Students' Vocabulary Enhancement at Grade 10: A Comparative Study Using CALL & MALL in Indonesia

Caroline Victorine Katemba (linakatemba@gmail.com)
Universitas Advent Indonesia, Indonesia

Abstract

This study intended to find the difference in vocabulary enhancement between students who were taught through CALL (computer-assisted language learning) and those taught through MALL (mobile-assisted language learning) among grade 10 EFL (English as a foreign language) students in Bandung, Indonesia. This was a quantitative research experiment with a comparative design using a pre-test and a post-test. This research experiment was carried out on a sample size of 68 EFL grade 10 students. The students were assorted into two groups that were randomly picked by the researcher. The two groups were grade 10-H (33 students) taught with the CALL method, and grade 10-E (35 students) taught through the MALL method. Two tests were administered to both groups by utilizing a pre-test and post-test at two intervals. The pre-test was taken at the beginning of the program before the treatment was given. The post-test was taken two months after the instructional period. The content of the lessons learned for both groups was the same. The findings revealed that there was no significant difference in vocabulary enhancement between students using CALL and those using MALL. The post-test results showed significant improvement in both groups, as both methods increased the students' vocabulary. Therefore, it can be concluded that CALL and MALL are both effective methods for teaching vocabulary.

Keywords: Computer Assisted Language Learning (CALL), Mobile Assisted Language Learning (MALL), L2 vocabulary enhancement.

Introduction

As a slogan reads, "English is the key that opens the world." In Indonesia, English is considered a foreign language, yet it is a compulsory part of school curricula with national examinations in grades 9 and 12. Katemba (2013) explains the importance of the English language in Indonesia as "an indispensable vehicle of access to scholarly disciplines and a medium for international communication." Numerous scholars have identified vocabulary as a core language element essential to mastering the four language skills: writing, reading, listening and speaking (Al-Dersi, 2013; Nation, 2005; Shoebottom, 2012; Thornberry, 2002). Burston (2012) underscored the importance of vocabulary by explaining that "without grammar very little can be conveyed, without vocabulary nothing at all can be conveyed."

Indonesian students often experience problems when learning English, specifically vocabulary, because English differs from Bahasa Indonesia (the Indonesian language) in its structure, pronunciation, and vocabulary.

Mujib and Suparingga (2013) stated that most Indonesian students are good in passive English, meaning that students can understand English, but they cannot express themselves well in English. Hammond (2013) stated that even students at the tertiary level have problems effectively communicating because they usually speak in their mother tongue most of the time, and most of them only excel at two skills, writing and reading. However, the success of the vital skill, reading, may depend on the knowledge of vocabulary (Barrot, 2013; Birch, 2014; Hirschel & Fritz, 2013; Kang, Kang, & Park, 2012; Nation & Meara, 2002; Stockwell, 2010). Vocabulary is such an important factor in the reading process that its instruction cannot be left out of the teacher's consideration. Language teachers generally recognize the importance of vocabulary and are eager to promote vocabulary learning. As a result, it is important for researchers and teachers to investigate ways to enhance direct instruction of foreign language vocabulary. Teaching vocabulary and using it in a productive way has thus become a focal point for teachers and learners (Kawauchi, Kaminoto & Nagasawa, 2005).

In recent years, computer technology has become widely used for education. Technology has been found helpful in teaching vocabulary (Ahmad, Armarego, & Sudweekds, 2017;

Gorjian, 2012; Lai & Chun, 2017; Mahdi, 2018; Niitemaa, 2018; Rezaee & Shoar, 2011; Yun, 2011; Taj, Ali & Ahmad, 2017).

In fact, increasing numbers of teachers are using computers and the internet in their classrooms. The use of computer assistance in language learning is a well-established field in language learning (Dina & Ciornei, 2013; Johnson, Perry & Shamir, 2010; Khezrlou, 2018; Pascual, Guillamón & Jiménez, 2018; Taj, Ali & Ahmad, 2017; Levy & Moore, 2018). There is no study that could be found among current research that employed a combination of MALL & CALL to EFL learners, so this study is expected to fill this gap. Accordingly, the current study has tried to provide a new outlook on using technology for language learning. And the study uses social networking software for the purpose of vocabulary teaching/learning among Indonesian EFL learners.

Literature Review

In a study done by Muliana & Rizkia (2016) and Email & Email (2016), results showed that CALL can help learners improve their vocabulary. Gimeno-Sanz (2016) stated that as long as technology continues to evolve, and new gadgets appear on the market, there will always be a place for CALL developers and authors to find the optimum way of pedagogically exploiting these forever-emerging technological developments.

Powerful, fast, easy-to-use, and more affordable than in the past, computers and mobile phones have made inroads into foreign language learning, and educational programs have become available to develop and facilitate vocabulary learning. Sharifi (2014) stated that many researchers strongly believe that educational software can make a significant contribution towards learning languages. CALL "provides learners with easy access to learning environments irrespective of place, time and it increases motivation and effectiveness of learning with multimedia content. Additionally, it can help learners to study language individually on their own in a motivated atmosphere with a high level of interactivity" (Cellat, 2008, cited in Tabar and Khodareza, 2012). A study in Dubai by Sharifi (2014) examines the effect of multimedia on vocabulary learning of elementary Iranian EFL learners. The result of the research indicated that computer-assisted

vocabulary learning groups performed better on post-tests when compared to the teacher-led instruction groups. Further, Mei, Brown, & Teo (2018) stated that CALL effectively enhanced pre-service EFL teachers for language learning purposes in the People's Republic of China.

In addition to CALL, mobile-assisted language learning (MALL) is another method to be considered. Mobile phones have been identified as potential platforms that can assist in the language teaching and learning process (Abdullah, Hussin, Asra & Zakaria, 2013; Demouy & Kukulska-Hulme, 2010; Jarvis & Achilleos, 2013). MALL has been shown to be feasible for language learning. In most of the studies, in the past two decades on MALL, the vocabulary learning skill has been the target skill (Duman, Orhon, & Gedik, 2015; Kim & Kwon, 2012). Using mobile technology in this way not only takes instruction outside of the classroom, but it also brings language learning out into the real world. (Burston, 2014, 2017; Kukulska-Hulme & Viberg, 2017; Ebadi & Goodarzi, 2017; Stockwell & Hubbard, 2013; Klímová, 2018). MALL deals with the use of mobile technology in language learning. Mobile learning is characterized by its potential for learning to be spontaneous, informal, personal, and ubiquitous. Dashtestani (2016) conducted a study on bravely moving toward mobile learning, focusing on the Iranian students' use of mobile devices for learning English as a foreign language. "The results indicated that Iranian EFL students were generally positive about mobile learning and the use of mobile devices for learning EFL." This is the same result as the study by Oberg and Daniels (2012) which indicated very positive learner attitudes towards the self-study of using a mobile-based instructional method. Not only that, but it was also found that students extended their learning from school to home. Furthermore, students' learning was not only a deliberate event or situation, but learning also took place spontaneously in their daily lives (Wu-Yuin & Chen, 2013). According to another study, it appears that there is a greater potential for learning target-like language forms through text-based synchronous computer-mediated communication (SCMC) (Yu-Wan & Higgins, 2016). Zhang (2011) also found that the group studying vocabulary via mobile phone short message system (SMS) text messages retrieved more vocabulary in the post-test than the other group learning through paper material. Liwei (2013) stated that more studies on MALL are still needed.

Seeing that CALL and MALL could enhance a student's vocabulary, the researcher is interested in conducting a study between students who are taught using CALL and those taught with MALL in vocabulary learning. The researcher would like to compare these two methods to see if there is a significant difference between those students who use CALL and students who use MALL to enhance their vocabulary. This present study is different from previous studies where the researcher's searches have found no comparisons of CALL and MALL.

This study intends to answer the following question: Is there any significant difference in vocabulary enhancement between students who were taught with CALL and those taught with MALL?

Method

Research design & the participants

The focus of this study is the vocabulary enhancement among Grade 10 learners. This is a quantitative experiment with a comparative design using a pre-test and a post-test for each of the two samples. One group was treated using CALL, while the other group was treated using MALL. This research experiment was carried out on a sample size of 68 EFL students in grade 10, and the students were assigned to one of two groups randomly picked by the researcher. The two groups were 33 students in the 10-H group who were taught using the CALL method, and the grade 10-E group of 35 students taught through the MALL method. Participant ages ranged from 15 to 17 years old, and they were all from the rural area of West Bandung, west of Java.

Two tests were conducted, a pre-test and a post-test. The pre-test was administered at the beginning of the program, before the treatment. The post-test was administered two months after   the end of the instructional period. The pre-test measured and equalized the two groups' background knowledge in vocabulary, while the post-test was used to distinguish both groups developmentally. Besides the pre-test and post-test, the materials for treatment were taken from students' textbooks that were used in school. The

hypotheses to be tested are (1) Null Hypothesis (H0): there is no significant difference on the students' vocabulary enhancement between students who were taught through CALL and MALL, and (2) Alternative Hypothesis (Ha): there is a significant difference in vocabulary enhancement between students who were taught through CALL and MALL.

Instruments

The instruments used in this study were computers, mobile phones, software, and a vocabulary pre-test and post-test. The software that was used in this study was (a) '*Tell Me More*' for the CALL software. *Tell Me More* is a learning software for English vocabulary with several learning methods, including tests and games. This software evaluates vocabulary learning through many features, such as picture, voice, and correct pronunciation of words. (see pictures in the appendix). (b) Mobile Phone. Using mobile phones to employ SMS for language learning. Specifically, SMS is one of the cell phone's features that could enable communicative language practice. (c) SPSS 22 (The statistical package for social science) and Anates to calculate the data. The score obtained by both experimental groups was analyzed using the SPSS software package using the independent sample to analyze the significance between two groups participants at the 0.05 alpha level. (d) Vocabulary test. This vocabulary test has 30 multiple-choice items that test vocabulary and English usage. All items in the vocabulary test are given one point each.

Before starting the treatment, the researcher administered a pilot test consisting of 60 questions to measure the validity and reliability of the instrument. Based on the pilot test, the validity of the instrument was analyzed using Anates. Eighteen questions were categorized as invalid, 17 questions were categorized as very low, 12 questions were categorized as low, 10 questions were categorized as moderate, and three questions categorized as high. This data is shown in Table 1.

Table 1. Result of Validity Questions

Question Number	r_{xy}	Interpretation
2, 4, 6, 7, 14, 16, 17, 28, 33, 43, 48, 51, 52, 54, 55, 57, 58, 60	≤ 0.00	Invalid
1, 3, 5, 8, 10, 15, 23, 31, 32, 36, 37, 39, 40, 41, 50, 53, 56	$0.00 - 0.20$	Very Low
11, 12, 13, 18, 20, 21, 24, 26, 27, 29, 45, 59	$0.21 - 0.40$	Low
9, 19, 22, 30, 35, 38, 42, 44, 46, 49	$0.41 - 0.60$	Moderate
25, 34, 47	$0.61 - 0.80$	High
-	$0.81 - 1.00$	Very High

In addition to testing the validity of the instrument, its reliability was also analyzed. The reliability (r11) was shown to be 0.68, and according to the classification of reliability tests, $0.40 \leq 0.68 < 0.70$, which yields a moderate reliability, as shown in Table 2.

Table 2. Interpretation of Coefficient Reliability

Coefficient of Reliability	Interpretation
$r_{11} \leq 0.20$	Very Low
$0.20 \leq r_{11} < 0.40$	Low
$0.40 \leq r_{11} < 0.70$	Moderate
$0.70 \leq r_{11} < 0.90$	High
$0.90 \leq r_{11} \leq 1.00$	Very High

Likewise, the reliability of the questions was also tested, but through The Discrimination Index of the questions. The results showed that 11 questions were classified as worst, 25 questions as bad, 14 questions as average, 7 questions as good, and 3 as very good. The data can be seen in Table 3.

Table 3. Result of Discrimination of Question

Question Number	Discrimination Index	Interpretation
6, 16, 23, 28, 33, 43, 48, 52, 54, 55, 58	< 0.00	Worst
1, 2, 4, 5, 7, 8, 11, 13, 14, 15, 17, 29, 31, 32, 36, 37, 39, 40, 41, 45, 50, 51, 53, 57, 60	0.00 - 0.20	Bad
3, 9, 10, 12, 18, 19, 20, 24, 26, 27, 30, 35, 56, 59	0.21 - 0.40	Average
21, 22, 38, 44, 46, 47, 49	0.41 - 0.70	Good
25, 34, 42	0.71 - 1.00	Very Good

Analysis of the Difficulty Index was also performed in order to classify the difficulty level of a question. The results are shown in Table 4. Difficulties index displays the level difficulty of a question.

Table 4. Result of Difficulties Level of Question

Question number	Difficulties Index	Interpretation
1, 7, 8, 9, 10, 11, 13, 16, 20, 21, 35, 40, 44, 45, 47, 49, 59, 60	0.71 - 1.00	Easy
3, 4, 12, 14, 15, 23, 24, 25, 29, 30, 32, 33, 34, 37, 39, 41, 42, 46, 48, 50, 51, 53, 56, 57, 58	0.31 - 0.70	Average
2, 5, 6, 17, 18, 19, 22, 26, 27, 28, 31, 36, 38, 43, 52, 54, 55,	0.00 - 0.30	Difficult

Based on the analysis of the pilot test of the instrument in its reliability, validity, discrimination of questions, and the difficulty level of questions, 30 questions were selected and used in the pre-test and post-test.

Data Gathering Procedures

The study ran from February 2017 to April 2017. Students in both groups met twice a week, with each meeting lasting 80 minutes. The nature of the instruction was equivalent among both groups. The 68 students were divided into two groups, one taught using CALL, and the other using MALL. To present the teaching and learning English materials, the researcher used the CALL and MALL methods to enhance their English vocabulary. The lessons taught in the CALL and MALL groups were the same. The lessons were designed with the same reading texts and topics learned. The *Tell Me More* software that included tests, games, pictures, voices, and correct pronunciation was included in both procedures, but unlike the CALL procedure, the MALL procedure had manually recorded voices (teacher read) and correct pronunciation. In the CALL procedure, all aspects were already included in the software and done on the computer.

Although the exercises were composed of the same vocabulary, the media that introduced the vocabulary was different. The main difference between the two groups was that the CALL group students learned their vocabulary through the computer, while the MALL group learned through mobile phones.

The *Tell Me More* software that was used for the CALL group was only accessible at the school's computer lab, so the CALL group only met in the school's computer laboratory. The experiment was conducted in a rural area where students do not have iPhones, tablet computers, or desktop computers at home with an internet connection. The students only interacted with the teacher at school during the class period in the computer lab.

Similarly, the MALL group students only met in a regular classroom but received SMS messages the night before class. The students replied to the teacher's message and continued to converse, which continued until midnight. Due to the messaging with their

teacher, the students felt that they were given extra attention from the teacher because they could personally communicate through the phone. This is a different feedback from the CALL group who only used the *Tell Me More* software in the computer lab.

A pre-test was administered prior to the intervention. After the treatment was done, the post-test was administered to the participants to compare CALL and MALL. In gathering the data, the researcher carried out the following procedures:

(1) Organizing Teaching Procedure

In this study, the researcher organized the following items:

a. The installation of the *Tell Me More* software for the CALL group in the school's computer laboratory and on some of the students' laptops. The MALL group used mobile phones to send SMS to students.
b. Preparation of the lesson plan and different materials for every meeting. The learning materials were taken from the textbook of the grade 10 students. The *Tell Me More* software and mobile phone functioned as the means for vocabulary enhancement during the intervention process.
c. Construction of the pilot test to be administered.

(2) Pre-test

A pre-test was administered prior to the intervention to diagnose the student's prior ability level in vocabulary. The 30-question vocabulary pre-test instrument was multiple-choice, fill in the blank, and complete the sentence.

(3) Treatment

After administering the pre-test, the treatments were given to both CALL and MALL groups. Both groups used the same textbook and vocabulary lists. Learning materials and lessons in both groups were the same. The following steps were administered to the CALL and the MALL groups:

CALL

1. The researcher introduces the lesson and the use of the *Tell Me More* Software to the students.

2. Every meeting, the researcher gives the students vocabulary words to define from their textbook through the *Tell Me More* Software.

3. The researcher explains the lesson in their textbook beforehand and teaches them the new vocabulary, pronunciation, and spelling.

4. After the explanation of the vocabulary words, the students do vocabulary exercises based on the text from *Tell Me More* and the worksheet is given by the researcher.

5. The researcher checks the results of the students' vocabulary exercise and checks the students' achievement.

MALL

1. The researcher introduces the lesson and the use of mobile phone as the MALL method to the students.

2. The researcher sends ten new vocabulary/words from the students' textbook via SMS, which the students must memorize before the meeting (before coming to the class).

3. The researcher asks the students to recite the vocabulary that they received the night before the class.

4. The researcher discusses and explains the vocabulary/words that are included in the lesson for that day, taken from their textbook.

5. After the discussion and explanation, the students do the worksheet given by the researcher, which measures the students' understanding of the use of the vocabulary/words in the sentence. The researcher checks the results of the students' vocabulary exercise and the students' achievement.

(4) Post-test

After the intervention, a post-test was administered to find out whether the use of the CALL and MALL methods made an impact on the enhancement of students' vocabulary through 30 multiple-choice questions.

Result

Data analysis was done after 32 hours of treatment and was geared towards the question: Is there any significant difference in the vocabulary enhancement between students who were taught through CALL and those taught through MALL? The researcher took the data from the pre-test and the post-test scores of the comparative design study. The researcher also computed the gain score of both groups by considering their pre-test and post-test score, as shown in Table 5. Based on the calculation of the mean and standard deviation in enhancing students' vocabulary, the mean of the CALL group's pre-test data was 41.10 with a standard deviation of 12.18, while the post-test had a mean of 79.58 with a standard deviation of 10.96. Based on the CALL data, the showed gain was 0.66 with a standard deviation of 0.16. The mean of the MALL group's pre-test data was 45.49 with a standard deviation of 14.90, and the post-test mean was 83.37 with a standard deviation of 12.90. Based on this data, the MALL group had a gain of 0.71 with a standard deviation of 0.19.

Table 5. Pre-test, Post-test, and Gain

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pretest_CALL	33	16.00	66.00	41.0909	12.17673
postest_CALL	33	60.00	96.00	79.5758	10.95739
pretest_MALL	35	13.00	73.00	45.4857	14.90434
postest_MALL	35	53.00	96.00	83.3714	12.90026
Gain_CALL	33	.42	.91	.6623	.16213
Gain_MALL	35	.20	.95	.7095	.19180
Valid N (listwise)	33				

Normality Test

A normality test was used to determine whether the data population was normally distributed. The following are criteria for the Normality test of $\alpha = 0.05$ (using SPSS) (1). Data is normal if p-value (Sig.) $\geq \alpha = 0.05$, meaning the normalized gain score is normally

distributed. (2). Data is not normal if p-value (Sig.) < α = 0.05, meaning the normalized gain score is not normally distributed.

Table 6. Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Gain CALL	.918	33	.016
Gain MALL	.883	33	.022

According to Table 6, the p-value of the CALL group was 0.016 < 0.05, and the p-value of the MALL group was 0.022 < 0.05. Since both samples were not normally distributed (p-value < α), the Mann-Whitney U test was used to test the hypothesis and find the differences between the pre-test and post-test scores from both experimental groups after the intervention. This is a non-parametric test that is used to compare two population means that come from the same population. It is also used to test whether two population means are equal. It is used for equal sample sizes.

Hypothesis Testing

The data in Table 6 shows that a non-parametric test is needed, thus prompting the researcher to use the Mann-Whitney test. For this test, the researcher set two assumptions to know whether the hypothesis is accepted:

(1) If, ρ-value (Sig) ≤ α (0.05):   Reject Ho. This means that there is a significant difference in vocabulary enhancement between students who were taught through CALL and MALL.

(2) If, ρ-value (Sig) > α (0.05): Fail to reject Ho. This means that there is no significant difference in vocabulary enhancement between students who were taught through CALL and MALL

Table 7 shows the computation of data analysis through the Mann-Whitney U test.

Test Statistics^a

	Gain
Mann-Whitney U	461.500
Wilcoxon W	1022.50
Z	-1.424
Asymp. Sig. (2-tailed)	.155

a. Grouping Variable: Group

The data in Table 7 fails to reject Ho. With a ρ-value = 0.155 > α (0.05), there is no sufficient evidence proving that there is a significant difference in vocabulary enhancement between students who were taught through CALL and MALL.

Discussion of the Research Finding

Based on the results with a ρ-value = 0.155 > α (0.05), it can thus be concluded that there is no significant difference in vocabulary enhancement between students who are taught through CALL and MALL in this study. Previous studies were done separately on these methods, and both methods show improvement in the students' achievement. So, it is likely that they are effective methods due to their interactive and engaging nature.

Students need visual representations of objects/words to help them better understand English. CALL and MALL lead students through many real-life situations to help enhance their English proficiency through software and mobile phones. Through these methods, students are constantly engaged with their mobile phones as well as on their computer at home or at school to exercise their English skills. In the *Tell Me More* software, students can play games that involve English words, and visual cues help clarify presented words. With the MALL method, words are sent through SMS, and visual cues that accompany the words help students better understand vocabulary that needs to be learned.

According to Al Seghayer (2001), a learner's concentration increases when visuals are added to vocabulary instruction. The software used in this study made it possible to

present both visual and textual information. This enhanced the language learners' interest and curiosity. This could be another justification for the improved vocabulary with the applied *Tell Me More* software and the MALL, where visuals were supplied by the researcher/teacher in this study.

The frequent MALL activities through mobile phones employ SMS for language learning. SMS is a cell phone feature that enables communicative language practice (Chinnery, 2006). In studies conducted by Levy and Kennedy (2005), students were sent Italian words, idioms, and example sentences via SMS messages to the students' mobile phones. Both projects proved the use of SMS in language learning as a successful technique.

An experimental study conducted by Katemba & Sampe, (2016) that used MALL with the experimental group enhanced students' vocabulary. Another study done by Zebua (2015) using Software (CALL) showed that using software with the experimental group enhanced students' listening comprehension as well as their vocabularies. There is no significant difference between the CALL and MALL methods in enhancing students' vocabulary knowledge since both methods enhance students' vocabulary knowledge. This is depicted in the gain of the CALL's pre-test mean 41.10 and the post-test mean of 79.58, and the MALL's pre-test means of 45.49 and the post-test mean of 83.37, which show that both CALL and MALL's scores increase.

Conclusion

In answering the question, "is there any significant difference in the students' vocabulary enhancement between students who were taught through CALL and MALL?", the researcher concluded that there is, in fact, no significant difference in vocabulary enhancement between students who were taught using CALL and those taught using MALL. Upon statistical analysis of the data, a Mann-Whitney U test yielded ρ-value = $0.155 > \alpha$ (0.05), which is sufficient evidence to show that there is, in fact, no difference in vocabulary development between the two methods.

Students need visual representations of objects/words to help them understand English better. Also, these methods lead students through many real-life situations to help students' English proficiency by using computer software and mobile phones, which are essential gadgets in their day-to-day lives. The methods used (CALL and MALL) to teach English to the students are considered fun and make language acquisition easier.

By using the *Tell Me More* software for the CALL and MALL methods, students can complete their study skill activities at their own pace using their own learning styles and strategies. Using MALL through a mobile phone connected the students to their teacher (researcher) more, and it also facilitated easy communication. Through the MALL method, students felt affection and experienced a boost in confidence in the class because they received meaningful feedback from their teacher through SMS. In fact, the teacher entertained and answered the students' messages for long periods until midnight, so they felt that they received substantial personal attention from their teacher/researcher. In fact, students spontaneously and informally extended learning beyond school and in their homes.

The study showed that teaching through CALL and MALL could enhance vocabulary. Both CALL and MALL are effective methods to teach vocabulary because technology has become a meaningful part of students' daily lives. Generally, students are positive about CALL and MALL and the use of these devices for learning EFL. They also have a positive attitude towards the self-study of using CALL-based and MALL-based instructional methods.

Pedagogical Implications

Based on the findings of this research, the researcher gave several recommendations: (1) English teacher: For the English teacher using technology, such as computers and software and sending text messages via a mobile phone, this integration is considered more interesting, helpful, and motivating, and could effectively help students enhance their vocabulary. (2) Students: For students, it is recommended to use the *Tell Me More* software as a self-study method to learn English vocabulary because this study proved

that this software enhances students' vocabulary. (3) Future Researcher: For the future researcher, it is recommended to do another study on the CALL and MALL method in a different level and context since the present study was done in a rural school.

Acknowledgment

References

Abdullah, M. R. T. L., Hussin, Z., Asra, B., & Zakaria, A. R. (2013). Learning Scaffolding Model for Undergraduate English Language Learning: Bridging Formal and Informal Learning. *TOJET: The Turkish Online Journal of Educational Technology, 12*(2), 217-233. Retrieved from https://eric.ed.gov/?id=EJ1015435

Ahmad, S. K., Armarego, J., Sudweekds, F. (2017). The impact of utilizing mobile assisted Language learning (mall) on vocabulary acquisition among migrant women English learners. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 14. 37-57. doi: 10.28945/3703 Retrieved from https://www. informingscience.org/Publications/3703

Al-Dersi, Z. (2013). The use of short-stories for developing vocabulary of EFL learners. *International Journal of English Language & Translation Studies, 1*(1), *72-86.*

Al-Seghayer, K. (2001). The effect of multimedia annotation modes on L2 vocabulary Acquisition: A comparative study. *Language Learning & Technology, 5*(1)*, 202 – 232.* Retrieved from https://scholarcommons.usf.edu/cgi/viewcontent.cgi?referer= https://www.google.com/&httpsredir=1&article=3477&context=etd

Andrew, O. & Paul D. (2013). "Analysis of the effect a student- centred mobile learning instructional method has on language acquisition". *Journal of Computer Assisted Language Learning. 26*(2), 177–196, doi: 10.1080/09588221.2011.649484

Barrot, J. S. (2013). Revisiting the role of linguistic complexity in ESL reading comprehension. *3L: Language, Linguistics and Literature, The Southeast Asian Journal of English Language Studies., 19*(1), 5-18. Retrieved from http://journalarticle.ukm.my/6137/

Birch, B. M. (2014). *English L2 reading: Getting to the bottom*: Routledge.

Burston, J. J. (2012). Mobile Language Learning: Greeting IT to work. In J. Burston, F. Doa & D. Tsagari, *Foreign Instructional Technology*, 81-99. Nicosia, Cyprus: Nicosia Press.

Burston, J. (2014) "MALL: the pedagogical challenges". *Journal of Computer Assisted Language Learning. 27*(4), 344-357. Taylor & Francis.

Burston, J. (2017) MALL: Global Prospects and Local Implementation. *CALL-EJ,(Computer Assisted Language Learning-Electronic Journal, 18*(1), 1-8. Retrieved from http://callej.org/journal/18-1/Burston2017.pdf

Hinnerry, G. M. (2006).   Emerging technologies going to the MALL: Mobile Assisted Language Learning. *Language Learning & Technology, 10*(1), 9-16. Retrieved from   https://scholarspace.manoa.hawaii.edu/bitstream/10125/44040/1/10_01_ emerging.pdf

Dashtestani, R. (2016)."Moving bravely towards mobile learning: Iranian students' use of mobile devices for learning English as a foreign language". *Journal of Computer Assisted Language Learning. Volume 29* (4)*, 815-832. doi: 10.1080/09588221.2015.1069360

Demouy, V., & Kukulska-Hulme, A. (2010). On the spot: Using mobile devices for listening and speaking practice on a French language program. *Open Learning, 25*(3), 217-232.   doi: 10.1080/02680513.2010.511955 Retrieved from http://oro.open.ac.uk/24647/

Dina, A. T., & Ciornei, S. I. (2013). The advantages and disadvantages of computer assisted language learning and teaching for foreign languages. *Procedia-Social and Behavioral Sciences, 76*, 248-252.   doi: 10.1016/j.sbspro.2013.04.107

Duman, G., Orhon, G., & Gedik, N. (2015). Research trends in mobile assisted language learning from 2000 to 2012. *ReCALL, 27*(02), 197-216. doi: 10.1017/S0958344014000287, Retrieved from https://www.cambridge.org/ core/journals/recall/article/research-trends-in-mobile-assisted-language-learning-from-2000-to-2012/ 489DCED61DB1E314154DBDC1CDA62158

Ebadi, S., Goodarzi, A. (2017). Exploring Iranian Post and Undergraduate EFL University Students' Attitudes toward CALL. *CALL-EJ, 18*(1). Retrieved from *http://callej.org/journal/18-2/Ebadi-Goodarzi2017.pdf*

Email, A. M., & Email, S.R. (2016). Young learners' vocabulary enhancement: A computer-assisted language learning (call) effect. *Man in India, 96*(9), 2677-2690.

Gimeno-Sanz, A. (2016). Moving a Step Further from "integrative CALL". What's to come? J*ournal of Computer Assisted Language Learning, 29*(6), 1102-1115. doi: 10.1080/09588221.2015.110327

Gorjian, B. (2012). Teaching Vocabulary through Web-Based Language Learning (WBLL) Approach. *Procedia Technology, 1, 334-339*. Retrieved from https://core.ac.uk/download/pdf/82763920.pdf

Hammond, C., (2013). An Analysis of Dilemmas Impeding Internationalization of Japanese Higher Education. *Kwansey Gakuin University Social Science Review, 17*, 7-22.

Hirschel, R., & Fritz, E. (2013). Learning vocabulary: CALL program versus vocabulary notebook. *System, 41*(3), 639-653. Retrieved from https://docplayer.net/ 52199165-Learning-vocabulary-call-program-versus-vocabulary-notebook.html

Jarvis, H., & Achilleos, M. (2013). From computer assisted language learning (CALL) to mobile assisted language use (MALU). *TESL-EJ, 16*(4), 1-18. Retrieved from https://files.eric.ed.gov/fulltext/EJ1004355.pdf

Johnson, E. P., Perry, J., & Shamir, H. (2010). Variability in reading ability gains as a function of computer-assisted instruction method of presentation. *Computers & Education, 55*(1), 209-217. doi: 10.1016/j.compedu.2010.01.006 Retrieved from https://app.dimensions.ai/details/publication/pub.1037792784

Kang, Y., Kang, H. S., & Park, J. (2012). Is it vocabulary breadth or depth that better predict Korean EFL learners' reading comprehension. *English Teaching, 67*(4), 149-171. Retrieved from http://kate.bada.cc/wpcontent/uploads/2015/01/kate_ 67_4_7.pdf

Katemba V. C. (2013). Anxiety Level of Indonesian Students and Its Relationship To Academic Achievement In English. *Journal of Education and Practice. 4* (27), 1-9. Retrieved from http://www.iiste.org/Journals/index.php/JEP/article/view/ 9873/10097

Katemba, C. & Sampe, I. (2016).   Improving vocabulary achievement through mobile assisted language learning (MALL) among grade VIII students at SMP Negeri 1 Parongpong. *Journal of English Language Pedagogy*, Literature and Culture. 1(1), 13-26. Retrieved from http://jurnal.unai.edu/index.php/acuity/article/view/600

Kawauchi, C., Kamimoto, T., & Nagasawa, S. (2005). CALL-based vocabulary learning: The effectiveness of using Power Words. *Bulletin of the Institute of Foreign Language Education of Kurume University, 12*, 39-72. Retrieved from http://fleat5.byu.edu/_files/71Kawauchi.pdf

Khezrlou, S. (2018). Form-focused Instruction in CALL: What Do Learners Think? *RELC Journal*, 1 –17. doi: 10.1177/0033688217738820 Retrieved from *http://journals.sagepub.com/doi/full/10.1177/0033688217738820*

Kim, H., & Kwon, Y. (2012). Exploring smartphone applications for effective mobile-assisted language learning. *Multimedia-Assisted Language Learning*, 15(1), 31-57. Retrieved from http://kmjournal.bada.cc/wp-content/uploads/2013/05/15-1-.pdf

Klímová, B. (2018). Mobile phones and/or smartphones and their apps for teaching English as a foreign language. *Springer Link. May 2018, 23*(3), 1091–1099 doi: 10.1007/s10639-017-9655-5

Kukulska-Hulme, A., & Viberg, O. F. (2017). Mobile collaborative language learning: State of the art. *British Journal of Educational Technology (BJET), 49*(2), 207–218. doi: 10.1111/bjet.12580

Lai, C. & Zheng, D. (2017 October). Self-directed use of mobile devices for language learning beyond the classroom. *ReCALL, 30*(3), 299-318. Retrieved from https://www.cambridge.org/core/journals/recall/article/selfdirected-use-of-mobile-devices-for-language-learning-beyond-the-classroom/C60A8CE7FA2F2D3CC4548398BDAB828B. *https://doi.org/10.1017/S0958344017000258*

Levy, M., & Moore, P. J. (2018). Qualitative research in CALL. *Language Learning & Technology, 22*(2), 1–7. doi.: 10125/44638

Levy, M.M., C. Kennedy (2005) Learning Italian via mobile SMS. *Handbook for Educators and Trainers*, London: Routledge, *76-83.*

Liwei, H. (2013). "English as a foreign language learners' perception of mobile assisted language learning: a cross-national study". J*ournal of Computer Assisted*

Language Learning. 26(3), 197-213. doi: 10.1080/09588221.2011.649485

Mahdi, S. H. (2018). Effectiveness of Mobile Devices on Vocabulary Learning: A Meta-Analysis. *Journal of Educational Computing Research. 56*(1), 134-154. doi: 10.1177/0735633117698826

Maulana, A. & Rizkiani, S.(2016). Young learners' vocabulary enhancement: A computer-assisted language learning (call) effect. *Man in India. 96*(9), 2677-2690.

Mei, B., Brown, G. T., and Teo, T. (2018). Toward an Understanding of Pre-service English as a Foreign Language Teachers' Acceptance of Computer-Assisted Language Learning 2.0 in the People's Republic of China. *SAGE Journals, 56*(1), 74-104. doi: 10.1177/0735633117700144

Mujib. A., Suparingga, E., (2013). Analisis Penalaran Dalam *Ujian Nasional Matematila SMA / MA Program IPA Tahum 2011 / 2012.*

Nation, P. (2005). Teaching vocabulary. *Asian EFL Journal, 7*(3), 46-54. *Retrieved from https://www.asian-efl-journal.com/1304/quarterly-journal/teaching-vocabulary/#squelch-taas-tab-content-0-2*

Nation, P., & Meara, P. (2002). Vocabulary. In N. Schmitt (Ed.), *An introduction to applied linguistics*. London: Arnold.

Niitemaa, L. M. (2018 May). Vocabulary Skills and Online Dictionaries: A Study on EFL Learners' Receptive Vocabulary Knowledge and Success in Searching Electronic. *Journal of Language Teaching and Research, 9*(3), 453-462. doi: 10.17507/ jltr.0903.02.

Oberg, A. & Daniels, P. (2012). Analysis of the effect a student-centered mobile learning instructional method has on language acquisition, *Computer Assisted Language Learning, 26*(2), 177-196. doi: 10.1080/09588221.2011.649484

O'Malley, C., Vavoula, G., Glew, J., Taylor, J. Shaples, M., & Lefere, P. (2003). *Guidelines for learning/teaching/tutoring in a mobile environment*. Mobile project deliverable. Retrieved from https://hal.archives-ouvertes.fr/hal-00696244

Pérez-Paredes, P., Guillamón, C. O., & Jiménez, P. A. (2018). Language teachers' perceptions on the use of OER language processing technologies in MALL. *Computer Assisted Language Learning, 31*(5-6), 522-545. doi: 10.1080/09588221.2017.1418754

Rezaee, A. A., & Shoar, N. S. (2011). Investigating the effect of using multiple sensory modes of glossing vocabulary items in a reading text with multimedia annotations.

English Language Teaching, 4(2), 25-34. Retrieved from
https://files.eric.ed.gov/fulltext/EJ1080729.pdf

Sharifi, (2014). The effect of rosette stone computer software on vocabulary learning of
Iranian elementary EFL learners. *2nd Global Conference on Linguistics and
Foreign language teaching, Linelt-2014, Dubai – United Arab Emirates.*

Shoebottom, (2012). The Importance of Vocabulary. Frankfurt International School.
Retrieved from http://esl.fis.edu/parents/advice/vocab.htm.

Stockwell, G., & Hubbard, P. (2013). Some emerging principles for mobile-assisted
language learning. T*he International Research Foundation for English
Language Education*, 1-15. Retrieved from http://www.tirfonline.org/wp-
content/uploads/2013/11/TIRF_MALL_Papers_StockwellHubbard.pdf

Tabar, H. & Khodareza, M. R. (2012). The Effect of Using Multimedia on Vocabulary
Learning of Pre-Intermediate and Intermediate Iranian EFL Learners. *J. Basic.
Appl. Sci. Res., 2*(12), 12879-12891. Retrieved from
https://www.textroad.com/pdf/JBASR/J.%20Basic.%20Appl.%20Sci.%20Res.,
%202(12)12879-12891,%202012.pdf

Taj, H. S., Ali, F., Ahmad, W. (2017 May). Effect of Technology Enhanced Language
Learning on Vocabulary Acquisition of EFL Learners. *International Journal of
Applied Linguistics & English Literature, 6*(3), 262. doi: 10.7575/aiac.ijalel.
v.6n.3p.   Retrieved from https://www.researchgate.net/publication/314142803_
Effect_of_Technology_Enhanced_Language_Learning_on_Vocabulary_Acquisiti
on_of_EFL_Learners

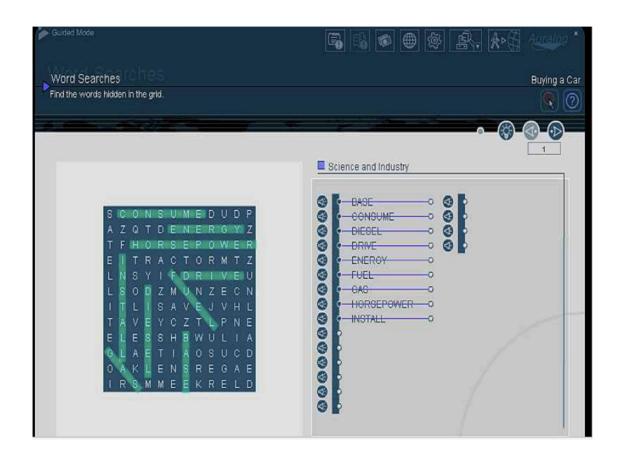Tanjung, A. S. (2011) Reinforcing students' vocabulary thought scrabble game.
*Unpublished thesis Universitas Negeri Islam Syarif Hidayatullah, Jakarta
Indonesia.*

Thornbury, S. (2002) *How to teach vocabulary*. Harlow: Longman.

Viberg, O., & Gronlund, A. (2012). Mobile assisted language learning: A literature
review Paper presented at the *Proceedings of the 11th International Conference on
Mobile and Contextual Learning, Helsinki, Finland* , 16 -18 October, 2012。

Wu-Yuin H. & Chen H. S. L. (2013). "Users' familiar situational contexts facilitate the
practice of EFL in elementary schools with mobile devices." *Journal of
Computer Assisted Language Learning. 26* (2), 101-125. doi: 10.1080/09588221.
2011.639783.

https://www.tandfonline.com/doi/full/10.1080/09588221.2011.639783?scroll=top &needAccess=true&

Yu-Wan Hung & Steve Higgins (2016). Learners' use of communication strategies in text-based and video-based synchronous computer-mediated communication environments: opportunities for language learning. *Journal of Computer Assisted Language Learning. 29*(5), 901-924. doi: 10.1080/09588221.2015.1074589

Yun, J. (2011). *The effects of hypertext glosses on L2 vocabulary acquisition: A meta-analysis.* (Doctoral Dissertation), University of Kansas. Retrieved from https://kuscholarworks.ku.edu/bitstream/handle/1808/6459/Yun_ku_0099D_1094 0_DATA_1.pdf?sequence=1&isAllowed=y

Zebua, F. (2015). Using English Language Learning software technique to enhance listening comprehension. Unpublished thesis at Universitas Advent Indonesia, Bandung Indonesia Library.

Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *TOJET, 10*(3), 203-214. Retrieved from https://eric.ed.gov/?id=EJ944968

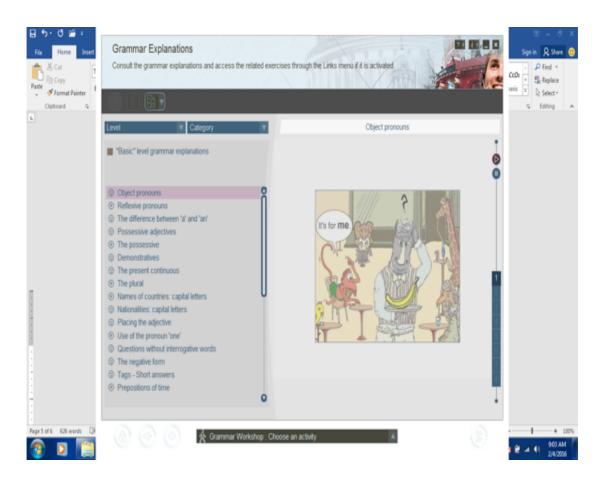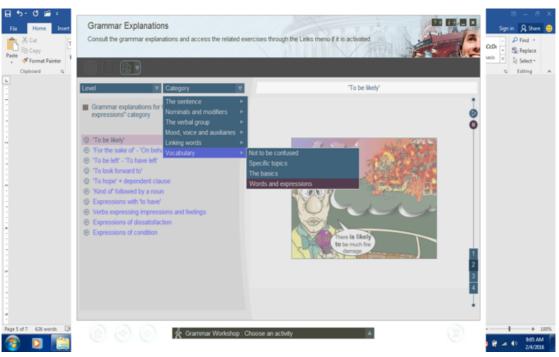# Appendix: Screenshots of the '*Tell Me More*' software

A sample of worksheet (activities)

No	Vocabularies	Meaning	Sentences
1.	Looking Great		
2.	So happy		
3.	Landmark		
4.	Congratulation		
5.	Complication		
6.	Scream		
7.	Annoying		
8.	Shepherd		
9.	Nuisance		
10.	Part-time		

Grammar Explanations

Consult the grammar explanations and access the related exercises through the Links menu if it is activated.

| Level | Category | | 'To be likely' |

Grammar explanations for the "Words and expressions" category

'To be likely'
'For the sake of' - 'On behalf of'
'To be left' - 'To have left'
'To look forward to'
'To hope' + dependent clause
'Kind of' followed by a noun
Expressions with 'to have'
Verbs expressing impressions and feelings
Expressions of dissatisfaction
Expressions of condition

According to experts, the volcano **is likely to** explode very soon.

Grammar Workshop : Choose an activity

Appendix for MALL/ SMS

Samples of SMS between the teacher and the students in the MALL group.

Teacher: Selamat malam siswaku yang pintar. Ini kata2 yang baru yang harus dipelajari untuk kelas besok ya. Belajar dan hafalkan. (Good evening my smart and beloved students. These are the new vocab that you need to study and memorize them for tomorrow).

1. Looking great
2. So happy
3. Landmark
4. Congratulations
5. Complication
6. Scream
7. Annoying
8. Shepherd
9. Nuisance
10. Part-time

Student 1. Terima Kasih banyak Miss. Besok boleh bawa kamus gak? (thanks a lot Miss. Can I bring my dictionary tomorrow?

Teacher: liat artinya di kamus aja sekarang. (just see the meaning in the dictionary now)

Student 1: baik Miss. Besok ada kuis gak? (Ok Miss. Are we going to have quiz tomorrow?)

Teacher: pasti ada dong. Belajar ya… (of course we'll have. Do study ya..)

Student 1: iya miss. Pasti. (yes miss, certainly.

Teacher: hafal semua ya kamu kan pintar ☺ (please do memorize them all because you are smart)

Student 1: saya usahakan Miss.(I will try my best Miss)

Teacher: goodnight.

Student 1: goodnight Miss.

Student 2: terma Kasih Miss.SMS nya sudah Lily terima. Boleh nanya? Miss berapa bersaudara? (Thanks a lot Miss. I(Lily) has received your SMS. May I? Miss, how many siblings do you have?)

Teacher: oh 2 bersaudara. Kamu? (oh two, and you?)

Student 2: saya anak tunggal miss. Boleh gak minta nama di FB? (I'm the only child Miss. May I have your FB name?

Teacher: oh boleh ini……….….. (Oh ofcourse here it is…..)

Student 2: Miss tolong dong di confirm ya. Saya mau request. (please confirm my request ya.)

Teacher: Ok deh siip. (ok, for sure)

Student 2: Terima Kasih Miss. Sampai ketemu besok. (Thanks Miss, see you tomorrow)

Teaher : Iya jangan lupa di hafal dan mengerti vocab nya ya. (ok. Please don't forget to study your voc and memorize them ya)

Student 2: iya pasti deh… terima kasih. (yes, for sure, certainly… thanks)

Student 3: Selamat malam Miss terimakasih sms nya. (Good evening Miss (teacher), thank you for you SMS)

Teacher: sama2, kamu pelajari dan cari artinya di kamus ya. (you're welcome. Please study the word and get the meaning from the dictionary).

Student 3: Iya Miss. Pasti itu. Oh ya, Miss boleh bantu saya gak? (Yes Miss/teacher. By the way, could you help me?)

Teacher; Apa itu… pasti Miss bantu (Yes what is it, I will help you)

Student 3: Miss kalau saya salah ngomong Bahasa Inggrisnya di kelas jangan permalukan saya ya Miss. Saya bodoh sekali Bahasa Inggris. (Miss/teacher if I speak English and it's wrong please don't make me embarrass)

Teacher: Tentu tidak sayang.. nanti Miss bantu ya. Tanya sama Miss aja apa yg gak ngerti. (of course not my dear, I will help you, just ask me anything if you don't understand.)

Student 3: Terimah kasih byk Miss. Hanya saya yg sekolah orang tua saya hanya petani, tapi saya mau maju dan jadi guru seperti Miss. (Thank you so much teacher. It's only me who is studying, my parents are farmers but, I want to be a teacher just like you)

Teacher: Bagus sekali Ayi. Nanti jadi guru Bahasa Inggris aja. (That's very good Ayi, be an English teacher ya.)

Student 3: Iya Miss. Saya mau jadi guru Bahasa Inggris seperti Miss dan mau ngajar di desa ini kalua sudah jadi guru Miss. (Yes teacher, I want to be an English teacher just like you)

Teacher: kalalu begitu kamu harus belajar keras ya. Supaya pintar bisa jadi guru nantinya. (if that's the case, you have to study hard so that you can be a good teacher in the future)

Student 3: Iya Miss. Saya mau belajar dan hafal semua vocab ini. (Yes teacher, I will memorize all this vocab.)

Teacher: iya. Hafal supaya besok bisa benar semua. Good night (Yes please do memorize them all so that tomorrow you can get a perfect score. Good night)

Student 3: Yes!! Goodnight Miss cantik ☺ 9Yes!! Good night beautiful teacher)