

Investigating Hots on Learning English for Computer for the Fourth Semester English Students at STMIK Pelita Nusantara Medan

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The aim of this research is to investigate Higher Order Thinking Skills of Students' at STMIK Pelita Nusantara Medan majoring Informatics Engineering on learning English for Computer. The population of this research is the fourth semester English students at STMIK Pelita Nusantara Medan. The total population is 154 students and as the sample was taken with cluster sampling technique. The students were given test which related to HOTS questions. In collecting the data the researcher used instrument to measure the knowledge of the students on learning English for Computer. The test is consists of three types: Analyzing, Evaluating and Creating. The data was analyzed by calculating the students' score and performed the item analysis to identify the HOTS levels of the students' score. Based on the analysis, there were found that the students' ability on learning English for Computer is good level with the most dominant is above 51, consists of 21 students which the percentage in that level is 70 %. The highest score is above 75 consists of 7 students. Therefore the students' ability in computer is already good.

Keywords: HOTS, English for Computers

Penelitian ini bertujuan untuk meneliti Kemampuan Berpikir Tingkat Tinggi Mahasiswa di STMIK Pelita Nusantara Medan Jurusan Teknik Informatika dalam pembelajaran bahasa Inggris komputer. Populasi penelitian adalah mahasiswa semester empat di STMIK Pelita Nusantara Medan. Jumlah populasi penelitian adalah 154 mahasiswa dan penarikan sampel dengan menggunakan teknik cluster sampling. Mahasiswa diberikan test yang berhubungan dengan pertanyaan berupa materi Kemampuan Berpikir Tingkat Tinggi (HOTS). Dalam pengumpulan data, peneliti menggunakan instrument penelitian untuk mengukur pengetahuan mahasiswa pada pembelajaran bahasa Inggris Komputer. Test yang diberikan terdiri atas tiga tipe yaitu: Analisis, Evaluasi, dan Mencipta. Data dianalisis dengan menghitung nilai perolehan dan menyajikan item analysis untuk mengidentifikasi kemampuan berpikir tingkat tinggi (HOTS) mahasiswa. Berdasarkan hasil analisis, diperoleh kesimpulan bahwa kemampuan mahasiswa pada pembelajaran bahasa Inggris komputer berada di level baik dengan perolehan nilai yang paling dominan adalah diatas 51 yang terdiri atas 21 mahasiswa dengan persentase 70%. Nilai tertinggi yang diperoleh diatas 75 terdiri dari 7 mahasiswa. Oleh karena itu, kemampuan berpikir tingkat tinggi mahasiswa pada pembelajaran bahasa Inggris Komputer sudah baik.

INTRODUCTION

Education system in Indonesia has changed years by years in order to improve the quality of teaching and learning, especially in learning English. According to Heong, et al (2011), HOTS or Higher Order Thinking Skills is used as cognitive application to broaden the students' knowledge to get new challenges. Higher Order Thinking Skills demands the students to use the knowledge or new information that they have got and then their mind manipulate the new information to reach the answer in a new situation. It means that Higher Order Thinking Skills (HOTS) is the cognitive process where the students try to activate their cognitive in order to comprehend the meaning which is hidden from the information introduced for the students, realize the relation ideas, drawing the rules or principles, analyze, generate new ideas, evaluate and judge new ideas. Higher Order Thinking Skills have been applied at some levels of disciplines: math, social studies, language and science.

The assumptions of thinking and learning skills state that there are various main concepts which relevant to Higher Order Thinking Skills which has been introduced to students in learning process. Firstly, the levels of thinking can not be related from learning levels; which involve interdependent, multiple levels and multiple components. Secondly, whether or not process of thinking can be learnt without subject matter content which just a theoretical point. In fact, the students would learn the content not only society but also prior knowledge, no matter what theorist included, and also the concept and vocabulary use, they learnt in the prior year would help them learnt both Higher Order Thinking Skills and upgrade content in the coming up year. Thirdly, Higher Order Thinking Skills involve varieties of thinking process which applied to complex situations and multiple variable. Nevertheless, training is an important thing to develop Higher Order Thinking Skills, qualified people could achieve certain level of it by himself or herself however they will be better if they receive and do training. On the other words, students who are trained more will be more intelligent and have higher order thinking skills than students who trained less, especially in memorizing.

Higher Order Thinking Skills has important roles in improving the students' ability in writing which could not be ignored from the point of view in enhancing the critical and creative thinking of the students. Students must be able to understand at different cognitive levels thus the students not only have ability in writing the sentences which refers to one or two cognitive levels which basically describe the information as view in the task, than expand the ideas to higher cognitive level which require the students in order to show their higher order thinking skills.

STMIK Pelita Nusantara is one of the campus in Medan which has program in computer which has subject English for computer. The researcher tried to investigate how the students' ability on learning English for computer. Based on this situation, there is a need to conduct a

research to help the students to fill the gap in this area of Higher Order Thinking Skills. In reality, there are several researches which have been carried out to investigate how Higher Order Thinking Skills questions pushed pupils' higher order thinking skills in improving their writing skills. To solve this gap in research, this research tries to explore the frequency of applying Higher Order Thinking Skills in the process of teaching English for computers. This research has been carried out under the title: *Investigating HOTS on Learning English for Computer for the Fourth Semester Students at STMIK Pelita Nusantara Medan*.

This research is aimed at answering the following research problem:

1. How is the fourth semester students' HOTS ability on learning English for Computer?
2. What dimension (analyzing, evaluating, creating) does the students' require on learning English for computer?

According to Shen & Yodkhumlee (2011) say that the most effective method of teaching which can activate students' thinking and learning, the teacher's has to give support to recognize the students' learning strategy by providing questions. Therefore, teacher plays important role in composing question in daily practice for students which fits to level of comprehending. According to Roberts and Zody (1989) state that to improve students' achievement it can be realized through effective questions provided. Meanwhile, according to Hussin (2006) says that effective questions help students to focus their attention to make sense on the lesson content, increase their curiosity and activate the imagination and motivate the students to acquire new knowledge. Therefore, the teacher should be aware on the difficulty level of the questions and the students' cognitive improvement. As Collins (2014) labels that the teachers usually are good at thinking spontaneously without having preparation and objective in their mind before and asking questions not to stimulate the students higher order thinking skills. It is ideal when the question is good proportion. Collin (2014) also adds that the questions must be created to encourage the students to reflect and evaluate on their learning which can allow the students to acknowledge the strength and weakness of their thinking.

Brookhart's book (2010: 14) "How to Assess Higher Order Thinking Skills in Your Classroom" explains about five categories of higher-level thinking skills/ HOTS, they are:

- a. Analyzing, Evaluating and Creating. All of these are the top level in the realm of cognitive or knowledge in the Bloom Revision's version (2001).
- b. Logical reasoning
- c. Consideration level and critical thinking
- d. Problem Solving and Creative Thinking.

To get a more operational explanation of HOTS, Anderson and Krathwohl (2001) have revised Bloom's Taxonomy by modifying the cognitive level of learners as shown in the following table:

Table 1. Dimension of Thinking Process

No	Cognitive level	Dimension	Information	KKO	Category
1	C1	Knowing	Recalling	Remember, Register, repeat, mimic	LOTS
2	C2	Understanding	Explain ideas/concepts	Explain, classify, receive, report	MOTS
3	C3	Applying	Use information on different domains	Comparing	
4	C4	Analyzing	Specify the elements / aspects	Checking, criticizing, testing	HOTS
5	C5	Evaluating	Make the final decision	Evaluate, asses, disprove, decide and vote and support	
6	C6	Creating	Creating your own ideas	Construct, develop	

The previous research which has been done by Singh, et al (2018) about “*Developing Higher Order Thinking Skills Module for Weak ESL Learners Developing a Higher Order Thinking Skills Module for Weak ESL Learners*”. This research is aimed for developing and validating a module of higher order t thinking skills for teaching writing to weak students. This research applied qualitative research paradigm by using document analysis, interview, observation, and validation form. There were two phases in the research which conducted in six selected secondary schools. The first phase was completed by need analysis, identifying the problems which faced by teachers in teaching writing with higher order thinking skills. The ESL

teachers and experts used ADDI model approach in HOTS to create the module content. Then, the second phase, the teachers were observed to investigate the effectiveness of applying Higher Order Thinking Skills module for ten times which served to provide guideline for the teachers in applying and increasing thinking skills in the process of teaching writing. The findings of this research were used for guiding decisions on applying the suitable teaching pedagogy in applying Higher Order Thinking Skills for teaching writing.

As stated by Halili (2015), according to him HOTS is a capability that is needed by every individual in the educational environment. HOTS is a thinking ability that arises from a combination of several other complex thinking skills. In accordance with the opinion of Godson (2011) in Higher Order Thinking Skills or HOTS is the ability to think that involves solving problems, detecting relationships, combining new information with information that is known creatively according to the limits set, by combining and using their previous knowledge to evaluate or make judgment. HOTS deals with the ability to think critically, logically, reflective, metacognitive, and creative. This ability is activated when students face unusual problems, uncertain questions or questions that cause doubt.

The objectives of this research are:

1. To find out the fourth semester students' HOTS ability on learning English for Computer.
2. To identify the dimension which the students' require on learning English for Computer.

METHOD

Research Design

Nazir (2003) says that research design is the process required in the planning and execution of the study, from the preparation phase to the preparation stage of the report." This research applied descriptive design by collecting data to answer questions concerning the current status of the subject of the research. It was conducted to find out the students' ability on learning English for Computer.

Setting and Participants

In this research, the population used is limited where the sources of clear data have limited characteristics. The population of the study is the fourth semester students at STMIK Pelita Nusantara majors Informatics Engineering since they learn English for Computer. The total population is 154 students. They are divided into four classes: TI IV Regular Pagi A, TI IV Regular Pagi B, TI IV Regular Sore A, and TI IV Regular Sore B. In this research, the researcher used cluster sampling technique to take the sample as the participants. There are 30 students as the participants, TI IV Regular Pagi A and TI IV Regular Sore B was chosen by cluster sampling technique.

Data Collection Method and Analysis

In this research, the researcher used test which consists of 25 questions. The questions consist of the kinds of dimension: analyzing, evaluating and creating.

After collecting data, the researcher calculated the students' score and performed the items of analysis to identify the dimension which the students' require on learning English for Computer.

1. First result analysis is conducted to test the students HOTS levels on learning English for Computer
2. Second analysis is to investigate the dimension of students' ability on learning English for Computer.

FINDINGS AND DISCUSSION

After analyzing the test, the results were found based on the data analysis. The results of the test showed in this table below:

Table 2. Students' Score on Learning English for Computer

No.	Students' Initial	Raw Score			Total	Score
		Analyzing	Evaluating	Creating		
1	DLP	8	7	6	21	70
2	FL	6	4	3	13	43
3	FSP	7	6	6	19	63
4	IS	7	6	7	20	67
5	JPS	6	7	6	19	63
6	JB	7	7	9	23	77
7	KZ	5	6	6	17	57
8	MJM	7	6	7	20	67
9	NP	8	7	8	23	77
10	RLMK	8	9	8	25	83
11	RAM	7	8	8	23	77
12	RM	8	8	9	25	83
13	SYH	7	7	6	20	67
14	SPLT	7	8	7	22	73
15	SZ	6	7	6	19	63
16	AFU	6	6	5	17	57
17	AYK	4	5	3	12	40
18	DG	7	8	7	22	73
19	FLA	6	5	6	17	57
20	FTH	7	6	7	20	67

21	GG	8	7	8	23	77
22	MHW	6	7	7	20	67
23	PUH	8	7	6	21	70
24	SDB	7	7	8	22	73
25	CBH	7	6	6	19	63
26	TA	8	7	6	21	70
27	RFM	7	7	6	20	67
28	RFM	7	7	8	22	73
29	EM	8	7	7	22	73
30	JS	7	8	8	23	77
Total		207	203	200		
Average		6.9	6.766667	6.666667	Level : Good	

Based on the results above, the researcher made a classification relating to students' ability on learning English for Computer test into four levels. It is shown below in Table 3.

Table 3. HOTS Levels of the Students' Score

No.	Score	Frequency	Percentage	Level
1	25-1	0	0%	poor
2	50-26	2	7%	enough
3	75-51	21	70%	good
4	100-76	7	23%	excellent

The percentage of HOTS level is drawn in a graph as follow:

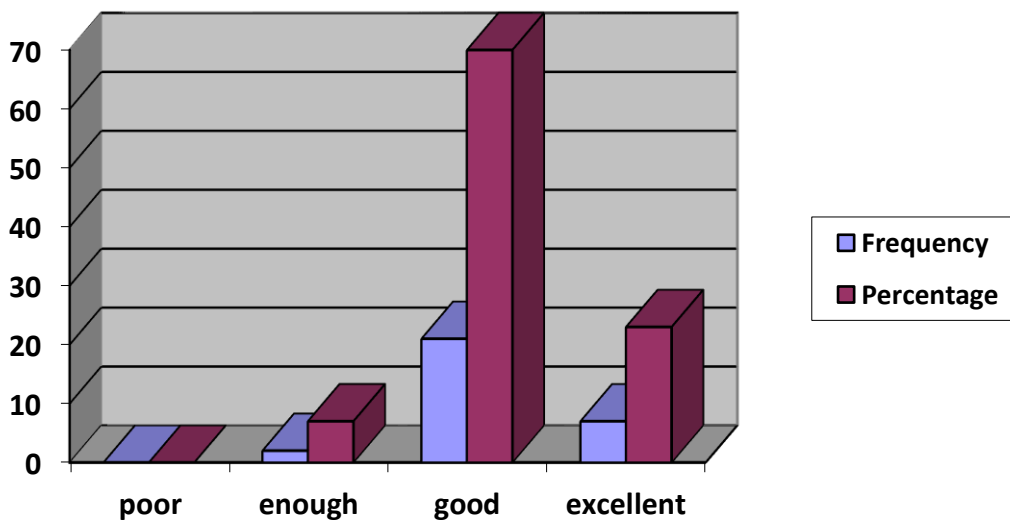
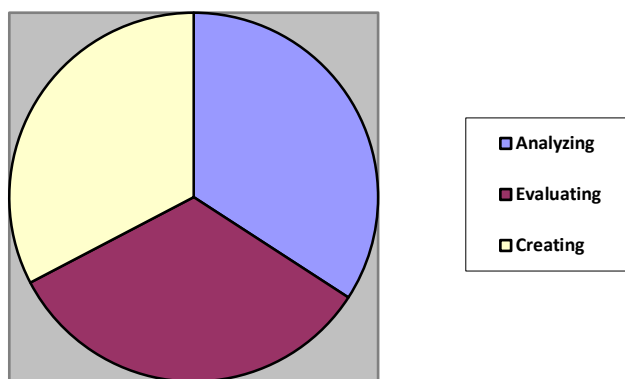


Figure 1 HOTS Level of Students' Score on Learning English for Computer

The data shows that the most dominant score is in the level good with score starts from 51 to 75. It means that the score is 75-51 I in the level **good**. There are 21 students whose level is good which has percentage 70%. The data also showed that there are 2 students with the percentage 7% whose level is enough and there were seven students whose level is excellent and the percentage 23%.

The dimension of the cognitive level of the students was drawn in this:



Based on the result above in table 2, it could be seen that the fourth semester students of STMIK Pelita Nusantara Medan have the highest level on the dimension of analysis is analyzing with the total score 207 and the average is 6.9 while evaluating is in the level of good and creating is the lowest score with the total score 200 and the average 6.6.

CONCLUSIONS

Based on research finding, the conclusion can be drawn as follows:

1. The ability of the fourth semester students of STMIK Pelita Nussantara in conducting English for Computer is good level with the most dominant score above 51 consists of 21 students in this level with 70% and there are only 2 students with percentage 7% who got the score below 51.
2. The highest level among three dimensions of students' cognitive skill is the level analyzing with the average 6.9 while the lowest is the level creating with the average 6.6.

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