



*Graduate School of Yogyakarta State University  
in Cooperation with  
SEAMEO VOCTECH Brunei Darussalam*



grants this

*Certificate*

to

*Dr. Samsul Hadi*

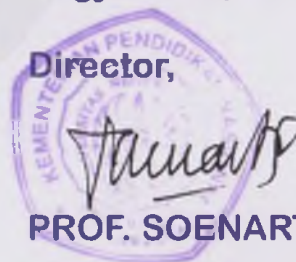
for his/her participation in the International Seminar on Vocational Education and Training  
*as Presenter*

held at the Graduate School of Yogyakarta State University on 18 May 2010  
Yogyakarta, 18 May 2010

Director of SEAMEO VOCTECH,

ALIAS BIN HAJI ABU BAKAR

Director,



PROF. SOENARTO, PH.D.



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# Proceeding

## INTERNATIONAL SEMINAR VOCATIONAL EDUCATION AND TRAINING

# The Challenge for VET in Developing Skills for Today's Workforce

Yogyakarta, 18 May 2010

Graduate School  
Yogyakarta State University  
Indonesia



International seminar “the challenge for vet in developing skills for today's workforce”

## PREFACE

This proceeding compiles all paper from the invited speaker and call for paper in International Seminar on Vocational Educaion and Traning held by the Graduate School of Yogyakarta State University in cooperation with the SEAMEO Voctech on 18 May, 2010. This seminar is conducted to celebrate the 46<sup>th</sup> Yogyakarta State University Anniversary.

The main theme of this seminar is “The Challenges for Vocational Education and Training in Developing Skills for Today’s Workforce”. Three sub themes are covered in this seminar: 1) Vocational and technical education curriculum for accommodating soft skills for today and future workforce, 2) Praxis and future teaching and learning soft skills, life skills, and employability skills in vocational education and 3) Assessment for soft skills, life skills, and employability skills teaching.

The committee would like to thank everyone involved, and those who have given contribution for the success of seminar.

Yogyakarta, 18 May 2010  
Editor

**THE SCHEDULE OF INTERNATIONAL SEMINAR**  
**“The Challenge for VET in Developing Skills**  
**for Today’s Workforce”**  
**Graduate School, Yogyakarta State University**  
**Tuesday, 18 May 2010**

HOUR	AGENDA	PRESENTER	PIC
07.30-08.00	Registration		Secretariat
08.00-09.00	Opening Ceremony Traditional Dance <ul style="list-style-type: none"> <li>• Report and Welcome Address</li> <li>• Speech and opening of the Rector</li> </ul>	<b>Prof. Soenarto, Ph.D.</b> (Director, Graduate School, YSU) <b>Dr. Rochmat Wahab, M.A.</b> (Rector of YSU)	MC: Ashadi, S.Pd.
09.00-09.45	Keynote speech	<b>Mr. Alias bin Haji Abu Bakar</b> (Director, SEAMEO VOCTECH, Brunei Darussalam)	Moderator: Suhaini M Saleh, M.A.
09.45-10.15	Coffee Break		
10.15-12.15	Panel Session	<b>Prof. Dr. Tod E. Treat</b> (Illinois University at Urbana, USA) <b>Prof. Dr. Jaelani Md. Yunos</b> (UTHM Malaysia) <b>Prof. Slamet, Ph.D.</b> (Yogyakarta State University)	Moderator Basikin, M.Ed
12.15-13.00	Lunch Break		
13.00-14.30	Parallel Session I (3 groups)		Moderator: Ghani Johan, M.A., Dr. Bruri Triyono, Istanto, M.Pd.
14.30-16.00	Parallel Session II (3 groups)		Dr. Widyastuti Purbani, Asruddin B. Tou, Ph.D.
16.00-16.15	Closing	Prof. Pardjono, Ph.D. (The Chairman of the committee, YSU)	

**Parallel Session**  
**Theme 2. Praxis Learning**

<b>Time</b>	<b>Presenter</b>	<b>Paper</b>
13.15 – 14.15	Ahmad Dardiri	Soft Skills: A Solution for Graduates' Competitiveness Improvement of Vocational Education in Global Era
13.15 – 14.15	Bambang SHP	The Development of Entrepreneurship through Vocational Secondary High School
13.15 – 14.15	Bernardus Sentot Wijanarka	Improving Lifelong learning Skills Through The Use of Computer Application Software as a Learning Tool
13.15 – 14.15	Dewi	Experiential Learning in Entrepreneurship Education to Face the Challenge of Today's Workforce
<b>Break</b>		
14.30 – 15.30	Isma Widiaty, Dadang Lukman Hakim, Suciati	Acquiring Soft Skill by E- Learning
14.30 – 15.30	Istanto Wahyu Djarmiko	The Teaching Strategies in Vocational Education in The Knowledge Era
14.30 – 15.30	Samsul Hadi	Improving TTNET Student Competency on Computer Programming using English in Teaching Learning Process
14.30 – 15.30	Sudji Munadi	Development of A Modul for Computer Aided Contextual Constructivism Learning in the Subject of Machining

## **IMPROVING TTVET STUDENT COMPETENCY ON COMPUTER PROGRAMMING USING ENGLISH IN TEACHING LEARNING PROCESS**

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### **Abstract**

This research purposed to explore English teaching-learning model suitable to Computer Programming course and the effect of the teaching-learning model to motivation, understanding, and final grade of the students of Teacher Training in Vocational Education and Technology (TTVET), i.e. Electrical Engineering Education Study Program of Faculty of Engineering of Yogyakarta State University.

This research was classroom action research. The model used in this research was model of Kemmis and McTaggart that consisted of planning, action, and reflection steps. The performance measured in this research were concordance of teaching-learning process with the plan, students' motivation to attend the course, students' understanding to the course material, and the percentage of students achieved grade B or above. Instruments used in this research were observation form for measuring those performances.

The findings were: the English teaching-learning process conducted in this research was not optimal yet in the aspects of explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation. Nevertheless teaching-learning process could improve students' motivation, understanding, and percentage of final grade of B or above more than 70% .

Keywords: computer programming competency, English teaching – learning process

### **A. Introduction**

Electrical Engineering Education study program is one of TTVET study programs conducted in Faculty of Engineering of Yogyakarta State University. Computer Programming is a mandatory course for all students of Electrical Engineering Education study program of Faculty of Engineering of Yogyakarta State University. This course has 2 credit hours. This course is conducted in the second semester. Before attending this course, in the first semester the students took Introduction to Computer course. Introduction to Computer course introduces computer hardware, operating system, and fundamental of computer programming in Pascal or C++ language.

Computer Programming course as continuation of Introduction to Computer course introduces Delphi language. Delphi is visual programming language under Windows that is using high level language, i.e. Pascal language as compiler. The existence of Delphi language can not be dissociated with Turbo Pascal that was launched by Borland International Incorporation in 1983 (Faesal, 2009).

High level programming language uses English like language. On the other side, high level language literatures were written in English. That is why English competency is a good predictor of computer programming competency. Improving students' English competency logically will enhance their computer programming competency, and finally will improve their Computer Programming achievement.

Before this research was conducted, Computer Programming course in Electrical Engineering Education study program of Faculty of Engineering of Yogyakarta State University was executed using Bahasa Indonesia. This condition could become obstacle for students in understanding programming language and in the end will contribute to the students' lower achievement in the Computer Programming course. The solution of this problem should be tried, i.e. by conducting English teaching-learning process in Computer Programming course.

The purpose of this research was to explore English teaching-learning model suitable to Computer Programming course and the effect of the teaching-learning model to the students' motivation, their understanding, and their final grade.

## **B. Computer Programming Teaching-Learning Process Using English**

Programming language is a language used for making computer program. Computer will process the given data based on commands written in the computer program. The commands should be understood by computer using a certain structure and keyword (Akib, 2009).

Based on the levels, programming language can be divided into three levels, i.e. low level language, middle level language, and high level language. Low level language is the first generation of programming language. This programming language is very difficult to understand because the instruction is in machine language. Usually the one who understands the program is only the programmer because the content of the program is machine codes.

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Middle level language is a programming language consists of instructions like daily language. Nevertheless this language is difficult to understand because it uses many abbreviations like “STO” means STORE and “MOV” means MOVE. Assembly language is an example of middle level language. The last one, high level language, is a programming language characterized with well-structured and easy to understand because of using daily language (English). Examples of this language are Delphi, Pascal, SQL, Perl, Python, Basic, Visual Basic, C, C++, PHP, etc .

English teaching-learning process for students using non-English as daily language needs certain models in order for the students can accept the materials. One of the model is immersion model. Immersion model initially introduced in Canada (Roberts, 1995). This model improved bilingual education successfully. According to Roberts (1995), immersion model does not have clear definition, but can be implemented in bilingual teaching-learning process. Johnson and Swain (1979), immersion is a type of education that uses bilingual.

Johnson (2007) stated that based on proportion of first and second language usages, immersion model can be classified into full or total immersion and partial immersion. Immersion model is full immersion if 100% of teaching-learning process is using second language. Immersion model is partial immersion if less than 100% teaching-learning process is using second language. According to Roberts (1995), outcome of the two immersion models has no significant differences. This research is using partial immersion model.

### **C. Method**

This research was conducted in 2009 in the laboratory of Data Communication of Electrical Engineering Education Department of Faculty of Engineering of Yogyakarta State University. The research subjects were students of semester II of the study program. The number of subjects were 20 students, i. e. total students of the Computer Programming course.

This research was classroom action research. The research was using model of Kemmis and Mc Taggart (1990) in three cycles. Every cycle consisted of: planning, action and observation, and reflection. Because of limited time available, this research was conducted in three cycles.



Planning started with identifying problem and action planning. The action was planned based on theory. Observation was conducted to measure the correctness of the action and the effect of the action to motivation, understanding, and final grade of the students. Reflection was conducted to evaluate, to correct, and to modify the action in order to reach the optimum action and effect.

Performance indicators should be reached were: a) teaching-learning process is on the track with the plan, b) students' motivation is good, c) students' understanding with the teaching material is high, and d) percentage of students with grade B or above is more than 70%. Instruments used to measure the preformance indicators were observation sheed.

Observation sheet of correctness of teaching-learning process was constructed based on observation sheed of Micro Teaching of Unit of Field Experience Program of Yogyakarta State University (UPPL, 2009). Students' motivation observation sheet had four indicators: a) number of students coming to the course on time, b) number of students asking question, c) number of students discussing job with their friends, and d) number of students not leaving the laboratory immediately.

Observation sheet of students' understanding with the teaching material consisted of five indicators, i. e. a) number of students doing job correctly, b) number of students finishing job on time, c) number of students doing job with improvisation, d) number of students doing job without lecturer help, and e) number of students doing job without friends help. Observation sheet for measuring Computer Programming competency based on practical process and product, i. e. speed of work, correcness of procedure, and correctness of computer program.

Data of this research were analyzed using quantitative descriptive statistics by counting frequency, mean, and displaying graphic. Using a certain category, the quantitative data changed into qualitative data.

## **D. Findings and Discussion**

### **1. Correctness of Teaching-Learning Process with the Plan Action**

The correctness of teaching-learning process with the plan action of the three cycles has been observed by colaborator is shown in Figure 1. The sclae of the figure is based on the observation sheet, i.e. minimum score is 1 and the maximum score is 4 and categorized as not good at all, not good, goog, and very good.

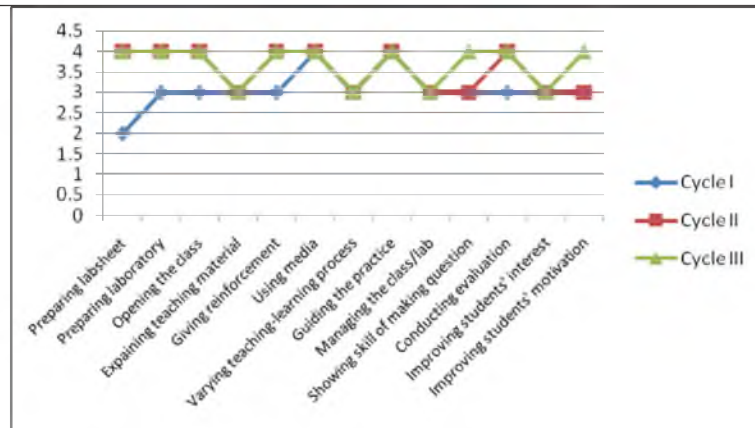


Figure 1. Correctness of Teaching-Learning Process

Figure 1 shows that in the first cycle preparing lab sheet got score 2 and it is categorized as not good. This was because it was late to distribute the lab sheet to the students. Using media got score 4 or very good. This was because the media (LCD projector) is installed permanently in the laboratory and connected to the lecturer computer and lecturer computer is connected to student computer in computer network in the laboratory. Guiding the laboratory activity/practice also scored 4 or very good. This was because the course had been established long before this research conducted. Another aspects of teaching-learning process were scored 3 or categorized good.

In the second cycle there were improvements in the aspect of preparing lab sheet, preparing laboratory, opening the class, giving reinforcement, and conducting evaluation compared to those conditions in the first cycle. In the third cycle there were improvements in aspect of showing skill of making question and improving students' motivation compared to those aspects in the second cycle.

## 2. Students' Motivation Attending The Course

Students' motivation to attend the course in all three cycles is shown in Figure 2. The figure shows that in the first cycle the percentage observed indicators respectively as follows: students coming on time is 90%, students asking question is 75%, students discussing job with their friend 35%, and students not leaving not leaving the lab although time is up 30%.

In cycle two, the percentage of the above indicators are: students coming on time is 100%, students asking question is 65%, students discussing job with their friend 45%,

and students not leaving not leaving the lab although time is up 20%. While in cycle three the percentage of the indicators are: students coming on time is 100%, students asking question is 30%, students discussing job with their friend 60%, and students not leaving not leaving the lab although time is up 15%.

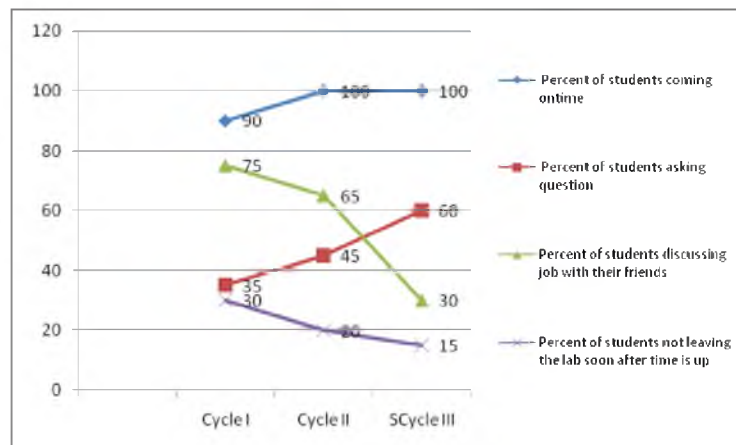


Figure 2. Students' Motivation Attending the Course

### 3. Students' Understanding with The Teaching Material

The students' understanding with the teaching material of all cycles in this research is displayed in Figure 3. In the first cycle the percentage of students doing job correctly is 80%, students doing job ontime is 70%, students doing job with improvisation is 30%, students doing job without lecturer's help is 80%, and students doing job without friends' help is 80%. Students doing job correctly, students doing job without lecturer's help, and students doing job without friends' help are categorized high, but students doing job ontime is categorized medium, and students doing job with improvisation is categorized low.

In cycle two the percentage of students doing job correctly, students doing job ontime, students doing job without lecturer's help, and students doing job without friends' help are better than those of cycle one. In cycle three the percentage of students doing job correctly, students doing job with improvisation, students doing job without lecturer's help, and students doing job without friends' help are better than those of cycle two.

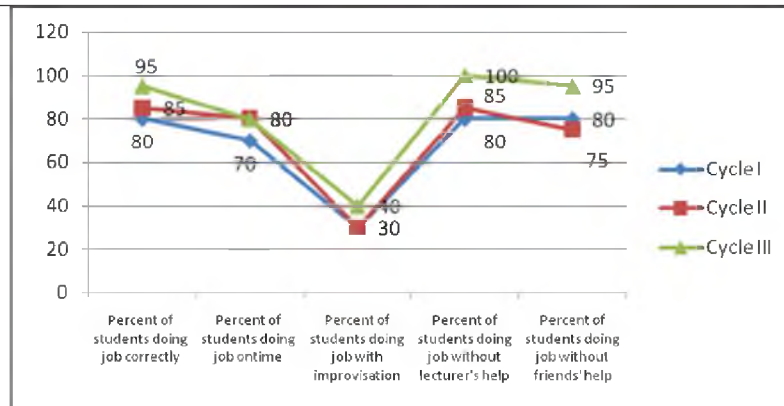


Figure 3. Students' Understanding with The Teaching Material

#### 4. Percentage of Students Getting Grade B or Above

Practical examination conducted after the third cycle obtained grade distribution displayed in Figure 4. The figure shows that there were still students had grade less than B category, i.e. 25%. But all students passed and the percentage of students got grade B or above was 75%.

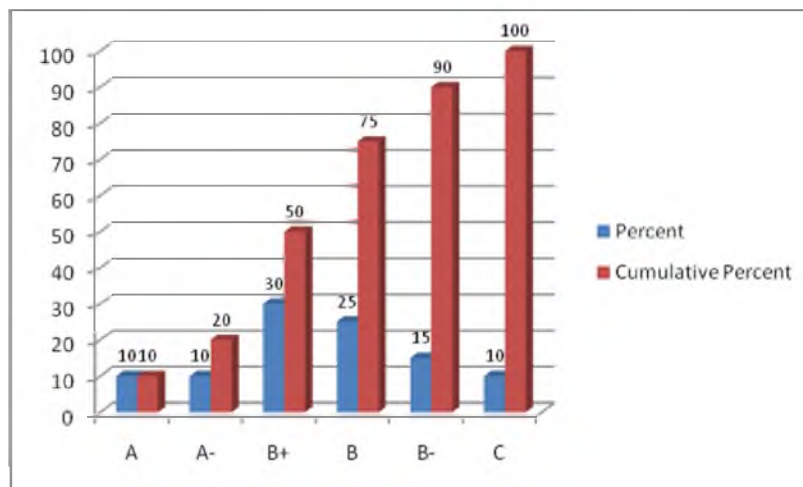


Figure 4. Students' Grade Distribution

In the future it is visible to decrease the percentage of students got grade less than B. This is because explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation of the English teaching-learning process of this research was not optimal yet.

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## E. Conclusion and Recommendation

### 1. Conclusion

English teaching-learning in Computer Programming course conducted in this research was not optimal yet in the aspects of explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation. However the teaching-learning process could improve students' motivation, understanding, and percentage of final grade of B or above more than 70% .

### 2. Recommendation

English teaching-learning in Computer Programming course need to be continued because the effect on students' motivation, understanding, and percentage of final grade of B or above more than 70% is reasonable. But English teaching-learning process needs to be updated in aspect of explaining material, varying teaching-learning process, managing class/lab, and enhancing students' motivation.

## F. References

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