

The Effect of an m-Learning English Speaking Software App on Students in the Chiang Rai Municipality Schools 6 and 7 in Thailand

Dr. Gary Glen Bitter

Professor Educational Technology
Arizona State University
USA

Dr. Rusen Meylani

Instructor of Mathematics and Engineering,
Country Gardens Charter School
USA

Abstract

Thailand is beginning to emphasize the teaching of elementary, junior and senior high students to speak English. One of the key problems has been the availability of an effective English learning program. This research study evaluated the effects of a mobile English speaking software app (Qooco Kids English) for two schools using mobile devices in which 95% of the phones were Android, The research questions' focus was on English speaking ability. Qooco Kids English is an online program delivered via a mobile device. The Qooco Kids English App was used to teach children to speak English fluently by providing English audio models and frequent speaking practice with immediate actionable feedback on the English speaking of the students. Qooco Kids English has twelve instant feedback lesson modules with gamified, progressive lessons which result in faster and more engaging learning lessons. Through a pre-post experimental design, the researchers studied the speaking ability of 192 grade 5 and grade 6 students in Chiang Rai Municipality School 6 and 89 Junior and senior high students in Chiang Rai Municipality School 7 for one semester in Thailand. Specifically, effects on students' English speaking ability after one semester were measured through the iTest pre- and post-tests. The significant statistical findings indicated that the Qooco software English speaking app increases student achievement in both spoken and written English for Grades 5 and 6 as well as junior and senior high school students.

Keywords: m-learning; mobile devices; mobile-assisted English language learning; teaching English language; distance learning; immersive learning; mobile learning; multimedia learning; mobile language learning

1. Introduction

Numerous reports project significant growth of mobile learning in the next few years (Johnson, L.,

Adams Becker, S., Estrada, V., Freeman, A., Kamylyis, P., Vuorikari, R., & Punie, Y. 2014, Stockwell, 2016, Hockly, N., & Dudeney, G. 2014). In addition policy guidelines for mobile learning have been issued by UNESCO (UNESCO, 2013. go.nmc.org/guidelines).

UNESCO describes mobile learning as *“learning that occurs in or outside of a classroom or formal education setting, is not fixed to a particular time or place, and is supported by the use of a mobile device.”* The latest crop of mobile devices ranges from tablets to smartphones to e-book readers, and other portable electronics. As these devices grow more capable and user interfaces more natural, combined with their constant Internet connectivity, they are becoming increasingly useful tools for learning. The unprecedented evolution of these devices and the applications that run on them has illuminated their vast potential for educational use. Learning institutions all over the world are not simply adopting apps into their curricula, but developing mobile strategies that consider the modification of learning arrangements in schools. Many schools across Europe are taking advantage of these opportunities in the form of 1:1 initiatives — programs where every student is provided with a personal device to use throughout the school day, and often at home (UNESCO, 2014).

“The use of mobile devices can have a transformative effect in the organization of learning within schools if students are allowed to use their own devices in the classroom, personalize their use of ICT, and granted more flexibility and choice.” (NMC Horizon report: 2016) The future of mobile learning depends largely on the level of social acceptance it receives. In the worst-case scenario, policy-makers and schools will be unable or unwilling to adapt to new patterns of learning and social interaction outside the classroom, while young people see what they learn in school as increasingly irrelevant to their skills and interests. (Sharples, 2009).



Figure 1 . Personalized Learning

2. Literature Review

Various projects have used m-Learning to teach language (Burston, J. 2013, Valarmathi, K. E. 2011, Viberg, O., & Grönlund, Å. 2012). In light of all these recommendations for m-Learning, the purpose of this study was to statistically review the results of an m-Learning English speaking application. The study compared the performance of fifth and sixth grade and junior high and senior high school students in Thailand learning to speak English using Qooco Kids English 1-6 software for one semester. The goal was to determine the relative effectiveness of spoken English skills using pre-post measures. The results of this research are of particular interest to the Thailand Government. Several factors constrain Thailand's efforts to achieve that all students in formal education are now expected to learn English. Any solution must be able to scale quickly, effectively, and efficiently. And of course, a major constraint is cost; the average personal income in Thailand is still quite low.

3. The English Speaking Program

Cirrus Education Inc., operating under its Qooco brand (see figure 1), uses the power of mobile to improve the spoken English language skills of kids, anytime, anywhere. The product name is Qooco Kids English and is used to teach children to speak English fluently by providing English audio models, frequent speaking practice with immediate actionable feedback. Qooco Kids English is composed of

twelve semesters for grades 1 through 6. Available on any mobile device, its proprietary interactive speech recognition and assessment technologies are able to assess speaking and pronunciation, providing instant feedback and improvement, while its gamified, progressive lessons result in faster and more engaging learning. The Online-to-Offline (O2O) teaching method – also called the Flipped Classroom – allows a seamless relationship between the classroom and after-school. Tailored dashboards allow data to be available at the touch of the screen, enabling parents and teachers to monitor performance in real-time. Qooco has affiliations and partnerships with many schools and agencies reinforcing the spoken English language skills of thousands of preschool and primary school students. The app provides instant feedback to the students so they know how they were doing. For the reporting system, teachers can see the study information in the Manager Dashboard (see figure 2) and can also export a report from the system (it can be exported as PDF or Excel file) at any time, as all of the data is in the cloud. Parents no longer have to accept mute English from traditional language schools. It is a highly effective tool for teaching spoken English; it can be scaled quickly, it is much less costly than traditional classroom methods, if only because it does not require the training of a large cadre of English speaking teachers.

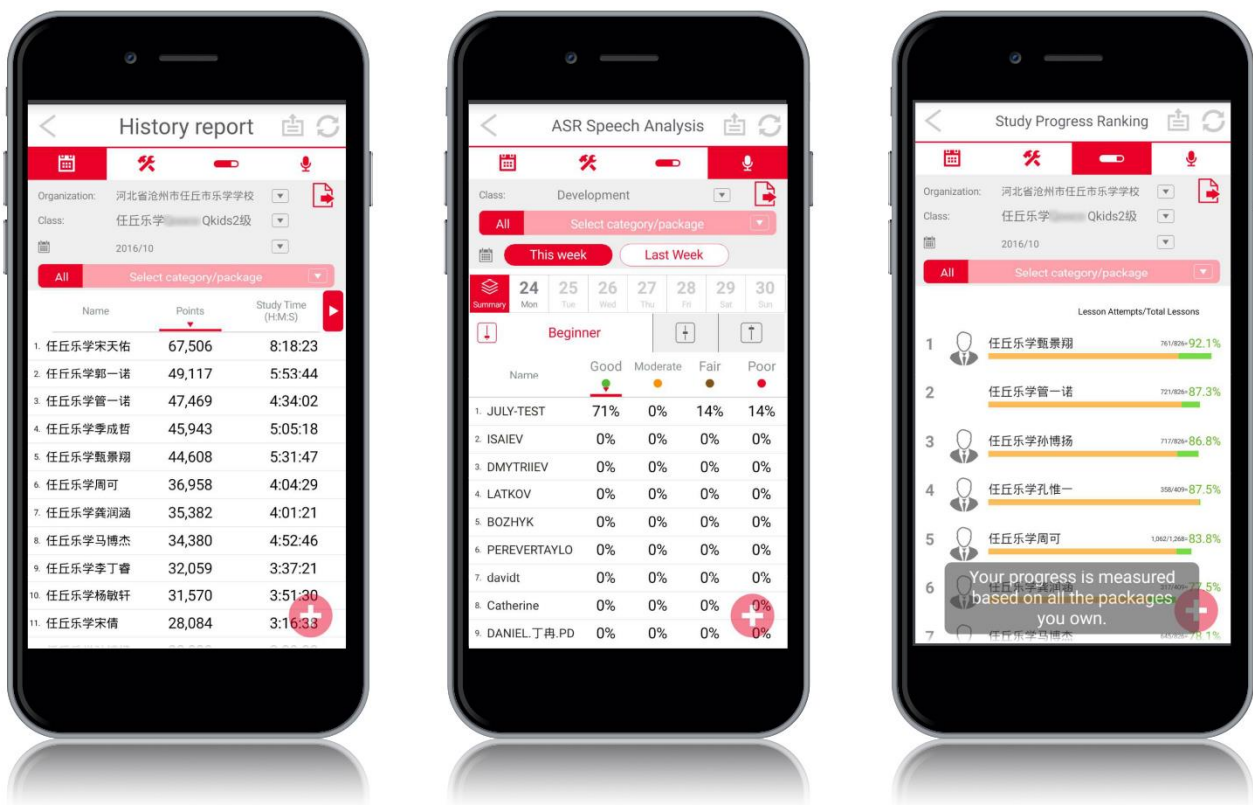


Figure 2 . The Manager Dashboard displays the results broken down by skills

3.1 Qooco Kids English App.

The product name is Qooco Kids English App and is used to teach children to speak English fluently by providing English audio models, frequent speaking practice with immediate actionable feedback. (See Figure 3) Kids English consists of twelve semesters for grades 1 through 6.



Figure 3 . Speaking Lessons and Game Requiring Speaking to Play

3.1.1 Scalability.

The Qooco spoken English app requires mobile devices and Internet connectivity. The Qooco Kids English App clearly provides a scalable solution for teaching spoken English as a Second Language.

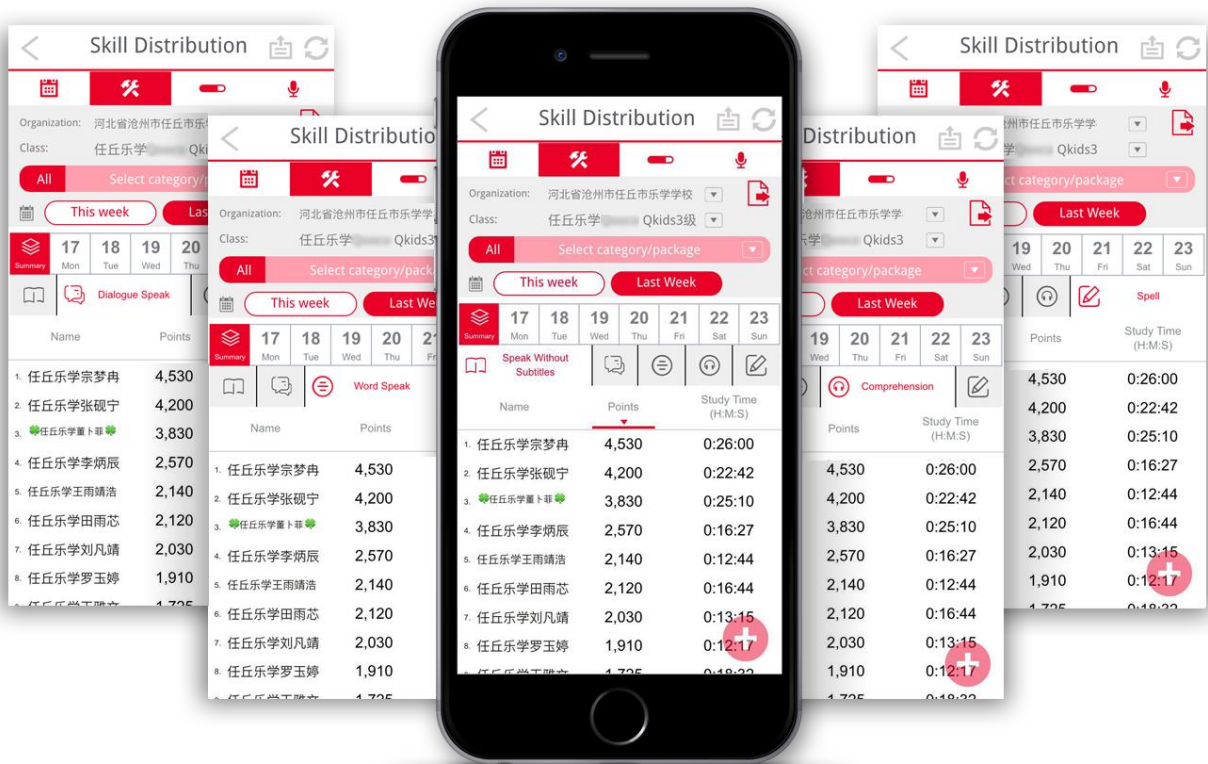


Figure 4 . The Manager Dashboard displays the results of a speaking lesson without text.

3.1.2 Ease of Implementation.

The time necessary to implement Qooco Kids English App is typically less than one hour after Internet connectivity is established. Students are enrolled and assigned login names and passwords. If both mobile devices and Internet connectivity were available, the total time to implement is usually less than a few hours, including teacher training. (see figures 4 and 5)

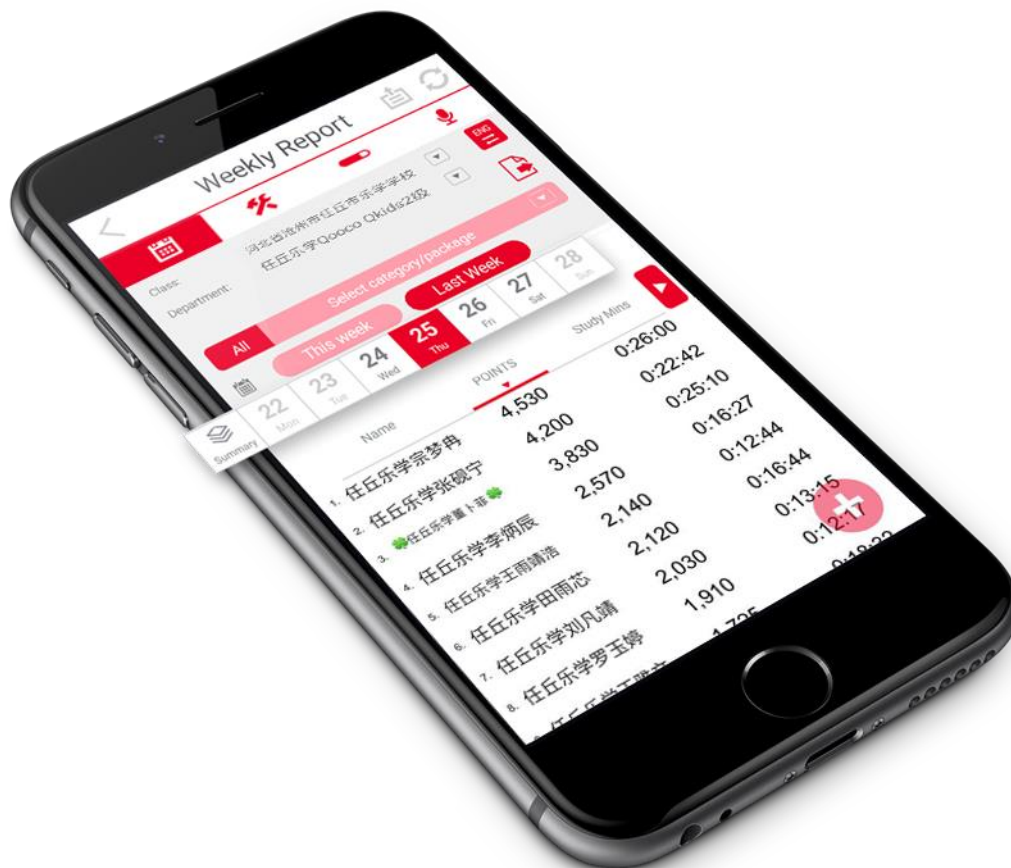


Figure 5 . The Manager Dashboard displays the results on a particular date.

4. Research Questions

The purpose of this study was to evaluate the instructional effectiveness of the Qooco Kids English App program by conducting a pretest-posttest comparison of students exposed to spoken English using the Qooco Kids English program. Grades 5 and 6 students were tested using the iTest (Qooco test) on spoken English, listening, reading and writing skills (keyboarding) prior to the commencement of any training. The junior and senior high students were tested using iTest (Qooco test) on Business English, General English, Play English Grades 5 and 6. Following these pretests, students studied spoken English using the app for 13 weeks. At the end of the 13th week instructional period, students were re-administered the same test as the pre-test for the post test of spoken English, listening, reading, and writing. The research questions were as follows:

Research Question 1:

- 1) Were there statistically significant gains in terms of test scores from pre-test to post-test at the following subjects and grade levels at Chiang Rai Municipality School 6?
 - a. Business English
 - b. General English

- c. Grade Level 5 English
 - d. Grade Level 6 English
 - e. Total Scores in all English Subjects
- 2) How did the gains in average scores in individual subjects compare with one another for Chiang Rai Municipality School 6?

Research Question 2:

- 1) Were there statistically significant gains in terms of test scores from pre-test to post-test at the following subjects and grade levels at Chiang Rai Municipality School 7?
 - a) Grade Level 5 English
 - b) Grade Level 6 English
- 2) How did the gains in average scores in individual subjects compare with one another for Chiang Rai Municipality School 7?

Research Question 3:

How did the Grade Level 5 and Grade Level 6 scores compare between the two schools Chiang Rai Municipality School 6 and Chiang Rai Municipality School 7?

In all of the analyses to answer the research questions above, the null hypothesis and the alternative hypothesis are given as follows:

- H_0 : There is no statistically significant differences between the Pre-test and Post-test scores for the quantities compared.
- H_A : There is statistically significant differences between the Pre-test and Post-test scores for the quantities compared. Please note that the differences may indicate an increase or a decrease in scores from pre-test to post-test.

5. Methodology

Students participating in the evaluation studied English for a period of 13 weeks using the Qooco Kids English App. Students exposed to the Qooco app were required to use the app and work their way through 10 simulation-based lessons (each with various sub-components) at their own pace, also on a daily basis. It is important to note that over the 13-week term during which this evaluation was conducted, class schedules and the number of classes per week sometimes varied. This was due to several factors including school events. Play English 5 had 16 lessons per week (2.3 lessons per day) and Play English 6 had 19 lessons per week (2.7 lessons per day) were the topics assigned to the students.

For Chiang Rai Municipality School 6, students (junior high and senior high school) used Play English 6. In addition, students in Chiang Rai Municipality School 6 were required to use the Qooco app at home on their mobile phone as there was a school rule that students were not allowed to bring their phone to school. For Chiang Rai Municipality School 7, the teachers were using Qooco Play English 6 for grade 6 and Play English 5 for grade 5 classes. Native Thai English teachers also used Qooco Play English as a tool in their class.

5.1 Participants and Setting

Students at the Chiang Rai Municipality Schools 6 and 7 participated in the Qooco education project. There were 674 students in the school 7 (as of August 8, 2016) and 2,480 students in School 6 (as of August 23, 2016). Level of students accepted into the project: Chiang Rai Municipality School 6 (Junior and Senior high) and Chiang Rai Municipality School 7 (Grades 5-6) Age: 11-12.

Approximately 95% of the students used Android devices and the remainder were iOS. Once students were identified and assigned ID's, they were administered the pre-test measures of speaking, listening, reading, and writing (typing). At the end of the 13-week term (92 days-one semester), all students were re-administered the same test as pretest. (see figure 6).

In Chiang Rai Municipality School 6, 193 students completed the class and the tests and Chiang Rai Municipality School 7 had 89 who completed class and tests. None of the students were informed that they would be tested at either the beginning or end of the course, nor were they told that the post-test was identical to the pre-test. Any student with incomplete testing was excluded from the study.

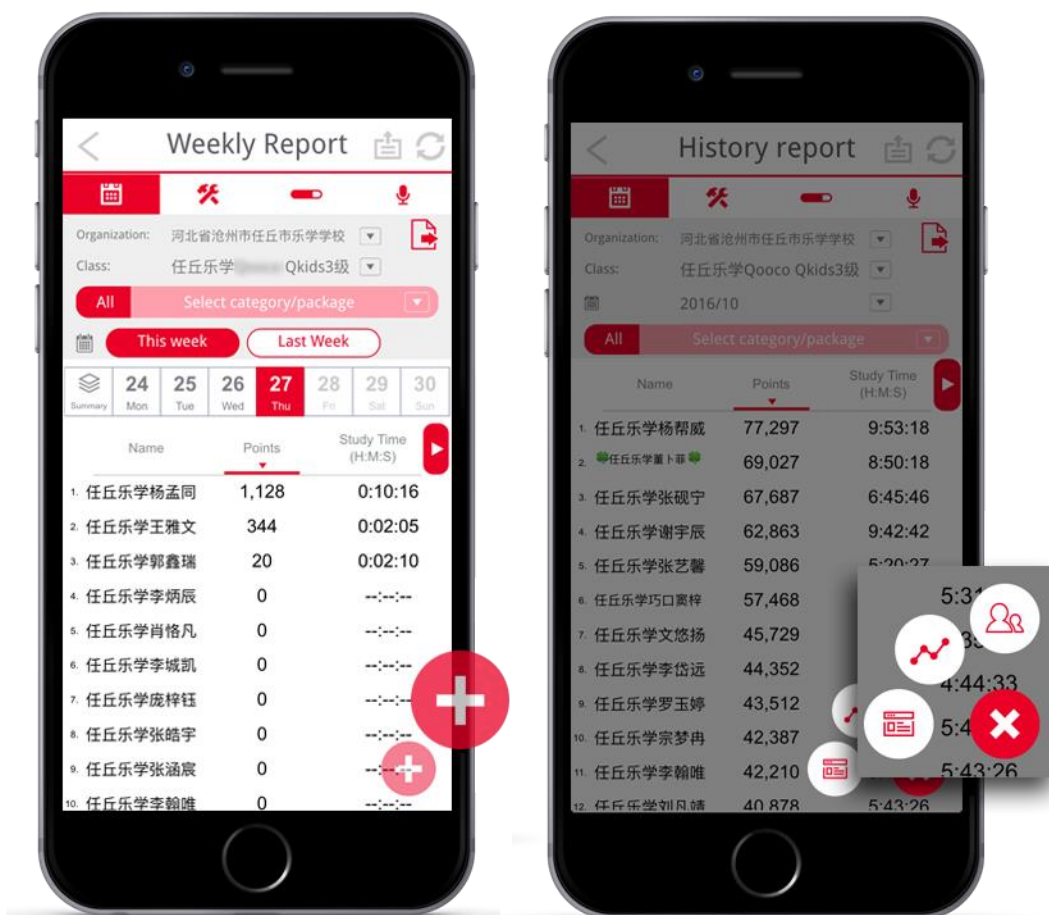


Figure 6 . The Manager Dashboard displays the results for this week, including points and time on task, and a history report.

5.2 Measures

Tests (iTest) were administered to participating students prior to the beginning of instruction and again at the end of the 13 week term. Both schools took the iTest covering speaking, listening, reading and writing (typing) which resulted in a pre-test and a post-test score for all students. Because of the focus on spoken English, the evaluation focused on the tests of spoken English iTest as the primary data for comparison.



Figure 7. The Manager Dashboard displays the study progress and ranking..

5.3 Spoken English Improvement

Two sets of mean test scores were computed, one for test administered as pre and one for post. The Qooco software group analysis was based on the pretest and post tests administered at the beginning and end of the semester at the Chiang Rai Municipality Schools. (See figures 7 and 8)



Figure 8 The Manager Dashboard displays the distribution of results.

6. Data Analysis and Results

6.1 Research Question 1 – Analyses and Results:

- 1) Were there statistically significant gains in terms of test scores from pre-test to post-test at the following subjects and grade levels at Chiang Rai Municipality School 6?
 - a) Business English
 - b) General English
 - c) Grade Level 5 English
 - d) Grade Level 6 English
 - e) Total Scores in all English Subjects
- 2) How did the gains in average scores in individual subjects compare with one another for Chiang Rai Municipality School 6?

In order to answer Research Question 1, we conducted a paired (dependent) samples t-test for each subject as well as the total scores. The results are depicted in Tables 1 and 2.

Table 1. Paired samples statistics

Pair	Subject	N*	M*	SD*	Std. Error*
Pair 1	Business_post	194	32.54	20.21	1.45
	Business_pre	194	29.88	19.59	1.41
Pair 2	General_English_post	194	40.38	21.95	1.58
	General_English_pre	194	31.82	19.35	1.39
Pair 3	KGE_Grade_5_post	194	62.36	18.21	1.31
	KGE_Grade_5_pre	194	55.68	15.33	1.10
Pair 4	KGE_Grade_6_post	194	69.76	17.77	1.28
	KGE_Grade_6_pre	194	62.89	16.14	1.16
Pair 5	Total_post	194	205.04	67.05	4.81
	Total_pre	194	180.27	60.08	4.31

*N: Sample Size; *M: Mean; *SD: Standard Deviation; *Std. Error: Standard Error

Table 2. Paired samples test

Pair		Paired Differences			t	df	P (2-tailed)
		M	SD	Std. Error			
Pair 1	Business_post - Business_pre	2.66	16.96	1.22	2.18	193	0.03
Pair 2	General_English_post - General_English_pre	8.56	17.13	1.23	6.96	193	0.00
Pair 3	KGE_Grade_5_post - KGE_Grade_5_pre	6.68	15.43	1.11	6.02	193	0.00
Pair 4	KGE_Grade_6_post - KGE_Grade_6_pre	6.87	17.37	1.25	5.51	193	0.00
Pair 5	Total_post - Total_pre	24.76	45.70	3.28	7.55	193	0.00

In order to answer **Part 1 of Research Question 1**, we observe from Table 2 that:

- From pre-test to post-test there is statistically significant positive gains in each of Business English, General English, KGE Grades 5 and 6 English as well as the Total scores; this means there was statistically significant improvement in each of those subjects. Statistics of interest are the statistically significant improvements in each topic.

In order to answer **Part 2 of Research Question 1**, we need to refer to the paired (dependent) samples t-test for each subject depicted in Table 2 above.

- Based on the t-values depicted in Table 2, the gains in scores can be ordered in a decreasing fashion as follows: General English > KGE Grade 5 English > KGE Grade 6 English > Business English (the most improvement was in General English and the least improvement was in Business English). Statistics of interest are indicated in boldface characters.

6.2 Research Question 2 – Analyses and Results:

- 1) Were there statistically significant gains in terms of test scores from pre-test to post-test at the following subjects and grade levels at Chiang Rai Municipality School 7?
 - a) Grade Level 5 English
 - b) Grade Level 6 English
- 2) How did the gains in average scores in individual subjects compare with one another for Chiang Rai Municipality School 7?

In order to answer Research Question 2, we conducted a paired (dependent) samples t-test for each subject. The results are depicted in Tables 3 and 4.

Table 3. Paired Samples Statistics

Class		N	M	SD	Std. Error
5	Post_Test_Result_in_Percentage	30	64.60	16.56	3.02
	Pre_Test_Result_in_Percentage	30	46.50	16.30	2.98
6	Post_Test_Result_in_Percentage	59	72.95	16.35	2.13
	Pre_Test_Result_in_Percentage	59	44.92	18.55	2.42

Table 4. Paired Samples Statistics

Class		Paired Differences			t	df	P (2-tailed)
		M	SD	Std. Error			
5	Post_Test_Result_in_Percentage - Pre_Test_Result_in_Percentage	18.10	14.63	2.67	6.78	29	0.00
6	Post_Test_Result_in_Percentage - Pre_Test_Result_in_Percentage	28.03	14.74	1.92	14.60	58	0.00

In order to answer **Part 1 of Research Question 2**, we observe from Table 4 that:

- From pre-test to post-test there is statistically significant positive gains in each of Classes 5 and 6 English; this means there was statistically significant improvement in each of those subjects. Statistics of interest are indicated in boldface characters.

In order to answer **Part 2 of Research Question 2**, we observe from Table 4 that:

- Based on the t-values depicted in Table 4, Class 6 attained a greater gain than Class 5. Statistics of interest are indicated in boldface characters.

6.3 Research Question 3 – Analyses and Results:

How did the Grade Level 5 and Grade Level 6 scores compare between the two schools Chiang Rai Municipality School 6 and Chiang Rai Municipality School 7?

In order to answer Research Question 3, we conducted an independent samples t-test for Grade Levels 5 and 6 English for Schools 6 and 7. The results are depicted in Tables 5 and 6.

Table 5. Group Statistics

Class	School	N	M	SD	Std. Error
5	7	30	18.10	14.63	2.67
	6	194	6.68	15.43	1.11
6	7	59	28.03	14.74	1.92
	6	194	6.87	17.37	1.25

Table 6. Independent Samples Test

Class			t-test for Equality of Means				
			t	df	p (2-tailed)	Mean Difference (School 7 - School 6)	Std. Error Difference
5	Gain	Equal variances assumed	3.80	222	0.00	11.42	3.01
		Equal variances not assumed	3.95	40	0.00	11.42	2.89
6	Gain	Equal variances assumed	8.47	251	0.00	21.16	2.50
		Equal variances not assumed	9.25	111	0.00	21.16	2.29

Based on the results depicted in Tables 5 and 6, School 7 outperformed School 6 in both classes 6 and 5 with statistical significance. Statistics of interest are expressed in boldface characters.

6.4 Summarizing the Results

The results can concisely be summarized for **School 6** as follows:

- From pre-test to post-test there is statistically significant positive gains in each of Business English, General English, KGE Grades 5 and 6 English as well as the Total scores; this means there was statistically significant improvement in each of those subjects. For all of the related statistical analyses, we reject the null hypothesis.
- Based on gains from pre-test to post-test scores, improvement in the subjects can be ordered in a decreasing fashion as follows: General English > KGE Grade 5 English > KGE Grade 6 English > Business English.

The results can concisely be summarized for **School 7** as follows:

- From pre-test to post-test there is statistically significant positive gains in each of Classes 5 and 6 English; this means there was statistically significant improvement in each of those subjects.
- Based on the t-values depicted in Table 4, Class 6 attained a greater gain than Class 5.

Comparison of **Schools 6 and 7** yield interesting results as well:

- School 7 outperformed School 6 in both classes 6 and 5 with statistical significance.

7. Discussion and Conclusion

A pre-test post-test model study involving fifth and sixth grade students in Thailand from the Chiang Rai Municipality School 7 along with the junior and senior high school students from Chiang Rai Municipality School 6 measured the effectiveness of the Qooco Kids English App. Following 13 weeks of study using a pre-test post-test design, students using the Qooco Kids English produced statistically significantly higher spoken English scores due to all statistical analyses implying the rejection of the null hypotheses in favor of the post-test scores. In addition, students using the app also performed significantly better on tests of reading and writing (keyboarding) ability, Business English, General English, Grade Level 5 English and Grade Level 6 English. Keep in mind that all of the instruction was completed on a smart phone.

In this study samples were from four different age groups in two different schools; yet, in all classes/courses there were statistically significant improvements. On the basis of the statistical evidence revealed in this study it can be concluded that the Qooco software English speaking program increases student achievement in both spoken and written English for Grades 5 and 6 as well as junior and senior high students.

8. Suggestions for Future Studies

Further research comparing groups from different ages, grade levels, genders, schools, cultures, countries socioeconomic backgrounds, all using the Qooco software may yield interesting results and suggest slight adjustments to the program. The model we suggested in this study will be applicable to all similar future studies we just proposed.

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