with a source of inspiration for ornaments seven ethnics North Sumatra. Moduls as independent teaching materials for participants to learn batik and conservation efforts are very important. While the results of the questionnaire analysis to the Field Work Practice participants with a percentage of 83.4% with a good category stated that the typical Medan batik motif must continue to be developed and preserved. The batik modul can be one of the interesting learning resources for Field Work Practice Participants in developing batik motives typical of certain competencies.

After the needs analysis stage, the next is the design stage. The design stage is the stage of compiling and organizing teaching materials from a competency or sub-competency into a systematic whole. The batik modul which was developed for the participants of the Field Work Practice at Ardhina Batik Medan was then made by analyzing the material first. In the needs analysis stage, which is carried out together with the owners and craftsmen of typical Medan batik, it is used to determine indicators of learning achievement. From the results of the material analysis carried out with Mr. Edi as the owner of Ardhina Batik Medan, the curriculum used as a reference for making moduls is guided by the Indonesian National Work Competency Standards (INWCS) with the competency unit "Drawing Batik Motives" which was later developed into an Outline of Modul Contents to facilitate modul drafting process. The next stage is the design stage, which is carried out after determining the curriculum and compiling content indicators in the modul. The design of the batik modul produces a draft modul that will be used at the validation or assessment stage. This batik modul is compiled using Microsoft word and Adobe Illustrator applications with A4 paper size and contains 47 pages. The cover contains illustrations of Medan's batik ornaments and bamboo shoots by combining red, black, and yellow turmeric in bold print. The fonts and sizes used by Cavolini, Calibri, and Arial Nova are 12, 14, and 16.

In its development, product validation is carried out to assess the modul. Product validity was carried out by 3 material expert validators and 3 media expert validators. the results of the validity carried out by material experts and media experts are in the very good category with the percentage of material experts (90.8%) and media experts (88.5%), so this modul is suitable for use as a learning medium. At the implementation stage, limited trials were conducted on 5 students and further tests were conducted on 34 people consisting of 14 craftsmen and 20 students. the results of the limited trial in the form of an assessment score on the batik modul which stated that the modul was suitable for use in learning, which was 73 with a percentage of 76.0% with a maximum score of 96. The average result of the overall score is 78.5 with a percentage of 82.0% included in the very feasible category.

The next stage is evaluation. At this stage the activities carried out are products that have been validated by material experts and media experts as well as revising the media based on the responses of students and batik craftsmen as users of the batik modul. The following are the results of the batik modul which has been validated by material experts and media experts as well as the revised results of limited trials and advanced trials conducted by students and batik craftsmen likely in Figure 2.



Figure 2. Modul cover

On the cover of the modul, a color that is used very often and attracts many batik customers is chosen. In addition, there are various typical Medan ornaments that will be made into batik so that the contents of the batik modul are depicted on the cover in Figure 3.





Figure 3. Design goals and concept map

This modul is equipped with learning objectives and concept maps so that book users understand the ultimate goal of each lesson. Also, the design of the chapter page are likely in Figure 4.



Figure 4. Chapter page design

Figure 4 is an image of the design in each chapter or learning material. The design in each chapter begins with a question sentence, so that students are trained to think before understanding the content of the material. The design in the chapter is



equipped with images that match the content of the material to be discussed in Figure 5.



Figure 5. Modul content design

The picture above is an image of the modul content design. In the content of the modul, it introduces various kinds of ornaments in North Sumatra equipped with pictures and philosophy on each ornament to make it easier for students to develop batik with ornaments in North Sumatra by not eliminating the philosophy contained in each North Sumatran ornament.



Figure 6. The modul section on the creation of motives

The picture in Figure 6 is a the development of the Medan batik motive. some examples of stylized motives from ornaments typical of North Sumatra into a new batik motif with the characteristics of Medan ornaments. The modul book contains general learning objectives, a learning concept map, contains the initial characteristics of students, instructions for use, specific objectives, material explanations, test objectives and evaluations, and a bibliography (Purwaning et al., 2019). The design of

this Medan batik modul book aims as a learning medium for Prakek Job participants and as an effort to develop and develop Medan batik motives for the younger generation of cultural successors. The presentation of the material is complemented by sample images, and attractive illustrations and contains good modul component content.

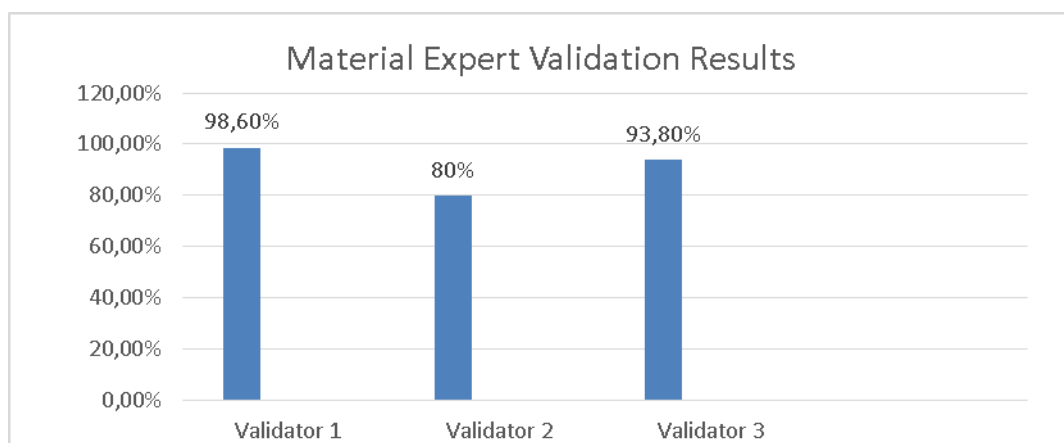
The product development stage is carried out in three stages, namely product manufacture, feasibility validation and revision. The moduls that have been compiled are then validated by material experts and media experts. The material expert validator provides an assessment of the material aspects of the batik modul content that has been developed and the media expert validator provides an assessment of the layout design aspect of the batik modul. Validation by material experts and media experts was carried out through two validation processes with the results of the first validation obtained several suggestions in improving the modul (Rayanto & Sugianti, 2020).

The results of the validity test were carried out by three material experts with categories suitable for use in learning to get a score of 143 with a percentage of 98.6% for material 1<sup>st</sup> experts. Material 2<sup>nd</sup> expert obtained a score of 116 with a percentage of 80% and material expert 3 obtained a score of 136 with a percentage of 93.8%. The results of material experts can be seen in the Table 3.

**Table 3.** Material expert validation results.

Information	Material Expert I	Material Expert II	Material Expert III
Total score	143	116	136
Presentation	98.6%	80.0%	93.8%
Category	Very good	Well	Very good

Table 3 are the results of the material expert's trial on the local culture-based batik modul in North Sumatra are categorized as suitable to be used as learning resources for learning participants, although revisions are needed according to material expert suggestions. The following are the overall validation results in the Figure 7.



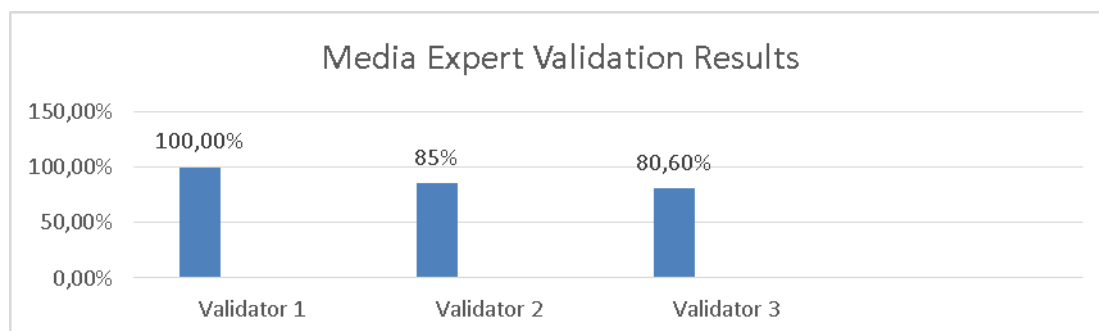
**Figure 7.** Material expert assessment diagram

Based on the criteria of Medan batik in terms of media experts, the average proportion of 3 media experts with a category of 88.5% is very good. as for the assessment of media 1<sup>st</sup> experts obtained a score of 160 with a percentage of 100.0%. Media 2<sup>nd</sup> expert got a score of 136 with a percentage of 85.0%, and media expert 3 got a score of 129 with a percentage of 80.6%.

**Table 4.** Media expert validation results.

Information	Media Expert I	Media Expert II	Media Expert III
Total score	160	136	129
Presentation	100.0%	85.0%	80.6%
Category	Very good	Very good	Well

From the Table 4, it can be interpreted that according to media experts, the batik modul based on the local culture of North Sumatra is categorized as suitable to be used as a learning resource for learning participants. The following are the overall validation results in the Figure 8.

**Figure 8.** Media expert assessment diagram

Thus, the batik modul that has been prepared very well and is suitable for use by the participants of the Field Work Practice (FWP) and can be used as an effort to preserve the typical Medan batik especially for the development of its motives. This is supported by research by Fauzia & Ratyaningrum (2021) which states that the modul book is interesting to learn, easy to understand, and can provide guidance for developing batik motif designs.

At the implementation stage, the product is tested on craftsmen and on Field Work Practice participants. At this stage a limited trial was conducted on 5 students and further testing was carried out on 34 people consisting of 14 craftsmen and 20 students. The results of a limited trial in the form of an assessment score on the development of the batik modul. The results of the limited trial can be seen in the Table 5.

**Table 5.** Limited trial data.

No	Aspect	Average score of each aspect	percentage
1	Material Presentation	26.2	73.0%
2	Language	8.4	70.0%
3	Graphic	17.8	74.0%
4	Benefit	19.2	80.0%
	Total Response	73.0	76.0%

Table 5 describes the data on the overall results of the batik modul assessment through a limited trial student response questionnaire. The total average score of the data on the results of student assessment responses to the batik modul is 73 with a percentage of 76.0% consisting of 24 items with a maximum score of 96. The overall average result can be seen that the score of 73 is included in the category suitable for

use in learning and needs to be tested further after the modul is revised. Follow-up trials in the field to get the results of student responses regarding the feasibility of the batik modul. further trials were carried out by 34 people consisting of 14 craftsmen and 20 students.

**Table 6.** Advanced test result data.

No	Aspect	Average score of each aspect	Percentage
1	Material Presentation	29.8	83.0%
2	Language	9.3	78.0%
3	Graphic	19.0	79.0%
4	Benefit	20.4	85.0%
	Total Response	78.5	82.0%

The table 6 describes the data on the overall results of the batik modul assessment through student response questionnaires. The total average score of student assessment response data on the batik modul is 78.5 with a percentage of 82.0% consisting of 24 items with a maximum score of 96. The results of student assessment of the developed batik modul are included in the category very suitable for use in learning. From the results of the research data above, it can be concluded that the development of a local culture-based batik modul is feasible to use in learning, especially it can be used in the development of Medan batik motives in Ardhina Batik.

The results of this study are in line with the results of Masrusoh's research (2018) which shows that the Ternggalek batik modul is appropriate to be used as a teaching material to support history learning to improve the understanding of local history for students of class X Social 2 at Dongko 1<sup>st</sup> High School. Based on the results of material expert validation, it is known that the feasibility level of the modul is 91.07% and 75.0% while the media validation is 100%. The level of feasibility obtained shows that according to media experts and material experts the modul is feasible to be used as teaching material with a valid category. The results of the small group trial show that the feasibility of the modul is 77.0%. While the results of the field trial are known to be 80.0%. The results of the pre test showed an average of 41.5% and the results of the post test showed an average of 75.0%. These results indicate that the modul is ready to be used and is effective in increasing the understanding of local history for the tenth graders of Dongko 1<sup>st</sup> High School. The modul is equipped with instructions for using the modul, supporting pictures and materials presented based on local history, namely Batik Trenggalek so that readers can easily understand the material.

The above opinion is strengthened by the results of Nurdin's research (2019) which shows that the results of the development of the dyed batik learning modul that has been developed have met the valid, practical and effective criteria, so that they are suitable for use in learning to make craft art with local techniques and patterns, in particular. dyed batik learning in class VII 4<sup>th</sup> State Junior High School Sungguminasa, Gowa Regency.

Similar research results also prove that the media modul is effective and can increase children's enthusiasm in learning batik, especially exploring batik motives (Irwansyah, 2021). This opinion is strengthened by Fauzia (2021). It can be concluded that the modul book helps to train creativity and is very useful for students in developing motif designs in batik extracurricular at 2<sup>nd</sup> Jombang elementary school. Thus, the

development of the batik modul is very helpful for students to improve learning outcomes.

## CONCLUSION

This research is limited to the development of local culture-based batik moduls in North Sumatra. In this study, the initial product in the form of a modul was carried out at the trial stage by media experts and material experts and carried out limited trials and follow-up trials. Based on the results of the discussion that has been described previously, it can be said that; with analysis by 3 material experts and 3 media experts with the results of the analysis in the very good category with the percentage of material experts and media experts. In the limited trial, it was categorized as feasible and in the follow-up trial the category was very feasible to be used as a learning media. With this batik modul, students can get to know batik and how to make batik from the beginning to become a batik sheet product by modifying regional motives into a new motif or stylization without losing the value of the meaning contained in each batik ornament.

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