SAINSTEK: JURNAL SAINS DAN TEKNOLOGI
Publisher: AMSET IAIN Batusangkar dan IAIN Batusangkar Press
Website: http://ojs.iainbatusangkar.ac.id/ojs/index.php/sainstek
E-mail: sainstek@iainbatusangkar.ac.id

June 2022
Vol 14 No 1
ISSN: 2085-8019 (p)
ISSN: 2580-278X (e)
pp : 15-25

HOTS-Based Integrative E-Module Development On Self-Regulated Learning Learners

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Article History
Received: 29 May 2022
Reviewed: 12 June 2022
Accepted: 28 June 2022
Published: 30 June 2022

Key Words
HOTS integrative E-Module;
Self-regulated learning.

Abstract
This study aims to develop a HOTS-based integrative e-module that can train students' independent learning. The research instruments used are validation sheets and practical questionnaires with a Likert scale. The results of this study can find out several aspects of eligibility according to validators and from the response of educators or learners from the development of learning media in the form of E-Modules in mathematics learning. As for the validity results of several validators, it shows that this HOTS-based integrative E-Module obtained the criteria "Very Valid" with an average value of several validation sheets of 88.34%. Furthermore, for practicality questionnaires, educators obtained the criteria "Very Practical" with an average score of 100%, and the practicality questionnaire of learners obtained the "Practical" criteria with an average score of 77.13%.

INTRODUCTION

Education is a factor that causes the progress and retreat of a nation. Based on the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Article 1, education is a conscious and planned effort, (UUD Sisdiknas, 2003) to realize the learning atmosphere and learning process so that students actively develop their potential to have religious-spiritual power, self-control, intelligence, noble morals, and skills needed by themselves, society, nation, and state. Educators can develop the creativity and understanding of learners in the process of teaching and learning mathematics.

Mathematics learning that educators want to achieve for learners, must strive towards better change, to evaluate education in a nation. Mathematics learning in this day and age must be able to adapt to every condition that occurs. One of the attitudes that must be implemented by students is the attitude of self-regulated learning (Khoiroh, 2021; Luis & Moncayo, 2021; Surawan et al., 2018).

The pandemic condition that lasted about three years, all regulations on the mathematics learning process that were originally carried out in the classroom, have now been replaced by the mathematics learning process with distance learning through online applications (Ilmadi, Ramzil Huda Zarista, Aden, 2020). But the most important thing that is needed to overcome learning difficulties through online applications is self-regulated learning learners. According to Rusman (2010: 418) that one of the most important things in self-regulated learning learners is to see the improvement of students' abilities and skills in understanding the subject matter with their efforts without help from others.

The number of obstacles becomes an obstacle to learning success. One of the components that affect mathematics learning is

the use of mathematical learning media. The learning media used can be supporting information for students, but because of the lack of learning media used, it causes difficulties in achieving learning goals.

An international student assessment program aimed at testing and comparing academics for schoolchildren around the world, PISA was launched by the OECD in 1997 to assess the proficiency of 15-year-olds in reading, maths, and science, as well as measuring, their skills in applying what they have learned in school in real life. PISA is held every three years, with the first round in 2000, and the next round in 2003, 2006, 2009, 2012, 2015, and 2018; While, the 2021 round is in the process of preparation, Indonesia has participated as a PISA participant starting from 2000, here is an overview of the results of Indonesia's achievements in PISA from all aspects, (Kemendikbud, 2019). these various obstacles are recognized to occur in class XI MIA 1 MAN 2 Tanah Datar when researchers make observations. Based on the results of observations made with educators and learners of class XI MIA 1 MAN 2 Tanah Datar with the research instruments used are interviews obtained information that students have low self-regulated learning. This can be seen through several indicators contained in self-regulated learning including not relying on others, being confident, pinned, responsible, self-initiative, and can control themselves (Meilani et al., 2018). Learners still do not meet the indicators of self-regulated learning. When researchers ask questions to learners about assignments given by educators, learners still often ask questions without looking for themselves firsthand the indicators of responsibility, self-control, confidence, discipline, and self-initiative in self-regulated learning do not appear optimally.

Aside from the problem of self-regulated learning indicators that have not been maximized in students, this is also caused by the mathematical learning media used. Educators have not made innovations that can support learning. This is what researchers found in the RPP. Educators only use printed book learning media and power points only. The learning media in the printed book about the learning objectives still uses operational verbs for the cognitive level of C1-C3 and is still very minimal in the cognitive level of C4-C6, so it is not yet the maximum ability to think in students. High-order thinking skills can be improved if the mathematical problem is at the level of C4-C6. The C4-C6 level is the level of High Order Thinking Skill (HOTS) ability, so for these HOTS-based questions, educators and learners must first pass at the C1-C3 ability level.

When in the learning process, educators provide more information than learners looking for their information. In addition, in the printed books used by educators, the material contained has not followed the vision of the school's Islamic mission. Here is the vision of the Islamic mission of the MAN 2 Tanah Datar school "ding in achievement, commendable in morals, skilled in work and cultured environment, while its mission is to form people who have high knowledge based on faith and piety to Allah SWT".

Figure 1. PISA Value Trends Indonesia

The graph above shows an increase from PISA 2000 to 2018, with a slight increase in reading and science, and a sharper increase in mathematics. Despite the upward trend, in PISA 2018, Indonesia's score was relatively down in all fields. The sharpest decline occurred in the field of reading. Therefore, the government revised the education curriculum in Indonesia in the 2013 curriculum, to the characteristics of PISA in the world of Indonesian education, because Indonesia is still ranked 74th out of 79 countries. The provision of mathematics problems must be guided by the rules set out in the 2013 curriculum. Hots-based problems make education in Indonesia better for the future. However, all of it has not been aligned to affect independent learner learning.

This becomes an inhibitory factor for educators in providing HOTS questions with above-average difficulty and becomes an inhibitory factor for students in understanding mathematical problems when educators only provide existing learning resources. Thus causing students to only learn learning resources from educators only towards the learning. Therefore, learning resources that vn each learning, as a supporting factor for students to get various ways to solve a problem in the learning material. Differences in learning styles, learning interests, and intelligence, can be helped by media and learning resources. (Farida, 2015: 16)

Educational technology has its way of improving the quality of learning, namely by creating interactions between the elements contained in the learning process. Learning media used as a source of self-regulated learning can enrich students' knowledge before starting certain subjects in class meetings that must not only be obtained during conventional meetings, such as the current online conditions. Lasswade argues that electronic learning media increases the learning independence of students. (Laswadi, 2016: 38).

So that researchers produce a companion learning media, without eliminating existing learning media in the form of electronic modules or better known as E-Modules. The mathematical learning media produced by these researchers is different from the mathematical learning media used by educators. The advantage of this E-Module is that it can be used in any condition, especially when in the current pandemic conditions, where the learning applied is distance learning. E-Module is a distance learning solution that uses online applications that utilize android or PC. In addition, the E-Module is equipped with various audio-visual features that are rarely found in mathematics learning media.

All problems and clues will be solved for people who want to think. Allah SWT said in QS. Ghafir (40): 54, the following: Calm and smart for the first door**.** Meaning: "To be a guide and a warning to healthy-minded people"

Content in QS. Ghafir (40): 54 is Allah SWT commanding people to think healthy who have a view and are ready to take lessons in accepting a problem. Think of here as the mental ability of someone who can solve a situation. The situation can be distinguished by various types of thinking, namely thinking analogically, critically, systematically, and creatively. This kind of thinking process is the embodiment of a high-level thinking process (HOTS) in learning. Therefore, learning innovation is needed by educators, so that students can carry out learning independently, using innovative learning resources during the learning process. (Tatang Yuli Eko Siswono, 2008: 12)

Technological developments encourage innovation in the field of education between print technology and electronic technology. Various print learning media, one of which is modules, can be transformed into electronic learning forms. One of the learning media that can overcome the above obstacles is the E-Module. (B.P Sitepu, 2006: 142)

E-Module is an electronic-based teaching and learning device, to reduce obstacles for learners who find it difficult to learn mathematics. The goal is because it can provide more effective changes more individually, and is interesting in carrying out the instructions that are cooled in the E-Module. (Nandya R.J Hafsah, et al, 2016: 107)

Advances in educational technology allow E-Modules to be accessible on android so that the use of android can go in a more useful direction. Researchers took advantage of a feature called flip PDF cooperation edition that can be used in the creation of interactive E-Modules. The advantage of E-Modules is that they can reduce the use of paper in learning. E-Modules are systematically structured with

languages that adapt to the level of understanding and ability of learners. So that this learning resource does not make it difficult for learners to understand mathematics learning. The development of E-Modules can contribute both to students and teachers in terms of the availability of learning materials, which makes students more active and creative in self-study. (Ismi Laili, et al. 2019: 308)

The e-modules used by researchers take integrative elements against Quranic verses. The integrative e-Module used has differences from existing learning media. This difference makes the integrative E-Module can be followed by the vision of the Islamic mission of the school that develops in modern times.

Learning that utilizes E-Modules leads to the transformation of learning resources and learning styles of learners in responding to the subject matter of educators. The process of designing and monitoring carefully against affective and cognitive transformation in the form of self-regulated learning. The low learning outcomes of students in solving HOTS problems by applying self-regulated learning in mathematics learning is the main goal of researchers to find solutions by utilizing E-Modules. (Oktavera, 2017: 53)

METHOD

This study uses model development or Research and Development (R and D). The R and D development research model will produce a development product in the form of an electronic module. The R and D model is a development model for learning devices with the four-D Method. This model was developed by S. Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel (1974: 5) who posited that this research model consisted of Define, Design, Development, and Dissemination. The research was conducted in November 2021 which was the subject of a research trial, class XI learners at MAN 2 Tanah Datar. Researchers will observe the attitude of learners' learning independence in mathematics learning in every existing condition by using HOTS-based integrative E-Modules.

The stages of development of HOTS-based integrative E-Modules are described in the following detail:

Defining stage

The defining stage serves to define and determine a need in the learning process and collect various information related to product development. In this stage, it is divided into several steps:

a. Initial Analysis, this initial analysis is carried out to find out how the fundamental problems in the development of HOTS-based E-Module learning devices. In the initial analysis stage, the facts of completion determine the initial stages for the development of products to be developed.
b. Student Analysis, At the stage of analysis of learners is very important to do when the beginning of planning. The analysis was carried out by observing the characteristics possessed by students by looking at academic ability, age, and motivation for HOTS problem-based mathematics learning with the E-Module innovation learning tool.
c. Task Analysis. Researchers identify the main tasks performed by learners, taking into account existing RPPs, such as Core Competencies and Basic Competencies on HOTS-based integrative E-Module learning devices with affective learning independence.
d. Concept Analysis. At the concept analysis stage, the researcher's goal is to perform this staging procedure to determine the learning media or materials developed in the HOTS-based integrative E-Module learning device. How to make it by using a concept map as a means of identifying the main achievements of teaching materials.
e. Learning Objective Analysis. At this stage, it aims to determine and identify competency achievement indicators guided by concept analysis that will be displayed in the HOTS-based integrative E-Module learning device, so that it contains all components of the E-Module, and finally, the learning objectives can be achieved.

Design stage

After getting the analysis at the definition stage, the next stage for the design stage will design a learning device in this technological era, namely a HOTS-based electronic module used in mathematics learning, consists of:

a. Media Selection. Media selection is carried out to identify accurate learning devices and

to the characteristics of teaching materials and the needs of learners.

b. Format Selection. The selection of formats in the form of development formats in designing the content of materials, and the form of learning strategies with HOTS-based integrative E-Module learning devices that include components of the E-Module.
c. Initial Design. The initial design is the design of the E-Module learning device that has been made by the researcher, then given input by the supervisor, then the supervisor will operate it, and abstract if there is still something that needs to be improved from the E-Module, before production. After being revised, then the next stage is validation so that this design becomes a unit of E-Module products which is learning multimedia.

Development Stage

After passing the previous two stages, the development stage will be carried out, to produce a learning device product from the HOTS-based E-Module that has been revised and improved for learners. The steps of the development stage, namely:

a. Expert Validation. At the time of validation of this expert, an expert will validate the content of the mathematical material contained in the HOTS-based E-Module, before establishing the results of product validity, then the learning device must be revised initially by awarding a value by the validator. After getting the validation results, then this becomes a benchmark for improvement materials to be better in the future.
b. Product Trial. At the stage of expert, validation has been carried out, product trials are carried out in a limited field, to find out the results of the application of E-Module learning devices in the classroom according to practical criteria, by measuring learning independence in learning and measurement results in solving the problems provided. Therefore, the results obtained by testing learners in the form of integrative E-Module learning devices based on HOTS have been revised.

Dissemination Stage

The dissemination stage aims to disseminate the E-Module learning device by promoting this medium, on a limited basis to educators in MAN 2 Tanah Datar for class XI MIA. But at the stage of dissemination, researchers are constrained by time, so that the stage of development only reaches the stage of practicality.

The research instruments used are Validation Sheets, Practicality Sheets. The research instruments of the practicality section, aim to find out the extent of the field practice of HOTS-based E-Module learning devices to improve self-regulated learning learners in mathematics learning either in person or online by using validation sheets. Learners are given a response questionnaire, as a form of assessment of learning development products designed by researchers. Before giving to the subject of observation, first, the response questionnaire is assessed by the validator, to see the conformity with the aspects covered in the valid or not the validation sheet reaches practicality.

The last part of the methodology is about the technical analysis of the data used. Data analysis techniques used are valid analysis and practicality analysis.

RESULT AND DISCUSSION

The definition stage serves to define and determine a need in the learning process and collect various information related to product development. The definition stage consists of the analysis of learning resources, analysis of learners, analysis of concepts, analysis of tasks, and analysis of learning objectives.

This initial analysis was carried out to know how the fundamental problems in the development of HOTS-based integrative E-Module learning devices. In the initial analysis stage, the facts of completion determine the initial stages for the development of products to develop. At this stage, researchers conduct a study of the curriculum used in the school where the research is located. The curriculum used in MAN 2 Tanah Datar is the 2013 curriculum. The 2013 curriculum has been implemented since mid-2013 which is based on a competency-based curriculum model with graduate competency standards set for one educational unit that has 3 aspects of assessment the form knowledge aspects, attitude aspects, and skill aspects. Learning resources used by educators in MAN 2 Tanah Datar still have several shortcomings, including:

1. The learning resources used in the learning process have not fully implemented the concept of HOTS-based questions so they are not proportional.
2. The learning resources used have not followed the vision-mission of Islamic schools.

The analysis at the next stage is the definition of student analysis. The student analysis stage is very important at the beginning of planning. The analysis was carried out by observing the characteristics of students by looking at academic abilities, age, and motivation for learning mathematics based on HOTS problems with the E-Module innovation learning device. According to Vygotsky (Admadi & Setiyaningsih, 2004) so that learning is meaningful, it needs to be designed and developed based on the characteristics of students as subjects of study as well as the socio-cultural community in which students live. According to

Wild At this stage the researcher observed the students about the characteristics of the students by looking at their academic ability, age, and motivation toward learning mathematics. One of the results of the student analysis discussed was. One of the results of the student analysis discussed is the motivation to learn about self-regulated learning in mathematics learning. The goal is to know learners in applying learning independently in every condition.

Researchers interviewed one of the educators in the field of mathematics MAN 2 Tanah Datar, regarding the learning process of learners in the classroom. Learners are still low in implementing self-regulated learning. Judging from the attitude of students who still have a lot of difficulty in solving the mathematics problems given. Students still often ask educators about solving questions that have been given, and finally, still educators explain in front of the class. Students cannot think independently first in solving the math problem, and still ask for direction from educators. In addition, students are still less responsible for the results obtained in solving mathematical problems, because students are still working together (cheating).

Through this E-Module learning media, learners can learn independently, and students will also be interested in solving the problems provided by equipped with learning videos and teaching materials. Thus, the demands of the 2013 curriculum can be developed effectively.

In the third stage of analysis on concept analysis, namely, researchers identify the main tasks to be carried out by students, by paying attention to existing RPS, such as Core Competencies and Basic Competencies in HOTS-based E-Module learning devices with affective learning independence. At this stage, researchers made observations related to the plan for implementing mathematics educator learning in MAN 2 Tanah Datar. In the RPP used, the researcher observed the geometric transformation section, at KD 3.5. The learning steps applied by students with the RPP made are appropriate. In the task-giving section to students, the KD made refers to the C-4 level of thinking, but in giving tasks to students, the questions gave still do not reach hots-based questions.

In the next stage of definition regarding concept analysis, the purpose of researchers is to perform this staging procedure to determine the teaching materials or materials developed in hots-based integrative E-Module learning devices. The material refers to KD 3.5 which is about geometric transformation. The materials taught to learners have adjusted to the basic competencies and indicators of competency achievement designed in the learning implementation plan.

The final defining stage of this stage aims to determine and identify competency achievement indicators guided by the analysis of concepts that will be displayed in the HOTS-based integrative E-Module learning device so that it contains all components of the E-Module, and finally, the learning goal can be achieved. In formulating learning objectives, it must be by the 2013 curriculum and the basic competencies designed within the E-Module.

After getting the analysis at the definition stage, then for the design stage. The design phase aims to design a learning device in this technological era, namely hots-based integrative electronic modules used in mathematics learning. Consists of:

1. Media Selection

Media selection is carried out to identify accurate learning devices by the characteristics of teaching materials and the needs of learners, according to those in the defining stage, so that core competencies and basic competencies, can be achieved. With various kinds of learning media existing, researchers finally chose one learning media that can be used in all conditions, especially during the current pandemic.

2. Format Selection

The selection of the format is carried out at the initial stage which aims to choose materials that are by learning. Format selection in the form of a development format in designing the content of the material, and the form of learning strategies with hots-based integrative E-Module learning devices by implementing flipbook features. The E-Module on the geometry transformation material is created by adjusting to the problem components of the HOTS-based E-Module. Consists of a preliminary section in the form of a cover, table of contents, glossary, basic competencies, competency achievement indicators, brief descriptions, and instructions for the use of E-Modules. In the content section in the form of learning activities and complementary parts such as pictures, learning videos, exercises, questions about student evaluation and self-assessment. And the last part consists of the closing part in the form of the evaluation answer key and bibliography.

3. Initial Design

At this initial design stage, after designing the E-Module format according to the specified components, the next step is to integrate it into a perfect E-Module. The first step is to make all the E-Module parts in Microsoft word after completion and then converted them into PDF. After being put together in a PDF, it is imported into the flip pdf edition cooperation software to be further edited with the items in the software. The final result of the E-Module can be used inside an android or PC with a given link. Here are the components of the integrative E-Module based on HOTS in the form of several images, including:

The initial section of the E-Module consists of the cover section, table of contents, glossary, and instructions for use of the E-Module.

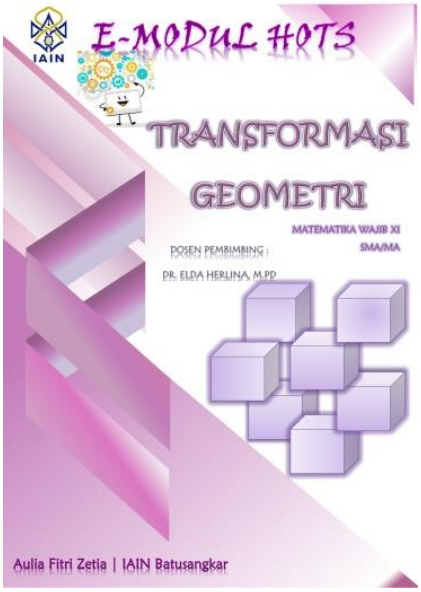

Figure 2. The Initial Part of the E-Module

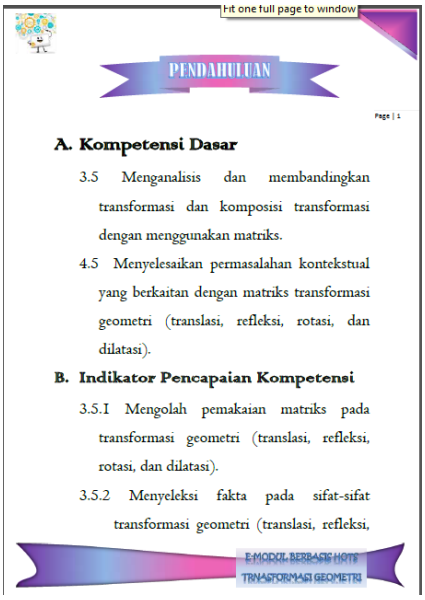

Figure 3. E-Module Fill Section

The content section of the E-Module consists of part of learning activities ranging from basic competencies, learning objectives, competency achievement indicators, material descriptions, summaries, question exercises, and self-assessment.

The last part of the E-Module is the closing section which contains evaluations, answer keys, and a bibliography. After going through the design stage, then enter the development stage. The development stage consists of two steps, including the validation stage and the practicality stage. In the validation stage, it is carried out by requesting an assessment of three validators who are experts in the field of media and materials, consisting of two lecturers and one educator in the field of mathematics.

Before validating, the researcher first asks the validator to conduct an assessment of the instruments used to validate the E-Module, the educator's practicality questionnaire, and the practicality questionnaire of learners. Validators provide assessments regarding aspects of the writing format, grammar, and statements listed.

1. Hots-Based Integrative E-Module Instrument Validation Sheet Assessment Results

The hots-based integrative E-Module instrument validation sheet section obtained valid results with a validity value of 80.00% listed in Table 1 below.

Based on Table 1, the results of the HOTS-based E-Module instrument validation sheet assessment obtained the final percentage with a value of 80% from the range of 70.01% to 85% which is in the valid category. Thus, the innovative learning media of HOTS-based integratif E-Modules can be used in the learning process.

2. HOTS-Based Integrative E-Module Instrument Validation Sheet Assessment Results

The validation sheet section of the HOTS-based E-Module instrument obtained a very valid result with a validity value of 89.35% listed in Table 2.

Table 1. Validation Sheet Validation Sheet Assessment Results

No	Validated Aspects	Validator			Sum	Score Max	%	Category
		1	2	3				
1.	Validation sheet format	4	3	3	10	12	83,33	Very valid
2.	Grammatical correctness	4	3	3	10	12	83,33	Very valid
3.	Grammatical simplicity	4	3	3	10	12	83,33	Very valid
4.	Validation sheet statements are easy to measure	3	3	3	9	12	75	Valid
5.	The conformity of the points of the statement with the assessment aspect.	3	3	3	9	12	75	Valid
SUM		18	15	15	48	60	80	Valid

Table 2. E-Module Validation Sheet Assessment Results

No.	Validated Aspects	Validator			Sum	Score Max	%	Category
		1	2	3				
1.	Eligibility of contents	61	63	62	62	68	91,2	Very valid
2.	Feasibility of presentation	27	31	30	29,3	32	91,6	Very valid
3.	Language eligibility	35	32	37	34,7	40	86,75	Very valid
4.	Eligibility of self regulated learning	18	17	19	18	20	90	Very valid
5.	Feasibility of graphic	61	70	76	69	80	86,25	Very valid
6.	The feasibility of electronic media	19	19	20	19,3	20	96,5	Very valid
Sum		221	232	244	232,3	260	89,35	Very valid

Based on Table 2, regarding the evaluation results of the hots-based integrative E-Module instrument validation sheet, the final percentage was obtained with a value of 89.35% from the range of 85.01% to 100% which was in the very valid category. category. Thus, the innovative HOTS-based integrative E-Module learning media can be used in the learning process. This finding is in line with the findings (Nuim Hayat, 2019) which found that the HOTS question-oriented e-module is very suitable for use in the mathematics learning process.

In addition, researchers also ask for suggestions and input from validators to assess E-Module products that have been made by researchers. Here are some revisions provided by validators.

3. Results of Practicality Assessment Questionnaire Instruments for Educators

Based on Table 3 below, regarding the results of the assessment of the validation sheet of practicality questionnaire instruments for educators obtained the final percentage with a value of 88.33% from the range of 85.01% to 100% which is in the category is very valid. Thus, practical questionnaires for educators can be used when conducting practicality tests in the classroom.

4. Results of Practicality Assessment Questionnaire Instrument Validation Sheet for Learners

The validation sheet section of the practical questionnaire instrument for learners obtained very valid results with a validity value of 91.67% listed in Table 4.

Table 3. Educator Practicality Questionnaire Assessment Results

No.	Validated Aspects	Validator			Sum	Score Max	%	Category
		1	2	3				
1.	Validation sheet format	4	3	4	11	12	91,67	Very Valid
2.	Grammatical correctness	4	3	4	11	12	91,67	Very Valid
3.	Grammatical simplicity	4	3	4	11	12	91,67	Very Valid
4.	Validation sheet statements are easy to measure	4	3	3	10	12	83,33	Very Valid
5.	The conformity of the points of the statement with the assessment aspect.	4	3	3	10	12	83,33	Very Valid
	SUM	20	15	18	53	60	88,33	Very Valid

Table 4: Results of The Assessment of Student Practicality Questionnaire

No.	Validated Aspects	Validator			Sum	Score Max	%	Category
		1	2	3				
1.	Validation sheet format	4	4	4	12	12	100	Very valid
2.	Grammatical correctness	4	4	4	12	12	100	Very valid
3.	Grammatical simplicity	3	4	3	10	12	83,33	Valid
4.	Validation sheet statements are easy to measure	4	3	4	11	12	91,67	Very valid
5.	The conformity of the points of the statement with the assessment aspect.	4	3	3	10	12	83,33	Valid
	Sum	19	18	18	55	60	91,67	Very valid

Based on Table 4, regarding the results of the practicality assessment of the student questionnaire instrument validation sheet, the final percentage was obtained with a value of 91.67% from the range of 85.01% to 100% which was in the very valid category. Thus, practicality question-naires for students can be used when conducting practicality tests in the classroom. This is by the practicality category proposed by (Riduwan, 2005) that a product is said to be practical if there is a questionnaire response of more than 61%.

Practicality Test

After the validation process is completed, then enter the practicality stage carrying out product trials for students and educators. The product trial was conducted in class XI IPA 1 at MAN 2 Tanah Datar and to educators in the field of mathematics studies. The implemen-tation time was held on November 24, 2021, from 08.30-10.00 WIB.

Based on data from the practicality questionnaire of learners and the practicality of educators, the practicality of using HOTS-based integrative E-Modules in the learning process can be seen at a practical level. In the practicality questionnaire for educators, it was given to one of the educators in the mathematics field class XI IPA 1 MAN 2 Tanah Datar named Nova Eliza, S.Pd. and for the practicality questionnaire of learners was given to students in class XI IPA 1 MAN 2 Tanah Datar with a total of 18 people obtained assessment results by students in class XI IPA 1 MAN 2 Tanah Datar, that E-Module integrative based HOTS on self-regulated learning practical for use in the mathematical learning process. The percentage of practicality is 77.13%, with practical categories in the range of 61% to 80%. This is by what was conveyed by expert (Riduwan, 2005: 89), that an electronic module can be said to be practical if it reaches a percentage of 61% and above.

Based on the results of the acquisition of practicality questionnaires for educators in the use of HOTS-based integrative E-Modules obtained practicality results of 100%. In the Likert scale table, the practicality range is 81% to 100% with very practical categories. So that the category of practicality questionnaires for educators reaches a very practical category, it can be said that E-Modules can be used in the mathematical learning process.

CONCLUSION

Based on the results of the study entitled "Development of HOTS-Based Integrative E-Modules on Self-regulated Learning of Class XI Learners in MAN 2 Flat Land", it was concluded that:

1. The results of the validity test conducted by the researcher, using several stages consisting of performing the validity of the product and the validity of the instrument. The results obtained from 3 validators reach a valid category, meaning that they can be used in mathematics learning in the classroom.
2. The results of practicality tests conducted by researchers, using product trial stages to students and educators, and by providing practicality questionnaires according to their respective aspects needed. The results of the acquisition from the practicality sheet from the educator are very practical. And aspects for the practicality of learners obtain practical results. This means that HOTS-based E-Modules are practically used in the math learning process in the classroom.

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