

## Development of E-module on Static Fluid Material Containing Local Wisdom of the East Coast of North Sumatra Using Flip Pdf Professional

Rodearna Siregar\*, Mukti Hamjah Harahap, Irfandi

Jurusan Fisika, FMIPA, Universitas Negeri Medan, Medan, Indonesia.

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### ABSTRACT

*Physics learning is trapped in a routine where learning activities only provide formulas, example questions and exercises, the teaching materials used by teachers are less contextual, still in the form of school textbooks, causing students' ignorance about the use of physics in everyday life so that the knowledge they have students tend to memorize. This research aims to develop a physics e-module based on local wisdom with the help of a professional PDF flip that is valid, practical and effective for use as teaching material, contextual in nature to increase students' understanding of concepts. This type of research is research and development (Research and Development) with the ADDIE development model including the stages of analysis, design, development, implementation and evaluation. The instruments of this research are validation sheets, questionnaires and learning tests. Data was analyzed using Excel. The research results show that the e-module developed is valid with a material expert validation percentage of 90.62%, media expert validation of 87%. The results of the practicality test by the teacher obtained a percentage of 96%, and the percentage of small group student questionnaire responses was 86.43%, the large group was 82.95% in the very practical category. The results of the effectiveness test based on the pretest-posttest learning outcomes obtained an average N-gain in the small group, namely 0.87 and in the large group, namely 0.92 in the high category, so that the physics e-module based on local wisdom is effectively used as physics teaching material because able to improve understanding of concepts.*



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#### \*Correspondence:

Rodearna Siregar, Jurusan Fisika Fisika, FMIPA, Universitas Negeri Medan, Medan, Indonesia.

✉ email : [rodearna10@gmail.com](mailto:rodearna10@gmail.com)

## INTRODUCTION

The learning that is expected to occur in educational institutions is ideal learning. Learning is expected to be able to accommodate students to think creatively and actively (Purnama, 2020). The achievement of learning objectives effectively, takes place in pleasant and meaningful conditions and can be fully understood by students and can be applied in

everyday life (Andrian, 2017). Ideal conditions in learning are characterized by positive changes in the cognitive, affective, and psychomotor aspects of students as a result of the learning process that has been received (Yusuf, 2018). To achieve learning objectives, there needs to be a cultural approach and one that is closer to students' daily lives and of course through maximum utilization of technology (Chiu, 2020). In reality, physics learning activities that occur in schools are trapped in routines, namely providing formulas, example questions, and exercises. As a result, students do not know the usefulness of physics in everyday life and students quickly get bored in learning physics (Quddus, 2022). Based on the results of observations at SMA Negeri 14 Medan, it was found that students' knowledge tends to be rote, when students are given problems that are different from those taught by the teacher, students cannot provide solutions. Meanwhile, physics itself requires an understanding of abstract ideas, it is not enough to just read and memorize to be able to solve problems (Widayanti et al., 2022). Another problem was found that teachers were dominant with conventional learning, namely lecture and assignment methods. Although various learning methods have begun to be developed, many do not fully reflect contextual conditions in the field. In addition, another problem is the use of textbooks that are informative, less interesting and less contextual (Safitri et al., 2018).

The above problems make physics learning less meaningful. Physics learning can be more meaningful if the material is connected to daily activities, especially in the student's environment. This can be achieved by linking physics material to local wisdom (Albab, 2014). By using local wisdom, physics learning is expected to encourage students to be more motivated and challenged to study various physical phenomena and events. Thus, physics learning is not only providing material and questions, but also applications in real life, especially through local wisdom around the student's residence (Bakhtiar, 2016).

Local wisdom is the noble identity of the nation. Physics should participate in introducing and teaching the local wisdom to students (Iqbal et al., 2024). Presenting physics learning by integrating information technology with ethnic contexts can help students to better understand physics concepts. Students will be more enthusiastic in learning because students see directly the connection between physics concepts and their lives. In addition, learning physics with local wisdom encourages students to be skilled in applying the physics concepts they have learned in everyday life (Wulansari & Admoko, 2021). This is in line with the independent learning curriculum where one of the learning activities of the Merdeka curriculum is co-curricular learning in the form of a project to strengthen the Pancasila student profile. The Pancasila learner profile elements consist of faith and fear of God Almighty and have noble character, global diversity, mutual cooperation, independence, critical and creative reasoning. These character elements are expected to become a culture in students (Karmelita, 2023). The values of Pancasila as a guideline for strengthening the Pancasila learner profile can be implemented in local wisdom-based learning (Pratama, 2023).

Efforts to incorporate local wisdom in physics learning are realized through teaching materials in the form of e-modules with professional flip pdf. It should be realized that technology in science is developing rapidly so that all humans need skills to master technology. communication and connect knowledge with the real world (Dewi et al., 2021). Likewise, educators must be able to adapt by integrating information technology into the learning process and teaching materials so that the teaching materials used are not limited to the textbooks provided by the school. However, the existence of technology should not disrupt the existence of teachers in educating and teaching students (Habib et al., 2020).

Teaching materials with local wisdom are very effective for improving students' science process skills and are quite interesting and unique (Safitri et al., 2018). Another study by Khairunnisa et al. (2023) also showed that physics e-modules based on local wisdom are valid, practical and have a potential effect on student learning outcomes. Research conducted by

Makhmudah *et al.* (2019) which shows that local wisdom-based modules on circular motion material are feasible to use in learning because they increase concept understanding and improve student learning outcomes, but the modules developed in this study are still printed modules.

The advantages of the E-module developed with the help of Flip Pdf Professional are that it allows the E-module display to be flipped and in it is accompanied by images and videos of the local wisdom of the eastern coast of North Sumatra and those around it and is equipped with animations, illustrations, sample questions related to local wisdom, local wisdom info, summaries, and formative tests so that students can more easily understand. This e-module allows easy learning for students because it can be accessed easily anywhere and anytime. In addition, this E-module is expected to encourage the creation of a Pancasila learner profile in students, through these local wisdom values students can better recognize, appreciate and preserve the culture or local wisdom of their local area. Teaching materials that integrate local culture make students feel closer to the material being taught. This approach makes learning more realistic and in line with students' lives (Irfandi *et al.*, 2023). Therefore, the purpose of this research is limited to the development of local wisdom-based e-modules with the help of Flip PDF Professional to improve concept understanding in students.

## METHODS

The research method used in this study is research and development (R&D). This research is a series of processes or steps to develop a new product or improve existing products (Trianto, 2011). This research was conducted at SMA Negeri 14 Medan in the even semester of T.P 2023/2024. The subjects used in this study were students of class XI MIPA. The procedure in developing this teaching material refers to the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model which has been adjusted and modified.

The stages of ADDIE development research consist of five main phases. The first phase is the Analysis Stage, which involves conducting a needs analysis, curriculum analysis, and analysis of learner characteristics to identify key problems and requirements. Next is the Design Stage, where a conceptual product design is created as an alternative solution to address the identified issues. At this point, the design remains conceptual and serves as a blueprint for further development. The third phase is the Development Stage, where the conceptual design is transformed into a draft e-module. During this phase, instruments are also developed to measure the validity, effectiveness, and practicality of the e-module. The fourth phase, the Implementation Stage, involves testing the validated e-module in schools. Its effectiveness is evaluated using N-gain scores derived from pretest and posttest results, while its practicality is assessed through teacher and student response questionnaires. Finally, in the Evaluation Stage, the product is reviewed and revised based on feedback obtained during the trials. This iterative process ensures that the final product is high-quality and ready for practical use.

The instruments used consist of material expert validation instruments, questionnaires, and learning tests. Data collection techniques were carried out with questionnaires, interviews, observations and tests. The score data obtained is analyzed using excel. By using the Likert scale type, quantitative data will be analyzed and then will be converted to qualitative data. The assessment criteria for research instruments can be seen in Table 1.

**Table 1.** Expert Validation Scoring Provision

Category	Score
Very Good	5
Good	4
Fair	3
Less	2
Very Poor	1

(Syofian et al., 2015)

The score distribution data is then presented in percentage form using the formula:

$$\text{Percentage} = \frac{\text{Total score obtained}}{\text{Maximum score}} \times 100\%$$

The percentage value obtained is identified with the assessment provisions which can be seen in Table 2.

**Table 2.** Assessment of Validity

Percentage of Assessment	Category
75 - 100%	Very Valid
50 - 75%	Valid
26 - 50%	Moderately Valid
< 26%	Not Valid

(Syofian et al., 2015)

Furthermore, to measure whether the developed product is practical or not, researchers use a teacher assessment questionnaire and a student response questionnaire. The provisions for assessing research instruments can be seen in Table 3 and Table 4.

**Table 3.** Practicality Scoring Provisions

Category	Score
Very Good	5
Good	4
Fair	3
Less	2
Very Poor	1

(Syofian et al., 2015)

**Table 4.** Student Response Provisions

Category	Score
Strongly Agree	4
Agree	3
Disagree	2
Disagree	1

(Syofian et al., 2015)

The score distribution data is then presented in percentage form using the formula:

$$\text{Percentage} = \frac{\text{Total score obtained}}{\text{Maximum score}} \times 100\%$$

The percentage value obtained is identified with the assessment provisions which can be seen in Table 5.

**Table 5.** Assessment of Practicality

Percentage of Assessment	Category
81- 100%	Very Practical
61- 80%	Practical
41 - 60%	Practical Enough
21 - 40%	Less Practical
<20%	Not Practical

(Syofian et al., 2015)

The normalized gain test (N-Gain) is used to determine the effectiveness of the product by looking at the improvement of student learning outcomes through pretest and posttest scores. N-Gain is a comparison of the actual gain score with the maximum gain score. The actual gain score is the gain score obtained while the maximum gain score is the highest gain score. The calculation of the N-Gain score can be expressed by the following formula:

$$N - Gain = \frac{S_{post} - S_{pre}}{S_{maks} - S_{pre}}$$

Furthermore, the normality gain value obtained is then interpreted to see its effectiveness, which can be seen in Table 6.

**Table 6.** Assessment of Effectiveness

Nilai N-Gain	Category
$g > 0.7$	High
$0,3 \leq g \leq 0.7$	Medium
$g < 0.3$	Low

(Sesmiyanti et al., 2019)

## RESULTS AND DISCUSSION

### Results

The results obtained from this research and development are E-module products containing local wisdom on the east coast of North Sumatra static fluid material developed with Flip Pdf Professional. The results of each stage of development are as follows:

#### *Analysis Stage*

At the stage of analysing the needs of teaching materials, based on interviews with teachers, it was obtained that teachers only use printed physics books (textbooks or textbooks). In addition, the learning materials in printed books are not contextual and only contain examples of questions and questions, do not have applications and uses in everyday life. Based on the analysis of curriculum needs, it shows that schools are still implementing it in grades XI and XII. However, for learning devices, teachers are starting to adjust to the Merdeka curriculum. Analysis of student characteristics shows that the knowledge possessed by students is mostly rote, students memorize material and even example questions. As a result, when students are faced with problems that are different from the material taught by the teacher, they cannot solve them.

#### *Design Stage*

This stage produces an e-module design draft, an arrangement of materials to be presented on the e-module, and instruments to determine how feasible, effective, and practical the developed e-module is.



Figure 1. E-module Containing Local Wisdom of the East Coast

The design prominently highlights the theme of local wisdom from the coastal areas of Eastern Sumatra, Indonesia. The cover features pictures of traditional activities, such as fishermen navigating boats and other coastal scenery, symbolizing the integration of local culture into the learning material. The e-module was developed aligns with the curriculum for Grade XI physics.

#### *Development Stage*

The draft e-module is the result of this development stage. After the e-module is developed, validity is carried out by validators, expert validity, and material validity. All of this is done to ensure that the material used in the e-module is valid. Validators examine the material to obtain assessments, comments, and suggestions to improve the quality and feasibility of the e-module of static fluid material. The results of the validation by material experts can be seen in Table 7.

**Table 7.** Validity Test Results by Material Experts

<b>Aspect</b>	<b>Average Percentage</b>	<b>Category</b>
Content Eligibility	91.76%	Very valid
Presentation Feasibility	88.00%	Very valid
Language Feasibility	87.50%	Very valid
Contextual Assessment	100.00%	Very valid
<b>Average</b>	<b>90,62%</b>	<b>Very valid</b>

The validation results of the local wisdom-based e-module material obtained a score with a content feasibility percentage of 91.76%, indicating that the material presented was considered very good and the depth was sufficient to help students understand the concept and integration of local wisdom in relevant material. The presentation feasibility percentage of 88%, indicating that the learning presentation technique was very good. The language feasibility percentage of 87.50%, indicating that the language used was easy for students to understand with correct grammar. The contextual assessment percentage of 100%, indicating that the material in the e-module was relevant to the local context, culture, and environment of students. The contextual aspect is important in assessing the validity of this teaching material because this contextual assessment includes the relevance of the material to the local context, culture, and environment of students which will help students understand the material and also recognize and appreciate their own local wisdom.

In addition, the validators analysed the media that compiled the e-modules to obtain assessments, comments, and suggestions as improvements to improve the quality and feasibility of the product. The results of media expert validation can be seen in Table 8.

**Table 8.** Validity Test Results by Media Experts

Aspect	Average Percentage	Category
E-module Size	100.00%	Very valid
E-module Design	85.66%	Very valid
<b>Average</b>	87.00%	Very valid

Media validation consists of only one aspect, namely graphics with the e-module size indicator obtaining a percentage score of 100%, indicating that the e-module size is fully in accordance with the required size standards. The e-module design obtained a percentage score of 85.56%, indicating that the design that composes the e-module is very good. The results of media validation that have been carried out obtained an average percentage score of 87%. Categorized as very valid with revisions.

#### *Implementation Stage*

At this stage, practicality and effectiveness tests are carried out. The practicality of the e-module is seen based on the practicality questionnaire by the teacher and the response questionnaire. The effectiveness of the e-module is determined through the value of student learning outcomes after working on the pretest and posttest questions. The trial was conducted on a small group of 10 students selected randomly while the large group trial was conducted on 20 students of class XI MIPA 5. Before using the e-module, students worked on the validated pretest questions. This is done to determine the initial knowledge possessed by students. Then the developed e-module is given, students learn to use the e-module. After learning to use the e-module, students work on the posttest questions consisting of 20 questions. The results of the practicality test given to physics teachers and the student response questionnaire can be seen in Table 9.

**Table 9.** Practicality Test Results by Teachers

Aspect	Average Percentage	Category
Time Efficiency	100.00%	Very practical
Ease of Use	93.34%	Very practical
Usefulness	96.67%	Very practical
<b>Average</b>	96.00%	Very practical

The results of the practicality test of the e-module in terms of time efficiency obtained a score of 100%. This score shows that the e-module is very efficient and easy to access so that students can complete learning faster and more effectively. Students can easily find what they want to learn with the navigation feature and can be used anywhere. In terms of ease of use, it obtained a score of 93.34%. These results show that the e-module is very easy for students to use because it is user-friendly, students can quickly understand how to operate the e-module. In terms of usefulness, it obtained a score of 96.67%. With this score, it shows that the e-module has proven to be very useful for use in learning, especially because it integrates local wisdom. The average percentage result obtained was 96% categorized as very practical.

Students were given a questionnaire after completing the pretest and posttest to assess the practicality of the developed e-module. Small groups consisted of 10 students. The results of student responses can be seen in Table 10.

**Table 10.** Small Group Student Response Questionnaire Results

Aspect	Average Percentage	Category
Use	88.75%	Very practical
Interest	86.00%	Very practical
Material	86.25%	Very practical
Language	85.83%	Very practical
Average	86.43%	Very practical

The results obtained are the aspect of use of 88.75%, indicating that the e-module is very easy for students to use. Students can access and understand the material easily thanks to easy-to-understand and user-friendly navigation. Learning becomes more fun and effective thanks to features such as page flipping effects, page markers. The aspect of interest of 86%, indicating that the e-module has succeeded in attracting students' interest with an attractive visual design, the use of images and illustrations that are relevant to local wisdom, and the integration of multimedia elements such as video and audio, all of which contribute to increasing students' interest in the material presented. The aspect of material of 86.25%, indicating that local wisdom-based content helps students appreciate their own culture and understand learning concepts in a context that is closer to their daily lives. The aspect of language obtained an average of 85.83%, indicating that the language used is considered clear, easy to understand, and appropriate to the level of students' abilities. The average percentage obtained from the responses of large groups of students was 86.43% so that the e-module based on local wisdom with Flip Pdf Professional can be categorized as very practical.

Students were given a questionnaire after completing the pretest and posttest to assess the practicality of the developed e-module. Large groups consisted of 20 students. The results of student responses can be seen in Table 11.

**Tabel 11.** Large Group Student Response Questionnaire Results

Aspect	Average Percentage	Category
Use	83.13%	Very practical
Interest	81.25%	Very practical
Material	83.44%	Very practical
Language	84.58%	Very practical
Rata-rata	82.95%	Very practical

The results obtained are the usability aspect of 83.13%, indicating that students feel that this e-module provides a fairly good user experience, allowing them to access and learn the material. Features such as page flip effects, bookmarks, and indexes help students navigate the content more efficiently and effectively. The interest aspect obtained an average of 81.25%, indicating that this e-module is considered successful in attracting students' interest, although there is room for further improvement. The use of images, videos, and animations related to local wisdom helps create a more interesting and enjoyable learning experience. The material aspect obtained an average of 83.44%, indicating that it includes suitability with the curriculum, relevance to the local context, and clarity of conceptual explanation. The language aspect obtained an average of 84.58%, indicating that the use of clear, simple, and appropriate language according to the level of students' abilities helps in conveying the material effectively.



The effectiveness test of the e-module was conducted by small group and large group trials. The pretest-posttest values of student learning outcomes were used to determine the effectiveness of the developed e-module. Based on the pretest and posttest data, the N gain value was then calculated to determine the increase in student learning outcomes. The learning outcomes of small and large groups of students can be seen in table 12.

**Table 12.** Small Group Pretest-Posttest Results Data

Small Group (10 students)	Learning Outcome Value	
	Ideal Score 100	
	Pretest	Posttest
Total value	480	905
Average value	48	90.5
N-Gain score	0.87	
N-Gain criteria	High	

Normalized gain test (N-Gain) is conducted to determine the effectiveness of the product through improving student learning outcomes. This improvement can be seen from the results of the pretest and posttest scores. N-Gain is obtained by comparing the actual gain score with the maximum gain score. Based on the pretest-posttest data from a small group of 10 students, there was a significant improvement in student learning outcomes after using the tested teaching material. The group's total score increased from 480 in the pretest to 905 in the posttest, with the average student score rising from 48 to 90.5 out of an ideal score of 100. This improvement demonstrates the effectiveness of the teaching material used in the learning process. The N-Gain score of 0.87 places the improvement in student learning outcomes in the "High" category, indicating that the learning process successfully enhanced students' understanding significantly. It can be concluded that the e-module is effective in improving students' understanding of static fluid material.

Furthermore, the effectiveness test was conducted on a large group consisting of 20 students. Similar to the small group, each student was given 20 multiple-choice questions for the pretest and posttest. The learning outcomes of students in the small and large groups can be seen in Table 13.

**Table 13.** Large Group Pretest-Posttest Results Data

Large Group (20 students)	Learning Outcome Value	
	Ideal Score 100	
	Pretest	Posttest
Total value	425	940
Average value	40.25	94.00
N-Gain score	0.92	
N-Gain criteria	High	

Based on the pretest-posttest data from a small group of 10 students, there was a significant improvement in student learning outcomes after using the tested teaching material. The group's total score increased from 425 in the pretest to 940 in the posttest, with the average student score rising from 40,25 to 94.00 out of an ideal score of 100. This improvement demonstrates the effectiveness of the teaching material used in the learning process. The N-Gain score of 0.92 places the improvement in student learning outcomes in the "High" category, indicating that the learning process successfully enhanced students' understanding significantly.

This increase shows that e-modules are not only useful on a small scale but can also be successfully applied in a broader context. Based on the N-Gain score table obtained above, it

shows an increase in student learning outcomes in both small and large groups.

## Discussion

The research conducted has produced an e-module based on local wisdom of the east coast of North Sumatra on static fluid material for grade XI. The research and development process of e-modules based on local wisdom on static fluid material uses the ADDIE research model, namely 1) Analysis, 2) Design, 3) Development, 4) Implementation, 5) Evaluation. The initial stage is analysis, what is obtained is information about the teaching materials used by teachers is still in the form of textbooks or package books that are less contextual, the knowledge possessed by students is rote. The next step is the design stage, namely making a design for the contents of the e-module and the cover so that the appearance of the e-module is attractive. The results obtained are in the form of an e-module draft. The development stage is developing the e-module and validating it to material experts and media experts. After the e-module is valid, the product continues to the implementation stage, namely being tested on students to determine its practicality through teacher and student response questionnaires, effectiveness based on pretest-posttest values. At each stage of the research, an evaluation is carried out to determine deficiencies for improving the e-module.

The product developed is a static fluid e-module containing local wisdom assisted by Flip Pdf Professional. The components contained in this e-module include cover, foreword, table of contents, e-module identity, learning outcomes, learning objective flow, learning objectives, usage instructions, learning activities associated with local wisdom, summary, formative test, formative test answer key, glossary, and bibliography.

The results of the validity test show that the e-module is very suitable for use in learning. The results obtained indicate that the e-module can be used as a teaching material with an average of 90.62% overall aspects of very valid criteria with several revisions. This shows that the quality of the content of the e-module developed such as the suitability of the material to the learning objectives is good and the material presented and its arrangement in the e-module is systematic and in accordance with its sequence. In addition, the language and sentences used are in accordance with the enhanced spelling, there are no double meanings, and in accordance with the cognitive development of students.

The results of the validity test conducted by media experts, namely graphics, obtained an average aspect of the e-module size of 87%, the e-module design aspect of 85.66% was categorized as very valid with several revisions. The overall average aspect is 87%. The appearance of the e-module is also attractive, the use of letters, symbols, terms and spacing between lines in the e-module is consistent. The column format, typing format and layout are in accordance with the format and size of the paper and the images and videos displayed are clear and according to needs and the shape and size of the letters are easy to read. This is in accordance with research of Fausih & Danang (2015) which states that the e-module developed must contain systematic and interesting material so that students can achieve the expected learning objectives independently. In addition, Prastowo (2018) stated that a good module is a module that is arranged systematically and uses language that is easy for students to understand and in accordance with the development of the student's age (Wati et al., 2016). The results obtained are supported by previous research which states that e-modules containing local wisdom are very suitable for use in learning (Erlangga et al., 2022).

The results of the practicality test showed that the tested e-module was very practical to use in learning. The practicality test by the physics teacher included aspects of time efficiency, ease of use, and usefulness. The e-module developed based on the data met the criteria for being very practical, and the average percentage result of 96% showed that the e-module was very practical. Furthermore, the practicality test using a student response questionnaire was

carried out in large groups and small groups. The small group practicality test with 10 randomly selected students obtained an average percentage of 86.46% which met the criteria for being very practical. The large group practicality test with 20 randomly selected students obtained an average percentage of 82.95% which met the criteria for being very practical. This is supported by previous research which stated that the use of e-modules containing local wisdom is very practical to use in learning (Khairunnisa et al., 2023).

The results show that the developed e-module is practical to use because it contains materials containing local wisdom that can make it easier for students to understand physics materials, the language used is simple, the formative test is in accordance with the material being taught, increases students' insight into local wisdom, especially on the East coast of North Sumatra and its relation to static fluid material and the presentation of the e-module is attractive and easy to carry anywhere. In addition, the developed e-module is practical to use because it can clarify the delivery of the material so that students get a direct picture from the video contained in the e-module and make the delivery time of the material more effective (Fentiyani, 2018). The physics e-module containing local wisdom can also train students' independence in learning (Annur et al., 2018).

The effectiveness of the e-module with an N-Gain of 0.87 in small groups and 0.92 in large groups with each category being very high indicates that the e-module is very effective in improving student learning outcomes (Hestari et al., 2016). In addition, the e-module developed can help students to learn independently, meaning that the e-module has a function to improve students' ability to learn independently without relying on teachers (Prastowo, 2015). This is supported by previous research which states that the use of e-modules containing local wisdom in learning is effective as teaching materials and can improve student learning outcomes (Safitri et al., 2018).

In accordance with research by Oktaviana et al. (2017) that local wisdom-oriented learning can improve student learning outcomes. This is because it can provide a contextual and real impression in learning. The results of the study showed that student learning outcomes increased, where the average value after using e-modules during learning was greater than before using e-modules (Budimah et al., 2014). So, e-modules that are associated with students' local wisdom make it easier for students to understand the teaching material, so that it is easy to remember and students can apply the knowledge gained in everyday life (Fitriah et al., 2021).

The limitations of this research include the fact that this research was conducted in one school with a limited sample, so the results may not be fully generalizable to a wider population. Validation was conducted by limited experts, so there may be bias in the assessment. Practicality and effectiveness testing were only conducted in a relatively short period of time, so it has not been able to show the long-term impact of using this e-module.

## CONCLUSION

Based on the results and discussions above, several conclusions can be drawn, namely: First, the physics E-module containing local wisdom of the East Coast of North Sumatra with a professional flip pdf is valid by experts with a very valid category. Second, the E-module containing local wisdom is stated to be very practical to use in learning. This is indicated by the results of the practicality questionnaire by the teacher with an average percentage of 96% and the student response questionnaire in the small group of 86.46% and the large group with an average percentage of 82.95% meeting the criteria of very practical. Third, this E-module containing local wisdom is very effective in improving student learning outcomes in static fluid material with a small group N-gain value of 0.87 and a large group N-gain of 0.92.

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