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Module: Climate and Culture of Life Dayak Effect on Learning Result and Activities Student Learning on Geography in Senior High School, Balikpapan-Borneo-Indonesia

Ach. Fatchan, Edy Purwanto and Herlina Juwita Rachman
Faculty of Social Science, Universitas Negeri Malang, Malang, Indonesia

Abstract: This study aimed to examine the effect of learning modules based on context of Cultures Dayak on results and learning activities geography student Senior High School in Balikpapan-Borneo. The design of this study is quasi experiment that uses a non-randomized pretest-posttest control group design. Variable tested in this study are: learning modules for image-based context Culture Dayak, learning result and learning activities of students on the material of Geography, student learning is measured by using a pre-test and post-test. Student learning activities measured by using sheets of check-list at the time of observation in the classroom. Data were analyzed using gain score and t-test. The results showed that the use of image-based module Cultural context Dayak affects the result of learning geography students. It is shown on the following evidence: the test results using a "multiple choice" shows scores 5,105; the test results using the "essay" indicates a score 2,502. The results of the study using the "essay" is better than the test using "multiple choice". Such learning also influenced the significant student learning activities.

Key words: Modules, the context of Dayak cultural, learning result, learning activities, multiple choice

INTRODUCTION

The pattern of education that lately are being developed are leading to student centered learning. Such learning is intended that students play an active role in the learning process. Teachers tend to act as a facilitator of learning. Thus, the students become more active, creative and innovative. At the end of learning results for the better. Associated with it, research Dananjaya (2010) noting that the student-centered learning are strategic and innovative. It happened because it facilitates active student and be able to develop their potential. Such a thing is in line with the concept senior high school in the context of changing educational system from centralized to decentralized (Bardani and Dehghan, 2016).

Each student is a unique individual. They differ from one another (Charles, 1980). Such a view should make a student-centered learning. That means that in a learning provides the opportunity to decide for themselves how people learn. In the implementation, learning to appreciate the manner and speed/skill of each individual (Waknine, 2011). Patterns such as one that uses the learning scientific approach that is consistent with chronological active and creative thinking of students. The assumption is that students learn to construct concepts through his own life experiences and not memorize concepts. Learning that utilizes the context of everyday life of students as a learning resource. Therefore, requires students active and creative thinking (Crawford, 2001).

The character of material objects of the geographic to tend context of everyday life both natural conditions and human resources. Natural conditions related to the context in which people live. Context conditions of human resources related to social life, economy and culture in everyday life that exist around the school (Fatchan *et al*., 2005). The context condition if used as a medium of learning will be able to give freedom to the students to construct what is seen, observed, written and presented. Furthermore, it can improve life skills. Learning such as self-direct learning patterns (Kunkel, 1975).

Robinson and Crittenden (1972) and Cross (1983) research found that the appreciation of the learning outcomes, create a supportive environment, the orientation of social and cultural factors, geography and the existence of conditions of people can bring a positive attitude for students. Similarly, the condition of the environmental context about the lives of students as a learning medium very conducive to the success of a lesson (Amirudin and Budijanto, 2006). Based learning issues around environment students can improve concentration, activity and student motivation. Students who followed the project-based learning to influence the

Corresponding Author: Ach. Fatchan, Faculty of Social Science, Universitas Negeri Malang, Malang Indonesia

activity, creativity, courage students in expression (Fatchan *et al*., 2005). Contextual learning through field observation in an area that is frequently hit by natural disasters can increase student learning activities Junior Midle School (Fatchan and Purwanto, 2007). Furthermore, in "action research" that they do show that the student's behavior is more concerned about the environment and the attitude of rapid response in case of natural disasters.

Study independently performed by students suspected would be great if done using a reliable study guide. One form is to use the module. The module is an alternative for students to learn in a self-directed learning (Kunkel, 1975). Learning encourages students to develop optimally (Dimyati, 2009).

The module is designed to help students learn self-containing components of interest, course material, assignments and evaluation (Charles, 1980). Modules are well equipped with a variety of activities and instructions to increase interest in independent study. Modules are well must be equipped with components of the formulation, the purpose of teaching and a description of the subjects. Modules good if it has components: materials, methods, limits the content and evaluation systematically designed to achieve the expected competencies.

Learning to use the modules aim to facilitate students to learn actively and independently. As the opinion of Sullivan *et al*. (2010) that learning to use the module will encourage students to learn actively. In the execution of the students do not become the object of learning. Students do not just listen and record but they actively learn independently. Their learning activities in accordance with the instructions contained in the module itself.

Learning through modules proved beneficial improvement of student achievement (Sahrir, 2011). This is shown from the results of tests on material concepts atmosphere increased significantly. The findings are consistent with the results of research. They are noted that a well-developed module provides improved learning outcomes significantly. The research findings reinforce previous research that the module had a significant influence on the level of cognitive and attitudes (Dimopoulos *et al*., 2009).

Modules that are "self-instruction" proved to be able to motivate students to learn independently. Complete module has the character as "self contained". It has components of learning objectives, indicators, charts learning, concept maps, glossary, instructions for use, materials and evaluation (Sahrir, 2011). Modules that have specifications "adaptive" is a module that can adapt to the development of science and technology as well as flexible (Ministry of Education, 2008). Adaptive module can be used on a different subject but quickly understood. However, in the end still provide good learning outcomes (Chao *et al*, 2012). Dimopoulos *et al*. (2009) noted that the modules can be implemented on the subject were varied and in a long time. There is also that the modules included in the school curriculum. Correspondingly, Schurle noted that the module is very motivating if presented in a variety of interesting shapes.

Kondo *et al*. (2012) revealed that the module can improve students' ability to learn independently. So that students are more interested to learn independently, then the module must contain clear instructions and guidelines. Thus, the students were able to complete each unit subject matter well (Zsohar and Smith, 2008). To that end, each unit of the material in the module should contain an overview, objectives, instruction for students, learning materials, questions and some activities are competent. According to Robinson and Crittenden (1972) complete module should contain the following components: behavioral objectives, a sequence of learning activities and provisions for evaluation. Thus, the module can provide learning through a whole series of learning activities of students. Where, every piece of material studied thoroughly, then learn the next piece of material.

Modules are well developed, its existence does not depend on other learning media. As previous research found that the module with the specification "stand alone" can be used without using the help of learning media. By using such a module, the learning can be performed with optimal results, although the conditions are limited (Sahrir, 2011). While the modules that have the character of "self-test" has a unique advantage. Students can independently take the test in the module, then corrects himself learning results. Such patterns will add confidence and honesty to train students. Furthermore, the module has a specification "user-friendly" demonstrated a pattern of learning activities are coherent and systematic. Such specifications make students more organized and systematic in understanding the subject matter contained in the module (Sahrir, 2011). In other words, the modules are accompanied by instructions and information in it is complete make students readily respond and access in accordance with their ability. Such a finding is reinforced by research Nyoto that learning to use a module that was organized and elaborated in a coherent learning outcomes more effectively.

Geography subjects in the senior high school has a specific character. Objects associated with the

phenomenon of the geosphere studies that include the interaction between humans and the natural surroundings. Therefore, to enable students to easily learn geography, learning is divided into units of matter smaller (Zsohar and Smith, 2008) and in line with the context of local cultural life (Fatchan and Soekamto, 2015). The goal is to facilitate students in learning geography. For example, the module "atmospheric material" is divided into six parts in balance, in line with the competencies that must be mastered by students and pay attention to the continuity between the material (Sahrir, 2011). This is consistent with the opinion of Donelly and Fitzmaurice who noted that the division of the module needs to pay attention to the continuity of content, connect to new ideas and previous material. In other words, the module must be a "logical links" between the needs of students, learning objectives, learning results, resources, teaching and learning strategies, assessment and evaluation.

Excess geography lesson was able to explain many phenomena in different locations in just one map. To explain the geography phenomenon that occurs in a place will be more easily understood, when used in a variety of information. That information such as: the science of geography aids (Purwanto, 2010) and the context of the daily life of the local community (Fatchan and Soekamto, 2015). The context of a society that surrounds where the student resides. If students are taught using the material content of the modules associated with the environmental conditions surrounding the student, then the result is better and "mental effort" low (Tasir and Pinb, 2012).

In learning geography students should be directed to the activity of seeing and understanding the earth by using "the geography eye". For example, using a map, understand the picture, to understand an event that happens around students. The goal is that students can make the conclusion of a concept based on the observation that they do. In other words, the use of spatial contextual approach would be more perfect and interesting for students to learn geography (Purwanto, 2010; Fatchan *et al*., 2012a, b).

Based on some of the concepts that have been described above, this research holds that the module is a set of teaching materials are arranged in such a way. The module has a specification "self contained" which contains the local charge, to the subject matter "Climate and Repercussions for Human Life". Components and content module consists of learning objectives, indicators, charts learning, concept maps, glossary, instructions for use, materials, evaluation and is allowed to ask if there are things that are poorly understood. The contents of local content material with regard to climatic influences and activities of daily life of the community Dayak in Balikpapan. The materials include: Influence of rainfall against the planting of "upland rice", "rice paddy" and rice in the land "ebb and flow"; the influence of climate on tree planting for reforestation; the influence of climate on the activity of trading in "floating market" or "trade on the river".

Learning that utilize contextual material on the local culture could be expected to raise interest, activities and knowledge of students. The involvement of local wisdom to make the acquisition of a positive learning who can understand the social values of the local culture that exist in the life of the individual concerned (Fatchan and Soekamto, 2015). Implementation of such learning takes a sequence of phases of activity. Stage of the learning activities as follows: observe; classify; communicate; measures; projects and concluded and write a report on the results of studies (Gagne and Berliner, 1985).

MATERIALS AND METHODS

This study was designed using a quasi experimental model of non-randomized pre-test and post-test control group design. Manipulation of the group of research subjects is done by using a control class and experimental class had average ability is almost the same (Seniati *et al*., 2011; Creswell, 2012). The experiment was conducted at the senior high school in Balikpapan, East Kalimantan. The subjects were grade 10 students studying matter "climate and its influence on human life". At the beginning of learning to do pre-test (either the experimental class and control class). Furthermore, the post-test at the end of the lesson. The study design is shown in Fig. 1.

(EC)	O1	X	O2
(CC)	O1	-	O2

Fig. 1: Non-randomized pretest-posttest control group design: (EC) = Experiment Class = 30 students; (CC) = Control Class = 30 students; O1 = Pre-test; O2 = Post-test; X =Learning to use the module with the local cultural context based material; society Dayak; = Learning does not use the module but using; "sequence textbook"

Type of instrument used in this study a set of test tools. The test set consisted of "multiple choice" and "essay". A set of test tool has been tested using analysis: validity, reliability, level of difficulty and different power. To test the validity of using the analysis model of Cronbach. To test reliability using consistency analysis test. To test the level of difficulty of "items" using the technique of "analysis of different power". As for determining how much the different variables examined in this study using a t-test. Various techniques of data analysis using SPSS 16.0 for Windows.

RESULTS AND DISCUSSION

Student learning result: To measure learning resultscore (material geography: climatic influences and activities of daily life of the community of Dayak) between the experimental class and a control class used different test. Where experimental class is learning to use the module. While classroom learning control does not use the module (learning to use the "order of the text book"). Forms tests given in the form of "multiple choice" and "essay". The average gain score between the experimental class and a control class as shown in Table 1.

Table 1: The average "gain score" of students learning result

Class/Group	Pre-test	Post-test	Gain score	Notes
Multiple choice				
Experiment	66.012	95.078	29.066	--
Control	67.912	80.045	12.133	--
Essay				
Experiment	58.330	97.030	38.700	--
Control	54.851	83.784	28.933	--

Table 2: Score learning result of students who use the test "multiple choice"

Class	Score: t	Score: F	Mean	SD	Notes
t and F-test	5.105	2.121			$\alpha = 0.05$
Experiment class			29.4733	14.05199	
Control class			12.6300	11.36493	

Table 3: Score learning result of students who use the "essay test"

Class	Score: t	Score: F	Mean	SD	Notes
t and F-test	2.502	2.041			$\alpha = 0.05$
Experiment class			39.0400	17.34918	
Control class			29.3867	12.06636	

Table 4: Criteria of students learning activities

Criteria	Score	Notes
Very actives	80-100	Often ask, answer, explain, and dialogue for learning in the classroom (>5x)
Actives	60-79	Quite often ask, answer, explain, and dialogue for learning in the classroom (3-5x)
Actives	40-59	Ask, answer, explain, and dialogue enough for learning in the classroom (2-3x)
Not actives	<40	Ask, answer, explain, and dialogue for learning in the classroom (<1x)

Table 1 shows that the average gain score higher learning use the module compared with not using the module. Learning to use the module shows the average gain score = 29.066 (multiple choice) and 38.700 (essay). While the average gain score at study did not use the module (learning using sequences of text books) amounted to 12.133 (multiple choice) and 28.933 (essay). Can be explained also that the test using the "essay" give an average gain score higher as compared to the "multiple choice". The results of t-test, F-test, the mean and standard deviation on a "multiple choice" as seen in Table 2.

Based on Table 2 shows that the t-test results on a "multiple choice test" known to score t = 5.105. Furthermore, F indicates the score of = 2.121. By using two tilled significance value = 0.000 is $<\alpha = 0.05$. Likewise, if seen the results mean and standard deviation score that indicates as follows: Class of experiments showed the mean score = 29.4733 and standard deviation score = 14.05199; Control class shows the mean score = 12.6300 and standard deviation score = 11.36493. Based on these data, it can be explained that learning by using modules tested with "multiple choice" effect on student learning outcomes. In other words, there is a significant difference between the use of learning modules with modules that do not use the results of student learning. Where learning to use the module to be superior to that do not use the module.

Based on Table 3 above shows that the t-test results on the "essay test" showed scores t = 2.502. While the score is F = 2.041. By using two tilled significance value = 0.015 is $<\alpha = 0.05$. Furthermore, the experimental group showed a mean score = 39.0400 and standard deviation score = 17.34918. Proved that the experimental class score indicates greater when compared with the control class. Where a control class mean score and standard deviation = 29.3867 and = 12.06636.

Based on various data on learning results mentioned above, it can be concluded that learning by using modules (tested with "essay test") effect on student learning result. In other words, there is a significant difference between the use of learning with modules that do not use the results of student learning. Where learning to use the module to be superior to that do not use the module.

Students learning activities: Student activity was measured based on the frequency of the activity: asking, answering, explaining and dialogue for learning in the classroom. The more students asking questions, answering, explaining and dialogue for learning then they categorized more active in learning. In detail these criteria, as presented in Table 4.

Table 5: The average gain score of students learning activities

Class/groups	Score of students learning activities
Experiment	68.621
Control	62.563
Gain score	6.058

Based on the criteria of student learning activities contained in Table 4. Furthermore, based on the observations during the implementation of the teaching-learning process. The results showed as presented in Table 5.

Table 5 showed that the average activity of students in the learning module using higher compared with not using the module. Learning to use the module shows the average scores of students = 68.621 learning activities. Meanwhile, on learning that do not use the module shows the average scores of students = 62.563 learning activities. Thus, the learning activities of students gain score = 6.058. Implementation in learning to use the module (experimental group) showed higher activity, due to the following: The module is equipped with components "are allowed to ask", the contents module is shaped events contextual, the contents module deals with the problems of everyday life around students, the results of the work of each student modules discussed in the classroom.

The results of this study found that the use of modules to study geography in senior high school, a significant result. This module has a specification characters "self contained" which contains the local charge. Scene geography materials studied are: "climate and its influence for human life". The results are significant because it is supported by the complete module components. The module components consisting of: learning objectives, indicators, charts learning, concept maps, glossary, instructions for use, materials, evaluation and is allowed to ask if there are things that are poorly understood by the students. Given the opportunity to ask directly to the teacher makes the process of learning to become more active.

The other side which is an advantage of this module is the content of the material is based on a local charge. The local charge is directly related to the various forms of the daily life of the students. Previous findings prove that the substance of local easier for students to live a life skills education (Amirudin and Budijanto, 2006). Thus, younger students understand the material, more motivated and better achievement test. The material was shown in the local content material theme: the influence of climate on the activity of daily life of the community Dayak in Balikpapan. Furthermore, elaborated into several sub-themes as follows: the effect of rainfall on upland rice planting activities, planting rice in "rice field when it rains" and grow rice in the tidal area; the influence of climate on tree planting for reforestation; the influence of climate on the activity of trading in "floating market" or "trade on the river".

Based on the above it would seem that geography modules that contain local material content significantly affect the results and activities to learn geography in senior high school students. The findings are consistent and supportive of research results such as: Amrin (2010), Badri (2007), Mustapa (2007), Surwiyati (2010), Dimopoulos *et al*. (2009), Tasir and Pinb (2012), Crimmins and Rupprecht (2010) and Chao *et al*. (2012). They noted that the learning module using a significant influence on learning outcomes. However, in this study enhance module and has the advantage compared to those used by previous researchers. The advantages of this module is presented material directly related to the context of the activities of the cultural life of everyday people, namely people's culture "Dayak" in Balikpapan. Such material is often seen by the students in daily life. Such learning known as contextual teaching and learning (Crawford, 2001).

Furthermore, the cause of learning modules that were examined in this study effect on student learning result are as follows. This module is the application of individual learning model that takes into account the differences of each individual. Thus, every senior high school students are given the opportunity "learning speed" and "how to learn" in line with the capabilities. Such learning can overcome the weaknesses that have been found in the teaching of the classical pattern (Robinson and Crittenden, 1972). In other words, learning to use the module as one of the solutions in the classical learning weaknesses which are generally carried out in Indonesia. Where, weakness in the classical teaching, only clever students will achieve the learning objectives while the less intelligent students only reach most of the learning objectives.

Some previous researchers who have found that use of the module can overcome the disadvantages of classical learning is done in formal schools in Indonesia. The researchers like Waknine (2011). They noted that one of the advantages of learning to use the module is able to adjust the individual differences of students, the speed of learning, a way of learning and teaching materials. Thus, all students can achieve learning goals, although with different speeds.

In this study the learning modules are designed to be completed within 6 hours of lesson. One module contains 3 sub-theme of the subject matter. Thus, it can be assumed that students completing one sub-theme of the subject matter during the 2 h lesson. In fact in this study

found few students were able to complete the set of modules faster. The duration of the time taken by the students when learning to use the module are as follows: two students were able to complete one module within 4 h, three students were able to complete one module in 5 h, 10 students were able to complete the one module within 6 h; 7 students were able to complete one module in 8 h, 6 students were able to complete one module in 5 h, 2 students were able to complete one module within 10 h of lessons.

Modules in this research have the character of "feedback" and use of "mastery learning". Where the content of the material in the form of modules divided into small units and every unit that served the test. Thus, each student complete one module unit and taking the test, students will immediately know "where the material part" in the unit that is not yet understood. They help students to relearn the material that has not been understood, or ask for help the teacher to explain the material in question. According Gronlund (1974) test on each end of the unit is very useful for reinforcement learning. Where if something goes wrong answer direct students to diagnose and then fix it. Giving feedback is done more often and soon, it will facilitate the students know the learning outcomes and improve the error (Zsohar and Smith, 2008).

As we know that one of the advantages of learning to use the module is that students can more teacher attention. That is, teachers provide greater opportunity, more time, more help and attention to each student (Robinson and Crittenden, 1972). That sort of thing will be more intensive to do by teachers when students face a difficult subject matter. Where students are still many who do not understand. Thus, teachers can give individual explanations to the students, so that students do not understand get more attention from the teacher. On the other hand, students are also not shy to ask because it is done on an individual basis. These research findings prove that the class that uses the learning module, the ability of students completing post-test better than students who learn without using modules.

Modules that use pattern "stand alone" does not need media support as the modules studied in this research. Thus, although the condition of schools is limited, the learning can be performed with optimal results. This is very useful for schools whose facilities are limited, textbooks are limited, far from town, or schools located in remote places. As conditions of senior high school in the region in particular Balikpapan, Borneo in general. In this area average a geography textbook that number is very limited. This research has proven that the average gain score (the pre-test and post-test) class that uses the module are higher than those not using the module.

Modules in this research have specifications "user friendly". In this module pattern or sequence of learning activities designed coherently and systematically. The goal is to facilitate students in learning the content of the subject matter contained in the module. Thus, to make students more organized and systematic in understanding the material. It makes one reason for the significance of the results of this research. These research findings reinforce the results Nyoto. In addition to the contents of a coherent, this module has the specification of "self contained" the complete contents of modules. Contains aspect: learning objectives, indicators, charts learning, concept maps, glossary, instructions for use, materials and evaluation. Fill the complete module will allow students to learn completely. Students learn the words of the new concept by looking glossary. It is very helpful when students encounter in the text of the material/content modules. Similarly with regard to the initial concept map learning, students have to have an idea what will be learned and how to organize the material into a "mental map" of the students (Purwanto *et al*., 2015).

Material geography is always associated with the concept of spatial approach. Thus, the module uses a spatial approach would be more interesting for students when presented using images and maps. This research module using such models. In other words, students directly "taught" to see, analyze and understand spatial earth using "the geography eye". As has also been proven by previous studies such Purwanto (2010).

In learning result, the findings of this research show that the form of essay test study results better than the multiple choice test. Where students are clever group average can finish well. It was proved that by using this module students are more active, motivated, outlining a problem and the solution and understand the material. Moreover, the materials are consistent with the context of their daily lives. So that they are easier to understand geography being studied. This finding is consistent with the results of the research (Fatchan, 2004; Fatchan and Amirudin, 2007).

However, in this study found several weaknesses or deficiencies. Lacking that, among others, on average requires considerable time when compared with learning to use a regular module (Sahrir, 2011). However, if the students are used, then the time required to learn faster. Another disadvantage, if the module is implemented in the

class by the number of students (e.g., for 40 students in a class), then the teacher must perform a special organization.

CONCLUSION

The conclusions in this study are as follows: the use of image-based module context of Dayak cultural effect on geography student learning result. That, shown in evidence as described below: The test results using a "multiple choice", t-test scores showed of 5.105; the test results using "essay", t-test scores showed 2.502. Both scores show the results of these tests is greater than the score criticism 0.05. It means that both forms of the test shows a positive influence on the treatment of learning modules based on context of the local culture, the culture of Dayak. Furthermore, also found that the achievement test that uses "essay" better (average score 39.040) compared to the test using a "multiple choice" is low (average score 29.473). The influence of the learning activities of students also showed significant gains. In which the activities students learn to use image-based module Dayak cultural context score = 68.621. While the students learn not use modules score = 62.563. Thus, the learning activities of students gain score of = 6.058. In other words, learning materials geography by using the local cultural context module is superior to that do not use the module.

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