Journal of Educational Technology and Innovation
Homepage: http://jurnal.unipar.ac.id/index.php/jeti/
Vol 7 No 1 2024, pp 25-37 . *P - ISSN* 2621-2137
DOI: https://doi.org/10.31537/jeti.v7i1.1777 *E - ISSN* 2621-2080

Comparative Study of the Use of Learning Modules and Learning Motivation on Integrated Science Learning Outcomes of Junior High School Students in Jember

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Article History: Received: *Received: mei;, 25, 2024; Accepted: june , 20 2024; Published: June 30, 2024*

Abstrak

The teacher as the main actor in learning is required to be able to provide meaning and understanding of each chapter studied. Teachers must be able to develop Integrated Science lessons in such a way that they can be challenging, impressive and excite students in learning. From this view, it can be concluded that to improve the cognitive and mental development of students optimally, the process of interaction and communication. The existence of an effective and good module must meet various existing criteria such as communicative, detailed, simple and straightforward, attractive layout, pictures, tables, graphs and other illustrations, concise and practical examples. Through the learning module media, integrated science material will be better presented and effectively support student learning success. This research uses a comparative quantitative approach. The sample in the study were seventh grade students with a total of 62 students in the jember district analysed using the independent T test. the conclusion of the study which states that there is no more dominant difference between the use of learning modules and learning motivation on student learning outcomes of integrated science subjects of class VIII junior high school students in jember.

Keywords: Module, Learning Motivation, Learning Outcomes

Introduction

The teacher's role in imparting knowledge is important, but students' active skills in learning give knowledge deeper meaning. Slavin (Slavin, 2009) states that teachers cannot only provide knowledge in their minds. This means that the teacher's role is not only as a presenter of knowledge information but also provides facilities in the learning process for students to build their own knowledge.(Rachim, 2019)

Given the importance of Integrated Science lessons in schools, Integrated Science teachers as the main actors in Integrated Science learning are required to be able to provide meaning and understanding of the chapters studied themselves. Integrated science teachers must be able to develop Integrated

Science lessons in such a way that they can be challenging, impressive and excite students in learning. From the above views it can be concluded that to improve the cognitive and mental development of students optimally, the process of interaction and communication between individuals needs to be trained and developed in the learning process, active involvement of students to build their understanding makes teaching more meaningful..(Suwono et al., 2017)

But in reality, quoting the opinion of (Arends, 2015) *conlude that in most classrooms, two-thirds of talk is by teacher*. It can be concluded that in general, the learning process is still teacher-centred, where 2/3 of the time in class is dominated by the teacher. Teachers generally talk at length without giving students time to actively participate in interaction and communication to build their own understanding.(Canan AYDINBEK, 2021)

Based on initial observations made by researchers, this situation also occurs in the learning process of Integrated Science in junior high schools (SMP) today. Teachers teach conventionally with guide books that are less interesting. Researchers made observations from the reference books used that were less interactive and seemed monotonous and no reference reading was found like a module. The absence of literacy media such as modules is very unfortunate considering the advantages of modules that are more interactive with clear stages and instructions..(Kumar & Kogut, 2006; Langford, 2005)

The existence of an effective and good module must fulfil various existing criteria such as communicative, detailed, simple and straightforward, attractive layout, pictures, tables, graphs and other illustrations, concise and practical examples. Through the learning module media, integrated science material will be better presented and effectively support student learning success.. (Liew et al., 2017)

In addition to the unavailability of learning media in the form of modules, researchers also observed student motivation in participating in the learning process. From these observations, it was found that learning motivation varied. Some students seem to have high learning motivation and some others are low. Whereas learning motivation is an important element of effective teaching. (Arends, 2015) mentioned that one of the requirements for a successful teacher is a teacher who masters a number of teaching skills, so as to motivate students to think reflectively and be able to solve problems. (Ümit Demiral & Çepni, 2018)

Theoretical Foundations

Modul

As teaching materials, modules have certain characteristics, which distinguish them from other teaching materials. According to (Khasanah et al., 2017) Module characteristics include 1) Self contain, 2) Leaning on individual differences, 3) The existence of associations, 4) The use of various media, 5) Active

student participation, 6) Direct reinforcement and 7) Supervision of evaluation strategies. Supervision of evaluation strategies. Similarly, modules have certain components as one of the characteristics of individualised learning. The components of the module consist of: (1) Rationale, (2) Objectives, (3) Input test, (4) Learning activities, (5) Self test and (6) Post test.

Menurut (Bahrum & Ibrahim, 2018) A module is defined as a printed learning unit. Integrated teaching that has a unified theme, presents students with the information needed to master and assess specified knowledge and skills, and serves as a component of the entire curriculum. From this definition (Kemendikbud, 2014) suggests the definition of modules in terms of physical form in the form of printed learning materials, its function as a medium for independent learning, and its content in the form of a unit of learning material..

According to (Sadiman, 2010) module is defined as an independent learning package containing one topic or unit of learning material and requires several hours of study time for one week. From this definition, it can be interpreted that the module is viewed from the function as a medium for independent learning, this module is in the form of a topic or unit of subject matter and the provisions of the time needed to study the module..

According to (Yuristia et al., 2022), The definition of a module is a unit of the smallest teaching and learning programme, which in detail outlines a) Instructional objectives to be achieved, b) Topics that will be used as the basis for the teaching and learning process, c) Subjects to be studied, d) The position and function of the module in a broader programme, e) The role of the teacher in the teaching and learning process, f) Learning tools and resources used, g) Learning activities that students must do and live in sequence, h) Worksheets that must be filled in by students, i) The evaluation programme that will be implemented.

(Nurnaningsih et al., 2023) suggests there are 12 elements in the module, namely: a. Topic statement, which is a sentence that includes the subject matter to be taught, b. Rational, which is a brief statement that reveals the rationale and usefulness of the material for students, c. Concept statement and prerequisite, which is a question that defines the scope and sequence of concepts in relation to other concepts in the subject area, d. Concept, which is an abstraction or main idea of the learning material contained in the module, e. Behavioural objectives, which are questions about what abilities students should master, f. Behavioural objectives, which are questions about what abilities students should master. Concept, which is the abstraction or main idea of the learning material contained in the module, e. Behavioural objectives, which are questions g. Suggest teacher techniques, which are instructions to the teacher about what methods to apply in helping students, h. Suggest student activities, namely activities

that students must do to achieve learning objectives, i. Multimedia resources, namely showing sources and various choices of materials that can be used when working on modules, j. Post test and evaluation, namely the teacher applies the conditions and criteria for assessing student performance, k. Remidiation plans, namely to help students who are weak in achieving certain criteria and l. General reassessment potential, which refers to the need for continuous assessment of the elements of the module..

Motivasi

Learning motivation is the process of encouraging and sustaining goals by directing behaviour according to (Schunk, 2012). Learning motivation is a psychological process that reflects the interaction between attitudes, needs, perceptions and decisions that occur in a person. (Yuliya, 2019). And learning motivation as a psychological process arises due to factors within a person himself called instrinsic or factors outside himself called extrinsic factors. Factors within a person can be in the form of personality, attitudes, experience, education etc. While external factors can be caused by various sources, it can be because of teachers. While external factors can be caused by various sources, it can be due to teachers, leaders or others..

General Indonesian Dictionary (Solihati, 2018) interpret the word motivation as 1) the impetus that arises in a person consciously or unconsciously to take an action with a specific purpose; 2) efforts that can cause a person or group of people to be moved to do something because they want to achieve the desired goal or get satisfaction with their actions.

(Wingkel, 2009) argues that motive is the driving force within a person that encourages individuals to carry out certain activities to achieve goals. Berelson and Steiner state ‘a motive as an inner state that energies, activitivities or moves, (hence motivation) and that directs or channels behaviour to ward goals’. While (Restuningtyas & Hasibuan, 2022) ‘From a managerial perspective, motivation refers to any conscious attempt to influence behaviour towards the accomplishment of organizational goals’. The free translation is as follows: Motivation is a conscious effort to influence a person's behaviour so that it leads to the achievement of organisational goals.”

From another source it was found that motivation is what makes people act or behave in the way they do. Motivation is the mental drive that drives and directs human behaviour.(Dimyati & Mudjiono, 2009) Explanation: In motivation there is a desire that activates, moves, channels and directs the attitudes and behaviour of individual learners..

(Adi Kesuma et al., 2021) stated that motivation is a conscious effort to influence a person's behaviour so that it leads to the achievement of organisational goals. That is, if someone really wants something and the way seems open to get it then the person concerned will try to get it. In other words,

a person will be available to do any work for others, if that person has strong motivation.

The definition of motive and motivation to learn, motive is something that makes people act or behave in certain ways, it is general, permanent with experiences that are carried continuously. Motivation means providing encouragement, enthusiasm, and work inspiration to others to work better and harder.

Methodology

This research is a study that compares the significance between independent variables on the dependent variable so that the approach of this variable is comparative quantitative. In the independent variable, the use of learning modules is compared with conventional learning (without learning modules). Meanwhile, the other independent variable, namely learning motivation, only compares students who have high and low learning motivation.(Sarmanu, 2017)

population is all respondents or objects to be studied (Sugiyono, 2014) in this case are all students of class VII SMP Plus Darus Solah Jember even semester learning year 2015/2016. While the sample is part of the population that will be used as objects or research respondents / representatives of the population. The sample in this study were students taken from two classes in grade VII with a total of 62 students.

The steps taken at the research implementation stage include: 1) giving a pretest which aims to determine the level of students' initial abilities, 2) carrying out research treatments, and 3) giving posttests using learning outcomes tests The analysis used in this study was using SPSS 20.0 with the Independent Sample t-tests analysis method. (Sugiyono, 2014)

Results and discussion

Learning motivation data is grouped into two categories, namely high and low learning motivation. Students who have a learning motivation score ≥ the average learning motivation score of the whole class will be categorised into high learning motivation while students who have a learning motivation score ≤ the average learning motivation score of the whole class will be categorised into the low learning motivation group. Using these criteria, 50 students have high learning motivation and 12 students have low learning motivation. In detail presented in Table 1.

Table 1: Number of students based on learning motivation

learning motivation	The number of students	
	Frekuensi	Presentase (%)
tall	50	78
law	12	22
sum	62	100

Learning outcomes are measured by tests with a range of cognitive outcome scores of 0 - 100. In general, the description of cognitive outcome data as follows can be seen in Table 2

Table 2. Description of Cognitive Outcome Data

mark	learning		Motivation to learn	
	Modul	Kovensional	tall	Low
average	84,50	64,80	64,13	49,42
Minimum	66,00	42,00	40,00	28,00
Maksimum	94,00	73,00	92,00	60,00
Standar Deviasi	10,05	10,24	10,71	10,43

In Table 2 above, it can be seen that the difference in cognitive learning outcomes in classes that use learning modules and conventional, both from the average value, the maximum value and even the minimum value shows that the module class has a higher value than conventional. Likewise, in the classification of learning motivation, it appears that the high learning motivation group has an average value, maximum value and even minimum value higher than the low learning motivation class..

a) Affective Learning Outcome Data

In addition to cognitive assessment, affective assessment is also carried out to provide information about student attitudes. The range of affective results scores is 40 - 160. In general, the description of affective results data can be seen in Table 3.

Table 3. Description of Affective Outcome Data

Skor	learning		Motivasi lern	
	Modul	Konvensional	tall	low
average	110	90	118,03	98,12
Minimum	105,00	96,00	106,00	95,00
Maksimum	147,16	123,05	153,00	104,00
Standar Deviasi	8,01	8,82	6,52	9,81

In Table 3 above, it can be seen that the difference in affective learning outcomes resembles a cognitive description, namely in classes that use learning modules and conventional, both from the average value, the maximum value and even the minimum value shows that the module class has a relatively higher value than conventional. Likewise, in the classification of learning motivation, it appears that the high learning motivation group has an average value, maximum value and even minimum value relatively higher than the low learning motivation class.

As has been explained that this research, to test significant differences (comparative) student learning outcomes between learning using learning modules and conventionally proposed statistical hypotheses that function as Ho. Furthermore, the statistical hypothesis was changed into an alternative hypothesis to be tested using the Independent Samples t-test with the SPSS 20 programme.

The results of the comparison test using the Independent Samples t test are in table 4.

Table 4.Calculation Results *Independent Samples t test*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NILAI	31.778	.000	5.603	68	.000	10.65000	1.90084	6.856	14.44
Equal variances assumed									
Equal variances not assumed			5.603	47.333	.000	10.65000	1.90084	6.826	14.47

Based on the results of the t test calculation can be seen Independent Samples t test in table 4. From these results it can be stated that there is a significant difference between the use of learning modules and without learning modules (conventional) on the learning outcomes of junior high school students in Jember even semester integrated science subjects. The basis for decision making is based on the Sig. (2-tailed), if <0.005 then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted and if >0.005 then H0 (null hypothesis) is accepted and H1 (alternative hypothesis) is rejected. Based on the analysis results obtained Sig (2-tailed) 0.000 <0.005, then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted. In other words, there is a significant difference between students' science learning outcomes between the use of learning modules and without learning modules (conventional)..

In this study, to test significant differences in student learning outcomes by looking at the differences between students with high and low learning motivation, a statistical hypothesis is proposed which functions as Ho. Furthermore, the statistical hypothesis was changed into an alternative hypothesis to be tested using the Independent Samples t-test with the SPSS 20 programme.

The results of hypothesis testing of this second hypothesis are presented in Table 5. as follows.

Table 5 Calculation Results *Independent Samples t test*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NILAI	.742	.392	3.409	68	.001	8.02143	2.35334	3.32541	12.71
Equal variances assumed									
Equal variances not assumed			3.409	67.52	.001	8.02143	2.35334	3.32481	12.71

Based on the results of the t test calculation can be seen Independent Samples t test in table 5. From these results it can be stated that there is a significant difference between high learning motivation and low learning motivation on the learning outcomes of junior high school students in Jember even semester integrated science subject pests and diseases. The basis for decision making is based on the Sig. (2-tailed), if <0.005 then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted and if >0.005 then H0 (null hypothesis) is accepted and H1 (alternative hypothesis) is rejected. Based on the analysis results obtained Sig (2-tailed) 0.001 <0.005, then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted. In other words. In other words, there is a significant difference between students who have high learning motivation and low learning motivation on the learning outcomes of junior high school students in Jember even semester integrated science subjects.

The calculation using independent samples t test of the hypothesis can be seen in table 6. following.

Tabel 6 Hasil Perhitungan *Independent Samples t test*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								99% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NILAI	20.470	.000	1.481	68	.143	2.6285	1.7750	2.0753	7.33252
Equal variances assumed									
Equal variances not assumed			1.481	49.516	.145	2.6285	1.7750	2.1264	7.38355

Based on the results of the t test calculation can be seen Independent Samples t test in table 6. From these results it can be stated that there is no dominant difference between the use of learning modules and learning motivation on the learning outcomes of Jember junior high school students even semester integrated science subjects The basis for decision making is based on the Sig table. (2-tailed), if <0.005 then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted and if >0.005 then H0 (null hypothesis) is accepted and H1 (alternative hypothesis) is rejected. Based on the analysis results obtained Sig (2-tailed) 0.143> 0.005, then H0 (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected. In other words, there is no dominant difference between the use of learning modules and learning motivation on the learning outcomes of junior high school students in Jember integrated science subjects. .

Discussion

The results of the first hypothesis test show the conclusion that there is a significant difference in the use of learning modules and without learning modules (conventional) on student learning outcomes in integrated science subjects on the subject of pests and diseases in plants in class VIII SMP Plus Darus Sholah Jember This conclusion is obtained from decision making based on the Sig. (2-tailed), if <0.005 then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted and if >0.005 then H0 (null hypothesis) is accepted and H1 (alternative hypothesis) is rejected. Based on the analysis results obtained Sig (2-tailed) 0.000 <0.005, then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted..

This result can be explained by the fact that the form of the module which is equipped with instructional directions and clear and related stages makes its own advantages that are not found in other similar media. The instructional direction in the module will guide students independently to carry out the learning process so that they are not too dependent on the presence of a teacher. The stages of material to be presented in the module are arranged in such a way that students get the material as a whole and thoroughly through successive parts. This is in line with the opinion of (Sudjana, 2012) which explains that a module is a teaching package that deals with a small gradual unit (studied individually from one unit to another) of a particular subject, participants teach themselves. Learners exercise their own control over the intensity of their learning'. With the advantages of this module, the results of the hypothesis stating that module learning makes a difference in learning outcomes..

These results are also in line with research conducted by (Parmin & Peniati, 2012) stated that the development of the module of the science teaching strategy course by utilising research articles as the main reference from national and international journals is considered feasible by experts to be used in learning..

From the exposure and findings of previous research relevant to this study, it is very logical to be used as an explanation related to the conclusion of the results of testing the first hypothesis, namely that there is a significant difference in the use of learning modules and without learning modules (conventional) on student learning outcomes in integrated science subjects for class VIII students of Jember Junior High School.

In the results of the second hypothesis test, it is concluded that there is a significant difference between high learning motivation and low learning motivation on student learning outcomes in integrated science subjects in class VIII SMP Jember. This conclusion is obtained from decision making based on the Sig. (2-tailed), if <0.005 then H0 (null hypothesis) is rejected and H1 (alternative hypothesis)

is accepted and if >0.005 then H0 (null hypothesis) is accepted and H1 (alternative hypothesis) is rejected. Based on the analysis results obtained Sig (2-tailed) 0.001 <0.005, then H0 (null hypothesis) is rejected and H1 (alternative hypothesis) is accepted..

The conclusion of the second hypothesis test results can be explained with the following argumentation. Learning motivation is a psychological process that reflects the interaction between attitudes, needs, perceptions and decisions that occur in a person. (Kognitif et al., 2015; Priawasana et al., 2020). Learning motivation as a psychological process arises due to factors within a person himself called instrinsic or factors outside himself called extrinsic factors. Factors within a person can be personality, attitude, experience, education. While outside factors can be caused by various sources, it can be because of teachers, leaders or others. A person is considered to have learning motivation if they have the desire to do something better than others..(Ikrom, Fadhli Dzil & Hidayah, 2019; Nurhayati et al., 2018)

Observations made during the learning process resulted in the fact that students who have high learning motivation are more encouraged to learn compound name system material, do not hesitate to re-read when there is material that is difficult to digest or forget and tend to compete with their peers. These characters are always present in students who have motivation to learn because they appear instinctively in themselves. As stated by (Hasni, 2019) that learning motivation is the basic drive that drives a person to behave. This impulse is in a person who moves to do something in accordance with the urge in him to learn.(Yuliya, 2019).

The situation is reversed for students who have low motivation to learn, they tend to read the material simply without any willingness to repeat themselves. When doing assignments, students who have low learning motivation often give up when they find difficulties. In the learning process, there is no desire to compete among friends, on the contrary, they always position themselves to be passive individuals who are low in creativity..(Marlina et al., 2021)

There is no more dominant difference between the use of learning modules and learning motivation on student learning outcomes of integrated science subjects in class VIII students of Jember Junior High School. This result is obtained from decision making based on the Sig table. (2-tailed), based on the results of the analysis obtained Sig (2-tailed) 0.143> 0.005, then H0 (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected.

The conclusion of the test results stating that there is no more dominant difference between the use of learning modules and learning motivation on student learning outcomes in science subjects can be understood from the following arguments. This research has been designed and planned as well as

possible, but of course it will not be separated from the limitations of researchers in conducting research. Some of the limitations of this research are that this research must comply with and follow the mechanisms that apply at school starting from the limitation of learning time so that with a limited time allocation the researcher must complete the learning process even though there are still students who do not understand the material that has been presented..

Another limitation is that the responses given by students during the research instrument trial process cannot be ascertained whether they reflect and describe the actual answers. Likewise, when the research took place whether the affective instruments and learning motivation which were only in the form of questionnaires could reflect the actual attitudes of students. As explained by (Watson & Reigeluth, 2008) that there are several inhibiting factors in filling out attitude scales, one of which is that each answer that has a certain and limited alternative will also limit the flexibility of students in communicating their attitudes, besides that students' answers are influenced by their own desires and desires for social acceptance and not violating societal norms..

Keterbatasan berikutnya adalah pada media belajar yakni modul yang meskipun telah divalidasi dan disiapkan dengan baik akan tetapi tidak dapat dipastikan siswa yang diberi media modul akan menggunakannya karena dimungkinkan siswa tersebut malah menggunakan media lain misalnya buku pegangan wajib sehingga kemungkinan pinjam meminjam media dapat saja terjadi manakala mereka kembali atau sepulang sekolah. Selain kemungkinan tersebut di atas, media pembelajaran berupa modul belum memenuhi standar penulisan. (Degeng, 2017)

The module is still not equipped with steps as found in modules in general. Steps that have not been, for example, follow-up of student learning outcomes on teaching materials. The intended follow-up can be in the form of repetition of studying again for students who are still below the standard of completeness value or can be with the predetermined KKM criteria. Another step is the absence of instructional sentences or suggestions to add and deepen the very basic (important) concepts. The next step that is not yet contained in the module is the standard assessment of each task or exercise question so that students cannot measure the level of success in mastering the material they learn..

Conclusion

Based on the explanation above, it is sufficient to provide an explanation regarding the research conclusion which states that there is no more dominant difference between the use of learning modules and learning motivation on student learning outcomes in integrated science subjects for class VIII junior high school students in Jember.

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