Online Teaching Materials for Vocabulary Learning: Assessing Its Effects Among ESL Primary Students

Mohd Haniff Mohd Tahir
Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia
Corresponding Author: haniff.tahir@fbk.upsi.edu.my

Intan Safinas Mohd Ariff Albakri
Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia

Mazlin Mohamed Mokhtar
Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia

Puteri Zarina Megat Khalid
Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia

Haddi @ Junaidi Kussin
Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia

Received 04/08/2023 Accepted: 07/06/2023 Published: 07/24/2023

Abstract:
Recently, online vocabulary learning aids have been integrated into the curriculum to accommodate the new standards. This study investigates the effects of using online teaching materials for vocabulary development on ESL students in Perak's primary level. The perspectives of students regarding the use of these instruments are also investigated. The results of the pre- and post-tests will be analysed using independent sample t-tests, paired sample t-tests, and descriptive statistics due to the quasi-experimental design of this study. In addition, the results and improvement percentages are compared. The mean ratings and standard deviation of the questionnaires are examined descriptively. The qualitative data from the semi-structured interview session is summarised, classified, and coded using content analysis. The experimental group's paired sample t-test results were (t=-57.643, df=29, p.05) and (t=-16.389, df=29, p.05) for the control group. On the post-test, both the experimental and control groups demonstrated significant improvement (p=.000*). Nonetheless, the experimental group improved more than the control group (M difference = 21.47). To assist students in learning the proper vocabulary, online instructional aids are utilised. Additional research on the effectiveness of ESL primary students use of online instructional materials for language acquisition.

Keywords: online teaching materials, vocabulary learning tools, instruction, vocabulary learning, ESL primary students

Introduction
In Malaysia's Standard Based English Language Curriculum, vocabulary is acquired incidentally while the four primary English skills; reading, writing, listening, and speaking are being taught (SBELC). The target words are indirectly taught by the teachers, as they are illustrated in the language materials used, along with grammar and the sound system. As a result, there have been a few concerns or difficulties with vocabulary learning among students. One of the instances is figuring out the alternative meaning that may be taken into consideration for a word and its spelling. For students, this has become a challenge because they are unable to distinguish between the two. Students also have the tendency to use inappropriate vocabularies (Saadiah & Kaladevi, 2009). It is claimed that this implicit approach does not enable students to recognize and learn target words effectively.

Research Objectives
These research objectives are stated based on the aims of the study:
1. To examine how online teaching materials affect ESL primary students' vocabulary development.
2. To evaluate how ESL primary students feel about using online teaching materials for studying vocabulary.

Research Questions
These research questions are listed based on the study's objectives:
1. How does the use of online teaching materials affect ESL primary students' vocabulary development?
2. How do ESL primary students feel about online teaching materials for studying vocabulary?

Literature Review
According to Mohd Tahir, Albakri, Adnan, and Karim (2020), vocabulary knowledge is a worrying problem for students at school that requires an immediate attention. For instance, only 30 words (36%) out of the 120 words chosen from the SBELC specification document were marked as common words by students who took a New Word Test. Many students (64 percent) identified the remaining 90 words as unknown, demonstrating their lack of familiarity with the words the Malaysian Ministry of Education had assigned for learning. There is evidence that people are aware of the value of vocabulary instruction in language learning (Nezhad & Shokrpour, 2012). Thus, this can help students to learn English more effectively, resulting in a higher language proficiency. According to Wang and Yamat (2019), Malaysian students have yet to acquire the desired vocabulary size and master the English vocabulary as defined by the Malaysian Standard-Based Curriculum English syllabus, as evidenced by the fact that many of their respondents have vocabulary knowledge ranging from poor to intermediate levels. The results support the findings of AbManan, Azizan, and Nasir (2017), who found that Malaysian students had poor language skills and low (productive) to average (receptive) vocabulary levels, indicating the need for efficient vocabulary acquisition techniques.

Numerous studies, including those by Mohd Tahir, Albakri, Adnan, and Karim (2020), Luu (2012), Dimas (2011), Ketabi and Shahrazi (2011), Hashemzadeh (2012), Mirzaai (2012), and Madrigal-Hopes, villavicencio, Foote, and Green (2014), have demonstrated the efficacy of using teaching materials for vocabulary instruction with students of all ages, linguistic backgrounds, and
proficiency levels. The researcher is therefore interested in studying if online teaching materials for vocabulary acquisition would assist Malaysian English as a Second Language (ESL) primary students in developing their vocabulary knowledge within the setting of the Malaysian online distance learning environment. According to the researcher, extrapolating findings from earlier studies to Malaysian classrooms is erroneous. The outcomes of this research are anticipated to significantly advance the domains of language acquisition and educational technology.

The adoption of online teaching materials is also still considered as very slow. One explanation for this situation is the teachers’ preparedness to adopt such materials in their lessons. UNICEF (2020) noted that not all teachers in Malaysia are up to speed with emerging technologies due to a considerable digital gap between them, in which an overwhelming 86 percent of those teachers indicated that they needed support to deliver distance learning and developing online teaching materials.

Several studies have suggested that a Learning Management System (LMS) like Google Classroom, EdModo, and UPSI’s own MyGuru could be a catalyst for the use of online teaching materials in a variety of research settings (Dlalisa & Govender, 2020; Lasanthika & Tennakoon, 2019; Asamoah, 2018, Alhardy & Lally, 2017; Coleman & Mtshazi, 2017; Alghamdi & Bagaya, 2016; Coskuncay & Ozkan, 2013; Al-Adwan, Al-Adwan, & Smedley, 2013; Asiri, Rosnaini, Kamariah, & Ahmad Fauzi, 2012). However, these studies have concentrated on the use of an LMS as a whole and not exclusively on online teaching materials for English language vocabulary learning, as being emphasized by this proposed study. Furthermore, only one of these studies was conducted with a local (Malaysian) context; it is believed that the importance of a local context cannot simply be discounted as different contexts could offer insights, issues, and norms which are unique to that context.

This study concentrates on tracking students’ progress as they use online instructional resources to improve their vocabulary knowledge. The students’ attitudes towards using such materials will also be investigated.

**Methods**

The researcher employs online teaching materials that may help students acquire new words. It is suggested to use a quasi-experimental study approach. According to Creswell (1994), an experiment is a well-controlled activity. Thus, the participants must be as comparable as possible (Wallace, 1997). In terms of linguistic proficiency, the sample population used for this study is comparable. This is based on their Standard Three English language final test scores. This is to guarantee that the selected participants are at the same educational level (Standard Four), have the same level of language proficiency, and have the same experience or expertise so that the final computation is unaffected (Leedy, 1997). Participants in the experimental and control groups are from two distinct classes, do not interact with one another, and are therefore unrelated. Therefore, the process’ internal veracity is ensured. The participants’ pre- and post-test scores are contrasted to demonstrate how the experimental method altered their vocabulary scores.

A total of 60 ESL primary students in Standard Four are chosen for this research (2 groups). The effectiveness of the online teaching materials for assisting students in learning vocabulary is evaluated through the intervention. It also looked at how the students felt as they learned the target words. There are five research instruments used: A pre-test, online teaching materials, a post-test, a questionnaire, and a semi-structured interview. A questionnaire is used to get answers from a broad range of participants, while an interview is employed to get in-depth information about the
participants’ opinions, attitudes, and perceptions. Wallace (1997) recommended that the optimum approach is to combine these two techniques (interview and questionnaire) so that the benefits of each may be utilised.

Participants
412 learners in Standard Four participated in this research (10 classes in Standard Four) from two separate schools in the Ipoh and Batu Gajah suburbs of Perak. Only 60 students, 30 from each school or two classes; one group from each school are selected. Using a quasi-experimental research design, 30 students from one school are assigned to the experimental group, while another 30 students from a separate school are assigned to the control group. The control group is essential to keep track of the variables that jeopardize validity (Leedy, 1997). To choose the participants, a non-probability sampling technique is used (McMillan & Schumacher, 1993). These students are chosen as participants based on their overall language proficiency as measured by their achievement in the English language subject during their Standard Three year-end examination.

Research Instruments
Pre-test. A test to ascertain the initial vocabulary score of the participants.

Teaching materials for vocabulary learning:
Online teaching materials for vocabulary learning. Five sessions of online vocabulary lessons using Google docs, Quizlet, and Kahoot! for the experimental participants.

Face-to-face instructional resources for vocabulary acquisition. Participants in the control group received five face-to-face vocabulary instruction sessions that included a pamphlet, worksheet, and task sheet.

Post-test. A proficiency assessment to establish the final mark for participants.

Questionnaires. This instrument is intended to learn more about how members of the experimental group feel about using online teaching materials to acquire new vocabulary.

Semi-structured interview. The selected respondents from the experimental group are utilised in the study. The objectives are to clarify questionnaire results and augment previously gathered quantitative data.

Results
Descriptive Statistics

Table 1. Pre- and post-test descriptive statistics for the experimental group

<table>
<thead>
<tr>
<th></th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>M difference</th>
<th>Total improvement score (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test (N=30)</td>
<td>18.20</td>
<td>1.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Test (N=30)</td>
<td>43.63</td>
<td>2.06</td>
<td>25.43</td>
<td>139.73</td>
</tr>
</tbody>
</table>

Arab World English Journal
www.awej.org
ISSN: 2229-9327
Referring to Table 1, the Mean pre-test score for the experimental group was M = 18.20. M = 43.63 on the post-test demonstrates the group's enhanced comprehension of the target vocabulary as a result of using online vocabulary learning resources. This indicates that the experimental group improved by 25.43 (M difference) between the pre- and post-tests. In addition, the cumulative progress score has increased to 139.73 percent.

### Table 2. Pre- and post-test descriptive statistics for the control group

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>M difference</th>
<th>Total improvement score (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test (N=30)</td>
<td>17.57</td>
<td>1.77</td>
<td>3.96</td>
<td>22.54</td>
</tr>
<tr>
<td>Post Test (N=30)</td>
<td>21.53</td>
<td>.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 2, the pre-test mean score for the control group was M = 17.57. Before taking the post-test, the group had examined the target words using conventional vocabulary acquisition strategies. The average score on the post-test was M = 21.53. The difference between pre- and post-test scores was 3.96 (M). The cumulative percentage of improvement is only 22.54 percent.

### Table 3. Score comparison of the experimental and control groups' pre- and post-tests

<table>
<thead>
<tr>
<th>Group</th>
<th>Learners with an improved score (%)</th>
<th>Learners with a declined score (%)</th>
<th>Learners with a similar score (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>100 (30 learners)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Control</td>
<td>100 (30 learners)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

According to Table 3, after using the online vocabulary teaching resources to grasp the target vocabulary, 100% of the experimental group's students were able to progress. Fascinatingly, between the pre- and post-tests, the test scores of every single student who learned vocabulary in the conventional manner improved. The experimental group scored higher than the control group, with a cumulative improvement rate of 139.73 percent compared to 22.54 percent for the control group.

### Pre- and Post-test Independent Sample t-test

Table 4. Pre-test for the control and experimental group independent sample t-test

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>t</th>
<th>df</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group (N=30)</td>
<td>18.20</td>
<td>1.42</td>
<td>-1.524</td>
<td>58</td>
<td>.133</td>
</tr>
</tbody>
</table>
As shown in Table 4, the experimental group outperformed the control group, which achieved a mean score of $M = 17.57$, by achieving a mean score of $M = 18.20$. Currently, the mean difference ($M$ difference) between the two groups is $0.63$. According to the independent sample $t$-test, there is no statistically significant difference between the control and experimental groups' pre-test scores ($t = -1.52$, $df = 58$, $p > .05$). As a result, the pre-test scores of members of both categories are virtually identical.

**Pre-test for the Control and Experimental Group Independent Sample $t$-test**

Table 5. *Post-test independent sample $t$-test for the control and experimental groups*

<table>
<thead>
<tr>
<th>Post-test</th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>$t$</th>
<th>df</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group (N=30)</td>
<td>43.63</td>
<td>2.06</td>
<td>-53.868</td>
<td>58</td>
<td>.000</td>
</tr>
<tr>
<td>Control group (N=30)</td>
<td>21.53</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 shows that the experimental group performed better than the control group, with a mean score of $M = 43.63$ versus $M = 21.53$. At this stage, the mean difference ($M$ difference) between the two groups is $22.1$. The independent sample $t$-test also reveals a significant difference between the control and experimental groups' post-test scores ($t = -53.868$, $df = 58$, $p < 0.05$; $t = -53.868$, $df = 58$, $p < 0.05$). The post-test results of the participants in the two categories may be described as being vastly distinct.

**Pre-/Post-test of the Control Group vs. Pre-/Post-test of the Experimental Group: Paired Sample $t$-test**

Table 6. *Pre- and post-tests for the experimental group were compared using a paired sample $t$-test*

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>$t$</th>
<th>df</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test (N=30)</td>
<td>18.20</td>
<td>1.42</td>
<td>-57.643</td>
<td>29</td>
<td>.000</td>
</tr>
<tr>
<td>Post-test (N=30)</td>
<td>43.63</td>
<td>2.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 6, the average pre-test score for the students was $18.20$, while their average post-test score was $43.63$. The mean difference ($M$ difference) between the pre- and post-test is displayed below; it is $25.43$. The paired sample $t$-test revealed a statistically significant difference ($t = -57.643$, $df = 29$, $p < 0.05$), which may have contributed to the experimental group participants receiving substantially higher ratings after receiving the experimental intervention.
Table 7. Pre- and post-test paired sample t-tests for the control group

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Mean Score (M)</th>
<th>Standard Deviation (SD)</th>
<th>t</th>
<th>df</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test (N=30)</td>
<td>17.57</td>
<td>1.77</td>
<td>-16.389</td>
<td>29</td>
<td>.000</td>
</tr>
<tr>
<td>Post-test (N=30)</td>
<td>21.53</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 7, the mean score on the pre-test for the learners is M = 17.57, while the mean score on the post-test is M = 21.53. The results of the paired sample t-test indicate the existence of a statistically significant difference (t = -16.38, df = 29, p .05). After receiving the experimental procedure, those in the control group scored significantly higher (M difference = 3.96). However, the experimental group improved by 21.47 points more than the control group (M difference).

Table 8. Analysis of the students’ questionnaires

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The online applications to learn English words are easy to use</td>
<td>12</td>
<td>40</td>
<td>18</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>The online applications make learning English words easier for me compared to the usual ways I used in my classes earlier</td>
<td>10</td>
<td>33.3</td>
<td>17</td>
<td>56.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>3.</td>
<td>I like to use the online applications more than the usual ways I used in my classes earlier</td>
<td>14</td>
<td>46.7</td>
<td>12</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>4.</td>
<td>The online applications are a good method to learn English words</td>
<td>18</td>
<td>60</td>
<td>11</td>
<td>36.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>5.</td>
<td>The online applications make me want to learn English more</td>
<td>14</td>
<td>46.7</td>
<td>16</td>
<td>53.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>The online applications are useful for me to</td>
<td>13</td>
<td>43.3</td>
<td>16</td>
<td>53.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7.</td>
<td>The online applications make learning English words more convenient outside of the classroom.</td>
<td>12</td>
<td>40</td>
<td>16</td>
<td>53.3</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>I can remember the English words learned via the online applications better</td>
<td>13</td>
<td>43.3</td>
<td>14</td>
<td>46.7</td>
<td>2</td>
</tr>
<tr>
<td>9.</td>
<td>Using the online applications makes learning English words more fun</td>
<td>24</td>
<td>80</td>
<td>5</td>
<td>16.7</td>
<td>1</td>
</tr>
<tr>
<td>10.</td>
<td>Using the online applications makes learning English words less stressful</td>
<td>7</td>
<td>23.3</td>
<td>21</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>Using the online applications helps me to become more confident in learning English.</td>
<td>11</td>
<td>26.7</td>
<td>17</td>
<td>56.7</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>Using the online applications allows me to participate more in my English classes.</td>
<td>8</td>
<td>26.7</td>
<td>22</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>I enjoy using the online applications to learn English words.</td>
<td>21</td>
<td>70</td>
<td>9</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>I can learn English words better when I can learn them in multiple ways through picture, sound, definition, etc. in the online applications.</td>
<td>22</td>
<td>73.3</td>
<td>7</td>
<td>23.3</td>
<td>1</td>
</tr>
<tr>
<td>15.</td>
<td>I will continue to use the online applications to learn English words in the future</td>
<td>23</td>
<td>76.7</td>
<td>7</td>
<td>23.3</td>
<td></td>
</tr>
</tbody>
</table>
Based on Table 8, participants in the experimental group had favourable opinions of the online teaching materials used in this study for the vocabulary classes. The outcomes of the study of the student surveys show this. According to the mean and percentage ratings, all of the student questionnaire's questions received a high percentage of "Totally Agree" (N=24; almost 80%) and "Agree" (N=22; roughly 73%) positive participant replies.

Table 8 also indicates that 24 students (about 80%) totally agree with the statement ‘Using the online applications makes learning English words more fun’ and only about 3% (1 student) of the participants stated that he or she is unsure of the same statement. It was clear from this that the students agreed with the affirmative remark made in their surveys. More than half of the students (approximately 60 percent) completely agree with the assertion that using online apps is an excellent way to learn English vocabulary, while just 11 students (or about 37 percent) disagree. This supports the findings. This demonstrates that the study's participants preferred to learn English vocabulary through online applications.

Table 8 also reveals that 22 students, or around 73 percent of the participants, concur that utilizing the online apps enables them to engage more actively in their English lectures. Additionally, 21 students, or around 70%, felt that utilizing the internet tools made learning English vocabulary less stressful. Only one participant, or around 3 percent of the participants, completely disagreed with the statement, “I like to use the online applications more than the usual ways I used in my classes earlier,” stating that they preferred to do things the old-fashioned manner. Furthermore, 2 students (about 7%) disagree with the statement that ‘The online applications make learning English words more convenient outside of the classroom’ and ‘I can remember the English words learned via the online applications better’. This demonstrated a very small representation of the negative perception for using the online applications to learn English words among the participants in this study as many of them preferred to use the online applications learning English words.

Analysis of the Semi-structured Students’ Interview

All the students indicated that they have enjoyed learning new words through online applications such as Quizziz, Quizlet, Padlet, and Mentimeter. Seven of them said they enjoyed them because it was fun to learn through these applications. In addition, three of them believed that these applications were easy to understand.

Moreover, two of them enjoyed these applications because they were colorful and contained animation, respectively. Not only that, one student each felt that these applications were enjoyable as they provided music and videos. One student each also revealed that these applications were helpful and enabled them to learn in different ways.

Apart from that, four students identified accessibility as the reason why they deemed these applications as helpful, with two of them mentioning about how they can access these applications as many times as they wanted to while the other two disclosing on how they can access these applications again to help them to further understand about the new words. Meanwhile, one student each suggested that these applications were helpful because they were interesting, fun, and enable the student to improve their English.

Furthermore, one student each mentioned that these applications were convenient since they were easy to understand, interesting and offered quizzes with answers. Not only that, one student also applauded the convenience of these applications, as students did not have to find the meaning of a word from a physical dictionary, and they can repeat a lesson through the applications.
if they have yet to understand it. However, all the students reported they were having issues in using the online applications. Majority of them (thirteen students) discloses their frustrations about their internet connection while using the online application.

**Discussion**

1. **How does the use of online teaching materials affect the vocabulary development of ESL primary students?**

   The findings of the pre-test revealed no statistically significant difference ($t=-1.52$, $df=58$, $p>.05$), indicating that the vocabulary knowledge of students in both groups regarding the target words is comparable. Alternatively, the result of the same test shows a contrast for the post-test of both groups where the results are significantly different from one group to another representing there is a significance difference ($t=-53.868$, $df=58$, $p<.05$) in terms of their vocabulary knowledge after the intervention.

   The results of the paired sample t-test also demonstrated a statistically significant improvement in the scores attained by the participants after the experimental treatment, with a mean difference of 25.43 between the pre- and post-tests ($t=-57.643$, $df=29$, $p=.05$). Even though the control group's paired sample t-test indicates a significant difference ($t=-16.389$, $df=29$, $p<0.05$), the experimental group's improvement (M difference) was greater by 21.47 than that of the control group.

   Similar to the control group, the experimental group demonstrated a significant improvement, with a mean post-test score that was 25.43 points higher than the pre-test score. Even though both groups demonstrated improvement, the experimental group's cumulative improvement score was 117.19 percent higher than the control group. According to Smaldino, Lowther, Mims, and Russell (2015), online teaching helps students enhance their learning and that utilising online programmes to study target words has helped students expand their vocabulary knowledge. The current apps should be used to reinforce vocabulary words in a range of tasks so that they may be stored in long-term memory and rapidly recalled (Tahir, Shah, Shak, Albakri, & Adnan, 2021). Teachers must thus provide pupils more opportunities to practise their abilities and additional vocabulary tasks. According to Albakri, Ismail, Hartono, Tahir, Abdullah, Sarudin, and Zulkepli (2021), it takes students at least 10 repetitions to pick up new information, particularly when it comes to vocabulary.

   The qualities of the online teaching materials added to its value as a tool for learning new words (Adnan, Karim, Shah, Tahir, & Ya Shak, 2021). When advanced information is obtained, pre-existing knowledge can be reassembled in a flexible way to match the demands of a new circumstance (Lasanthika & Tennakoon, 2019). As a result of employing online teaching resources as a medium to learn the target vocabulary, students were able to recall them better.

2. **How do ESL primary students feel about online teaching materials for studying vocabulary?**

   The use of online applications to learn English vocabulary makes the process more enjoyable than it would otherwise be, according to the students who responded to surveys on their education. About 80% of them (24 students), totally agree on this item. Moreover, 23 students (about 76.7%) also totally agree that they will continue to use the online applications to learn English words in the future. They have indicated in the interview that they have enjoyed learning new words through online applications such as Quizziz, Quizlet, Padlet, and Mentimeter. Since they could explore a wide range of alternatives and learn by trial and error, students found the
online apps to be quite engaging. This also encourages learners to engage in meaningful learning, which leads to active involvement (Luu, 2012). Meaningful learning was more likely to occur when they were engaged in active learning.

The experimental group, which was exposed to online teaching resources to acquire the target words, outperformed the control group. Online applications make studying more enjoyable, boost motivation when students' enthusiasm wanes, and encourage teamwork and collaboration (Dlalisa & Govender, 2020). 22 students (about 73.3%) stated that they agreed with the item using online applications allows them to participate more in their English classes which support the claim.

On the other hand, 2 students (about 6.7%) disagreed with the statement the online applications make learning English words more convenient outside of the classroom. Based on the interview, many of them (13 students) discloses their frustrations about their internet connection while using the online applications. One of them also stated that he was having issues with the devise that was used to access these online applications. In this case, not all students are fortunate to have high quality devices and strong internet connection. Teachers and parents should provide support as much as possible to help them experience learning using online teaching materials better outside the classroom.

The statement "I like to use the online applications more than the usual ways I used in my classes earlier" was, sadly, completely rejected by one student (approximately 3.3 percent). The students cognitive abilities will be strengthened and put to the test in this setting (Craik & Lockhart, 1972). Therefore, the target phrases will become ingrained in the pupils' long-term memory, making it simpler for them to recall them in the future.

**Summary of the Discussion**

The results of this study demonstrate that using online teaching materials to teach new vocabulary to ESL primary students is successful. Effective vocabulary activities can focus learners' attention to vocabulary items (Wang & Yamat, 2019). To boost retention, teachers are urged to concentrate on teaching the target vocabulary utilising online tools.

In accordance with other research (Dlalisa & Govender, 2020; Lasanthika & Tennakoon, 2019; Asamoah, 2018, Alhardy & Lally, 2017; Coleman & Mtshazi, 2017; Alghamdi & Bagaya, 2016; Coskuncay & Ozkan, 2013; Al-Adwan, Al-Adwan, & Smedley, 2013; Asiri, Rosnaini, Kamariah, & Ahmad Fauzi, 2012), the current study confirms that using online teaching resources is the most effective technique to teach vocabulary since it results in better vocabulary retention and acquisition. According to Tahir, Shah, Shak, Albakri, and Adnan (2021), vocabulary is improved to a greater extent when words are used often during vocabulary activities. To increase retention and the breadth of vocabulary learning, instructors are urged to give pupils a range of opportunities to encounter unfamiliar terms through well designed vocabulary assignments.

Utilizing online tools to aid pupils with memorization of the target phrases is a wise choice. Albakri, Ismail, Hartono, Tahir, Abdullah, Sarudin, and Zulkepli argue that in order to maximise students' learning potential, they should be encouraged to select the authentic content they like (2021). The primary ESL students, who belong to the technologically savvy generation, would have benefited from using internet tools to study the target vocabulary.
Conclusion

According to the study's findings, ESL primary students may acquire the relevant keywords by using online teaching resources. As a result of meaningful learning via the usage of web applications during English lesson, students exhibit a high level of word recall. They can correctly answer the post-test questions by retrieving the target words from their long-term memory. Teachers and curriculum designers should think about including suitable internet teaching resources during English sessions to improve ESL primary students' vocabulary mastery.

Recommendation for Future Research

Future studies may examine the results of teaching vocabulary to primary ESL students utilizing online teaching resources with a larger sample size. Differences in gender, family history, and race in terms of the sample's features may all be considered for future research.

Funding

The first author and co-authors received funding from Geran Galakan Penyelidikan Universiti (2021-0061-107-01) from Universiti Pendidikan Sultan Idris (UPSI) in Malaysia. We are grateful to our colleagues who reviewed a draft of the article and offered numerous useful recommendations.

About the Authors

Mohd Haniff Mohd Tahir, Ph.D., is a Senior Lecturer and internationally recognized researcher at the Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris (UPSI), Malaysia. His focus area includes materials development and evaluation, digital learning, and quantitative research related to ESL classrooms. Currently, he is exploring emerging ideas and concepts for vocabulary learning with the integration of technology. ORCID ID https://orcid.org/0000-0002-5411-1000

Intan Safinas Mohd Ariff Albakri, Ph.D., is an Associate Professor at the Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris (UPSI), Malaysia. Her areas of specialization are mentoring teachers, materials development, applied linguistics, and second language acquisition. ORCID ID https://orcid.org/0000-0001-5499-1709

Mazlin Mohamed Mokhtar, Ph.D., is a Senior Lecturer at the Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris (UPSI), Malaysia. She is an expert in sociolinguistics, education, and TESL related research. ORCID ID https://orcid.org/0000-0002-8231-2678

Puteri Zarina Megat Khalid, Ph.D., is a Senior Lecturer at the Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris (UPSI), Malaysia. Her area of research includes studies on modality analysis, genre analysis, corpus linguistics, and English linguistics. ORCID ID https://orcid.org/0000-0002-9296-8662

Haddi @ Junaidi Kussin, is a Lecturer at the Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris (UPSI), Malaysia. His area of interest includes studies on transformative pedagogy, language learning strategies, and second language acquisition.
References


McFerrin, J. Price, R. Weber & D. Willis (Eds.), Proceedings of SITE 2005--Society for Information Technology & Teacher Education International Conference (pp. 3311-3317). Phoenix, AZ, USA: Association for the Advancement of Computing in Education
Online Teaching Materials for Vocabulary Learning

Tahir, Albakri, Mokhtar, Khalid, & Kussin


