

ENGLISH LEARNING DEVELOPMENT OF AGRICULTURAL STUDENTS IN AN AGRICULTURAL MACHINERY COURSE

Dowroong Watcharinrat¹ and Fathiyyah²

¹ Faculty of Agricultural Technology, Rajamangala University of Technology Thanyaburi, Thailand;

² Faculty of Agricultural Technology, 17 Agustus 1945 University of Banyuwangi, Indonesia

ABSTRACT: This research was designed to assess the development of English ability in agricultural students in an agricultural machinery course. The participants were second year students in the Crop Production major of the Agricultural Technology Faculty, Rajamangala University of Technology Thanyaburi, Thailand in the academic year 2/2014. This research ran from January to April 2015. There were forty five students studying agricultural machinery. At the first meeting of the class, they were each given a one-hour pre-test to assess their ability in English. There were 100 questions and pictures. The questions and pictures of the pre-test and the post-test were the same and both tests were administered by the same researcher. The questions were recommended by three lecturers who are experts in agricultural machinery, research and English. For every question, there was a picture with the Thai name of that picture. Students then had to write the name in English. The questions covered topics such as tillage, planting, crop protection and fertilizing, as well as harvesting and processing equipment. The questions were divided into three parts: multiple choice, check list and essay. This class met twice a week for two hours each class. At the final meeting, participants were given a post-test to assess any changes. After that, the lecturer shared the answers with the students. The statistics applied in this research were frequency, percentage and mean. There were forty five students made up of sixteen males and twenty nine females. The all student average mean of the pre-test was 20.36 and the post-test was 81.6. The all student average improvement was 61.24. The average improvement for the males was 62.06 and for the females was 60.79. There was a significant difference between pre-test and post- test at a .05 level of significance.

Keywords: English Learning, English Picture, Machinery Picture, Machinery English

1. INTRODUCTION

Our world is as large as our language. With our language, we can communicate in as many places as that language is used. English is the language of international communication in many fields, including business, science and the arts. The English language is important not only to survive but also to thrive. Students in the Faculty of Agricultural Technology are no exception to this rule.

There are many goals for learning a language. In this study, the participants needed to increase their spoken vocabulary and improve their grammar in order to be able to hold daily conversations in the subject matter. A special method was developed to try and maximize the Thai students learning style and study habits. This study has direct bearing on one of the policies of the Rajamangala University of Technology Thanyaburi [8], Faculty of Agricultural Technology promulgated to improve the English of all students to better prepare them for an international future.

One of the best ways for a lecturer to increase their students' English is to employ the use of pictures. The students generally find pictures easier to remember and therefore learn the key

vocabulary more quickly and easily. Agricultural machinery course descriptions deal with the study and practical use of tractors and agricultural machinery, tillage equipment, planters, maintenance equipment for crop production, pre and post harvesters, as well as the selecting and buying of farm tractors and agricultural machinery. This subject is one of the requirements for the Crop Production major in the faculty. All students need to learn and know farm machinery equipment names in English. This study used lectures combined with pictures as the methodology to improve students' English.

2. METHODOLOGY

This research aimed to develop the English ability of agricultural students. Participants were second year Crop Production majors of the Agricultural Technology Faculty, Rajamangala University of Technology Thanyaburi, Thailand in the academic year 2/2014. This research ran from January to April, 2015. There were forty five students studying agricultural machinery. At the first meeting of class, they were each given a one-hour pre-test to assess their ability in English. There were 100 questions with pictures. Each

question was worth one point for a total maximum possible score of 100 points.

Table 1 Pre-test and post-test scores of students learning English in agricultural machinery

No	Gender	Pre-Test	Post-Test	Improvement
1	M	23	87	64
2	M	21	89	68
3	M	14	80	66
4	F	20	91	71
5	M	11	73	62
6	F	21	86	65
7	M	15	72	57
8	M	23	83	60
9	F	25	88	63
10	F	24	85	61
11	F	21	83	62
12	F	23	84	61
13	F	21	78	57
14	F	26	90	64
15	F	22	83	61
16	F	23	85	62
17	F	23	81	58
18	F	21	79	58
19	F	20	88	68
20	M	17	77	60
21	F	19	75	56
22	F	13	72	59
23	M	21	74	53
24	F	25	86	61
25	F	23	78	55
26	F	13	61	48
27	F	21	73	52
28	F	26	80	54
29	M	20	88	68
30	F	19	78	59
31	M	24	82	58
32	M	21	81	60
33	F	22	86	64
34	F	24	87	63
35	F	21	81	60
36	M	15	79	64
37	F	20	81	61
38	M	25	92	67
39	M	23	88	65
40	M	20	78	58
41	M	19	82	63
42	F	21	81	60
43	F	19	88	69
44	F	12	76	64
45	F	16	83	67
$\bar{X}$		20.36	81.6	61.24
S.D.		3.78	6.15	4.77

The questions and pictures of the pre-test and the post-test were the same and both tests were administered by the same researcher. The

questions were recommended by three lecturers who are experts in agricultural machinery, research and English. For every question, there was a picture [3][4][5][6][7][9] with the Thai name of that picture. Students then had to write the name in English. The questions covered topics such as tillage, planting, crop protection and fertilizing, as well as harvesting and processing equipment [1][2]. The questions were divided into three parts: multiple choice, check list and essay. This class met twice a week for two hours each class. At the final meeting, participants were given a post-test to assess any changes. After that, the lecturer shared the answers with the students. The statistics applied in this research were frequency, percentage, mean, t-test and independent t-test.

3. RESULTS

All the scores of the forty five students in agricultural machinery for both the pre-test and post-test were tabulated to assess any changes in their ability in English. The results showed there was a significant improvement in the participants' ability in English. The statistical analyses applied to these data were the student average mean, standard deviation, t-test and independent t-test. Comparisons were also made between male and female students.

The table above (Table 1) explains the final scores of the pre-test and post-test for the forty five participants. The three highest scores of the pre-test were 26, 25 and 24. There were two students with the score of 26, three students with the score of 25 and three students with the score of 24. The three highest scores of the post-test were 92, 91 and 90. There was one student who achieved each of these scores. The three largest improvements in score were 71, 69 and 68. One student had a score of 71, another student had a score of 69 and three students had a score 68. The $\bar{X}$ of the pre-test was 20.36 and the standard deviation was 3.78. The $\bar{X}$ of the post-test was 81.6 and the standard deviation was 6.15. The improvement in $\bar{X}$ was 61.24 and in standard deviation was 4.77.

Table 2 explains the male scores. There were sixteen males in this course. The highest pre-test scores were 25 for one male student, 24 for another male student and 23 for three other male students. The highest scores on the post-test were 92 and 89 with one student achieving each of those scores and two students achieving an 88. The three largest improvements in score were 68, 67 and 66. Two students had a score of 68, another student had a score of 67 and one last student had a score of 66. The $\bar{X}$ of the pre-test from 16 male students was 19.50 and the standard deviation was 4.03.

Table 2 Pre-test and post-test scores of male students learning English in agricultural machinery

NO	Gender	Pre-Test	Post-Test	Improvement
1	M	23	87	64
2	M	21	89	68
3	M	14	80	66
4	M	11	73	62
5	M	15	72	57
6	M	23	83	60
7	M	17	77	60
8	M	21	74	53
9	M	20	88	68
10	M	24	82	58
11	M	21	81	60
12	M	15	79	64
13	M	25	92	67
14	M	23	88	65
15	M	20	78	58
16	M	19	82	63
$\bar{X}$		19.50	81.56	62.06
S.D.		4.03	6.02	4.33

The $\bar{X}$ of the post-test was 81.56 and the standard deviation was 6.02. The improvement in $\bar{X}$ was 62.06 and in standard deviation was 4.33.

Table 3 explains the female scores. There were two students who achieved each of the three highest pre-test scores of 26, 25 and 24. There was one student who achieved each of the two highest post-test scores of 91 and 90 and three other students achieved the third highest score of 83. There was one student for each of the highest improvement scores of 71, 69 and 68. The $\bar{X}$ for the pre-test from 29 female students was 20.83 and the standard deviation was 3.62. The $\bar{X}$ of the post-test was 81.62 and the standard deviation was 6.32. The improvement in $\bar{X}$ was 60.79 and in standard deviation was 5.02.

Table 3 Pre-test and post-test scores of female students learning English in agricultural machinery

No	Gender	Pre-Test	Post-Test	Improvement
1	F	20	91	71
2	F	21	86	65
3	F	25	88	63
4	F	24	85	61
5	F	21	83	62

6	F	23	84	61
7	F	21	78	57
8	F	26	90	64
9	F	22	83	61
10	F	23	85	62
11	F	23	81	58
12	F	21	79	58
13	F	20	88	68
14	F	19	75	56
15	F	13	72	59
16	F	25	86	61
17	F	23	78	55
18	F	13	61	48
19	F	21	73	52
20	F	26	80	54
21	F	19	78	59
22	F	22	86	64
23	F	24	87	63
24	F	21	81	60
25	F	20	81	61
26	F	21	81	60
27	F	19	88	69
28	F	12	76	64
29	F	16	83	67
$\bar{X}$		20.83	81.62	60.79
S.D.		3.62	6.32	5.02

Table 4 contains results showing a significant difference between the average mean of the pre-test and post-test scores. The $\bar{X}$ of the pre-test was 20.36 and the post-test was 81.6 by the t-value of 86.079* and the probability of .000 with a statistically significant difference of .05. The post-test scores were higher than the pre-test scores.

Table 4 Comparison of the average mean between pre-test and post-test scores of all students learning English in agricultural machinery by using a paired sample t-test

Test	$\bar{X}$	S.D.	t-value	Probability
Pre-Test	20.36	3.78	86.079*	.000
Post-Test	81.6	6.15		

*significant at .05

Table 5 compares the average mean of the male and female post-test scores. The $\bar{X}$ of the male post-test scores was 81.56 and the S.D. was 6.02. The male $\bar{X}$ post-test score was 81.62 and the S.D. was 6.32. The t-value was -.030 and the probability was .976. There were no significant

differences revealed in either achievement or knowledge by using the independent sample t-test on the post-test with a statistical difference of 0.5.

Table 5 Comparison of the average mean between male and female students' post-test scores by using the independent sample t-test

Group	$\bar{X}$	S.D.	t-value	Probability
Male	81.56	6.02	-.030	.976
Female	81.62	6.32		

*significant at .05

4. CONCLUSION

The all student average mean of the pre-test of English was 20.36 and for the post-test was 81.6. The all student average improvement was 61.24. Average improvement for the males was 62.06 and for the females was 60.79. The final scores for the agricultural machinery course were grade 4 for twenty three students, grade 3.5 for five students and grade 3 for eleven students. These grades were related to their improvements in English.

Statistical analysis reveals that there was a significant difference between the pre-test and post-test scores. All students improved their ability in English. But, there was no significant difference between males and females. Both of them showed the same over all ability in English.

5. ACKNOWLEDGEMENTS

The authors would like to express their sincere thanks for the participation of the Faculty of Agricultural Technology, Rajamangala University of Technology Thanyaburi and others. We would also say thanks to those who could not be mentioned here for their kindness and encouragement.

6. REFERENCES

[1] Dowroong Watcharinrat. 2013. Agricultural Machinery (Handout Teory). Rajamangala University of Technology Thanyaburi

Faculty of Agricultural Technology. Pathumtani Province, Thailand. 123 p.

[2] Dowroong Watcharinrat. 2013. Agricultural Machinery (Handout Labratory). Rajamangala University Of Technology Thanyaburi Faculty of Agricultural Technology. Pathumtani Province, Thailand. 35 p.

[3] Goering, C.E. 1986. Engine and Tractor Power. University of Illinois, United States of America. 404 p.

[4] Hunt, D. 1973. Farm Power and Machinery Management. Iowa State University Press, Ames. Iowa. 324 p.

[5] John Deere Publications. 1976. Fundamentals of Machine Operation, Tillage. John Deere Service Training Dept. F.,Moline, Illinois. 368 p.

[6] John Deere Publications. 1974. Fundamentals of Machine Operation, Agricultural Machinery Safety. John Deere Service Training Dept. F.,Moline, Illinois. 334 p.

[7] Patthipa Intarawichai. 1992. Farm Machinery Part 2. Agricultural Engineering Training Center. Pathumthani Province, Thailand. 135 p.

[8] Policy and Planning Division. 2014. Policy of RMUTT. Rajamangala University Of Technology Thanyaburi. Pathumtani Province, Thailand. 33 p.

[9] Smith, H.P., and Wilkes, L.H. Farm Machinery and Equipment. McGraw-Hill Book Company.488 p.

International Journal of GEOMATE, Dec., 2016, Vol. 11, Issue 28, pp. 2820-2823.

MS No.1293 received on July 30, 2015 and reviewed under GEOMATE publication policies. Copyright © 2016, Int. J. of GEOMATE. All rights reserved, including the making of copies unless permission is obtained from the copyright proprietors. Pertinent discussion including authors' closure, if any, will be published in Dec. 2017 if the discussion is received by June 2017.

Corresponding Author: Dowroong Watcharinrat