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Validity Analysis of Science Learning Devices Integrated Learning Model Connected Type on Light Topics

Yulisara[1*], Prabowo[2], Nadi Suprapto[2]
[1,2,3] Universitas Negeri Surabaya, Surabaya, Indonesia

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ABSTRACT

This research aims to produce a suitable connected-type integrated learning model for science learning on the topic of light. The product specifications of the learning tools developed include lesson plans, worksheets, handouts, questionnaires and test instruments. The learning tools developed were reviewed by three validators. The research data were analyzed descriptively. The results showed that the results of the validation of the development of science learning tools were suitable for use in learning, with the following results: Learning Implementation Plan (i.e RPP) got a mode score of 3 (valid) and Cronbach Alpha 0,83 with the criteria of almost perfect agreement, Student Worksheets got a score of mode three (valid) and Cronbach Alpha 0,91 with the criteria of almost perfect agreement, Handout get a mode 4 score (very valid) 0.73 with the criteria of substantial agreement, the Cognitive Learning Outcome Test gets a mode 3 score (valid) and Cronbach Alpha 0,85 with the criteria of almost perfect agreement, the affective assessment sheet gets a mode 4 score (very valid) and Cronbach Alpha 0,85 with the criteria of almost perfect agreement, the psychomotor assessment sheet gets a mode 4 score (very valid) Cronbach Alpha 0,77 with the criteria of substantial agreement, and the student response questionnaire gets mode score 4 (very valid) Cronbach Alpha 1,00 with the criteria of almost perfect agreement. Based on the data analysis, it can be concluded that the learning tools developed are valid and suitable for use in learning.

INTRODUCTION

Education in Indonesia has a national education system that aims to educate the nation's life. Efforts to educate the nation's life cannot be separated from efforts to improve the quality of education and teaching. Education is one of the factors that support the progress of a country. The educational process greatly determines the birth of competent students in a particular field. The expected education is quality education and can be widely accepted in the world of work. Education is a major milestone in building the life of a nation. The more the quality of education increases, the quality of human life will also increase (Prabowo, 2013). Education is said to be of high quality if it can develop students' abilities effectively comprehensive, both mastery of knowledge (cognition), personality (affection) and skills (psychomotor) optimally (Oktamagia, 2013). The success of education is very dependent on the ability of teachers to manage the learning process, especially learning activities in the classroom for the creation of an effective teaching and learning environment system (Majid, 2013). As educators, they should strive and optimize all abilities to improve the quality of education.

Natural Sciences is a systematic collection of theories, its application is generally limited to natural phenomena, born and developed through scientific methods such as observation and experimentation and demands scientific attitudes such as curiosity, openness, honesty, and so on (Trianto, 2014). Science is a process of activity to study nature through scientific work (experimentation and observation) to produce an

understanding of concepts, principles, laws and scientific attitudes so that they are useful for everyday life (Taqiya, 2019). Natural Sciences essentially has 2 components, namely product components and process components (Agustina, 2013). The information also shows that Natural Sciences is both a product and a process. The two components cannot be separated because the two components are a unity. The science process will produce new science products, and knowledge as science products will raise new questions to be investigated through the science process so that new science products are produced.

The results of observations in 1st State Junior High School Kamal, it is known that at that school students are less enthusiastic and pay less attention to the teacher when learning takes place. This has an impact on students' ability to provide an idea or opinion when given a question by the teacher in the learning process. Students' thinking abilities need to be considered both from the cognitive, affective, and psychomotor aspects. Students have not been able to fully develop thinking skills in the learning process, as a result students do not understand the concepts they are learning. This has an impact when students are given practice questions or assignments individually, where students have not been able to complete independently. Students tend to copy their friends' assignments without thinking and trying to solve them themselves when completing the practice questions or individual assignments given. Students' curiosity needs to be increased, which according to McCollum explained that the important components in teaching using a scientific approach include the teacher must present learning that can increase curiosity (foster a sense of wonder), improve observing skills (encourage observation), conduct analysis (push for analysis) and communicating (require communication) (Wibowo, 2014).

Based on the description above, the science learning process at 1st State Junior High School Kamal will have an impact. Where in the learning process students are not able to construct a science material and students do not get direct experience, so students are increasingly difficult to understand a concept being studied. The absence of an adequate learning device that can be used by teachers as a guide in teaching can be one of the factors in this problem. As a result, student learning outcomes are low. This really needs to be considered and followed up so that student learning outcomes increase both from the cognitive, affective, and psychomotor aspects. For example, by applying the connected type of integrated integrated learning which is able to improve student learning outcomes (Andansari, 2015). In addition, the connected type integration model can help students to achieve completeness indicators, which can be seen from the analysis of learning outcomes on product cognitive and process cognitive aspects. This happens because in the connected type of integrated learning, learning is student-centered (Nisak, 2013).

One of the concepts learned by students in science subjects is the concept of light. "Light is a form of electromagnetic wave energy that propagates transversely. The light source emits light energy by radiation, so it is called radiant energy. Plants need light in the process of photosynthesis, where photosynthesis is a stepping stone in food production. Humans and animals basically depend on green plants for food. Parts of plants such as leaves, stems, fruits and seeds are a source of food for humans. Photosynthesis is the process of forming glucose from carbon dioxide and water with the help of sunlight. In the process of photosynthesis, many chemical reactions are involved in a complex manner (Budiarso, 2017).

Based on this description, it shows that light material has an integrated concept with other concepts that can be studied both physically, chemically, and also biologically. The integration of these concepts is very important for students in learning. According to Ananda (2018) integrated learning can provide a meaningful learning experience for students. Therefore, it is necessary to do learning by using the concept of integration in one discipline. Efforts to improve students' ability to think and integrate the concepts they learn are by applying integrated learning. According to Dimyati (2016) integrated learning is a learning approach that involves several fields of study to provide meaningful experiences to students. The meaning in question is that students will understand the concepts learned through direct observation and relate them to other concepts that are understood. Integrated learning allows students to develop concepts learned in interdisciplinary sciences. Prabowo in Trianto (2014) states that the connected model is one model that is considered feasible to be developed and implemented in formal education (elementary schools).

There are many preliminary studies related to integrated learning, as is the case in research Suanah (2017) which conducted research related to connected-type integrated learning in mathematics, the results showed that student learning outcomes increased. Another study Haidir (2012) applied the connected type of integrated learning model to light material, the results showed that student learning outcomes increased. Both studies evaluate learning only covers cognitive aspects, affective and psychomotor aspects of students are not explained. In addition Oktamagia (2013) also conducted research related to integrated learning of the connected type in light material, the results showed that student learning outcomes from the cognitive aspect increased after learning, affective and psychomotor assessments of students were also very good. The research conducted by Oktamagia is that the learning resources used by students are only in the form of worksheets, students need a handout that can be used as a medium in learning. Given that the connected type of integrated learning model is a material integration model. So students must understand the concepts related to the concepts that are connected.

One of the integrated learning models that are classified in integrating one field of study or interdisciplinary science is the connected model. The connected model is a curriculum integration model that intentionally connects one concept to another, one topic to another, one skill to another in interdisciplinary sciences (Dimyati, 2016). This connectedness model has several advantages and disadvantages. The advantages of the connectedness model are as follows: (a) students have a broad picture through integrating ideas between fields of study; (b) able to develop concepts continuously so that the internalization process occurs; (c) able to integrate ideas in interdisciplinary sciences so as to enable students to study, conceptualize and assimilate ideas to solve problems (Ananda, 2018).

Weaknesses of the connectedness model include the following: (a) it still seems that the interdisciplinary fields of study are still separate; (b) it does not encourage teachers to work together in teams; (c) efforts to develop connectedness between fields of study are being neglected Fogarty in Trianto (2014). One of the weaknesses of the connectedness model that needs to be considered is that various fields of study are still separate and there is no relationship (Ananda, 2018). So that the weaknesses in the connected type of integrated learning are not too obvious, it is necessary to carry out an innovation in the development of science learning tools related to the connected type of integrated learning.

RESEARCH METHOD

General Background

The main problem of this research is how feasible is the connected type of integrated science learning model-oriented science learning device on the topic of light? This research is quantitative descriptive. before the tool is validated by experts, the tool is first designed with a development procedure that includes: (1) learning problems, (2) learner characteristics, (3) task analysis, (4) learning objectives, (5) content sequencing, (6) strategies learning, (7) delivery of learning, (8) evaluation instruments, and (9) learning resources. The tools developed include: lesson plans, worksheets, handouts, cognitive learning outcomes tests, affective assessment sheets, skills assessment sheets, and student response questionnaire sheets. The learning tools developed are then reviewed or validated by expert lecturers. The validation process is carried out by 3 validator lecturers so that it will produce data which will then be analyzed descriptively quantitatively.

Sample / Participants / Group

The subject of this research is a connected type of integrated science learning model on the topic of light. The learning tools developed were validated by 3 validators consisting of designer validators, subject matter expert validators, and teachers.

Instrument and Procedures

The research instrument is a tool used to collect data, in this study the instrument used was a learning device validation sheet. This validation sheet is used to validate the developed device. The feasibility of a learning device can be measured from the quality of a device itself, where the quality can be known if a device is validated by an expert using a validation sheet. The validation sheet contains instructions and requests to the validator to provide suggestions for improvement and provide an assessment. The validation sheet is equipped with a choice of scores 1-4 with a category score of 4 being very good. A learning device can be said to be valid if the validity value is at least 2.6 with a good predicate. The learning tools developed were reviewed by 3 validators. Device validation is carried out through validation designers, subject matter experts, teachers who are focused on the process of constructing and content validation testing of the devices made.

In the previous study, namely the research Siburian (2019), this study aimed to determine the validity of the results of developing Environmental Science learning tools with inquiry strategies and instruments for critical thinking skills, creative thinking and student cognitive learning outcomes. The results obtained, namely the syllabus, lesson plans, student worksheet (LKM), and test instruments were declared valid even after making improvements. The same thing was also expressed by Budiarso (2017) this research is a study related to the analysis of the validity of learning devices that aims to obtain an effective guided inquiry model physics learning device to improve high school student learning outcomes on dynamic electricity material. The results showed that lesson plans, worksheets, student textbooks, and cognitive learning outcomes were declared valid. While the psychomotor and affective observation sheets were stated to be very valid. In Siregar's (2020) research, this research is a study related to the analysis of the validity of learning tools that aims to produce learning tools with a valid contextual approach to improve students' KPKM in terms of format, language and

content. The results showed that the learning tools developed were categorized as valid in terms of format, language, and content.

This research is a descriptive research. In this study only focused on aspects of the validity of the analysis of the learning tools developed. In further research related to the analysis of the validity of the developed learning device, it should also be analyzed related to the response questionnaire on the developed device. So that readers can find out the quality of the learning tools developed, with this the devices developed besides being reviewed by experts also get responses from students who will be respondents in the research conducted.

Data Analysis

After data collection, namely analyzing the data. where the data analysis of the validation results of the learning device was analyzed quantitatively. What needs to be validated in the developed learning tools include lesson plans, worksheets, handouts, learning outcomes tests, affective assessment sheets, psychomotor assessment sheets and student response questionnaire sheets. Interpretation of learning device validation assessment scores is presented in Table 1.

Table 1. Interpretation of learning device assessment scores.

Score interval	Category
1.00	Very Invalid
2.00	Invalid
3.00	Valid
4.00	Very Valid

(Nizar, 2018)

Data validation analysis which includes device validation and assessment is carried out by finding the mode value for each component obtained from the validator. The calculation of the reliability of the device assessment instrument uses the following formula:

$$R = \left(1 - \frac{A-B}{A+B}\right) \times 100\%"$$

Description:
R = Instrument Reliability
A = The average number of scores higher than the validator
B = The average number of scores lower than the validator
An instrument is said to be reliable if it has a reliable value of 0.75 or 75% Borich in (Sudiarman, 2015).

Data of the instrument were also analyzed using descriptive statistics with the help of SPSS 16 software (statistical package for social science), namely the crude index agreement equation to obtain the instrument reliability coefficient, and the Cronbach alpha equation to obtain the instrument item reliability coefficient (Suheriyanto, 2014). The equations for the crude index agreement and Cronbach's alpha are as follows:
Equation of crude index agreement (crude index agreement)

$$IKK = \frac{n}{N}$$

(Arikunto, 2013)

Description:
IKK = Coarse fit index
n = The same number of codes or answers
N = The number of objects observed

The instrument has good reliability if IKK > substantial or IKK > 0.60 according to the criteria of agreement between observers.

Table 2. Criteria for agreement between observers.

No	Criteria	IKK
1	Slight agreement	0 - 0.20
2	Fair agreement	0.21 - 0.40
3	Moderate agreement	0.41 - 0.60
4	Substantial agreement	0.61 - 0.80
5	Almost perfect agreement	0.81 - 1.00

(Viera and Garret in Suheriyanto, 2014)

Cronbach's alpha equation

$$r = \left(\frac{k}{k-1}\right)\left(1-\frac{\Sigma\sigma_b{}^2}{\sigma_t{}^2}\right)$$

(Arikunto, 2013)

Description:

r = Instrument reliability as item reliability coefficient

k = Number of questions or questions

$\Sigma\sigma_b{}^2$ = Number of item variants

$\sigma_t{}^2$ = Total number of variants

Item reliability uses Cronbach's alpha equation, the criteria are reliable if Cronbach's Alpha score > 0.7.

RESULTS AND DISCUSSION

Lesson Plans

Lesson plans is a learning plan and a comprehensive description of the learning to be carried out. Lesson plans is a guideline in the implementation of learning activities that contains learning scenarios. The lesson plans developed were arranged for 2 meetings using the connected type of integrated learning model. The lesson plans developed were then validated by 3 validators. The results of the lesson plans validation can be seen in Table 3.

Table 3. Lesson plans validation results.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Indicator formulation	3	3	3	3	Valid
2	Material organization	3	3	3	3	Valid
3	Time	4	4	3	4	Very Valid
4	Learning Activities	4	3	3	3	Valid
5	Evaluation	3	3	3	3	Valid
6	Language	4	3	4	4	Very Valid
Instrument Reliability						88,3%
Conclusion: The developed lesson plan is declared feasible with improvements						

The validation results in Table 3 show that the lesson plans developed when viewed from the mode value obtained are valid criteria. This is in accordance with (Akbar, 2013) suggesting that good validation must include several criteria which include: a logical formulation of learning objectives, clearly presented learning materials, coherent organization, varied learning resources, clear learning activities, and appropriateness of steps. Learning with objectives, as well as assessment instruments are clear and in accordance with the objectives. However, the aspects studied which include the

formulation of indicators, the selection and organization of teaching materials, time, learning activities, as well as aspects of assessment and language aspects get a mode with valid criteria.

This is because improvements still need to be made in terms of writing motivational activities in preliminary activities, the suitability of goals and indicators with basics competency, connected model maps, teaching materials that are prepared are not yet clear, integration maps and learning models used in the delivery of learning materials need to be replaced. Based on this, the researchers made improvements in accordance with the suggestions of the three validators so that it is hoped that after being revised the device can be more helpful in the learning process. This is equivalent to the theory of Allen & Yen in Widiastari (2020) which states that the validity of the device can be interpreted as an ability to measure what should be measured. So if the device in the form of this lesson plan still contains errors, it should be revised in order to get learning tools that can be used in learning activities. In line with what was stated (Arifin, 2017) that if there are still errors in making the instrument, then the instrument is revised again.

The validation results listed in Table 3 show an average reliability value of 88.3% Borich in (Sudiarman, 2015) with a mode score of 3. Analysis of the validity and reliability of research instruments based on the assessment of the validators was also analyzed using SPSS software, it is known that the Cronbach Alpha score of 0.83 with almost perfect agreement criteria, it can be concluded that the developed lesson plans have valid and reliable criteria, so the lesson plans are suitable to be used as a guide in learning activities. Likewise, the results of Yuniati's (2018) research, Nabila & Mareta (2017), and Nur H. et al., (2014) disclose the use of learning tools included in the category good based on score validation for lesson plans.

Student Worksheets

The student worksheet using the connected type integrated learning model which was developed consists of two activities that are arranged as a guide for students in learning activities through teacher guidance to understand the concepts to be learned. The worksheets that have been developed are then validated by 3 validators. The results of the worksheet validation can be seen in Table 4.

Table 4. Worksheet validation results.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Hint Aspect	4	4	3	4	Very Valid
2	Content Eligibility	3	4	3	3	Valid
3	Procedure	4	3	3	3	Valid
4	Question	3	4	3	3	Valid
Instrument Reliability						85,2%
Conclusion: The developed worksheets are declared feasible with improvements						

Student worksheets or worksheet are a learning resource in the form of sheets containing brief material, learning objectives, instructions for working on questions and a number of questions that must be answered by students (Ikhsan, 2016). The students by answering these questions can master the material they are learning. Ikhsan also said that the function of worksheet is to make it easier for students to understand the

material to be studied. The worksheets developed in this study were arranged in such a way that the attitude and skill values of the students could be known and the activity sheets were expected to improve student learning outcomes.

The results of the worksheet validation listed in Table 3 show that the validation data provided by the three validators got a mode 3 score with a valid category and an average reliability of 85.2%, indicating that the worksheet developed can be categorized as reliable Borich in (Sudiarman, 2015). Analysis of the validity and reliability of research instruments based on the assessment of the validators was also analyzed using SPSS software, it is known that the Cronbach Alpha score of 0.91 with almost ferfect agreement criteria, it can be concluded that the worksheet developed has valid and reliable criteria, so that the worksheet deserves to be used as a guide in Learning Activities. Likewise, the results of Yuniati's (2018) research, Ahmad (2018), Nabila & Mareta (2017), Habibah et al., (2017) and Nur H. et al., (2014) disclose the use of learning tools included in the category good based on score validation for worksheets.

Handout

The handout was developed based on the connectedness model with the aim of helping students deepen their understanding of the topic of light which is linked to other topics, namely photosynthesis and the sense of sight. The handout that was developed was then validated by 3 validators. The following is a table of the results of the Handout validation that was developed.

Table 5. Handout validation results.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Material Realm	3	3	4	3	Valid
2	Language Domain	4	3	4	4	very Valid
Instrument Reliability						89,1%
Conclusion: The developed handout is declared feasible with improvements						

According to Azizahwati (2015) the development of science teaching materials cannot be separated from the role of the immediate environment, both the physical (natural) environment and the socio-cultural environment. The developed handout contains light material that is connected to other topics, namely photosynthesis and the sense of sight by referring to the connected type of integrated learning model. This refers to the directive (Ministry of Education and Culture, 2014) which states that educators may develop student textbooks related to learning activities in accordance with practical tools and materials or learning media at school, or also the models and approaches chosen by educators so that core competencies and competencies The basis that has been set can be achieved well. Therefore, the researcher developed a handout with reference to the integration of material in accordance with integrated learning which includes integration in interdisciplinary sciences.

The results of the validation by the three validators in Table 5 show that in general the results of the validation handouts compiled get a mode 4 score with a very valid category. The average reliability data of 89.1% indicates that the handout developed can be categorized as reliable, so it can be said that the components contained in the developed handout consisting of format, content, and language are very valid, and thus can be used in learning. According to (Akbar, 2013) a book must have accurate criteria seen from the aspect of accuracy in presentation. Akbar also stated that textbooks must

be communicative and student centered. Analysis of the validity and reliability of the instrument was also analyzed using SPSS software, it was known that the Cronbach Alpha score was 0.73 with the criteria of substantial agreement, it can be concluded that the developed handout has valid and reliable criteria, so that the handout is feasible to be used as a guide in learning activities.

Cognitive Learning Outcomes Test

The learning outcomes test instrument developed consists of pretest and posttest questions. Each test instrument consists of 10 multiple choice questions which are arranged based on learning indicators on light material with an integrated learning model of the connected type. This cognitive learning outcome test was reviewed by 3 validators. The results of the validation of the learning outcomes test instruments from the 3 validators are listed in Table 6.

Table 6. Validation results of cognitive learning results.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Theory	3	3	3	3	Valid
2	Construction	3	3	3	3	Valid
3	Language	4	3	4	4	Very Valid
Instrument Reliability						95,3%
Conclusion: The developed Cognitive Learning Outcomes Test is declared feasible with improvements						

The development of the cognitive learning outcomes test is based on the formulation of learning objectives associated with Blomm's level of cognitive domain thinking, namely the ability to restate concepts or principles that have been studied as intellectual abilities which include students' ability to remember, remember (C1), understand (C2), apply (C3), analyze (C4), the concept of light (Mursalin, 2021). According to Sudjana (2015) learning outcomes are behavioral information that leads to cognitive, affective and psychomotor aspects obtained by students after the learning process. The learning outcomes test instrument developed consisted of pretest and posttest questions. The test instrument consists of 10 multiple choice questions which are arranged based on learning indicators on light material with an integrated learning model of the connected type.

The results of the validation of the cognitive learning outcomes test instruments from the 3 validators are listed in Table 5. Based on the results of the validation by 3 validators in Table 6, it shows that in general the results of the validation of the learning outcomes tests that were compiled had an overall mode score of 3 with valid categories and obtained a reliability of 95, 3% with reliable category. Analysis of the validity and reliability of the instrument was also analyzed using SPSS software, it was known that the Cronbach Alpha score was 0.85 with the criteria of almost ferfect agreement, it can be concluded that the cognitive learning outcome test developed has valid and reliable criteria, so that the cognitive learning outcome test is feasible to be used as an evaluation. in learning activities.

Affective Assessment Sheet

The student's attitude or affective assessment instrument developed consisted of an attitude of curiosity, honesty, discipline, thoroughness, and responsibility during the

learning process. The developed instrument is also accompanied by an assessment rubric to make it easier for observers to give scores to each student. The developed instrument was then validated by 3 validators. The results of the validation of the attitude assessment instrument from the 3 validators are listed in Table 7.

Table 7. Validation results of student affective assessment.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Display format	4	4	4	4	Very Valid
2	Fill in the assessment sheet	3	4	4	4	Very Valid
3	Language	4	3	4	4	Very Valid
Instrument Reliability						90,7%
Conclusion: the developed student affective assessment sheet is declared feasible						

According to Ananda (2018) attitude stems from feelings (likes or dislikes) associated with a person's tendency to respond to something or an object. Ananda also said that several ways were used to assess student attitudes, one of which was the observation technique, where the instrument used was a rating scale accompanied by a rubric. The attitude assessment instrument developed consisted of curiosity, honesty, discipline, thoroughness, and responsibility during the learning process. Students are expected to show an attitude of curiosity, honesty, discipline, thoroughness, and responsibility during the learning process related to the topic of light with connected-type integrated learning. The developed instrument is also accompanied by an assessment rubric to make it easier for observers to score each student. The developed instrument was then validated by 3 validators. The results of the validation of the attitude assessment instrument from the 3 validators are listed in Table 7.

Based on the results of the validation by 3 validators in Table 6, it shows that in general the results of the validation of the attitude assessment instruments compiled have a mode score of 4 with a very valid category with an average reliability of 90.7% Borich in (Sudiarman, 2015). Thus the attitude assessment instrument developed is included in the reliable category so that it is suitable for use in learning with a few revisions. Analysis of the validity and reliability of the instrument was also analyzed using SPSS software, it is known that the Cronbach Alpha score is 0.85 with the criteria of almost ferfect agreement, it can be concluded that the affective assessment sheet developed has valid and reliable criteria, so that the affective assessment sheet is feasible to be used as an evaluation in the activity learning.

Student Psychomotor Assessment

The skill assessment instrument developed consisted of an assessment of students who were carrying out activities during the learning process. The instrument consists of four aspects that are assessed, all aspects assessed include conducting experiments with the correct procedures, recording experimental data accurately and thoroughly and neatly, analyzing experimental data appropriately and formulating experimental conclusions correctly during the learning process on the material. light with a connected type of integrated learning model. The results of the validation of the learning outcomes test instruments from the 3 validators are listed in Table 8.

Table 8. Validation results of student psychomotor assessment.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Display format	4	4	4	4	Very Valid
2	Fill in the assessment sheet	3	4	4	4	Very Valid
3	Language	4	3	4	4	Very Valid
Instrument Reliability						89,1%
Conclusion: the student's psychomotor assessment sheet developed was declared worthy slightly with improvements						

Skill competency assessment can be carried out using performance or practice assessments (Ananda, 2018). The skills assessment instrument developed consisted of an assessment of students who were carrying out activities during the learning process. The instrument consists of four aspects that are assessed, all aspects that are assessed include conducting experiments with the correct procedures, recording experimental data accurately and thoroughly and neatly, analyzing experimental data appropriately and formulating experimental conclusions correctly during the learning process on the material. light with a connected type of integrated learning model. The results of the validation of the learning outcomes test instruments from the 3 validators are listed in Table 8. Based on the results of the validation by 3 validators in Table 8, the data shows that in general the results of the validation of the skill assessment sheet compiled get a mode 4 score with a very valid category with 89.1% reliability Borich in (Sudiarman, 2015). This the psychomotor assessment sheet developed is suitable for use in learning. Analysis of the validity and reliability of the instrument was also analyzed using SPSS software, it is known that the Cronbach Alpha score of 0.77 with substantial agreement criteria, it can be concluded that the psychomotor assessment sheet developed has valid and reliable criteria, so that the psychomotor assessment sheet is suitable for use as evaluation in learning activities.

Student Response Questionnaire

The student response questionnaire instrument that was developed aims to determine student responses to the learning process of the connected type integrated learning model that is taking place. The results of the validation of the student response questionnaires assessed by 3 validators are presented in Table 9.

Table 9. Results of validation of student response questionnaires.

No	Validated Aspect	Rating score			Modus	Category
		Validator 1	Validator 2	Validator 3		
1	Student response	4	4	4	4	Very Valid
2	Language	4	3	4	4	Very Valid
Instrument Reliability						88,6%
Conclusion: the developed student response questionnaire sheet is declared feasible						

The response questionnaire given to students is in the form of questions about student responses to learning that has been carried out using the connected type of integrated learning model. The student response questionnaire sheet given has two answer choices, namely positive points and negative points, students provide an

assessment of the learning carried out by placing a check mark on one of the selected answers.

According to Annisaul (2020) The student response questionnaire instrument is declared suitable for use if it meets the requirements such as (1) including student responses related to the connected type of integrated learning model (2) listing the ease of language to be understood (3) clarity of sentence meaning in the assessment sheet (4) discussion used in accordance with EYD (5) ease of spelling of writing to read. According to Milina (2020) states that if the analysis of the resulting data shows a conversion of the "appropriate" category then the learning device developed is feasible to use, and if the resulting data shows a conversion of the "inappropriate" category then the learning device developed is not feasible to use and must be used. The results of the validation of the student response questionnaires assessed by 3 validators are presented in Table 9 getting a mode score of 4 with a very valid category and an average reliability of 89.1% Borich in (Sudiarman, 2015).

Analysis of the validity and reliability of the instrument was also analyzed using SPSS software, it is known that the Cronbach Alpha score of 1.00 with the criteria of almost perfect agreement, it can be concluded that the student response questionnaire developed has valid and reliable criteria, so that the student response questionnaire sheet is suitable for use in learning activities. Learning tools are declared valid, in line with research that has been reported (Zaini & Safitri, 2016; Zaini & Asnida, 2016; Imama & Zaini, 2015; Zaini, 2014; Zaini & Ripani, 2015; Setyowati et al., 2015). Based on the results of the analysis, both designer validators, material expert validators, and teachers gave suggestions for better instruments developed. Some suggestions can be accommodated in the form of revision of learning tools. After repairs have been made, it can be concluded that the entire device has very good criteria.

CONCLUSIONS

Based on data analysis and research discussion, it can be concluded that: lesson plans are declared valid, student worksheets are declared valid, test instruments are valid, response questionnaires are also valid. Based on the opinion of experts/experts that all lesson plans, worksheets, test instruments and questionnaires are declared valid. This study only arrived at the validity of the learning device. The suggestions for the development of science learning tools further pay more attention to student characteristics and material analysis related to concepts that can be connected.

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*__Yulisara, S.Pd. (Corresponding Author)__
Universitas Negeri Surabaya,
Postgraduate School,
Science Education Study Program
Continuing Program Development, Jl. Unesa Lidah Wetan, Surabaya, Indonesia
Email: yulisara.18031@mhs.unesa.ac.id

Prof. Dr. Prabowo, M.Pd
Universitas Negeri Surabaya,
Science Education Study Program
Continuing Program Development, Jl. Unesa Lidah Wetan, Surabaya, Indonesia
Email: prabowo@unesa.ac.id

Assoc. Prof. Nadi Suprapto, PhD.
Universitas Negeri Surabaya,
Science Education Study Program
Continuing Program Development, Jl. Unesa Lidah Wetan, Surabaya, Indonesia
Email: nadisuprapto@unesa.ac.id