

The effectiveness of HOTS English module in English teaching and learning

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Abstract: Today's curriculum is focused on Higher Order Thinking Skills to improve the quality of learning and the graduates. So that, today the teaching and learning materials and activities for the students are recommended to be implemented. This study is aimed to know the effectiveness of HOTS English module in the English teaching and learning process in MTs Al Falaah Pandak. This is a quasi-experimental study which is implemented pre-test and post-test group design. To collect the data, the researcher used test as the instrument. The data then analyzed used t-test. The result of the study shows that HOTS English module is effective in improving the seventh-grade students' achievement in learning English in MTs Al Falaah Pandak. The result of two tailed t-test from the data analysis is 0.000. It is smaller than 0.05 which means that H_0 is denied. So, it can be concluded that there is significance of the students' achievement before and after applying HOTS English module in learning English.

Keywords: module, HOTS, English

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INTRODUCTION

Since English is an international language and it becomes the compulsory subject in Indonesia curriculum, the English teaching and learning process will always changing. Nowadays, HOTS or Higher Order Thinking Skills is becoming a demand. It is a concept developed to reform the education system from teaching to learning. It requires more cognitive processing than others. The ability in analyzing, evaluating and creating becomes the main aspect in HOTS (Agustihana & Suparno, 2018; Hasyim & Andreina, 2019; Nurhayati & Angraeni, 2017). 2013 curriculum in Indonesia is prioritizing HOTS to improve the quality of learning and the students graduates. It is a challenge for English teachers to implement this skill in their classroom. Applying HOTS activities and familiarize the ability to think higher and critically is not easy. It needs many efforts. One of the aspects should be prepared in the teaching and learning process is by preparing the material and activities which is focused on prioritizing HOTS. There are three cognitive level categories in thinking skills, those are Lower Order Thinking Skills (LOTS), Middle Order Thinking Skills (MOTS), and Higher Order Thinking Skills (HOTS). LOTS consist of skills of remembering, MOTS consist of understanding and applying, while HOTS consist of the ability to analyze, evaluate, and create (Mursyid & Kurniawati, 2019). (Anderson et al., 2001) has defined the thinking skills into two level, those are Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS). LOTS refers to the level of remembering, understanding, and applying. While HOTS refer to the level of analyzing, evaluating, and creating.

One of media to promote HOTS as the basis of activities for students is through module used in the classroom. Module or textbook is usually used by the teacher and also students to learn. It serves as a guide for both students and teachers so that they are engaged in the classroom activities. Actually, there are some developed textbooks facilitated by the government in any level of education. However, the textbook from the government doesn't always match with the specific character of a school, and it is an obligation for teachers to develop their own textbook which is suitable to the students' need and school character and environment.

In developing module and textbook, there are some requirement should be fulfilled. (Renandya, 2013) states that good learning materials must meet what the learners need. Furthermore, it has to be able to motivate the learners to master the target language efficient and effectively. On the other hand, (Tomlinson, 2008) there are at least 5 requirements must be fulfilled for developing a textbook. Those are, first, textbook should facilitate the learners rather than give new vocabularies. Second, it should enhance the learners cognitive and affective aspect. Third, it should give opportunities for the learners to use the target language in doing communication practice. Fourth, it should be flexible in presenting the genre, activities and the plot. The last, it can help teachers to accommodate the learners who have different social and cultural background.

By providing suitable textbook, then the English teaching and learning activities will run well. When the teaching and learning process can run well, then the English learning achievement will also improve. Learning achievement can be defined as the result of the study, in the aspect of psychology that has changed as the result of experience and learning. Those psychological domain include the cognitive, affective, and psychomotor aspects (Hoque, 2016; Syah, 2003).

MTs Al Falaah Pandak is a school under the religious ministry. It is a developed school since at the first 10 years the school only have few students, and today since it has moved to Pesantren area, the number of the students are almost 483 students and all of the students are *santri*. According to the observation and interviewed with the principal and the English teachers, there are only limited sources are available in this school. In learning English, students only had LKS. So, there are no any supplement materials gave by the teachers and school. Besides, the teacher is rare in applying HOTS activities in the classroom. Regarding to this fact, the English teaching and learning process by implementing HOTS module become interesting to be explored. Because according to some recent studies, there are some result shows that HOTS based learning can increase the students' learning achievement. First, the study done by Purnama and Nurdianingsih (2019), the study found that HOTS instruction can improve the students' speaking skills. HOTS instruction is more effective than LOTS instruction for improving English department students' speaking skills. Second, Setyarini and Ling (2019) found that students who have critical thinking skills as the part of HOTS can deliver their ideas freely in front of the class without feeling afraid of the other students' judgment or making mistakes. Zahroh (2020) states that since HOTS is very important in improving the students' English productive skills, then it is recommended to be implemented in the English writing and speaking class activities.

Regarding to those studies and explanation above it is important for English teachers to implement HOTS in their teaching and learning process in order to familiarize the critical thinking of the students so that the English learning achievement will also increase.

METHOD

This is a quasi-experimental research which applied pre-test post-test control group design. The population of this study is seventh grade students of MTs Al Falaah Pandak, and the sample of the study is class VII E and VII F which consist of 31 and 30 students. From the sample, it was then divided into two groups, the first group is VII F as the control group and the second group is VII F as the experimental group. The experimental group was taught using HOTS English module which was developed by the researcher in the previous study, while, the control group was taught using module from the school. The design of this study can be seen as flows:

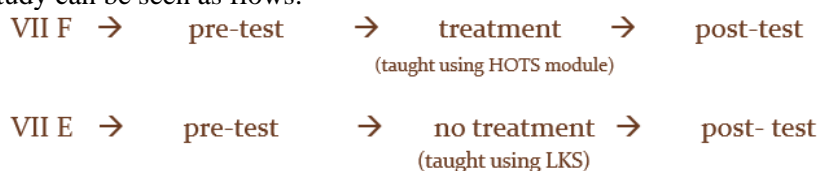


Figure 1. The research design

To collect the data, the researcher used pre-test and post-test. The data will be gathered from the score gained from the pre-test and post-test. The test used in this study is the English achievement test which consist of multiple choices and essay test. The test was arranged based on the base competencies from the curriculum junior high school curriculum for grade seven. This study took place in MTs Al

Falaah Pandak, located at Kauman Wijirejo Pandak Bantul. The study conducted for about a month included the pre-test and post-test. The scheduled of the study can be seen in the Table 1.

Table 1. The Scheduled of the Study

| Date | Activity |
|------------------------------|---|
| 13 October | Pre-test for control and experimental group |
| 14 October – 5 November 2020 | Implementing HOTS English module to the experimental group. |
| 21 November 2020 | Post – test for both control and experimental group |

To analyze the data, this study used inferential statistics which included test of normality, homogeneity, and t-test. Normality test was done to find whether the data had normal distribution or not. It was done by using Kolmogorov-Smirnov test. If the gained score is more than 0.05 then the data has normal distribution. While homogeneity test was done by using Levene’s Test which is known as one-way analysis of variance. This test was done to find whether the sample variances was homogenous or not. If the value of significance is greater than 0.05, it can be said that the variance in variables are homogeneous. The last test used in this study was t-test (hypothesis testing). It was applied to find whether the means of the two groups on this study are different from each other. If the score of probability significance is less than 0.05, then H_0 is denied, which has the meaning that the hypothesis of the study is accepted.

RESULT AND DISCUSSION

Finding

Normality test was done by applying Kolmogorov-Smirnov formula and analyzed using the software SPSS 16 for windows. It was done to know the normality distribution of the data. The data tested were the data from pre-test and post-test both from control and experimental group. If the score index of the test ($P > 0.05$ ($\alpha: 5\%$), then the data can be said it has normal distribution, and when the index ($P < 0.05$ ($\alpha: 5\%$) then the data can be said that it doesn’t have normal distribution (Carver & Nash, 2011). The result of the normality test can be seen as follows:

Table 2. The Result of Normality Test

| Data | Class | Kolmogorov-Smirnov Z | Sig. (2-Tailed) | Condition |
|------|-------|----------------------|-----------------|------------|
| Pr | C | 0.969 | 0.304 | $P > 0,05$ |
| | E | 0.661 | 0.775 | |
| Po | C | 1.306 | 0.066 | $P > 0,05$ |
| | E | 1.311 | 0.064 | |

Pr: pre-test; Po: post-test; C: Control group; E: Experimental group

From the Table 2, it is clearly seen that the result of the normality test for both control and experimental group is more than 0.05. So, it can be said that the data used in this study had normal distribution.

After doing the normality test, then next step was finding the level of homogeneity for both control and experimental groups. The data were said homogeneous if the gained score of significance is more than 5% or 0.05. In contrast if the gained score of significance is less than 5% or 0.05 then the data is not homogeneous. The result of the homogeneity test using One Way Anova in SPSS 16 for windows can be seen as follows:

Table 3. The Result of Homogeneity Test

| Data | DF 1 | DF2 | SIG. (p) | Condition |
|-----------|------|-----|----------|------------|
| Pre-test | 1 | 59 | .091 | $P > 0.05$ |
| Post-test | 1 | 59 | .531 | $P > 0.05$ |

Table 3 shows the output of the homogeneity test both for control and experimental group. From it, it can be clearly seen that the gained score is more than 0.05. The result of the homogeneity test for the pre-test is 0.09 From the data shown, the gained score of pre-test is 0.091 which is more than 0.05. By seeing the score of the significance, it can be said that the data of pre-test were homogenous. While, for the post-test, the gained score of the significance is 0.531 which is more than 0.05. Then it can be said that the data from the post-test were homogeneous.

Besides normality and homogeneity test, the hypothesis testing should be done to know the significant difference. There are two hypothesis testing in this study. The first is the independent samples t-test. It was done to know the significant difference of the students' learning achievement between control and experimental group. The hypothesis are:

H₀: there is no significant difference on the students' learning achievement between control and experimental group.

H_a: there is significant difference on the students' learning achievement between control and experimental group.

This independent samples t-test is done by using software SPSS 16 for windows. If the probability score (sig) is more than 0.05, then H₀ is accepted. In contrast, when the probability score (sig) is less than 0.05 then H₀ is denied. The result of the independent samples t-test can be seen as follows:

Table 4. The Result of Independent Samples t-test

| Data | Class | df | Sig. (p) | Condition |
|-----------|--------------------------|----|----------|-----------|
| Pre-test | Control and Experimental | 59 | 0.929 | P > 0.05 |
| Post-test | Control and Experimental | 59 | 0.000 | P < 0.05 |

Table 4 shows the independent samples t-test, from the table it can be seen that the significance score of the pre-test is more than 0.05 which means H₀ is accepted. It means that there is no significant difference on the learning achievement of the control group. While the significance score is 0.000, and it is lower than 0.05 which means H₀ is denied. It means that there is significant difference on the learning achievement of the experimental group.

From the result of hypothesis testing above, it can be concluded that there is different result on the students learning achievement between the control and experimental group. It proves that the use of HOTS English module is effective to teach English for the seventh-grade students of MTs Al Falaah Pandak.

The second hypothesis test was done using paired samples t-test. It was done to know the improvement in learning achievement before and after the teaching and learning using HOTS English module for the experimental group. The second hypothesis are:

H₀: there is no significant improvement of the learning achievement before and after the implementation of HOTS English module.

H_a: there is significant improvement of the implementation of HOTS English module.

The test is done using software SPSS 16 for windows. The result of paired samples t-test can be seen as follows:

Table 5. The Result of Paired Samples t-test

| Class | Df | Sig. (p) | Condition |
|-----------------------------|----|----------|-----------|
| <i>Pretest dan Posttest</i> | 29 | 0,000 | P < 0.05 |

Table 5 shows the paired samples t-test, from the table it can be seen that the significance score of the pre-test and post-test in experimental group is less than 0.05 which means H₀ is denied.

The requirement of the second hypothesis is the score of probability should be less than 0.05. If the probability score is more than 0.05 then it is said that H₀ is denied. The result of the SPSS computing program that is shown in the table, it can be clearly seen that the score of probability of the paired samples t-test is 0.000 which is lower than 0.05. It means that H₀ is denied. So, it can be concluded that there is significant improvement on the students' learning achievement before and after applying HOTS English module to the English teaching and learning process.

Discussion

From the data finding, it can be seen that HOTS English module is effective to be used the English teaching and learning process. HOTS English module which was developed by the previous study done by the researcher was a module of English for seventh grade of MTs Al Falaah Pandak. The module was developed based on the demand of today's need, that is implementing the principles of Higher Order Thinking Skills. In this module the materials and activities were arranged by applying the steps of teaching based on discovery learning principle. There is stimulation, problem statement, data collection, data processing, verification, and generalization. Before giving the module, the pre-test was set up.

In stimulation students were asked to interact with the input of language expressions. The input can be in the form of dialogue or video. From the input the students were asked by some questions and finally they can predict the theme and materials should be learned. The example of activities in stimulation step. This is the example of activities in first, second and third unit from the module.



Figure 2. The Examples of Activities in Stimulation Step

In the second step is problem statement, there were some problems proposed. In this module the problems were proposed by some activities such as identifying expressions, completing dialogue, or classifying expressions or vocabularies.

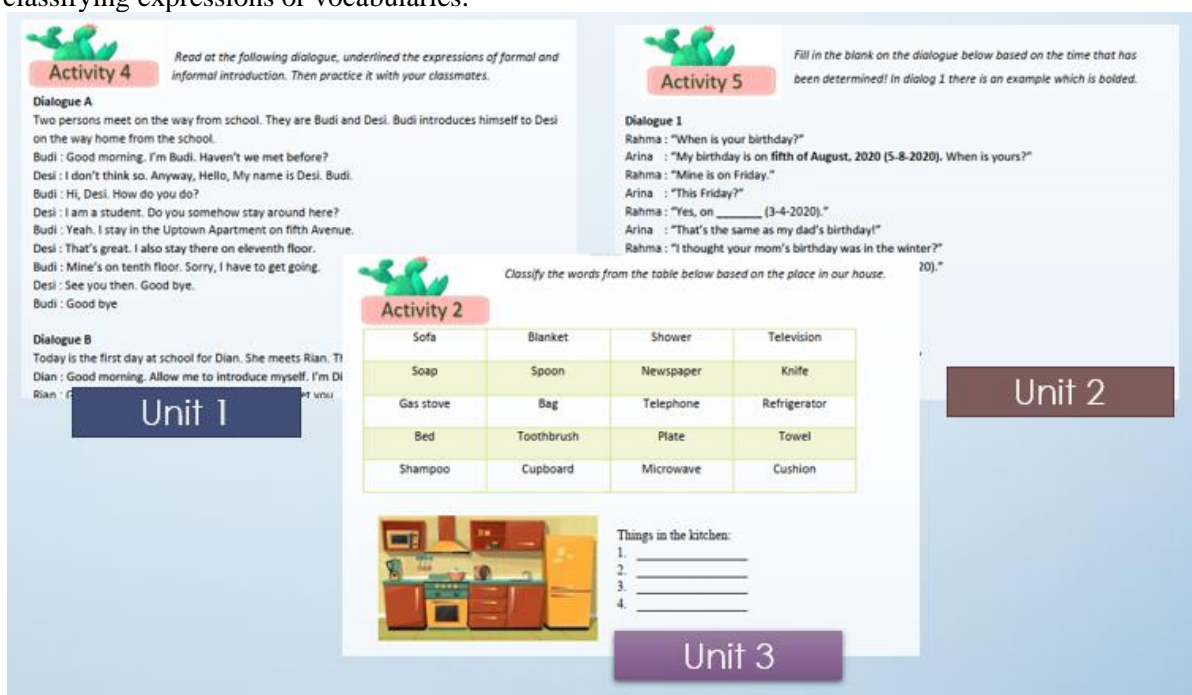


Figure 3. The Examples of Activities on Problem Statement Step

The third step is the data collection. In this step the students were asked to do some observation or interview to others to find the data of new vocabularies or language functions and presented it written or orally. The activities done in the third step can be seen from the Figure 4.

Activity 5
Match the expressions of introduction with the appropriate responses!

- When were you born?
- How old are you?
- Where do you live?
- What is your name?
- How should I call you?

- I live at Pahlawan Street 21
- My name is Lucas
- I was born on 2nd August 2009
- You can call me Puspa.
- I am thirteen years old

Activity 6
Read these following identity card. Make introductions text which you pretend to be the person in the identity card below! Look at the following example!

Hello, I am Alina. I am from England. I am 23 years old. My hobby is reading. I am a doctor.

Name: Alina Mun
Age: 23
Hobby: Reading
Job: Doctor
Country: England

Activity 7
Let's do observation. Just look and walk around your classroom and complete the table. It should be reflected to your classroom condition.

| No. | Name | Amount | Report |
|-----|-------|--------|------------------------------|
| 1. | Chair | 21 | There are twenty-one chairs. |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |

Activity 9
Let's have a survey game. Please go to see your teacher. Ask about their daily routine by asking them some questions. These questions below will help you. Put the answers in the table.

A. Lists of questions:
1) What time do you usually wake up in the morning?
2) What time do you go to school?
3) When you eat your lunch?
4) What do you do after having lunch?
5) What time do you go home?
6) What do you do after arriving at home?

B. Fill the table from the data survey you have done.

Name: _____

| Activity | Time | Frequency (always, usually, sometime, etc) |
|----------------|-------|--|
| Wake up | 04:30 | |
| Goes to school | | |
| | | |
| | | |
| | | |

Figure 4. The Examples of Activities in Collecting Data

The fourth step is the data processing. In this step, the students were asked to make clarification or giving comment to other work. Besides, the students were asked to arrange words into correct sentences. The examples of the activities done by the students in the fourth step can be seen as follows:

Activity 9
Read the text carefully and answer the questions correctly!

Good morning. My name is Umamah Az-Zahrah. I was born on May, 21st 1999. I live on Perintis Kemerdekaan Street, Makassar. I have 5 siblings, 2 brothers, and 4 sisters. But, my older brother has died due to an accident. My Father is a doctor and my mother is a teacher. My favorite color is pink. I like cats very much. I have two cats in my home. Their names are Viko and Vika. My hobbies are reading, typing, browsing the internet, and playing games. My favorite subject is English. I hope to become an doctor in the future. I think that's all about me.

Questions:
1. Who is the girl?
Answer: _____
2. How old is she?
Answer: _____
3. What is her dream

Activity 8
These sentences are wrong. Identify the error and rewrite the correct one. Number 1 has been done for you.

- There is towels in the wardrobe. (error: is)
Correct sentence : There are towels in the wardrobe.
- There are an avocado in the refrigerator. (error:)
Correct sentence : _____
- There is not books in the drawer. (error:)
Correct sentence : _____
- There are not a box under the table. (error: ...)
Correct sentence : _____
- Are there a table in the class? (error: ...)
Correct sentence : _____

Activity 10
From the data of your survey game. Let's report your data in the form of sentences. Apply the adverb of frequency.
Example: Mr. Anggoro always wake up at 5 in the morning.

- _____
- _____
- _____
- _____
- _____
- _____

Activity 11
Do with your group. Tell your findings in front of the class. The form will help you to report the data.

From the video, I see ... animals. There are:

- ...
- ...
- ...
- ...
- ...
- ...
- ...
- ...

Figure 5. The Examples of Activities in Data Processing

Then, the fifth step is the verification. In this step, the students were asked to make some analysis. It can be in the form of true or false statement or reporting the data from the observation. By doing this the students could try to deliver their data written or orally and tried to give comments to the other student's report. The examples of the activities done in this step are:

Activity 11 *him/her. Change your sentences in the form of paragraphs as the example given.*

Example:
 Mr. Anggoro is my English teacher. He always wakes up at 5 in the morning. At 6.30 he often goes to school to teach English. At 12.30 in the afternoon, he sometimes has lunch with his friends. After having lunch, he back to school to teach. He goes home at 2 p.m. Then, he takes a rest.
 Mrs. Anita is my school's librarian. She always wakes up at 4 a.m. Then she goes to school at 7.30 a.m. At 1 p.m. she usually has a lunch in her library. After that, she does some jobs and goes home. At 2 p.m. she arrives at her home and pick his daughter.

Activity 20 *Please take around your house. Make a simple map and find some public places near your house and write the function of those public places on the chart box under the map.*
 Ex: 1. Market: to buy and sell many things.

Activity 11 *Watch video 3 and fill the form below. You can discuss with your friends.*

| | Speaker | His friend |
|---------|---------|------------|
| Name | | |
| Address | | |
| Age | | |
| Hobby | | |

1. _____
 2. _____
 3. _____
 4. _____
 5. _____

Figure 6. The Examples of Activities in Verification Step

The last step is generalization. In this step the students were asked to create a dialogue or a map based on certain situation given. This module gave some activities in this step. It can be group work or individual work. The students were asked to produce a product. The examples of the activities done were:

Activity 12 *After filling the form, then please make a note about yourself. Then you can also make a note about your family member. Then please make a simple introduction about you and your family member. Then record it, send it to your teacher.*

Activity 10 *From the data of your survey & sentences. Apply the adverb of Example: Mr. Anggoro always*

1. _____
 2. _____
 3. _____
 4. _____
 5. _____

Activity 21 *Work with your group. Read the text and make a map based on the text.*

I am Vito, a student of Joga Islamic Junior High School. I will tell you about my school building. It is located at Mawar Street number 9 Joga. My school is not so big. When you enter the gate, there is a big cupboard containing some. There is a basketball field in the left side of the gate. On the right side of the gate, there are two classrooms. Class VIII A and VIII B. There are two classes too in front of the basketball field, class IX A and IX B. Across to class VIII A and VIII B, there is a teacher office, principal office and library. While class VII A and VII B are behind the office. There are computer and science laboratory behind class IX A and IX B.

Activity 22 *Your individual Project. Imagine you are in a center of your city. Make a simple map based on your city condition. Then write the location of public places. Use these questions as your guide. Finally present your map in front of the class.*

1. Is there any big building?
 2. What is the name of the building? Where is it?
 3. What is in the right of the big building?
 4. Any other building sur
 5. What are they? Where

Figure 7. The Examples of Activities in Generalization Step

After implementing HOTS English module in the teaching and learning process, the post-test was done to see the significant differences between the control and experimental group and also to find the effectiveness of the implementation of the module in the teaching and learning process. From the test done by the researcher, it was found that the data were in normal distribution and also had homogeneous level. Whether the two hypothesis tests, it was found that there are different learning achievement gained by the control group and experimental group with the probability score of independent samples t-test is

0,000 which means that the H_0 is denied and it gives evidence about the different learning achievement from post-test score between control and experimental group. Moreover, the paired samples t-test proved that there is significant improvement on the learning achievement gained by the students after implementing HOTS English module for the experimental group.

Related to the findings of this study, it was also in line with the study done by Purnama and Nurdianingsih (2019) which states that there is HOTS instruction is more effective than LOTS instruction in improving the students' speaking ability for English Department students. Besides, the findings were also inline with the implementation HOTS based PBL in increasing the learning outcomes of XIth grade students of SMA 12 Semarang (Simanungkalit et al., 2019).

CONCLUSION

From the finding and discussion above, the conclusion related to the study can be explained. First, there is a different significance on students' English learning achievement among the students taught by HOTS English module and those who taught by conventional method or only using LKS. It can be drawn from the score of independent samples test. The score is 0,000 which is lower than 0,05. Secondly, there are significance improvement in the experimental group before and after implementing HOTS English module in the students' learning achievement.

From the conclusion, there are some recommendation are addressed for English teachers, especially for English junior high school teacher that the familiarization of HOTS activities in the English classroom. It will improve the students' critical thinking and also creativity in learning English. Besides, English teachers should develop their own material which is relevant to the students' need, the school environment and the characteristics.

For other researchers, the study in relation to HOTS is still important, even more today, in the pandemic era in which the teaching and learning process should be based on the use of technology, combining HOTS activities in online teaching and learning is very important. Furthermore, the different evaluation system applied by the government is also change. It will be very challenging study if there are many studies take the current theme combined with HOTS for the students.

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