

Module Development of the Influence of the Climate Changes to the Life Based On Outdoor Learning to Increase Student Independence and Achievement of Class X

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Abstract: This development research was aimed to (1) know the advisability of module by the means of expert validation result, (2) to know student self-learning that use module based on outdoor learning in learning process, and (3) to know students achievement using module in learning process. Design of this research was (1) Four-D (4D) development model consisting 4 steps, those were define, design, develop and dissminate, (2) design of experimental posttest only control. The result were (1) module advisability from expert that stated as very appropriate to be used as teaching materials, (2) outdoor learning based module could increase students self-learning, and (3) students achievement can be raised using outdoor learning based module.

Keywords: module,outdoor learning, self-learning and achievement

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I. Introduction

The competence achievement standard on 21st century involve high level of cognitive. Students are required for having ability in mastering technology, thinking logically, critically and creative (Trilling and Fadel, 2009). It is strenghten by Bernhardt (2015) statement related to compulsion of learning outcome attainment that must be possessed by students of 21st century is an important thing to be applied as such by professional educator as pedagogic framework in their learning activity. However, the real practice are dominated by lack of practice learning of skill, student self-learning and that high level cognitive compel. Furthermore, learning model applied are monotone. Teacher take only talkative method inclined to teacher centered. The applictaion of learning ressources are limited to the books provided by school that are conventional. The current learning resourches tend to make students feel lazy to read. The appearance is not interesting and monotone. It effects the students for decreasing motivation and learning interest in taking apart of learning process and they will get dufficulty while studying and understanding teh materials given. Teacher that lack of learning creativity and strategy cause the students are not interested to the learning process. It will influence the goals of sstudent's learning process.

In the line with the problem it was unqualified to the learning process standard in educational unit that must be interactive, inspiring, attractive, and motivate students to be active in learning process. Providing space to practice creativity and independence that are costumized to student talents and interests and student physical and psychological development (Copy of The Minister of Education and Culture Regulation No.22 2016)

Basically, the feasibility between learning method and learning media or teaching material are important aspects as consideration in learning process that will be done by teacher. Transfer of knowledge will run well if a teacher is able to transfer the knoledge and students can recieve or understand it. Teaching material is one of transfer media that can be used and developed to asist learning process.

An ideal geography learning can be measured from student's learning achievement, the student have ability for developing comprehension of geographycal and think critically in taking active action to the geographical problems around them. So that why, teacher must be able to deliver the materials related to their daily life, so it is not just a theory, in order to make student easy to catch the materials. Outdoor learning give students opportunity to activate many senses while doing observation, practice, investigation, interview and using of tools. According to Widiaworo (2017) meaningful learning experiece will be valuable for students. Student activity such as observing, measuring and collecting data of real phenomenon around them are characterisitic of contextual learning (Prastowo, 2016). In line with that, Smith (2010) stated that students will be more responsive when applying knowledge and their skills and give them opportunity to be more active in

learning activity when it directly applied to the life. It is sustained by Mirrahimi, et al (2011) that learning based on outdoor learning related to the environment give occasion in student academic value aspect.

This development research in the form of outdoor learning based module used contextual learning model associated geosphere phenomenon and problems from the student environment. This module was one of teaching material forms made systematically to facilitate and assist student in learning independently. The purpose and the function of this module was a self-teaching material, as a reference and student evaluation instrument (Praswoto, 2012). This module development of outdoor learning based gave opportunity to students to explore more knowledge out of the class by the way of self-learning as an effort to support the achievement of material understanding, increasing of independence and students achievement. Supported by Swandana research, Mazidatul and Lohana (2016) was obtained result 90,66% categorized as appropriate to be used and could increase students achievement and self-learning reaching 90%. The result of previous research by Rozichin, Suparmi, and Sukarmin (2015), showed that the development of outdoor contextual experiment based module could raise students achievement with the increase in completeness level was 27%. Wicaksono (2014) had the result of multivariate test that indicated there were different averages of student independence and achievement of VII Junior High School student using project based science as teaching material on the significance level of 5% by the significance value was 0,025.

Based on the problems and description above, so the research was done concerning to "Module Development Of The Influence Of The Climate Changes Life Based On Outdoor Learning To Increase Student Independence And Achievement Of Class X".

II. Research Methods

Research design of this research was (1) development research or R&D (Research and Development), while basic model design used in this study was research that refer to Four-D (4D) model. Four steps of this development was (a) Define, (b) Design, (c) Develop and (d) Disseminate. (2) experimental design of posttest only control. The subject of this research was X grade of social students 1 in State Senior High School of Wonoayu as control class and X grade of social class 2 as experiment class as much as 30 students.

Qualitative data was suggestion, comment, and revision during small group experiment and limited experiment are used as recommendation of revision and module perfection in order to be better. Farther, the score as a result of validation sheet and readable product are analyzed by descriptive quantitative using average percentages. Quantitative data of student learning result was gotten from students cognitive skills test using posttest in both control class and experiment class. Data was analyzed by means of descriptive percentage by personal completion analysis of students classically and analyze the data using independent sample-test for self-learning and student achievement by means of SPSS 2.3 application.

III. The Results Of The Research And The Discussion

3.1 Module development advisability

This development research produced learning material product in the form of module that was used in learning process. On the first product development stage, it was started by making draft 1, in addition it would be consulted and revised by preceptor. The next step was module was validated by validator. Two validator that validate the module were postgraduate geography lecturer of State University of Surabaya. The result of validity and advisability of The influence of climate changes to the outdoor learning basis existence module that was applied in learning process of experiment class, it was X Social Science Wonoayu Senior High School 1 was indicated by recapitulation of 3 aspects validation, those were presentation and graphicness advisability, language advisability and materials advisability. The average recapitulation of validation result from those three aspect was 92,2 % classified as "very feasible base on Likert scale (Riduwan, 2012)

Table 3.1.
Validation Result of Module advisability

No.	Advisability Criteria	Validator Scoring / Expert		
		Score	Presentation (%)	Category
1.	Presentation and Graphicness Advisability	58	91,2%	Very feasible
2.	Language Advisability	33	88,9%	Very feasible
3.	Materials Advisability (Content)	27	96,4%	Very feasible
		118	276,5 %	Very feasible
		92,2%		

Table 3.2.
Suggestion for correction from Validator and Revised Result

Suggestions	Revision
Persentation and Graphicness Validator	
Space neatness on sentences contained numbering	Sort out numbering spaces each words
Module does not have glossary	Adding glossary on module
Module frame neatness	Organizing frame on module
Parlance Validator	
The use of absorption words must be right, such as "joobheet"	Correcting all of absorption word mistakes
Materials Validator (Content)	
The inclusion of image sources each image examples	Inserting all image source of each image examples

The corrections obtained from validator were used as reference to improve the module for better module perfection. The revised draft module produced a draft phase II that was ready to be examined in small group consisting 5 students and 1 teacher to measure module parlance. The result of parlance of The influence of climate changes to the outdoor learning basis existence module that was applied in class X was 92% included in very good criteria. It was stated that the module can be used to the next research phase. There were word changes in module obtained from the Geography teacher of State Senior High School of Wonoayu :

Table 3.3
Suggestion for correction on Parlance Test and Revised Result

Words Details (Bevore Revision)	Words Details (After Revision)
<i>Driving Force</i>	Faktor Pendorong
<i>Multiplier effect</i>	Banyak efek
Anomali	Perubahan / ketidaknormalan

The result of correction suggestions that ad been revised on draft II resulted draft III that was ready to be examined for limited test (field test) to 30 students of X Social Science 1 (experiment class) State Senior High School 1 of Wonoayu.

3.2 Students Self-learning

Self-learning of students was attained from students observation result made by two observer. Observation sheet (checklist) as main instrument to get comparison between experiment class and control class. The result of analysis described that there was difference of students self-learning between experiment class and control class. The percentage of self-learning in the class given treatment was 64.9% while control class was 33.9%. The result of student self-learning showed that there was difference of students self-learning level between experiment class and control class. The significant test result revealed that sig (2-tailed) was 0.0000. It could be concluded that there was significant difference of student self-learning that used "The influence of climate changes to the outdoor learning basis existence" module in learning activity better than students that did not use the module.

Tabel 3.4.
The result of Independent Sample T-Test for students self-learning

		<i>Independent Samples Test</i>								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
independence	<i>Equal variances assumed</i>	,259	,613	6,577	58	,000	7,76667	1,18096	5,40271	10,13062

Increasing of student self-learning was represented by the raising of students learning activity, interest, and motivation during learning process. Students interest and motivation were more visible when the learning used outdoor learning based module as learning materials. The anthusiasm and activeness of students were increased. It was assumed because of the practical activities contained in the module based on outdoor learning thata require ang encourage students to be more active in group activity and study independently using the

module. This as confirmed by Belt,*et al* (2008) that learning involving the environment will be able to increase enthusiasm, creativity, and involvement of students in learning activity.

Learning activity using outdoor learning based modul requires students to do the student jobsheet by involving senses by the means of observation, practice and work in group become one of supporting factors for increasing student learning independence. In a similar way to Sumatmaja (1997), outdoor study method on geography teaching become a means to foster creativity, initiative, independence, teamwork and to elevate the interest of geography. Then, the research result of Rufii (2015) stated that learning process using module made students more independent and more active to participate in learning process that gave them opportunity in connecting materials with their basic knowledge and experience themselves. Afterwards, it strengthened by the research result of Paris, Scott G and Aalison in their research by the title “classroom application of research self-regulated learning” that stated that there were three ways to increase students learning independence, those were (1) bringin up a reptitive learning experience in the class (2) by the way of teacher instructions and (3) practical work.

Besides, the result of students resspone questionnaire to the module was 97,3% ctegorized asvery good (Riduan, 2012). Base on result of students resspone questionnaire that had bee given to experiment class using module as teaching material, the students felt interested and motivated to the learning using outdoor learning based module. It was caused by the materials provided was easy to be understood because it was conceptualized by contextual learning that connected the materials with phenomena and problems of geosphere around them. The serving of materials supplemented with supproting examples of material in the environment around Sidoarjo could motivate and generate interest to learn the module and made students easier in understanding materials that learned by themselves. In the line with the research result of Rozichin, et al (2015), students motivation and interest in learning had an excellent increase using outdoor contextual experiment based module that had been developed.

3.3 Students learning achievement

Students learning achievement of cognitive aspect was obtained from test score (posttest) after getting learning using “The influence of climate changes to the outdoor learning based existence” module againts learning completeness base on minimum standars completeness criteria. The research result indicated that there was difference of student learning achievement between experiment class and control class by percentages achievement of 86% for experiment class and 50% for control class. This result was supported by the research of Cahyani, et al (2015) stated that base on comparison of students learning achievement between before leraning using module and after it that had been developed wass known that there was rising of learning achievement, it was represented in class completeness percentage.

Table 3.5
Classical Completeness Result (*Postest*)

Description	Experiment Class	Control Class
∑ completed student	26	15
∑ uncompleted student (under minimum grade)	4	15
Classical Completeness	86%	50%

Table 3.6
Independen Sample T-Test Result on Postest Score

		Independent Samples 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	
<i>Postes</i>	Equal variances assumed	1,642	,205	4,818	58	,000	10,40000	2,15853	6,07924	14,72076	
	Equal variances not assumed			4,818	53,812	,000	10,40000	2,15853	6,07207	14,72793	

Base on Table 3.6, it can be known that t count 4,818 with sig (2-tailed) was 0,000. It means the value of $p(0,000) < \alpha(0,05)$, so Ho as accepted and Ha was refused. It indicated that there was difference of posttest everage score between experiment class that used “The influence of climate changes to the outdoor learning

based existence” module in learning activity in X Social Science 2 and control class that was X Social Science 1 that did not use the module.

Referring to the research that had been done by researcher it showed that the use of this outdoor learning based module could increase learning achievement.it might be caused that module could assist students to accelerate understanding and learning to the related materials and by the practical work activity and outdoor observation that must be done by students. It was strengthened by Johnson (2007) statement that learning that involve the environment could improve student achievement. Rozichin, et al, in his research, stated that knowledge aspect was increasing after using “outdoor contextual learning” based module of fluid that was developed base on contextual learning by doing outdoor experiment activity. The previous research, Tien and Kamisah (2012), stated that there was significant difference between control cluster and experiment cluster.in material understanding of electronics using interactive multimedia based module.

IV. Conclusion

Base on the result of research and discussion in this study, it can be concluded that :

- 1) The advisability of module development on The influence of climate changes to the outdoor learning based existence material to increase students independence and acvиеvement of class X was very appropriate to be applied as teaching material in learning process by the means of expert validation test and product parlance.
- 2) This module helped students to be more independent in learning that could be seen on analysis result from students independence data test showed that there was significant difference of student self-learning score between students who used module with those that do not use module.
- 3) By this module, the achievement of learning completeness result was visible from the difference between classical completeness achievement of experiment class higher than control class and analysis result of student achievement data test indicated that there was significant difference of student achievement between students who used module with those that do not use module.

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