Development of Electronic Test to Measure Students' English Abilities of Rajamangala University of Technology Phra Nakhon

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Abstract

The purposes of this research were to build and develop a standardized test used to measure English abilities compliant with the curriculum of the fourth-year students of Rajamangala University of Technology Phra Nakhon. There were two groups of the students, namely, the first group which consisted of 57 students who took the traditional pilot paper test, and the latter which consisted of 63 students taking the electronic test via the Internet. The other purposes were to find out the students/users' attitudes and satisfaction towards the use of the electronic test, and to obtain a computer program prototype for measuring English abilities.

The results were as follows:

1. The item analysis of the pilot paper test revealed that there were 64 items of appropriate difficulty index and discrimination power, whereas that of the electronic test revealed that only 56 items had appropriate difficulty index and discrimination power. Even though the latter test had been improved, the accepted items were fewer. This led to the assumption that the characteristics of doing an electronic test affected students' decisions and made them guess more than when they took a paper test.

2. The questionnaires analysis of students' satisfaction of using the electronic test program to measure their English abilities revealed that the overall arithmetic mean was 75.72. The highest scored item of 87.59 percent was "I think this e-test program is useful"; and the lowest scored item of 66.21 percent was "I think the screen format is interesting".

Moreover, there were 11 users who showed their positive opinions towards the e-test program which was 18.97 percent of the latter group.

Key words: electronic test, English ability

1. Introduction

Nowadays using the Internet is common to people; and the net can be accessed almost everywhere, e.g. at home, at workplace, at school or college, at Internet cafes. Every organization goes Internet; therefore, teachers and educators should use it as an important medium of teaching and learning on any website for education or edutainment.

English is taught as the most prominent foreign language in Thailand, and it is the key to knowledge of the world since nearly all documents of sciences and knowledge are in English. The fact that webpages of English are abundant prompts most educational institutes in Thailand seek to use it as one of the most effective channels to deliver learning services, which is widely known as "electronic learning".

Of course, electronic testing should be accompanied and offered after learning activity on the net has been delivered.

2. Procedure, Tools, and Sample

2.1 Procedure

The framework of this research was planned in eight steps as shown in the diagram below.
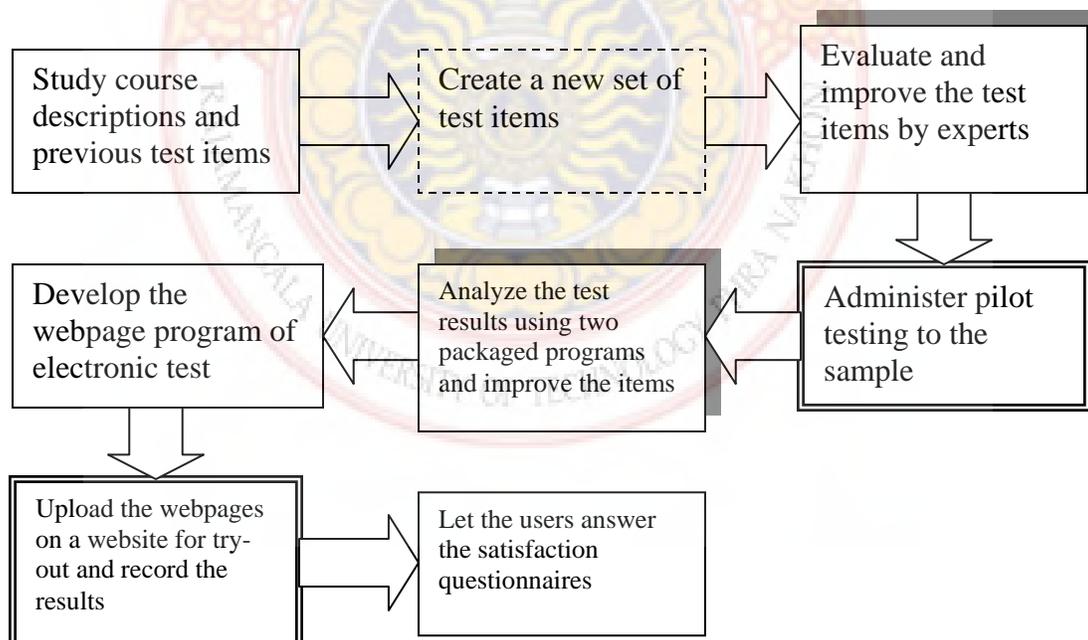
2.2 Tools

There were two sets of tools used to collect data as follows.

1. Electronic test to measure students' English abilities

2. Questionnaires to analyze students' satisfaction of using the electronic test

2.3 Sample

The sample were two groups of RMUTP students as follows.

1. 57 fourth-year students of semester 2/2007 who took the traditional pilot paper test consisting of 33 management majored students from faculty of business administration, and 24 English for international communication majored students from faculty of liberal arts.

2. 63 fourth-year students of semester 1/2008 who took the electronic test via the Internet consisting of 27 information systems students from faculty of business administration, and 36 English for international communication majored students from faculty of liberal arts.

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Study course           Create a new set of      Evaluate and
descriptions and  -->   test items          -->  improve the test
previous test items                               items by experts
                                                        |
                                                        v
Develop the             Analyze the test         Administer pilot
webpage program of <--  results using two    <--  testing to the
electronic test         packaged programs         sample
      |                 and improve the items
      v
Upload the webpages
on a website for try- -->  Let the users answer
out and record the         the satisfaction
results                    questionnaires
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3. Results and discussion

3.1 Pilot Paper Test

The pilot paper test was administered on 17 September 2007 for students majored in English for International Communication and on 20 November 2007 for students majored in management in traditional classrooms. There were 64 test items of appropriate difficulty index between 0.23 and 0.79, namely 1, 3, 4, 7, 8, 9, 11, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 40, 41, 42, 43, 44, 45, 46, 49, 51, 52, 53, 54, 55, 57, 58, 61, 62, 63, 64, 65, 67, 68, 69, 71, 72, 75, 76, 78, 80, 81, 85, 86, 87, 88, 89, 90, 91, 99, and 100.

ITEM NO.	RESP-ONSE	NUMBER RESPONDING			DIFFICULTY INDICE			
		UPPER	MIDDLE	LOWER	UPPER	LOWER	TOTAL	DELTA
1 *	1	9	13	4	0.600	0.267	0.456	13.48
	2	5	10	7	0.333	0.467	0.386	14.20
	3	1	0	1	0.067	0.067	0.035	20.28
	4	0	4	3	0.000	0.200	0.123	17.68
ERROR		0	0	0	0.000	0.000	0.000	0.00
2 *	1	1	1	1	0.067	0.067	0.053	19.52
	2	0	2	4	0.000	0.267	0.105	18.05
	3	1	5	5	0.067	0.333	0.193	16.51
	4	13	19	5	0.867	0.333	0.649	11.43
ERROR		0	0	0	0.000	0.000	0.000	0.00
3	1	5	7	2	0.333	0.133	0.246	15.79
*	2	8	9	3	0.533	0.200	0.351	14.57
	3	2	4	5	0.133	0.333	0.193	16.51
	4	0	7	5	0.000	0.333	0.211	16.26
ERROR		0	0	0	0.000	0.000	0.000	0.00
4	1	0	0	0	0.000	0.000	0.000	0.00
	2	2	7	9	0.133	0.600	0.316	14.96
*	3	11	18	6	0.733	0.400	0.614	11.80
	4	2	2	0	0.133	0.000	0.070	18.94
ERROR		0	0	0	0.000	0.000	0.000	0.00
5	1	4	8	2	0.267	0.133	0.246	15.79
*	2	0	3	0	0.000	0.000	0.053	19.52
	3	6	4	3	0.400	0.200	0.228	16.02
	4	5	12	10	0.333	0.667	0.474	13.30
ERROR		0	0	0	0.000	0.000	0.000	0.00

Item analysis results of pilot paper test items 1 - 5 analyzed by Computerized Testing & Grading Package (CTG)

3.2 Electronic Test

The electronic test was administered on 4 September 2008 for students majored in English for International Communication and on 6 September 2008 for students majored in information systems management in computer laboratories. There were 56 test items of appropriate difficulty index between 0.23 and 0.79, namely 1, 3, 4, 9, 10, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 34, 37, 38, 41, 43, 45, 52 53, 54, 55, 57, 58, 61, 63, 64, 65, 66, 68, 69, 70, 71, 72, 75, 76, 77, 78, 79, 80, 81, 84, 87, 88, and 89

ITEM NO.	RESP-ONSE	NUMBER RESPONDING			DIFFICULTY INDICE			
		UPPER	MIDDLE	LOWER	UPPER	LOWER	TOTAL	DELTA
1 *	1	10	13	3	0.588	0.176	0.413	13.92
	2	0	1	1	0.000	0.059	0.032	20.46
	3	7	13	9	0.412	0.529	0.460	13.44
	4	0	2	4	0.000	0.235	0.095	18.28
ERROR		0	0	0	0.000	0.000	0.000	0.00
2 *	1	3	0	1	0.176	0.059	0.063	19.14
	2	1	2	5	0.059	0.294	0.127	17.60
	3	3	1	9	0.176	0.529	0.206	16.32
	4	10	26	2	0.588	0.118	0.603	11.91
ERROR		0	0	0	0.000	0.000	0.000	0.00
3	1	1	7	4	0.059	0.235	0.190	16.54
*	2	11	14	4	0.647	0.235	0.460	13.44
	3	5	6	7	0.294	0.412	0.286	15.30
	4	0	2	2	0.000	0.118	0.063	19.14
ERROR		0	0	0	0.000	0.000	0.000	0.00
4	1	0	2	2	0.000	0.118	0.063	19.14
	2	1	8	5	0.059	0.294	0.222	16.10
*	3	14	16	10	0.824	0.588	0.635	11.58
	4	2	3	0	0.118	0.000	0.079	18.68
ERROR		0	0	0	0.000	0.000	0.000	0.00
5	1	7	15	6	0.412	0.353	0.444	13.60
*	2	0	3	2	0.000	0.118	0.079	18.68
	3	3	7	3	0.176	0.176	0.206	16.32
	4	7	4	6	0.412	0.353	0.270	15.49
ERROR		0	0	0	0.000	0.000	0.000	0.00

Item analysis results of electronic test items 1 - 5 analyzed by CTG

3.3 The Questionnaires of Students' Satisfaction

The questionnaires of students' satisfaction of using the e-test program was filled after the latter group of students finished using the program. However, not all of the students who used the program completed the questionnaires. The highest percentage of 87.59 showed that the students saw the usefulness of the program while

75.72 percent of all the 58 students felt satisfied with the program. Nevertheless, only 66.21 percent of them felt interested in the e-test program format.

Moreover, there were 11 students who answered the open-ended item of the questionnaires creatively showed their positive opinions of satisfaction towards the program.

4. Conclusions and Suggestions

Although the e-test program is of great use, it still needs a lot of development in terms of its physical appearance. The program's format should be made more interesting by adding current trends aspects as some webpages of famous websites. Student users suggested adding both more functions and more beautiful graphics to the program.

The writer also had his own second thoughts on how to further develop the e-test program, as well as next research topics to be done.

5. Acknowledgements

The writer gratefully acknowledges Rajamangala University of Technology Phra Nakhon for the budget support.

6. References

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Holman, Lucy. "A comparison of Computer-Assisted Instruction and Classroom Bibliographic Instruction." **Reference & User Services Quarterly.** Vol. 40, 1 (Friday 22 September 2000), 53-68.

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The link** to electronic test program to measure English abilities at **www.larts.rmutp.ac.th
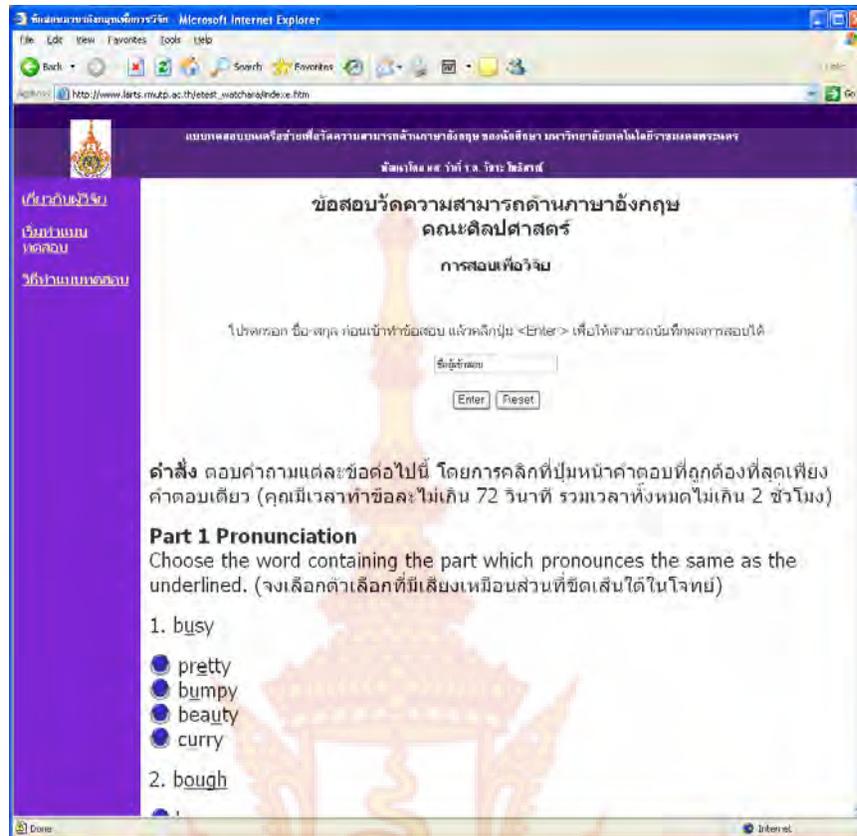
The first page of the electronic test program. The instruction is in both Thai and English.
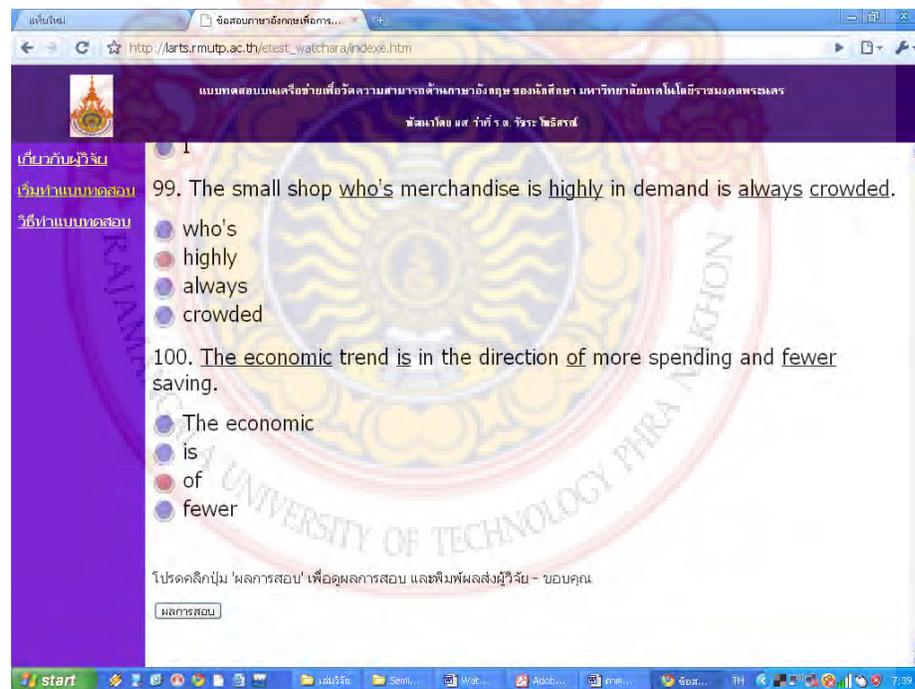
After finishing the last item of 100, the user has to click the lowest button on the left-hand side of the screen to see the result's scores.
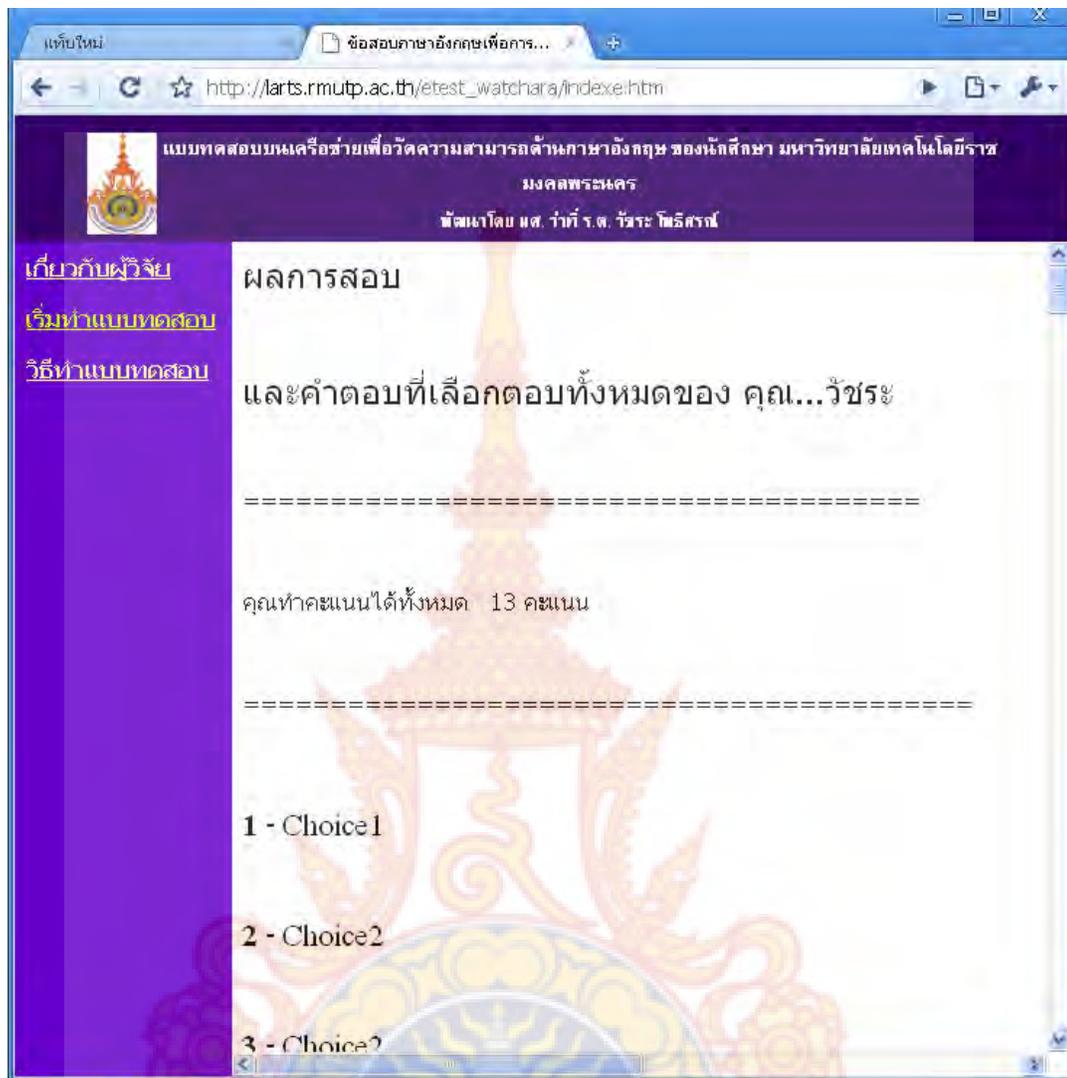
The result page showing the user's name, his total score, and each of his choices.