Utilization of Duolingo as A Supplementary Formative Assessment Tool

in Primary Year 5 English Class

By,

Lian Junxiang

SJKC Pin Min, Bidor Stesen,

Perak

Kertas Projek Inovasi

Kategori Individu Sekolah Rendah

2022

Abstrak

Penggunaan telefon pintar dan komputer dengan sambungan internet semakin memainkan peranan yang amat penting dalam kehidupan kita dan dalam dunia pendidikan, kita juga seharusnya memanfaatkan alat-alat peranti elektronik untuk meningkatkan lagi pembelajaran dan pemudahcaraan (PdPc) dalam bilik darjah. Dalam kajian ini, aplikasi *Duolingo* telah dipilih sebagai inovasi untuk dijadikan alat tambahan penilaian formatif dalam melaksanakan Pentaksiran Bilik Darjah (PBD) Bahasa Inggeris terutamanya dalam era pasca pandemic ini di mana pembelajaran digital dan teradun menjadi semakin penting. Aplikasi *Duolingo* mengintegrasikan keempat-empat kemahiran iaitu kemahiran mendengar, bertutur, membaca dan menulis dalam proses pembelajaran suatu bahasa. Dengan adanya aplikasi ini, tajuk-tajuk tertentu telah dipilih sebagai alat tambahan pentaksiran untuk membantu dalam proses PBD di bilik darjah. Untuk menguji keberkesanan aplikasi tersebut, ujian pra dan ujian pasca yang bersifat quantitatif dan qualitatif telah diberikan kepada 11 orang murid Tahun 5 di SJKC Pin Min, Bidor Stesen sebelum dan selepas penggunaan aplikasi ini yang dijalankan serentak dengan PdPc di bilik darjah.

Abstract

The usage of smartphones and computers with the Internet connection has been playing a major role in our daily lives and in the world of education, we should have too utilized the smart devices in order to elevate the process of teaching and learning in the classrooms. In this study, the application, Duolingo has been chosen as the innovation to be used as a supplementary formative assessment tool in School-Based Assessments (SBE) in English language especially in the post-pandemic era where digital and blending learning are becoming more and more important. The app integrates all four skills: listening, speaking, reading, and writing in a language-learning process. With the suitable contents in the app, specific titles had been chosen to go along with the process of teaching and learning, and SBE as a supplementary formative assessment tool. To test the app’s efficiency as an assessment tool, a quantitative and qualitative pre-test and post-test had been given to the 11 Year 5 pupils in SJKC Pin Min before and after the usage of the app which went along with the teaching and learning process in the classroom.

*Keywords: education, distance learning, school-based assessments, learning app, fun learning*

Contents

[1. Introduction 5](#_Toc101676404)

[1.1. Background of the study 5](#_Toc101676405)

[1.2. Problem statements 5](#_Toc101676406)

[1.3. Research questions 6](#_Toc101676407)

[1.4. Significance of study 6](#_Toc101676408)

[2. Methodology 7](#_Toc101676409)

[2.1. Sampling 7](#_Toc101676410)

[2.2. Innovation used in the study - Duolingo 7](#_Toc101676411)

[2.3. Overall view of Duolingo 7](#_Toc101676412)

[2.4. Using Duolingo in the classroom 9](#_Toc101676413)

[2.4.1. Contents 11](#_Toc101676414)

[2.4.2. Utilization (Manual of operation) 16](#_Toc101676415)

[2.4.3. Feeling 18](#_Toc101676416)

[3. Findings and discussions 19](#_Toc101676417)

[3.1. Analysis of pretest data 19](#_Toc101676418)

[3.2. Analysis of posttest data 22](#_Toc101676419)

[3.3. Limitations of the study 26](#_Toc101676420)

[3.4. Conclusions 27](#_Toc101676421)

[References 27](#_Toc101676422)

Utilization of Duolingo as A Supplementary Formative Assessment Tool

in Primary Year 5 English Class

# Introduction

Since *KSSR* has moved away from an exam-oriented education system, teachers are now focusing on School-Based Assessments (SBE) in every subject in primary school for a better holistic overview on students’ mastery of skills (MOE, 2012). Pangkuh (2020) stated that learning English is a skill-based learning that requires diverse approaches and techniques, this paper is going to focus on using a language app called ‘Duolingo’ which is available in both Google Play Store and Apple App Store.

## Background of the study

Pandemic COVID-19 has propelled the usage of electronic devices in school and at home due to lockdown measures being implemented in almost all countries since March 2020 (BBC, 2020). Computers, laptops and especially smartphones have seen much increased adoption compared to the pre-pandemic time. Therefore, e-learning or distance learning have become the mandatory component of all educational institutions like schools, colleges, and universities in and around the world (Satishkumar, Radha, Saravanakumar, & Mahalakshimi, 2020). To further enhance the learning with electronic or distance learning, Duolingo has been chosen to be the focus of this study as the app itself has a rating of 4.5 out of a 5-star ranking system from the votes of 12 million users from Google Play Store while it got 4.7 out of a 5-star ranking system in Apple App Store with 1.4 million people using it to learn different languages.

## Problem statements

There are many language learning apps out there in different ecosystem. Upon simple checking via Google, there are hundreds to thousands of websites recommending various language learning apps. For example, Lingualift (2022) has listed 10 best language learning apps for 2022 and one of them is Duolingo. They emphasized that Duolingo as the ancestor of gamification of language learning, did a great job of engaging learners who speak different languages, but all these language learning apps suffer from the same Achilles’ heel which is learners expect to learn to speak a language while it is not the case most of the time. Users can expect to improve the vocabulary and learn it in a fun way according to the website.

Following the logic of such tight integration of technology into education during the lockdowns, however, it seems counterintuitive to still ban the use of smartphones in most schools (Wong, 2021). Although the author voiced his opinions not based on the usage of technological devices but the need of monitoring parents’ children, he did identify the problem of disallowing electronic devices in most schools. The minister of education did mention that a guidance for schools to develop policies and rules to regulate the use of mobile devices in schools in July 2018 but till today, there is no official guidance being released.

Hence, the app itself can only act as a supplementary formative assessment tool alongside SBE and more questions arise.

## Research questions

Since there is no real integration of personal electronic devices in school as mentioned above, there might be some hiccups on utilizing Duolingo as a supplementary formative assessment tool. Some critical questions have to be established in order to identify the usefulness and effectiveness of this particular tool. The questions are categorized into three major categories which are contents, utilization, and feeling.

1. What are the contents of English contained in Duolingo?
   1. Are the skills contained in Duolingo aligned with the content standards and learning standards listed in *DSKP* Year 5 English for *SJK*?
   2. Are the topics contained in Duolingo aligned with the content standards and learning standards listed in *DSKP* Year 5 English for *SJK*?
2. How to utilize Duolingo as a supplementary formative assessment outside of the classroom?
   1. How to align the topics in Duolingo with the content standards and learning standards listed in *DSKP* Year 5 English for *SJK*?
   2. How to assign and make sure the pupils finish the tasks given within the designated period?
   3. How to assess the pupils by using Duolingo as a supplementary formative assessment?
3. Do pupils like to use Duolingo as one of tools of language learning?
   1. Which aspect do pupils like/dislike the most?
   2. Why do the pupils like/dislike the app?
   3. Do they feel that they have improved their English especially in the aspects of vocabulary and sentence structure after using the app for a while?

## Significance of study

Since there is a plethora of digital learning apps in most major app stores, it is befuddled to see that there is no real integration of such apps into the classrooms in Malaysia due to mobile devices are still disallowed in most public schools. This contradicts with the findings from Sa’don, Dahlan, & Ibrahim (2014), stating that 87% of the respondents consisting of the major stakeholders (Ministry of Education, teachers, and students) in Malaysia would play an important role in the future of teaching and learning in Malaysian schools. Since then, most schools do not allow students to bring their personal mobile devices to school even in 2022. The researchers also mentioned that 103 (89%) of the respondents are using mobile phone for learning purposes outside their classroom although there was a restriction of bringing the devices to Malaysian schools.

Therefore, it is an utmost importance to consider the integration of personal mobile devices into the learning and assessments alongside the current education because there were many findings and recommendations of previous studies which had confirmed that the integration of mobile devices into the educational systems or at individual level increases the effectives of learning albeit specific learning-oriented software programs with educational activities are needed (Sung, Chang, & Liu, 2016).

# Methodology

The study about utilization of Duolingo as a supplementary formative assessment tool in primary Year 5 English class is carried out by using a mixed-mode approach with both quantitative and qualitative data being used for analysis for effectiveness and implications of the said tool in supplementing the school-based assessments in SJKC Pin Min.

## Sampling

The application is introduced to Year 5 pupils in SJKC Pin Min. There are 11 pupils in the class with a wide range of mixed capability in English especially after the hiatus of school after the pandemic of COVID-19. Among the 11 pupils, there are 6 males and 5 females. Two pupils just transferred from the other schools and sometime might be needed for them to familiarize with how things work in this very particular classroom. Convenience sampling method was used due to the geographical proximity of the samples with the researcher. In addition, because of the small size of the population used in this study, the outcome is most probably not able to be replicated and generalized into a larger population due to many undesirable variables in the process. However, the processes of carrying out SBE with the content and learning standards from *DSKP* are the same for every school. Hence, utilizing Duolingo as a supplementary assessment tool is a viable option. Do note that Duolingo is aimed for those who want to learn a foreign language by using their native languages. Since the study was carried out in *SJKC (Sekolah Jenis Kebangsaan Cina),* the native language on the app is Mandarin. Malay and Tamil Languages are not available on the app so this study is not applicable for those who are teaching and studying in both *SK (Sekolah Kebangsaan)* and *SJKT (Sekolah Jenis Kebangsaan Tamil)*.

## Innovation used in the study - Duolingo

The chosen application for this paper is Duolingo, an application developed by Duolingo Inc., a public trade company in Nasdaq. It is a language-learning website and mobile app. Heba (2016) stated that Duolingo is an effective method to learning a language because the grammar-translation method which Duolingo uses is very suitable for those who just started to learn a language as the words and phrases are easily translatable. An effectiveness study was done in 2012 and it concluded that the usage for Spanish learning from the app was more effective than the classroom language-learning environment but there is no lack of criticisms about Duolingo such as its ineffectiveness in helping students to develop fluency and real proficiency in a language (Matt, 2022). Even the CEO of Duolingo promised only to get the users to level between advanced beginner and early intermediate. This means if one uses only Duolingo to learn a new language, most certainly one would not achieve to a certain fluency but Duolingo, as suggested by Sacco in Heaney (2019), Duolingo is helpful for learning vocabulary in addition to the immersive learning environment like classrooms.

## Overall view of Duolingo

Therefore, Duolingo as what the title of the study has implied, would be used as a supplementary formative assessment tool in conjunction with School-Based Assessments in a classroom environment. The researcher used Duolingo for Schools as the main interface to monitor the assignments and pupils’ progress on completing the assignments. At home, pupils login via the app and complete the given tasks.

The contents in Duolingo are not the same as what consisted in the textbook but since language learning is a skill-based process and not content-based subject (Husain, 2015), hence the differentiation between materials is not something of a concern. In the app itself, all four skills are integrated in all learning processes which being called ‘trees’. For English learning in the native language of Chinese, there are 2703 vocabulary, divided into 8 parts with 96 skills together with 261 short stories. Pupils can choose to do the activities according to the trees to unlock more skills or use the short stories to learn about vocabulary and short phrases and sentences.



*Figure 1: Overall view of English learning in Duolingo.* This figure illustrates the learning aspects of English by using Chinese as the learners’ native language.

Graphical user interface, application

Description automatically generated

*Figure 2: Four skills are integrated within topics.* This figure illustrates the activities within topics to engage learners with the four major language-learning skills: listening, speaking, reading, and writing.

Graphical user interface, application

Description automatically generated

*Figure 3: Short stories in Duolingo.* To integrate the language in a narrative context, there are 261 stories in the language to engage learners in a more comprehensive and applicable manner.

## Using Duolingo in the classroom

To make the usage easier for teachers, Duolingo for Schools is being used for monitoring purposes. Instead of letting the individual pupils finish the activities on their own paces, the teacher has used Duolingo for Schools to assign skills and tasks according to what he taught in the classroom. This granted better control over the materials used alongside the contents taught in the classroom.

The interface of Duolingo for Schools looks as below.

Graphical user interface

Description automatically generated

*Figure 4: Duolingo for Schools.* This figure illustrates the interface of Duolingo for Schools, used for monitoring pupils’ progress of completing the assignments.

Graphical user interface, application

Description automatically generated

*Figure 5: Skills and vocabulary.* This figure illustrates the skills and vocabulary contained in the skill which is stated in pupils’ L1 language (Mandarin). It says ‘Travel’ for this particular skill.

Graphical user interface, application

Description automatically generated

*Figure 6: More skills.* This figure illustrates the selected skills to be used in this study. The four skills are ‘Travel, ‘Description 2’, ‘People 2’, and ‘Shopping’.

Graphical user interface, text, application, Teams

Description automatically generated

*Figure 7: The selected short stories in Duolingo.* This figure illustrates the selected short stories which the contents are aligned with Unit 1, ‘Towns and cities’ in pupils’ textbook.

|  |  |  |
| --- | --- | --- |
|  |  |  |

*Figure 8: Progress monitoring.* This figure illustrates the progress of the pupils completing the given assignments.

There is however a minor concern for using Duolingo by asking the pupils to ask their own personal smart devices as digital learning is not a must in the education of Malaysia. Pupils and teachers are encouraged to make use of technology in and out of the classrooms but considering that there are different socio-economics backgrounds for different pupils’ family, some of the pupils might not be able to complete the given tasks due to not owning good digital devices which are capable to support the usage of Duolingo because it needs constant internet connection. Although the pandemic has fastened the process of adoption of digital and distance learning, this shall not be taken for granted due to several reasons as mentioned above. The researcher had encouraged the pupils to try their best to complete the given tasks. Post-test’s results would be compared with the pre-test with considerations being factored in during the analysis.

### Contents

As showed on Figure 5, 6, and 7, the four skills are selected in tandem with the contents in Unit 1, ‘Towns and Cities’ in Year 5’s textbook, English Plus 1. In this unit, pupils are shown London and some interesting tourist attractions together with some vocabulary. The further subtopics focus on the contents as follow. A table is shown below for more details about the contents in Unit 1 and chosen skills in Duolingo.

|  |
| --- |
| **Unit 1 – Towns and Cities** |
| **Vocabulary**  square, restaurant, school, office building, train station, bridge, café, theatre, sports centre, library, bus station, cinema, shop, park, shopping centre, market, monument, hotel, flat, street |
| **Reading**  City on the sea |
| **Language focus**  Is there…?, Are there…?, How many…? |
| **Vocabulary and listening**  Adjectives (antonym and synonym) |
| **Language focus**  Comparative adjectives |
| **Speaking**  WH-Questions |
| **Writing**  Descriptions |

*Table 1: Contents in Unit 1 of English Plus 1 for Year 5 Primary.* This table listed the contents contained in the first unit of the textbook used in Year 5 Primary.

Since English in *KSSR (Kurikulum Standard Sekolah Rendah)* has adopted CEFR (Common European Framework of Reference) as the point of reference, teacher, parents and pupils are having a more coherent standard to evaluate the standards of the users of English. To enhance the mastery of English amongst pupils, Scheme of Work is also provided to guide teachers to plan better lessons. In each lesson, the teachers should focus on one main skill and one complementary skill. At the end of each lesson, teachers will then perform SBE according to the content and learning standards. A table contained content and learning standards for Unit 1 is shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Lessons** | **Skills** | **Content Standards** | **Learning Standards** |
| 9 | Main Skill | Listening 1.2 – Understand meaning in a variety of familiar contexts | Listening 1.2.1 – Understand with support the main idea of longer simple texts on a range of familiar topics |
|  | Complementary Skill | Writing 4.2 – Communicate basic information intelligibly for a range of purposes in print and digital media | Writing 4.2.4 – Describe people, places and objects using suitable statements |
| 10 | Main Skill | Speaking 2.1 – Communicate simple information intelligibly | Speaking 2.1.5 – Describe people, places and objects using suitable statements |
|  | Complementary Skill | Writing 4.2 – Communicate basic information intelligibly for a range of purposes in print and digital media | Writing 4.2.1 – Give detailed information about themselves |
| 11 | Main Skill | Writing 4.2 – Communicate basic information intelligibly for a range of purposes in print and digital media | Writing 4.2.4 – Describe people, places and objects using suitable statements |
|  | Complementary Skill | Speaking 2.2 – Use appropriate communication strategies | Speaking 2.2.1 – Keep interaction going in short exchanges by asking suitable questions |
| 12 | Main Skill | Listening 1.2 – Understand meaning in a variety of familiar contexts | Listening 1.2.2 – Understand with support specific information and details of longer simple texts on a range of familiar topics |
|  | Complementary Skill | Writing 4.3 – Commuinicate with appropriate language form and style for a range of purposes in print and digital media | Writing 4.3.2 – Spell a range of high frequency words accurately in independent writing |
| 13 | Main Skill | Speaking 2.1 – Communicate simple information intelligibly | Speaking 2.1.2 – Find out about and describe experiences up to now |
|  | Complementary Skill | Listening 1.1 – Recognise and reproduce target language sounds | Listening 1.1.1 – Recognise and reproduce with little or no support a wide range of target language phonemes |
| 14 | Main Skill | Reading 3.2 – Understand a variety of linear and non-linear print and digital texts by using appropriate reading strategies | Reading 3.2.2 – Understand specific information and details of two paragraphs or more |
|  | Complementary Skill | Writing 4.3 – Communicate with appropriate language form and style for a range of purposes in print and digital media | Writing 4.3.2 – Spell a range of high frequency words accurately in independent writing |
| 17 | Main Skill | Reading 3.2 – Understand a variety of linear and non-linear print and digital texts by using appropriate reading strategies | Reading 3.2.4 – Use with support familiar print and digital resources to check meaning |
|  | Complementary Skill | Writing 4.2 – Communicate basic information intelligibly for a range of purposes in print and digital media | Writing 4.2.4 – Describe people, places and objects using suitable statements |
| 18 | Main Skill | Writing 4.2 – Communicate basic information intelligibly for a range of purposes in print and digital media | Writing 4.2.5 – Connect sentences into one or two coherent paragraphs using basic coordinating conjunctions and reference pronouns |
|  | Complementary Skill | Speaking 2.1 – Communicate simple information intelligibly | Speaking 2.1.5 – Describe people, places and objects using suitable statements |

*Table 2: Content and learning standards.* This table listed the content and learning standards contained in Unit 1, ‘Towns and cities’, provided by the Ministry of Education in Scheme of Work for Year 5 English. The highlighted learning standards are the ones which can be evaluated via the activities in Duolingo.

After checking the content and learning standards in *KSSR* Year 5 English, the contents in Duolingo were compared and those contents which are aligned with Unit 1 are selected. This process is called comparative analysis but, in this study, it has been simplified by only comparing the occurrence of related topics (Pickvance, 2001). For ordinary users of Duolingo, they have to do all the skills slowly or skip some of them by doing a placement test. But, for the pupils and the admin of Duolingo for Schools, the skills and contents can be assigned to the pupils accordingly. This enables a more coherent learning and assessment according to the content and learning standards. A table containing the selected skills and titles in Duolingo is shown below.

|  |
| --- |
| **Duolingo (Listening, speaking, rearrange sentences, matching)** |
| **Travel**   1. passport, please, where is, plane ticket, id, is in, bag 2. bus, airport, train, station, to, the 3. excuse me, ticket office, restroom, taxi, name, right here, over there 4. ticket, money, wallet, what, sir, ma’am, thank |
| **Description 2**   1. tallest, nicest, easiest, smallest, best, oldest, fastest 2. most, thing, part, dangerous, meal, exciting, trip 3. building, pair, funnier, cheaper, longer, richer, younger 4. biggest, only, banks, closest, colder, China, hard |
| **People 2**   1. looks like, short, tall, eye, hair, person, also 2. look like, who, women, men, people, fat, thin 3. dad, mom, rich, poor, families, funny, friendly 4. taller, shorter, than, older, nicer, short hair, long |
| **Shopping**   1. clothes, store, shirt, pants, new, need, good 2. jacket, dress, hat, shoes, black, green, blue 3. skirt, coat, white, socks, warm, cheap, red 4. boots, expensive, yellow, favorite, brown, gray, pretty |
| **Stories**   * **Getting on a taxi**   Bea is in a taxi and keeps giving the driver directions from her phone. He says he doesn’t need phone directions because he knows every road in the city. Bea insists and he finally agrees to follow her directions. They end up at a river.   * **Oscar in Los Angeles**   Oscar is visiting his cousin in Los Angeles. Oscar soon discovers that it takes an hour to get pretty much anywhere in the city. He decides to just stay home and watch TV.   * **Airport Holiday**   Lily is going on a vacation with Zari’s family. At the airport, they discover that their flight is going to be delayed. They end up having so much fun at the airport that they don’t want to go on their actual vacation. |

*Table 3: Vocabulary in Duolingo.* This table listed the vocabulary contained in the selected skills in Duolingo which are aligned with the contents in Unit 1, ‘Towns and cities’ in pupils’ textbook.

In short, to answer the first research question, Duolingo is suitable to be used as a supplementary formative assessment tool as the topics covered in the app are of a wide range of differences and variety. Teachers must be selective with the topics and make sure the contents are aligned with the content and learning standards so that SBE can be carried out effectively. However, since the Ministry of Education has not made digital devices as a compulsory in the current education system, it will remain as a supplementary teaching aid regardless of the effectiveness and fun learning tool.

### Utilization (Manual of operation)

Duolingo is not meant to be used as a standalone learning application in this study. It is meant to support the teaching and learning activities as a supplementary formative assessment tool which it should be used from time to time to learn the vocabulary related to the materials in the classroom. These are the steps of implementing Duolingo in the teaching and learning activities.

1. Plan the teaching and learning activities according to SOW and *DSKP.*
2. Multiple resources are used as the materials in the classroom: textbooks, Internet materials, YouTube videos, vocabulary in Duolingo.

***Pre-test was given to the pupils before the start of the series of lessons.***

1. Carry out the teaching and learning activities in the classroom.
2. Assess the pupils via different methods: observation, activity and exercise books, and presentations.
3. Give out PL (Performance Levels) according to the content and learning standards.

***Post-test was given to the pupils after the series of lessons.***

As stated above, to evaluate the effectiveness of the overall teaching and learning activities together with the contents of Duolingo being embedded in the lessons, a pre-test was given to the pupils before the start of the lessons. It contains 10 questions which are adopted from the textbook and Duolingo. However, there is a need to emphasize that this set of questionnaires did not go through a rigorous development and therefore, together with the post-test, the data analyzed might not have enough credibility, validity, and reliability to show that Duolingo is indeed useful as a supplementary formative assessment tool for SBE.

To answer the research questions, aligning the topics with the content and learning standards together with the materials used in the lessons can be done easily via simplified comparative analyses. Nonetheless, there is no way to control the process of pupils finishing the tasks given in Duolingo due to reasons mentioned above. The teacher could only encourage the pupils so that they could finish the tasks given on time. For the last research question in the utilization segment, this would be a daunting task to evaluate Duolingo’s usefulness being a supplementary formative assessment tool because firstly, this app does not work as a standalone app in this classroom. It goes along with the teaching and learning activities during school days.

In Figure 9, the teacher incorporated the materials via different learning activities like presentation, action songs, individual and group work. Differentiation strategies are used during the planning and execution due to pupils are of different abilities. To make sure everyone is included in the learning activities while having fun, learning preferences and needs are always being taken into consideration. Different pupils with different capabilities finished the tasks in different time as well so the type and amount of support are also provided accordingly. After the teaching and learning activities being carried out in school, tasks in Duolingo are assigned and pupils have to complete the tasks at home.

|  |  |  |
| --- | --- | --- |
|  |  | |
|  |  | |
|  | | |
| A person holding a cell phone  Description automatically generated with low confidence |  |  |

*Figure 9: Differentiation strategies.* This illustrates the implementation of Strategy 5: Differentiate by supporting individual learning preferences and needs. From top left to bottom right: *Pupils presenting their works, action songs, individual writing task, group work, and different pupils presenting their works, pupils using Duolingo at home.*

Secondly, whether pupils have shown improvement or deterioration in the post-test, there are simply too many independent variables which could contribute to either the improvement or deterioration in the test. More details about this will be discussed in Chapter 3.

### Feeling

Emotional experiences of students in the classroom are extremely important but they are usually ignored due to its elusive nature of being objectively measured. Ahmed, Werf, & Minnaert (2010) proposed a multimethod qualitative study to measure emotional experiences of the students in classroom by using video stimulated recall interview, nonverbal coding scheme, and appraisal questionnaire to collect the needed data in order to analyze the individual responses towards the learning materials and how emotions affect the students’ domain specific and task-specific competence and value beliefs.

Due to time constraint, a simple questionnaire had been included in the latter part of the post-test for questions related to the pupils’ experience when they were using Duolingo for learning English. Analysis is discussed in following chapter.

# Findings and discussions

The analyses of pretest and posttest data are discussed in the latter sections.

## Analysis of pretest data

The sample consists of 11 pupils from Year 5 in SJKC Pin Min with 6 males and 5 females. There are 10 questions in total in the questionnaire and a table is shown below to show the sources and types of questions asked in the questionnaire. Google Form was used as an online instrument for the pupils to answer the questions.

Chart

Description automatically generated*Figure 10: Insights of pretest.* This figure illustrates the average, median and range of the points scored by 11 pupils in Year 5.

The pre-test result shows that the pupils of Year 5 are indeed like what had been mentioned above as a class consists of mixed ability pupils with the range of 10 points to full 50 points. Since this is a very small school and there is only one class for each grade, pupils from different academic backgrounds are placed in the same classroom. However, it is difficult to pinpoint the exact reasons of why a huge disparity between the pupils was there because the variables such as characteristics, intelligence, perception, ability, learning styles and more (Kubat, 2018) exist. More of this will be discussed in the upcoming subchapter.

|  |  |  |  |
| --- | --- | --- | --- |
| No | Questions | Sources | Types |
| 1 |  | Duolingo | Noun |
| 2 |  | Textbook | Noun |
| 3 |  | Duolingo | Noun |
| 4 |  | Textbook | WH-Questions |
| 5 |  | Duolingo | Noun |
| 6 |  | Textbook | Pronoun (Questions) |
| 7 |  | Textbook/Duolingo | Comparative Adjectives |
| 8 |  | Textbook | Question and answer |
| 9 |  | Textbook | Question and answer |
| 10 |  | Textbook | Noun |

*Table 4: Types and sources of questions.* This table lists out the types and sources of questions asked in the questionnaire.

Most of the materials contained in this questionnaire had already been taught in previous years and if some of the pupils have good foundation of English, even without learning the materials from the textbook or Duolingo, he or she can still score with excellence like what had one pupil did in this questionnaire. The problem of this questionnaire is the inability to test out the skills of listening, speaking, and writing due to many reasons which will be discussed in latter subchapter. Out of 11 pupils, 6 pupils obtained an average score of 30 out of 50. There are two extremes on the spectrum. One pupil got 10 out of 50 and another one obtained a perfect 50. This shows that pupils’ background contributed to such differences in the knowledge.

## Analysis of posttest data

The posttest was done two weeks after the initial pretest.

Chart, histogram

Description automatically generated

*Figure 11: Insights of posttest.* This figure illustrates This illustrates the average, median and range of the points scored by 11 pupils in Year 5.

By comparing the results of posttest with pretest, an improvement of 1.82 point was seen in the average point. The usage of Duolingo started a week before the study was carried out and within the span of two weeks, posttest was given to them. This marks the lack of time as one of the reasons of why there was only a small improvement in the average points.

There was no subject scoring 5 in the pretest but in the posttest, there was a subject who scored a 5-point. To identify the correlation between the pupils, their performance level and time spent in Duolingo, the data of such is also included in the comparison of both pretest and posttest which is shown in a table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Names** | **Points of pretest** | **Points of posttest** | **Difference** | **Time Spent in Duolingo** | **TOV**  **(SBE - PL)** |
| Chang Lim Jensen (C) | 40 | 45 | +5 | 3hr 22min | 5 |
| Chloe Chai Hoe Yee (C) | 35 | 45 | +10 | 3hr 3min | 4 |
| Elaine Tan Zhi Qi (C) | 50 | 45 | -5 | 3hr 26min | 4 |
| Izzah Zahrah b. Sharizal (M) | 35 | 35 | 0 | 56 min | 4 |
| Ling Yee Liang (C) | 20 | 15 | -5 | 58 min | 3 |
| Muhammad Muhkriz b. Jasni (M)\* | 10 | 20 | +10 | 11 min | 2 |
| Teong Li Zhe (C) | 25 | 35 | +10 | 2hr 14min | 4 |
| Thu Ke Xuen (C) | 40 | 50 | +10 | 3hr 55min | 5 |
| Yu Zhi Fung (C) | 20 | 15 | -5 | 3hr 17min | 4 |
| **Low Lam Lam (C)\*** | **20** | **5** | **-15** | **0sec** | **2** |
| Muhammad Rayyan Zackry b. Muhammad Safri (M) | 35 | 40 | +5 | 7 min | 3 |

*Table 5: Comparison between pretest and posttest.* This table compares the results of points pupils obtained in both pretest and posttest together with the time spent in Duolingo and Take Off Values (TOV) of Performance Level (PL) from last semester’s School-based Assessments (SBE).

Upon simple comparison between pretest and posttest, there are indeed improvements for 6 out of 11 pupils with the range of +5 and +10 in the posttest. 1 pupil remained the same in the score while 3 pupils saw a drop of 5 points (-5) in the test. There is one outlier who saw a -15 drop in the posttest. While looking at the time spent in Duolingo, the ones who are labelled with dark green spent around 2 to 3 hours within the period of pretest and posttest. Two of the pupils labelled with lighter shades of green spent around an hour and there are 2 pupils who spent only around 10 minutes on the app. The outlier did not use the app at all within the two weeks.

To understand this, the researched conducted a simple interview with the pupils. The pupils who are labelled with \* just transferred to this school in March 2022, since the researcher only uses English in the classroom, they said that they did not understand the instructions. They need helps from the other pupils in the classroom to understand. But this is not easy for them as they still need more time to familiarize with the new learning environment. Interactions between the new and old pupils are still considered limited, observed by the researcher and the other teachers in the class. While not everyone was comfortable with the usage of English only policy in the classroom, other pupils are not shy to always seek for help since the researcher has been teaching them English since Year 1. They know that native language is not used at all during the instructional hours. Hence, this might be the reason of why the pupils labelled with \* spent the least time in Duolingo because they do not think that using Duolingo is part of the learning process after the class. They too might not be familiar with the concept of flipped and blended classroom prior to transferring to this school. As shown in Figure 9, multiapproach-method instructions are being used alternately since Year 1 between classes and pupils are always encouraged to take charge of the learning process after the initial brief lecture and explanation of the activities. The unfamiliarity might contribute to such occurrence in the lack of use of Duolingo as well as the shyness seen during the class activities. More time is needed for them to warm up. The previous PLs for both the pupils labelled with \* also showed that they need more guidance in the subject of English.

There are two old pupils in the class obtained a score lower than 20 too but they got a PL of 3 and 4 respectively. This showed that the impact of Duolingo might not be as huge as the initial hypotheses suggested. Also, this rebutted the idea of newly transferred pupils being not familiar with the learning environment and methods used in the classroom.

A second part had been added in the posttest to identify the feeling aspect of using Duolingo itself. Four questions were asked with one being a scale, two being multiple-choice questions and the last one being a short answer.

Chart

Description automatically generated

*Figure 12: Pupils’ fondness towards using Duolingo.* This figure illustrates whether pupils like using Duolingo or not.

From the graph using a scale from 0 to 10, it can clearly be seen that all eleven pupils in Year 5 like using Duolingo as a learning app and have a positive attitude towards using it at home. In Figure 13 and 14, reasons of liking and disliking Duolingo were shown and pupils picked their choices of reasons.

Chart, bar chart

Description automatically generated

*Figure 13: Reasons of pupils liking Duolingo.* This figure illustrates the seven reasons why might someone likes using Duolingo.

Chart, bar chart

Description automatically generated

*Figure 14: Reasons of pupils disliking Duolingo.* This figure illustrates the seven reasons why might someone dislikes using Duolingo.

Fun is clearly the main reason of why pupils of Year 5 liking the app. Duolingo is indeed designed using gamification by using leaderboard and leagues, experience points, progress bars and streaks to encourage users to keep on learning using the app (Bilham, 2021). Other reasons of fondness include easy to use and it works like a game. Hence, it can be concluded that gamification in learning encourages learning. However, there was one answer stood out in Figure 14 which was the reasons of disliking the app. 10 pupils felt that Duolingo has way too many levels and they might be overwhelmed by it. Rushing through seven topics in two weeks might pressure them. Do note that two pupils picked ‘Can only use Chinese to learn English’ as one of their reasons of disliking it. Upon checking the questionnaire, the Malay pupils had chosen this answer and it was understandable as Chinese is not their native language. By using Chinese to learn English, they are using one difficult language to learn another difficult language and that was why the low utilization of Duolingo of the Malay pupils in terms of time spent in the app which was shown in Table 5. Not having a smartphone and computer is also one of the inconveniences. After checking with the pupils, they used their parents’ smartphone to finish their tasks on Duolingo and the one pupil with 0 minute on Duolingo did not even get their chance to install an extra app on her parents’ phones because the storage was full, she said.

Graphical user interface, text, application

Description automatically generated

*Figure 15: Short answers of pupils liking or disliking Duolingo.* This figure illustrates the short answers given by the pupils about whether they like Duolingo or not.

10 pupils wrote short answers and expressed whether they like using Duolingo or not. This gives them a chance to express their own ideas. Most answered fun as their main reason liking the app. Two answers stood out, being ‘The teacher told us to use’ and ‘because it help me to learn many lesson like korean and japan’. Indeed, the researcher did ask the pupils to use the app for learning English in Chinese, so, technically, he was right. He did say that it was okay to use Duolingo to learn but he only used Duolingo for less than an hour in the span of two weeks. The other pupil said that using the app gives her the chance to learn other languages and after a short interview with her, she is indeed exploring the app herself and learning Korean and Japanese at the same time. She enjoyed using the app, she said. One pupil did not attempt to write an answer for this because she said that she did not know how to make a sentence using her own words. Her PL showed that she needs more guidance in learning the language.

## Limitations of the study

This is a quasi-experimental approach with no control group to identify the effectiveness of the chosen application being a supplementary formative tool in SBE. Not only that, the convenience sampling and small-sized population also made it difficult for the results to be generalized into a bigger population to show that Duolingo is helpful to improve pupil’s language ability and being an effective tool in helping the teacher to carry out SBE in school.

The time constrain also limits the possible effectiveness of Duolingo in helping pupils to improve their English. In order to make this study better in the future, a paired samples t test can be used and a bigger sample size which can be randomized should be used to increase the reliability of the future study.

## Conclusions

Based on the analysis of the pretest and posttest administered in the duration of two weeks, there is a slight improvement in average point amongst the eleven pupils in Year 5. Besides, all of them also showed a fondness in using the application to learn not only English and other languages as well. This shows that the gamification of the app in learning languages is a positive direction to encourage learning languages. Due to the limitation of personal smart devices in school, it might cause a problem on the full potential of utilization of such apps and devices in helping the pupils to learn. Therefore, MOE can consider publishing a guideline for usage of personal smart devices in schools because smart devices are everywhere in our lives right now. Since personal technology helps to increase efficiency in almost every other field, education should also embrace the change especially in the post-pandemic era.

# References

MOE. (2012). Malaysia Education Blueprint 2013 – 1025. Putrajaya: Kementerian Pendidikan Malaysia. Retrieved 25th December 2021 from <https://www.moe.gov.my/menumedia/media-cetak/penerbitan/dasar/1207-malaysia-education-blueprint-2013-2025/file>

Ajisoko, Pangkuh. (2020). The Use of Duolingo Apps to Improve English Vocabulary Learning. International Journal of Emerging Technologies in Learning (iJET). 15. 149. 10.3991/ijet.v15i07.13229.

BBC. (2020). Coronavirus: The world in lockdown in maps and charts. Retrieved 28th March 2022 from <https://www.bbc.com/news/world-52103747>

Sathishkumar, V. & .Radha, Dr & .Saravanakumar, Dr & Mahalakshmi, K.. (2020). E-Learning during Lockdown of Covid-19 Pandemic: A Global Perspective. International Journal of Control and Automation. 13. 1088-1099.

Lingualift. (2022). 10 Best Language Learning Apps 2022. Retrieved 28th March 2022 from <https://www.lingualift.com/blog/best-language-learning-apps/>

Wong, S.K. (2021). Allow smartphones in schools. Retrieved 28th March 2022 from <https://www.nst.com.my/opinion/letters/2021/11/750144/allow-smartphones-schools>

Sa'don, Nor & Dahlan, Halina & Ibrahim, Abdelrahman & Husin, Ab. (2014). Usage of Mobile Apps in Malaysian Secondary Education. International Journal of Arts and Science. Retrieved 6th April 2022 from <https://seminar.utmspace.edu.my/jisri/download/F_Vol6Feb2014_FullPaper/Pub6_MobileLearningInMalaysianSecondaryEducation.pdf>

Sung, Y.T., Chang, K.E., & Liu, T.C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. Computers & Education, Vol. 94. March 2016, Pages 252-275. Retrieved 12th April 2022 from <https://www.sciencedirect.com/science/article/pii/S0360131515300804>

Ahmed, H.n(2016). Duolingo as a Bilingual Learning App: a Case Study. Arab World English Journal. 7 (2): 255–267. doi:10.24093/awej/vol7no2.17. ISSN 2229-9327.

Frederic, L. (2012). "Language Learning Service Duolingo Launches Its First iPhone App". TechCrunch. AOL. Retrieved 16th April 2022.

Matt. (2022). Can Duolingo make you fluent in 2022? Duoplanet. Retrieved 16th April from <https://duoplanet.com/can-duolingo-make-you-fluent/>

Adams, S. (2019). Game of Tongues: How Duolingo Built A $700 Million Business With Its Addictive Language-Learning App. Forbes. Retrieved 28 February 2022 from <https://www.forbes.com/sites/susanadams/2019/07/16/game-of-tongues-how-duolingo-built-a-700-million-business-with-its-addictive-language-learning-app/?sh=4f7da68a3463>

Heaney, K. (2019). Is It Just Me, or Does Duolingo Not Work?. The Cut. Retrieved 16th April 2022 from <https://www.thecut.com/2019/01/does-duolingo-even-work.html>

Husain, N. (2015). Language and Language Skills. Retrieved 18th April 2022 from <https://www.researchgate.net/publication/274310952_Language_and_Language_Skills>

Pickvance, C. (2001). Four Varieties of Comparative Analysis. Journal of Housing and the Built Environment. 16. 7-28. 10.1023/A:1011533211521.

Ahmed, W., Werf, M. & Minnaert, A. (2010). Emotional Experiences of Students in the Classroom: A Multimethod Qualitative Study. European Psychologist. 15. 142-151. 10.1027/1016-9040/a000014.

Kubat, U. (2018). Identifying the Individual Differences Among Students During Learning and Teaching Process by Science Teachers. International Journal of Research in Educational and Science, (IJRES), 4(1), 30-38. DOI:10.21890/ijres.369746

Bilham, J. (2021). Case study: How Duolingo Utilises Gamification to Increase User Interest. Retrieved 23rd April 2022 from <https://raw.studio/blog/how-duolingo-utilises-gamification/>

Qr code

Description automatically generated

*Figure 16: Video presentation of paper.*