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Development of Contextual Based Science Module

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Abstract: The problem in learning science at SMP N Air Satan is the low involvement of students actively due to the use of conventional methods and limited learning resources. This study aims to develop a contextual-based science module that is valid, practical, and effective to improve students' concept understanding. The method used was Research and Development (R&D) with the 4D development model (Define, Design, Develop, Disseminate), but limited to the first three stages. Data were collected through validation questionnaires (by material, language, and media experts), student practicality questionnaires, and learning outcome tests. The data were analyzed quantitatively descriptively to measure the validity, practicality, and effectiveness of the product. The validation results showed that the module was in the "valid" category, with a material expert validation score of 45, media expert 43, and linguist 27. Student responses to the practicality of the module reached 80.69% ("practical" category), and student learning outcomes showed learning completeness of 77.26%, exceeding the KKM 72. Thus, the contextual-based science module developed has proven to be valid, practical, and effective for use in the science learning process in junior high school.

Keywords: Contextual; Development; Effectiveness; Practicality; Science module; Validity

Introduction

The definition of education according to Indonesian education expert Ki Hajar Dewantara is the conscious effort of a human being to improve character through school so that children can become better and more perfect, so that students can be more advanced and balanced physically and mentally. Education is concerned with the development and changes in the behavior of students. Education is concerned with the transmission of knowledge, beliefs, attitudes, skills and other aspects of behavior to the younger generation. Mulyadi et al. (2019) states that education is life. Education is all life situations that affect an individual's growth and education is a learning experience that takes place in all living environments and throughout life (Gumay et al., 2024). Education throughout life means that education is part of life itself. Learning experiences can take place in all environments and throughout life. Therefore, the government always strives to improve the quality of education in Indonesia.

Hermawati et al. (2024) and Cannon et al. (1994), many factors can be done by the government to improve the quality and quality of education in Indonesia, one of the factors is the educators, students, and the educational tools themselves. In improving the quality of education, many people think that the actual educational tools do not matter, but in essence education will not run smoothly without educational tools, which is meant by educational tools here in the form of facilities and infrastructure in schools, as well as the curriculum that is applied in schools.

Ahid (2014) says that the curriculum is a number of educational, social, cultural, artistic and sports experiences provided by the school for students inside

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and outside of school with the intention of helping them to develop thoroughly in all aspects and change their behavior in accordance with educational goals. Without a curriculum, the achievement of educational goals will be very difficult to achieve. In the curriculum there are always updates because to improve the quality of education. The new curriculum is currently a curriculum that focuses more on student activeness and independence in the process of learning. Students will be more active and independent if the material in the learning process is related to real life or daily life as is the case with science subjects whose material is related to real life or daily life.

In studying science, a thinking process is needed because science is essentially concerned with abstract structures and ideas that are arranged systematically and logically through a deductive reasoning process (Bloom, 1956; Bybee, 1997). Science learning is needed in understanding a mature concept so that students are able to solve a problem in the field of science properly. If students are unable to understand good concepts, these students do not understand the concept of materials in science, so that students are unable to solve a science problem properly in a lesson.

Suardi (2018), Vygotsky (1978), and Anderson et al. (2001) states that learning is the process of interaction between students and educators and learning resources in a learning environment. Learning can simply be interpreted as assistance provided by educators so that the process of acquiring knowledge and knowledge, mastering skills and habits and forming attitudes and beliefs in students can occur. In other words, learning is a process to help learners to learn well. The learning process is experienced throughout the life of a human being and can apply anywhere and anytime. Science learning is also an educational tool in learning, one of which is by applying the Contextual Teaching and Learning (CTL) learning model which will make learning easier to understand. In learning activities in addition to the use of the right model, the learning components used to support the success of teaching and learning activities must also be appropriate, one of the teaching materials that can help students to be actively involved in learning activities so as to develop skills, namely the Science Module.

Based on the results of observations at SMPN Air Satan, starting from interviews with teachers and students, information was obtained on the learning model used in the science learning process at SMPN Air Satan in accordance with the curriculum but for the implementation of learning still uses conventional methods (lectures and practice questions), during the learning process rarely carry out practicum, the obstacle in practicum is the facilities in the laboratory. Because it is rare to do practicum, student worksheets do not exist (not used) as well as teaching modules, in the process of teaching and learning activities science teachers use package books received from the government and in this case the package books used are in accordance with the curriculum used in the school according to the opinion of teachers at SMP N Air Satan.

During yesterday's observation, the researcher also observed the attitudes and behavior of students during the learning process which tended to be monotonous, student behavior seemed to feel bored with learning and passive. After the researcher finished the observation, from the results of the observation obtained information that the level of student understanding of a lesson is strongly influenced by motivation, learning methods, learning materials, classroom processing and models used that are able to make students active, creative and independent. One of the efforts to make this creativity is to develop a teaching material in the form of a contextual-based Science Module on Energy material at SMP N Air Satan, which is concise, complete, clear and interesting which will later be used by students independently to find and absorb information, and can support the science learning process.

The purpose of learning with a contextual approach is to make students realize that what they learn is very useful in their real lives so that they will position themselves as needing provisions to solve various problems in everyday life. Science modules with a contextual approach intended in this study are modules that are developed oriented to the emergence of problems related to real life. The intended context is a situation or event that is in accordance with the concept being studied. Sanjaya (2015) and Bernard (2015) said that the contextual approach involves seven main components, namely constructivism, inquiry (finding), asking questions, learning communities, modeling, reflection and authentic assessment. The development of modules with the Contextual Teaching and Learning (CTL) approach is expected to make students more interested and motivated to learn Energy because this material is related to real-life applications. Based on the background that has been stated above, the researchers are interested in conducting research with the title "Development of Contextual Based Science Modules".

Johnson (2002) and Sugiarto (2020) revealed that Contextual Teaching and Learning (CTL) is a learning concept that helps teachers link the material taught with the application of students' daily lives and encourage students to make connections between their knowledge and real-world situations. According to Anugreni et al. (2020) linguistically the word Contextual comes from the word contex which means relationship, context, atmosphere, or circumstances. Therefore, contextual means "related to the atmosphere (context)", so contextual. Through the Contextual teaching and

learning (CTL) approach, it can be interpreted as learning that is related to a certain atmosphere. According to Anugreni et al. (2020) the Contextual Teaching and Learning (CTL) learning approach has 7 main components, namely, constructivism, inquiry, questioning, learning community, modeling, reflection, and authentic assessment.

Method

The research "Development of Contextual-based Science Modules" was conducted at Air Satan Junior High School on October 10 to November 10, 2023. This research is a type of research and development. According to Hidayat (2021) development research is research that is used that can create new products or develop existing products, a product must be based on an analysis of the needs found in the field. Through this research and development, researchers strive to develop products that are effective and feasible to use in the learning process and can measure student learning outcomes in science subjects. This development research uses the 4D (Four-D) development model developed (Thiagarajan et al., 1974).

According to Syamsu (2017) this research is a development research or Research and Development (R&D), which seeks to produce a new product that has been validated and tested for practicality, so that it is practically used in learning. The research will produce science teaching materials in the form of Contextual Teaching and Learning (CTL) based science modules to measure student learning outcomes at SMP N Air Satan. This Contextual Teaching and Learning (CTL)-based science module will be developed using the 4D (Four-D) development model with the aim that teaching materials in the form of Contextual Teaching and Learning (CTL)-based science modules are able to become valid, practical and effective learning resources, especially for students at SMP N Air Satan. Panggabean et al. (2020) say that the 4D (Four-D) development model is a simple development model that can help a researcher design a teaching material product in the form of a module that will later help students for their abilities in a learning process.

Teaching materials in the form of modules that will be developed using the concept of the 4D (Four-D) development model are carried out up to the Develop stage only. The teaching materials in the form of modules will later be validated by expert lecturers ranging from material, language, and design. After the product revision is completed, the next step is to carry out the trial stage. In the trial stage that must be passed, namely: limited group test and broad group test. The trial was carried out by sampling using the Simple Random Sampling technique. The trial will be carried out using a practicality questionnaire with 3 statement indicators for group trials that must be given an assessment so that researchers can draw conclusions whether the module is included in the practical category or still needs improvement. The questionnaire used later uses a Likert Type 5 Scale.

The trial used test questions to measure student learning outcomes to see the effectiveness of the module. The test questions given to students are in the form of essays with cognitive C3 to C5. The last step taken after the practicality questionnaire instrument and test questions are given to students is that the researcher analyzes the data obtained to see the validity, practicality, and effectiveness of the module that has been developed. If the assessment of the data results has been completed, the Science Module is ready for use at SMP N Air Satan.

Validation

Material Validation

Material validation in the development of this science module was carried out by one of the science lecturers who understood the material arranged in the module that had been developed.

Item criteria x highest score

For material validation questionnaire assessment:

Scale : 5

X : actual score (score achieved)

$\bar{x}$: average ideal score

: $(\frac{1}{2})$ ideal highest score + ideal lowest score)

Sbi : $(\frac{1}{2})$ $(\frac{1}{2})$ (ideal highest score - ideal lowest score)

Ideal highest score: ∑ criteria item x highest score

Ideal lowest score: ∑ criteria item x lowest score

Table 1. The Range of Scores in Each Material Validation Questionnaire

Score Range (i)	Value	Category
$X > \bar{x} + 1.80\ Sbi$	A	Very Good
$\bar{x} + 0.60\ SBi < X \leq \bar{x} + 1.80\ SBi$	B	Good
$\bar{x} - 0.60\ SBi < X \leq \bar{x} + 0.60\ SBi$	C	Fair
$\bar{x} - 1.80\ SBi < X \leq \bar{x} - 0.60\ SBi$	D	Deficient
$X \leq \bar{x} - 1.80\ SBi$	E	Very Deficient

Validation of Linguists

Validation in terms of grammar is carried out to determine the level of readability of students in understanding the developed module.

Item criteria x highest score

Scale : 5

X : actual score (score achieved)

$\bar{x}$: average ideal score

: $(\frac{1}{2})$ (ideal highest score + ideal lowest score)

SBi : $(\frac{1}{2})$ $(\frac{1}{2})$ (ideal highest score - ideal lowest score)

Ideal highest score: ∑criteria item x highest score

Ideal lowest score: ∑ criteria item x lowest score

Table 2. The range of Scores in Each Language Validation Questionnaire

Score Range (i)	Value	Category
X > $\bar{x}$ + 1.80 Sb*i*	A	Very Good
$\bar{x}$+ 0.60 SB*i* < X ≤ $\bar{x}$+ 1.80 SB*i*	B	Good
$\bar{x}$– 0.60 SB*i* < X ≤ $\bar{x}$+ 0.60 SB*i*	C	Fair
$\bar{x}$– 1.80 SB*i*< X ≤$\bar{x}$– 0.60 SB*i*	D	Deficient
X ≤ $\bar{x}$- 1.80 SB*i*	E	Very Deficient

Media Expert Validation

The percentage and range of each score can be obtained on the media validation questionnaire assessment:

Item criteria x highest score
Scale : 5
X : actual score (score achieved)
$\bar{x}$: average ideal score
: $(\frac{1}{2})$ (ideal highest score + ideal lowest score)
SBi : $(\frac{1}{2})$ $(\frac{1}{2})$ (ideal highest score - ideal lowest score)
Ideal highest score: ∑ criteria item x highest score
Ideal lowest score: ∑ criteria item x lowest score

Table 3. The Range of Scores in Each Media Validation Questionnaire

Score Range (i)	Value	Category
X > $\bar{x}$+ 1.80 Sb*i*	A	Very Good
$\bar{x}$+ 0.60 SB*i* < X ≤ $\bar{x}$+ 1.80 SB*i*	B	Good
$\bar{x}$– 0.60 SB*i* < X ≤ $\bar{x}$+ 0.60 SB*i*	C	Fair
$\bar{x}$– 1.80 SB*i*< X ≤ $\bar{x}$– 0.60 SB*i*	D	Deficient
X ≤ $\bar{x}$- 1.80 SB*i*	E	Very Deficient

Module Evaluation

Evaluation of validation results is carried out after the validation is complete. The evaluation was carried out in order to see how far the validity level of the developed science module was. Questionnaires that have been given previously to validators will later be analyzed to determine whether the contextual-based science module developed is suitable for use or not. The evaluation is carried out by looking at the content of the material, the grammar used, and the media in accordance with the validation that has been carried out previously on the Module developed.

Limited Group and Broad Group Evaluation

The group test was carried out by giving a questionnaire to students by including statements filled in by students according to their respective opinions and assessments of the Contextual Teaching and Learning (CTL) based science module developed.

Revision

Revision is an activity carried out to improve the validity of the developed science module. Revision is an activity carried out to improve a process developed based on suggestions and comments given by experts, students and teachers. Revisions that will later be carried out with experts and students of SMP N Air Satan who make revisions where the suggestions and comments given are adjusted to the statements in the questionnaire given and adjusted to the modules developed at the limited group and large group testing stages.

Trial Subject

The research subject is also called the research respondent, where the subject of this research is the parties involved in the research who will be sampled in the research. The research sample is part of the population to be studied.

Data Collection Instruments

The data collection process is the process of collecting information needed in the research process. In this study, the data collection instrument used several instruments, namely the practicability questionnaire and the learning outcomes test questions.

Data Analysis Technique

The data analysis technique used in this study is the data analysis technique. Data Analysis Technique The data analysis technique used is descriptive quantitative to determine the feasibility and student response to the science module, namely the Contextual Teaching and Learning-based module, which is in the form of data analysis techniques and uses seven learning components of the Contextual Teaching and Learning (CTL) model.

Practicality Analysis

The student practicality questionnaire assessment sheet in the group test will generate data that will be used to determine the practicality of the science module product on the learning outcomes of students in class VIII 1 developed. Practicality data analysis is carried out with the following steps:

a) The learning media assessment sheet for students is filled in using a 5 Likert scale.
b) Calculating the average total score of the practicality questionnaire results for each aspect assessed with the following formula:

$$P = \frac{\Sigma x}{N} x100\% \quad (1)$$

Description:
P = Percentage of Product Practicality
Σx = Number of answers given

N = Total ideal maximum score

c) Converting the average of all aspects into qualitative values in accordance with the assessment criteria outlined in table 4.

Table 4. Assessment Criteria (Sriwijayanti et al., 2020)

Percentage (%)	Feasibility
81 – 100	Very Practical
61 – 80	Practical
41 – 60	Moderately Practical
21 – 40	Less Practical
0 – 20	Very Less Practical

Analysis of the Completeness of Learning Outcomes

Analysis of the completeness of student learning outcomes can be said to be complete if the average value of student learning outcomes is more than or equal to KKM 72, while student learning outcomes are said to be incomplete if the average value of student learning outcomes is less than KKM 72. The data will be analyzed using a hypothesis. Hypothesis testing using the t test, Sugiyono (2020) is expressed in the following equation:

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}} \quad (2)$$

Description:

t = calculated value

$\bar{x}$ = average value

n = number of sample members

μ0 = hypothesized value

s = standard deviation of the sample

Hypothesized value μ0 = 72. The hypothesis tested is as follows:

Ha: the average cognitive learning outcomes of students after taking part in science learning using CTL-based science modules are more than or equal to KKM 72. (Ha: μ0 ≥ 72).

H0: the average cognitive learning outcomes of students after taking part in science learning using CTL-based science modules are less than the KKM 72.

Result and Discussion

Analysis of Validity Assessment of CTL-Based Science Modules

The results of validation from linguists on Contextual Teaching and Learning (CTL)-based science modules obtained a score of 27 with a very valid category. The results of the language validation calculation refer to table 5.

Table 5. Results of the Language Validation

Score range (i)	Value	Category
X > 25.2	A	Very Valid
22.6 < X ≤ 25.2	B	Valid
15.6 < X ≤ 22.6	C	Moderately Valid
10.8 < X ≤ 15.6	D	Invalid
X ≤ 10.8	E	Very Invalid

Based on table 5, the results of the validation calculation from linguists, 27 > 25.2 the results of the validator's assessment from linguists are included in the very valid criteria. Based on the calculation of validation from linguists, the criticisms and suggestions obtained are that the product can be used. Thus this Contextual Teaching and Learning (CTL) based Science Module can be used to be tested at the next stage.

The results of validation from media experts obtained a score of 42 in the very valid category. The calculation results of media validation refer to the table 6.

Table 6. The Calculation Results of Media Validation

Score range (i)	Value	Category
X > 37.8	A	Very Valid
30.6 < X ≤ 37.8	B	Valid
23.4 < X ≤ 30.6	C	Moderately Valid
16.2 < X ≤ 23.4	D	Invalid
X ≤ 16.2	E	Very Invalid

Based on table 6, the results of the validation calculation from media experts, 42 > 37.8, the results of the validator's assessment from media experts are included in the very valid criteria. Based on the calculation of validation from media experts, criticism and suggestions are obtained that the Contextual Teaching and Learning (CTL) based science module can be used after revision according to suggestions. Validation from media experts aims to make the developed product feasible and can be tested on students.

The results of validation from material experts obtained a score of 46 in the valid category. The results of the validation calculation from the material expert refer to table 7.

Table 7. The Results of the Validation Calculation from the Material Expert

Score range (i)	Value	Category
X > 50.4	A	Very Valid
40.8 < X ≤ 50.4	B	Valid
31.2 < X ≤ 40.8	C	Moderately Valid
21.6 < X ≤ 31.2	D	Invalid
X ≤ 21.6	E	Very Invalid

Based on table 7, the results of the validation calculation from the material expert, 40.8 < 46 ≤ 50.4,

then the results of the validator's assessment from the material expert are included in the valid criteria. Based on the calculation of validation from the material expert, the criticisms and suggestions obtained are to add experimental activities in the model with a contextual approach.

Based on the results of the calculation of all validators, namely language validation, media validation, material validation, the recapitulation of the validation results score can be seen in table 8.

Table 8. Recapitulation Results of Validation Scores from All Validators

Validation	Actual Score	Category
Material Expert Validation	46	Valid
Language Expert Validation	27	Very Valid
Media Expert Validation	42	Very Valid
Amount	115	Valid

Based on table 8, the results of the recapitulation of the scores of the validation results of all validators can be concluded that the Contextual Teaching and Learning (CTL) based science module on Energy material developed has a total score of 115 by meeting the Valid criteria. In this study, the results of language validation obtained a score of 27 with very valid criteria, in media validation obtained a score of 42 with very valid criteria, in material validation obtained a score of 46 with valid criteria, thus the results of this study can be said that the Contextual Teaching and Learning (CTL) based science module to measure student learning outcomes on energy material in class VIII SMP N Air Satan can be applied and used at the next stage, namely in the product trial process.

Practicality Assessment Analysis

Practicality Questionnaire was given to assess the Contextual Teaching and Learning (CTL)-based science module developed with 10 questions. The questionnaire was given to 9 students during the limited group research. This practicality questionnaire aims to see students' responses to the Contextual Teaching and Learning (CTL) based science module on energy material. Based on the results obtained from the practicality questionnaire in the limited group trial, it can be seen that the developed module meets the practical criteria. The results of the calculation of the students' practicality questionnaire with a percentage of 80.80%, with a range of 61 - 80. So that the CTL-based science module shows the "practical" category.

The large group practicality trial was conducted in one class, namely VIII 1. The questionnaire used refers to the Likert 5 scale in which there are 20 questions. The questionnaire was used to obtain information about student responses and the practicality of CTL-based science modules on energy material. Based on the results obtained from the practicality questionnaire in the large group trial, it can be seen that the developed module meets the practical criteria. The results of the calculation of the students' practicality questionnaire with a percentage of 80.70%, with a range of 61 - 80. So that the CTL-based science module shows the "practical" category.

Table 9. Practicality Assessment Analysis Results

Assessment Score	Maximum Score	Obtained
Limited Group Student Response	450	363
Large Group Student Response	2300	1856
Total	2750	2219
Product Practicality Percentage		80.69%
Criteria		Practical

Based on the acquisition of the practicality of the science module from students (small group test and large group test) that has been used, it shows that the CTL-based science module is classified in the "Practical" category with a practicality result of 80.69%.

Analysis of Student Effectiveness

In this study, testing of test questions was carried out in the research class in class VIII 1 as many as 23 people. The questions given were in the form of description questions totaling 10 questions. The questions provided are relevant questions and come from UN questions. Testing of test questions is given to determine the cognitive abilities of students in mastering the material after being taught using CTL-based science modules. Based on the value of the minimum completeness criteria, the learning outcomes of students in terms of cognitive abilities are effective if the average value of student learning outcomes is more than or equal to KKM 72, while student learning outcomes are said to be incomplete if the average value of student learning outcomes is less than or below the minimum completeness criteria (KKM) 72.

The student learning outcomes of this study obtained that of the 23 students in the large group who successfully worked on questions with KKM 72 there were only 21 people and the remaining 2 people were still below KKM.

The t table value with degrees of freedom (dk) = n-1 = 23-1 = 22 and $\alpha = 0.05$. Because the t table with dk = 22 obtained a value of 1.717. The results obtained t count = 3.699 and t table = 1.717, and because tcount ≥ ttable then Ha is accepted and Ho is rejected. Thus the average cognitive learning outcomes of students can be said to be complete with a percentage of 77.26% and means that the average cognitive learning outcomes of students after taking part in science learning using CTL-based

Science Modules are more than or equal to KKM 72. (Ha: $\mu 0 \geq 72$).

This research was conducted to produce a Contextual Teaching and Learning (CTL)-based Science Module on energy material that is valid and practical, and how the design process of developing a Contextual Teaching and Learning (CTL)-based Science module will be developed. Contextual Teaching and Learning (CTL) based science module is a module that contains 7 components of Contextual Teaching and Learning (CTL), namely: (1) Constructivism, (2) Inquiry, (3) Questioning, (4) Learning Community, (5) Modeling, (6) Reflection, (7) Authentic Assessment (Anugreni et al., 2020; Johnson , 2002). Thus it is expected that students can be interested in participating in the learning process.

The research was conducted on October 10-November 10, 2023 at Air Satan Junior High School. Contextual Teaching and Learning (CTL)-based science modules are designed according to the design as it should be. In addition to paying attention to the appearance on the module cover, researchers also pay attention to the contents of the Contextual Teaching and Learning (CTL) based science module. In the science module developed, it fulfills several things as follows, namely: developing students' thinking to do more meaningful learning activities, carrying out as far as possible inquiry activities for all topics taught, developing students' curiosity through the emergence of questions, creating a learning community through group discussion and question and answer activities, presenting models as examples of learning through illustrations and even actual media in conducting practicums or demonstrations, getting used to children to reflect on each learning activity that has been carried out, conducting objective assessments through question exercises to assess the actual abilities of each student, so that students can learn independently and can be directly involved in the learning process.

The development design used in this research is the 4D (Four-D) development model. Where in this model there are four steps, namely: defining (Define), designing (Design), developing (Develop), and disseminating (Disseminate) (Muis, 2020). But in these 4 stages, researchers only use 3 stages of the 4D (Four-D) development model. this is because the dissemination stage requires a lot of time and a lot of money, therefore researchers do not use the Disseminate stage.

The product produced in this study is a valid and practical Contextual Teaching and Learning (CTL) based science module. Validity is determined by the results of evaluations by experts totaling 3 people, namely: material expert Dr. Sulistiyono, M.Pd., media expert Dr. Leo Charli, M.Pd., and linguist Dr. Agung Nugroho, M.Pd. all evaluations were carried out by PGRI Silampari University lecturers according to their respective expertise. The results of the questionnaire filled out by experts are a standard benchmark whether the science module developed is valid or not. After conducting the evaluation, the experts provide criticism and suggestions along with input so that the Contextual Teaching and Learning (CTL) based science module can be improved and can be developed to the next stage. Based on the results of the questionnaire analysis that has been filled in by experts, the science module based on Contextual Teaching and Learning (CTL) developed is included in the Valid criteria.

The next stage after the science module is declared valid, the practicality level is tested on students. Based on the results of a limited group trial with a total of 9 students. At this stage of the limited group trial, the results of the calculation of the student's practicality questionnaire with a percentage of 80.88%, with a range of 61 - 80. While in the large group trial with a total of 23 students with a percentage of 80.65%, with a range of 61 - 80 shows the "practical" category. So that from the results obtained, the Contextual Teaching and Learning (CTL) based science module can be used properly without any obstacles.

After giving a practicality questionnaire, the researcher also gave test questions to students this aims to measure student learning outcomes and to see the completeness of student learning outcomes in using the Contextual Teaching and Learning (CTL) based science module. The test questions given amounted to 10 essay questions and the predetermined KKM was 72. Students who were complete amounted to 21 students while those who were not complete amounted to 2 students so that the percentage result of the completeness of student learning outcomes was 77.26%.

From the findings above, it is concluded that a good Contextual Teaching and Learning (CTL) based science module has helped students in learning activities because the Contextual Teaching and Learning (CTL) based science module is considered something very important in supporting student success.

Conclusion

Based on the research results from the discussion above, it can be concluded as follows: The Contextual Teaching and Learning (CTL)-based science module process uses the 4D (Four-D) development model which consists of 4 stages, namely the Define stage, Design stage, Develop stage and Disseminate stage. In this study, researchers only used three stages, namely Define, Design, Develop. The results of the validator's assessment of the science module are said to be valid and meet the criteria, the results of the overall score of student responses to the Science Module are said to be practical and meet the criteria and the physics learning

outcomes of students are said to be significantly complete.

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Author Contributions
Ovilia Putri Utami Gumay: Designed the research structure, developed the theoretical background, and wrote the introduction and data collection sections. Ivoni Susanti: Performed data processing and statistical analysis. Wahyu Arini: Drafting the results and discussion, final editing of the manuscript and literature review. All authors contributed to the discussion of the research results and approved the final manuscript for publication.

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Conflicts of Interest
The authors declare that there is no conflict of interest in this research, whether financial or non-financial, that could influence the results or interpretation of this scientific work.

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