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The Effect of an Evaluation of Teaching English Curricula Used Students' Two Faculties in Rajamangala University of Technology Phra Nakorn

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***Abstract*– The purpose of this study was to evaluate students in the Technical English course including 9 dimensions and 29 aspects, and to evaluate the contingency factors of context, input, process and product and compared it with the evaluation of the Technical English course based on CIPP model from two faculties – Engineering and Science and Technology.**

The 120 samples used in this study were students registered in Technical English in the first semester of 2015 academic year from two faculties of RMUTP students. The research instrument was a questionnaire through descriptive statistics. The findings can be summarized as follows: there were 9 dimensions which included the following aspects: The result of this study revealed that there were 9 dimensions. The 8 dimensions were rather high. However, dimension 4 was rather high, and even higher for students of Science and Technology. The contingency of context, input, process and product factors of the course were all rather high. The four dimensions were appropriated in terms of context, input, process and output at a high level. The evaluation in this course from the two faculties' students appropriated context, input, process and output at a high rate and increasing the sum total of learning.

***Keywords*– Technical English, Context, Input, Process and Product**

I. INTRODUCTION

Nowadays, the world is in a state of continuous change. An example of this is the way in which advanced technology has had an economic and social impact on Thailand. Due to the fact that the curriculum is used for staff development, it is essential that the content should be up to date with changing social standards as well as being of the highest quality. Therefore, the curriculum plays a vital role in the evaluation of instructional programs or textbooks, the improvement of curriculum when suitable, and teaching and testing materials [3].

Rajamangala University of Technology Phra Nakhon (RMUTP) is one of the leading technology universities in the nation in terms of the production of professional graduates. The philosophy of RMUTP is to produce technological specialists from a variety of disciplines. One of the primary objectives of this institution is the production of professional engineers.

Stevens [8] divided the objectives of English communication, in terms of training engineers and technicians, into categories including general communication, communication in terms of speaking and writing, and the working performance of engineers or technicians. Additionally, Hutchinson and Waters [6] mentioned that the purpose of English for Specific Purposes (ESP) is to focus on the needs of the learners, and an emphasis on objectives and dealing with relevant real-life situations. The students from the Faculties of Engineering and Science and Technology face a variety problems; the fact that the instructional processes used are not learner-centered approach, do not take the needs of different learners into consideration and lack proficiency in the target language. An example of this is mentioned when learners are faced with reading passages that they weren't able to understand and struggled to read [7]. This may lead to a lack of student motivation and decreases achievement in terms of learning. In other words, the Decision-Making Model was designed by Stufflebeam, a leader in the field of evaluation as an analytic process used to gain useful information about decision-making in a number of ways. There are four types of evaluation in the CIPP model; context, input, process and output. Stufflebeam suggested that the CIPP model is a framework for guiding the evaluation of programs, projects, personnel, products, institutions, and systems. The checklist was patterned after the CIPP model for both long-term and sustainable improvements [9].

In conclusion, the researcher focused on factors in four areas of the CIPP model of evaluation curriculum – context, input, process and output – as a means to gather details for research purposes, as well as the opinions of learners with regard to the subject of Technical English. It is clear that identifying the strengths and weaknesses of this course will help to correct any possible weaknesses in the course and reinforce any of the strengths which increase the educational value and the quality of this course.

The objectives of the research

A. The purposes of this study were to evaluate the following 9 dimensions:

1) the needs of the students regarding Technical English,
2) the continuation of the course contents,
3) the appropriateness of the course contents for learners,
4) the contingent relationship between learning activities and other factors,
5) the use of the English language in class by both students and teachers,
6) the use of a variety of activities including input and process
7) the use of multiple learner-centered activities,
8) the attitudes of the students towards the course
9) the satisfaction levels of the students with regard to the outcomes,

B. To evaluate the curriculum and course in terms of context, input, process and output.

C. To compare the evaluations of students taking the Technical English course being taught through the CIPP model in terms of the similarities or differences between students from the Faculties of Engineering and Science and Technology at Rajamangala University of Technology Phra Nakorn.

Research Design

The design and the implementation of the survey used to gather research was conducted by the researcher as follows:

The Populations and the Samples

The population of this study consisted of second-year undergraduate students from two faculties, Engineering and Science and Technology, who studied in the first semester of the 2015 academic year at Rajamangala University of Technology Phra Nakorn (RMUTP). There were a total of 250 students in this study; the samples consisted of 120 RMUTP students and were derived from a simple random sampling technique.

Duration of the Experiment

The duration of the experiment was 2 weeks (a total of 6 hours per weeks)

II. RESEARCH INSTRUMENTS

1) Ten lessons of Technical English 2 Course Book [2]

2) The questionnaire was developed by the researcher, with the aim of assessing the satisfaction levels of the students and their opinions.

Construction and Development of the Research Instrument
The satisfaction questionnaire

The researcher constructed the questionnaire in order to investigate the satisfaction levels of the students and their opinions. The specific purpose of this questionnaire was to probe more deeply into the feelings, opinions and problems experienced by students taking Technical English. The questionnaire was distributed immediately after completion of the study so that the students would be able remember it more clearly. The satisfaction questionnaire was constructed using the criteria established by Best [1] and adapted in the same way as the research of Sukamonlson [10]. The responses to each question were based on a 5 point Likert scale, which used the following criteria:1 = the least, 2 = a little , 3 = more than a little , 4 = moderate , 5 = high and 6 = very high

Data collection

An investigation of the Technical English skills of RMUTP students was administered by the questionnaire. The distribution of the questionnaire was conducted in English classes with a total of 120 RMUTP students from the Faculties of Engineering and Science and Technology to complete the questionnaire, which was divided into four categories – context, input, process and output. Part 1 (Demographic Information): This part of the questionnaire aimed to obtain information on gender, age and the faculties that they belonged to. The participants were asked to complete to in the following details. Part 2 (Overall perceptions with an emphasis on the CIPP model): This part was designed in order to identify the perceptions of the students regarding the CIPP model. Part 2 was concerned with the six most significant levels in terms of four areas (five items for context, nine items for input, nine items for process and six items for output). Each question had a five-point Likert scale design. The participants were asked to check in only one box under the six levels of each item. Part 3 (Suggestion): This section was designed in order to investigate the perceptions of the students regarding how certain contexts, teaching methods, contents and materials, teaching methods and assessment criteria are used in the class. The participants were asked to complete their suggestions. After the researcher completed the questionnaire, the data was analyzed by Index of Item Objective Congruence (IOC), which is as follows:

$$IOC = \frac{\sum R}{N}$$

IOC = Index of Item Objective Congruence

R = Expert opinions

$\sum R$ = Sum total of Expert opinions

N = Number of experts

The questions which were rated at less than 0.5 were analyzed and improved upon by experts. The data from the small group in this experiment was analyzed in order to establish reliability by using alpha coefficient based on Cronbach [4] . The reliability of coefficient was 0.83.

Data Analysis of the Questionnaire

The data analysis process was conducted by using a rating scale; calculated by frequency, percentage, mean and standard deviation and translated based on the criteria established by Best (1981) $1.00 \leq \bar{X} < 1.50$ refers to the least, $1.50 \leq \bar{X} < 2.50$ refers to a little, $2.50 \leq \bar{X} < 3.50$ refers to more than a little, $3.50 \leq \bar{X} < 4.50$ refers to a moderate, $4.50 \leq \bar{X} < 5.00$ refers to high, and $5.00 \leq \bar{X} < 6.00$ refers to very high.

Data Analysis and Statistics

The collected data were analyzed in terms of frequency, percentage, mean and standard deviation.

III. RESULTS OF DATA ANALYSIS

The analysis of the data from the questionnaire is presented in Part 1, including demographic information about the participants including gender and major.

TABLE I : Presents information about the mean and standard deviation regarding the Technical English course and two Faculties -Engineering and Science Technology students at RMUTP

Evaluation and quantity questions	**Engineering**		**level**	**Science&Technology**		**level**
	$\overline{X}$	**SD**		$\overline{X}$	**SD**	
A. Context						
1. Needs				4.99		high
1.English is an important part of your learning experience at university.	5.24	0.872	high	5.03	1.017	high
2.English is important to Thai people nowadays.	5.21	0.946	high	5.1	1.012	high
3.English is going to be an important part of your daily working life in the future.	6.3	1.91	very high	5	1.069	high
4.This course should be in the curriculum.	5	0.835	high	5.07	0.923	high
5.You use English to enhance your learning.	4.79	1.081	high	4.79	0.987	high
B and C: Factors of input and process **2. Continuation of the course contents**	4.89		high	4.78		high
6.The contents of this course are in accordance with your needs.	4.9	0.971	high	4.9	0.817	high
7.The continuation of course content, structural language and vocabulary with other English courses.	4.88	0.977	high	4.66	1.01	high
3. Appropriateness of the curriculum	5.09		high	4.77		high
8.The contents of this course were difficult for you.	4.41	0.633	moderate	4.9	1.081	high
9.The contents of this course were interesting for you.	5.15	0.764	high	4.79	1.013	high
10.The contents of this course were useful for you.	5.24	0.854	high	4.9	1.081	high
11.The teaching methods used in this course are appropriate for your ability level.	5.01	1.091	high	4.52	1.09	high
4. Accordance with multiple activities	4.48		high	6.27		high
12.The course contents are in accordance with your background knowledge.	4.94	1.127	high	4.48	0.949	moderate
13.The course contents are related to the continuation of your learning.	5.24	0.698	high	4.9	0.86	high
14.The course contents are appropriate for your ability level.	5.13	0.776	high	4.66	0.897	high
5. Quantity of English Used in Instruction	5.12		high	4.91		high
15.You have opportunities to use English in the classroom during this course.	5.21	0.993	high	4.86	0.789	high

Evaluation and quantity questions	Engineering		level	Science&Technology		level
	$\overline{X}$	SD		$\overline{X}$	SD	
16.You have opportunities to use English outside the classroom during this course.	5.04	1.007	high	4.97	0.865	high
6. Variety of factors of input and output	4.95		high	4.72		high
17.You complete your exercises, homework and take tests.	4.99	0.896	high	4.59	0.907	high
18.Your instructor is proficient in the use of non-printed teaching materials.	5.1	0.89	high	4.9	0.817	high
19.Your instructor provides non-printed materials as part of your coursework.	4.76	1.232	high	4.69	1.072	high
7. Learner-Centered Approach	5.08		high	4.88		high
20.The instructor allows learners to ask questions, discuss problems etc.	5.24	0.818	high	4.93	0.884	high
21.The instructor is aware of and concerned with the learning needs of the students.	5.19	0.783	high	4.9	0.817	high
22.The instructor has an appropriate attitude and pays enough attention to the learners.	5.21	0.769	high	4.9	0.976	high
23.The students are able to learn independently or outside the classroom.	4.99	1.037	high	4.48	1.056	high
D. Output **8. The Attitudes of Students toward the Curriculum**	5.18		high	5		high
24.You have a positive attitude towards the teaching activities.	5.19	0.905	high	5.03	0.906	high
25.You have a positive attitude towards the course contents.	5.15	0.803	high	4.97	0.906	high
26.You feel that there is a good atmosphere in the classroom, which is also conducive to your learning.	5.22	0.918	high	5	1.069	high
9. Satisfaction, usefulness and learning achievement	5.09		high	5.04		high
27.You are satisfied with your results on the midterm test.	4.99	1.022	high	4.97	1.052	high

Evaluation and quantity questions	Engineering		level	Science&Technology		level
	$\overline{X}$	SD		$\overline{X}$	SD	
28.You feel that you gave achieved your objectives in terms of learning goals during this course	5.04	0.96	high	5.03	0.906	high
29.You feel that you have learned something useful during this course.	5.24	0.939	high	5.14	0.953	high
A. Context	5.1		high	4.99		high
B. Input and Process	4.93		high	5.05		high
C. Process	4.83		high	5.01		high
D. Output	5.13		high	5.02		high

n =120

Standard evaluation of criteria = $\overline{X}$ higher than 4.50

Table I indicated the following, in terms of the 9 dimensions; 1.) their need for Technical English skills was rather high, 2.) the continuation of course contents was also rather high, 3.) the appropriateness of the course was quite high for the learners, 4.) the contingency between learning activities and other factors for students from the Faculty of Engineering at RMUTP was rather high, and even higher for students of Science and Technology, 5.) both teachers and students frequently used the English language in the classroom was rather high, 6.) there were rather high a variety of activities involving input and process, 7.) there were also a variety of learner-centered activities, 8.) the students had mostly positive attitudes towards the course, and 9.) also had rather high levels of satisfaction with regard to the outcomes. In other words, the contingency of the factors (context, input, process and product) were at a high level. In table 1, it can be seen that the evaluation and quantity questions consisted of 29 items. This was considered a large number of items, many of which required improvement before they could meet the criteria.

However, specifically in regard to Question 8, the contents of the course were considered to be at a moderate level of difficulty and in need of improvement. With regard to the previously mentioned four dimensions, the CIPP Model was the most ideal for the evaluation of the Technical English courses for the students from the Faculties of Engineering and Science and Technology. It was appropriated in terms of context, input, process and output at a high rate ($\overline{X}$ =5.13 out of 6 and $\overline{X}$ = 5.02 out of 6 respectively). Therefore, there was a high rate of overview of the different types of evaluation in this course.

TABLE II : Frequency and Percentage of the Number of Suggestions made by RMUTP students taking Technical English

Suggestions made by RMUTP Students taking Technical English	n	Freq.	Percentage
Suggestions	11		
1. The teacher should take the students to visit a company or a factory.		6	54.54
2. The teacher should let students practice English report writing independently.		5	45.45

The table indicated that RMUTP students had opinions and suggestions regarding the course; it was found that the answers of 11 students could be classified into two types, with 6 students at 54.54% and 5 students at 45.45%. Question 1,that the teacher should take the students to a company or factory, was equal to 54.54%, while Question 2, that the teacher allowed students to practice report writing in English was equal to 45.45%.

IV. DISCUSSION

A thorough investigation of the Technical English course revealed that the students from the Faculty of Engineering responded strongly Question 3, which was concerned with the importance of English in their daily working lives. The students provided numerous reasons, including the following:

A. Why is the importance of English in their daily working lives?

1) International Communication

Nowadays, English plays a vital role as a common language of communication in numerous countries throughout the world. Stevens [8] divided the objectives of English communications in terms of English for Specific Purposes (ESP), general communication training for engineers and technicians and more specialized training for engineers and technicians in spoken and written communication.

2) English for Specific Purposes

Hutchinson and Waters [6] claimed that the function of English for Specific Purposes (ESP) is to focus on the needs of the learners, new ideas regarding the objectives of language teaching, learning to deal with real-life language situations, especially relevant and subject-specific Technical English.

3) Business Needs

Business English is defined as the application of English language in business situations. According to Ellis and Johnson [5], business English must be seen in the overall context of ESP as it shares the important elements of needs analysis, syllabus design, course design, and material selection which are common to all varieties of work in ESP.

B. Why were contents of this course difficult for you?

The researcher revealed that with regard to Question 8, the students from the Faculty of Engineering at RMUTP experienced a moderate level of difficulty with the course contents. There were a number of reasons, which are as follows:

The students quickly realized that the course contents contained many technical terms as well as a lack of sources. In other words, the learners passages which they weren't able to understand clearly or struggled to read [7].

C. Why are the course contents in accordance with your background knowledge?

The researcher found that RMUTP students from both faculties produced a moderate response with regard to Question 12, that the course contents were in accordance with their background knowledge. According to the concepts of constructivism, learning can be considered an active, contextualized process; the construction rather than the acquisition of knowledge by the learner. Knowledge is a construction on the influences of the environment and personal experiences. It is thought that learners continuously test these hypotheses through a process of social negotiation [11].

V. CONCLUSION

The result of this study revealed that there were 9 dimensions which included the following aspects: The result of this study revealed that there were 9 dimensions. The 8 dimensions were rather high. However, dimension 4; the contingency between learning activities and other factors for students from the Faculty of Engineering at RMUTP was rather high, and even higher for students of Science and Technology. In other words, the contingency of context, input, process and product factors of the course were all rather high. With regard to the four dimensions, the researchers employed the CIPP model of evaluation in the Technical English course for students from the Faculties of Engineering and Science and Technology and was appropriated in terms of context, input, process and output at a high level ($\bar{X}$ =5.13 out of 6) Furthermore, the evaluation in the Technical English course for students from the Faculties of Engineering and Science and Technology also appropriated context, input, process and output at a high rate and increasing the sum total of learning.

RECOMMENDATIONS

In terms of this study, the following suggestions were provided in order to further develop the following aspects of this research:

1. The office of Academic Affairs, Department Heads and Instructors should collaborate in order to improve the quality of the instruction.
2. Academic affairs should send the results of the study to coordinators and suggest which main points may lead to improvements

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