

Digital Versus Printed Multilingual Dictionary: Developing Young Learners' English Literacy

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Abstract—This study aimed to compare the effect of digital and printed multilingual dictionaries on young learners' literacy. Besides, it also explored the students' responses on the implementation of those dictionaries. To achieve the study's objectives, the researchers followed a sequential mixed method that started with the quantitative method and followed with the qualitative method. There were two classes involved in this study. Those two classes were selected using the matching technique. One class was treated as an experimental class, while the other was the control class. To collect the study's data, the researchers used a literacy test for the quantitative method and a questionnaire, and an interview guide for the qualitative method. The quantitative data were analyzed statistically using an independent t-test, while the qualitative data were analyzed using an interactive data analysis model. This study statistically confirmed that the digital multilingual dictionary was better than the printed dictionary. The results of the questionnaire and interview supported the finding that young learners had positive responses toward the use of both dictionary, however they also affirmed that the digital dictionary was more interesting and could help them more to study English vocabulary with the pronunciations.

Index Terms—digital dictionary, literacy, multilingual dictionary printed dictionary, young learners

I. INTRODUCTION

Literacy plays a vital role in academic development. It primarily concerns the ability to read and write. Experts state that literacy is a crucial factor influencing intellectual and emotional development (Clair-Thompson et al., 2018). It brings language learners to have lifelong learning and reach success in their community (Djonov et al., 2018) and produce a better quality of future human resources (Wijayanti, 2020).

The facts showed that students in many developing countries have a low literacy rate. The literacy rate of Indonesian children, for instance, is shallow in Southeast Asia. Being viewed from the reading test of Programme for International Student Assessment (PISA), it was ranked 64 out of 70 countries with an average of 397 in 2015 (Condliffe et al., 2017; FactMaps, 2017). This capability continues to decline with an average of 371 (2018) below the average of 487 set by the OECD (Harususilo, 2019). These data indicated that literacy skills, especially reading, need serious treatment.

Low literacy skills are caused by many factors, such as low quality of education, insufficient infrastructure that supports education (computers, electricity, gadgets, signals, learning media, complete libraries, and books), and students' low reading interest (Abrori, 2018). Literacy habits, fewer reading sources, a less supportive environment, and lack of concentration are other factors that also hinder literacy development (Akbar, 2017; Sawyer et al., 2018). A recent study proved that Indonesian university students' reading literacy was unsatisfactory due to low interest and bad habits in reading (Wijayanti, 2020).

Reading habits should be built since childhood to develop literacy skill. Reading skill becomes the basis for literacy development. The higher the reading competence, the better the literacy skill is (Ratminingsih et al., 2020; Ratminingsih & Budasi, 2018). Good literacy skill will enable the students to understand, create, and communicate information in oral or written form (Wulandari et al., 2021). Therefore, the more they read, the better their academic achievement and understanding of their reading and writing (Loan, 2009; Ratminingsih et al., 2020).

Previous research has further proved that dictionaries improve reading comprehension and English vocabulary (Abrori, 2018). Dictionaries are proved to be effective in helping learners make sentences using English (Chan, 2012). The use of both electronic and non-electronic dictionaries and reading strategies were verified to improve reading comprehension (Medina, 2019). The research results also revealed that although most of the participants used online dictionaries in practice as they offer speed access in a short time, they also appreciated the advantages of printed dictionaries mainly because they are more informative than online ones (Tulgar, 2017).

Furthermore, there was a significant difference between the use of printed dictionaries and electronic dictionaries in understanding reading texts and vocabulary. The electronic dictionary was verified to be more effective than the printed one in improving reading and vocabulary skills (Alharbi, 2016; Rezaei & Davoudi, 2016). Both teachers and students showed positive attitudes towards the use of electronic dictionaries. The use of electronic dictionaries in learning English could increase learning motivation, and students can study independently (Dashtestani, 2013). Studies on digital and printed multilingual dictionaries are still lacking, especially for primary school students. Compared to the previous studies (Alharbi, 2016; Chan et al., 2018; Medina, 2019), they were all focused on tertiary level students mostly majoring in English in ESL and EFL context, while this current study is focused on the young learners. Besides, young learners are categorized as generation Z, born in the digital era, so they are more aware of technology use. Furthermore, there is still a debate on the effectiveness of digital and printed dictionaries. On the one hand, some studies found no significant difference between the use of printed dictionaries and the digital dictionary in terms of students' vocabulary mastery (Filer, 2017; Trinh et al., 2021). On the other hand, the other studies found that digital dictionary has a better effect on students' vocabulary mastery than printed dictionaries (Alharbi, 2016; Trinh et al., 2021). Hence, this present study tried to fill the gap in researching the dictionary use in EFL context in primary education to investigate whether or not there is a significant difference in young learners' literacy skills being treated differently, that is through either printed or digital multilingual (English, Indonesian, Balinese) dictionary.

The research questions formulated for this study are:

- a. Is there a significant difference in young learners' literacy being treated with different types of dictionaries?
- b. How are the students' responses toward the implementation of digital and printed dictionaries?

II. REVIEW OF RELATED LITERATURE

A. Literacy Development

Literacy plays a vital role in 21st-century learning because literacy is the foundation for obtaining various information and knowledge. Literacy includes receptive and expressive language skills. Receptive language skills are language skills to obtain information, such as listening and reading, while expressive language skills are language skills to communicate information such as speaking and writing (Hirai et al., 2010). So, language literacy includes written and spoken language skills consisting of listening, speaking, reading, and writing, which requires critical thinking skills to communicate effectively. Therefore, literacy needs to be encouraged and trained so that people have a critical attitude in responding to any information and interactions that are carried out.

The development of literacy should be started at an early age because it benefits individuals themselves or the wider community directly or indirectly. A study by Niklas et al. (2016) found that reading books conducted by parents to their very young children contribute meaningfully to a favorable home literacy environment and support children's language development. Children who have developed their literacy earlier will achieve an understanding and mastery of the target language more quickly (Ratminingsih & Budasi, 2018). Two benefits of literacy development are increasing vocabulary and gaining various knowledge and information. Vocabulary is the foundation of literacy. The more vocabulary possessed, the better the students' language literacy (Ganesis, 2019; Safrizal et al., 2020), and the better they are at expressing language orally or in written form (Alqahtani, 2015). Thus, vocabulary plays a central role in literacy. Vocabulary ability affects four language skills, so it is necessary to enrich vocabulary to communicate well (Patesan et al., 2019).

B. Multilingualism in Education

Globalization has increased the value of multilingualism, and speaking different languages has an added value (Cenoz, 2013). Li (2011, p. 4) defined a multilingual individual as "anyone who can communicate in more than one language, be it active (through speaking and writing) or passive (through listening and reading." Another well-known definition of multilingualism is given by the European Commission (2007, p. 6). It is the ability of societies, institutions, groups, and individuals to engage regularly with more than one language in their day-to-day lives. Indonesia, in this case, has embraced multilingualism in education since its independence in 1945. This is because the Indonesian language, which is the first or second language of Indonesian people, is learned as one subject in the school curriculum and is used as the medium of instruction. Suhery et al. (2019) strengthened that Indonesian is generally spoken as the first language by Indonesian people in urban areas and as a second language by those residing in more rural parts of Indonesia. The local languages (mother tongue of most students) are also learned as the local content subjects and as the medium of communication in their daily life in the schools or outdoors, depending on the places where they are used. Different places and provinces have different local languages. Meanwhile, English is the first and most important

foreign language which entered the school curriculum since the primary level of education since 1994. This indicates that at least three languages are learned in most schools in Indonesia.

Multilingualism plays a significant role in developing the intercultural skills necessary for global talent in a globalized workplace, for an effective and engaged cosmopolitan global citizen, and is essential in addressing complex global issues. In a multilingual and multicultural world, foreign language skills and knowledge of other cultures are essential global competency and social skills (Saltanat & Kellen, 2019). Some recent studies indicated that teaching and learning in more than one language have many positive effects on the learner (Rogers, 2014). The use of more than one language in education by prioritizing students' *first* language, at least during the first six years of school, gives them a strong foundation for learning further languages from secondary education onwards (Rogers, 2014). A study by Suhery et al. (2019) proved that the students in Islamic boarding schools in Indonesia have successfully learned four languages, Arabic for learning religion, English for a language of science, technology, and global communication, Indonesian as the formal use and national language, and the local language to show the students' identity, culture and to avoid those local languages from loss and endangerment.

C. Printed and Digital Dictionary

The sources of reading in this digital era are printed and digital. The number of internet users is increasing from time to time. It rose 9.1% from January 2018 to January 2019. In Indonesia, it raised 13% in 2018 (Wijayanti, 2020). The number of internet and smartphone users in Indonesia has amplified since 2020 when online learning became mandatory (Prasetiyo et al., 2021). Thus, both sources of learning, printed and digital, are necessary. However, the current development of technology brings about the popularity of digital media. One of the sources to develop literacy is a dictionary. It is a tool designed to assist users in language-related tasks (Lew, 2016). A dictionary contains words from a language, usually arranged alphabetically, explaining their meaning, pronunciation, and spelling (Setyawan, 2015). There are several types of dictionaries, namely monolingual, bilingual, and multilingual. Monolingual dictionaries are written in one language, while bilingual and multilingual dictionaries contain two or more languages that provide word definitions in a way that is easy to understand and use for bilingual or multi-way language (Setyawan, 2015). Various dictionaries, which have recently become an attraction for research in developing reading and writing skills, are printed dictionaries, electronic dictionaries, one-language dictionaries, and two-language dictionaries (Alharbi, 2016).

The language users need a dictionary to master the vocabulary and enhance the vocabulary to use the language (Faraj, 2015). It has a great significance to help language learners to develop language skills and knowledge such as phonetics, pronunciation, word roots, grammar, and register besides providing the meaning of the searched vocabulary item (Tulgar, 2017). For students who are not yet fully covered by technology, learning resources in a printed version of the dictionary provide maximum access to both in-class and outside-of-class learning. In contrast, those with maximum access can utilize the digital version optimally. Printed dictionaries are still needed, but digital dictionaries are easy and more flexible to use (Amirian & Heshmatifar, 2013). The most current study showed that a printed multilingual picture dictionary could assist young learners' literacy because it was developed based on the themes contained in the syllabus (Wulandari et al., 2021).

Meanwhile, during the pandemic, technology in learning is becoming more necessary. The students could use their mobile phones, which allow them to learn inside or outside the classroom (Miagah & Nezarat, 2012). Digital media, which combines text, audio, images, or numbers through a computer, is more flexible, effective, and efficient to use through online learning). The use of e-dictionaries was proved to better impact students' reading and vocabulary skills while reading the text (Alharbi, 2016). They can increase learning motivation, and students can study independently (Dashtestani, 2013). Empirical evidence also indicates that language learners generally prefer bilingual to monolingual dictionaries because a native language equivalent usually is far easier to understand and process than a definition in the foreign language (Knezevic et al., 2021). Another study found that specialized dictionaries enhance the students' learning outcomes (Milić et al., 2018). Following this latest finding, this current study also proposed the use of a specially designed thematic picture-based dictionary that accommodates the characteristics of young learners.

III. METHOD

This study applied a mixed-method procedure. It was conducted by following a sequential mixed-method procedure that started with the quantitative method and then followed with the qualitative method. The quantitative method was performed through an experimental study using a post-test-only control group design. In contrast, the qualitative method was done by distributing a questionnaire and interviewing. The study was conducted in a public school in Buleleng regency- North Bali. The school is SDN 3 Banjar Jawa which lies in the center of Singaraja City. The reasons for choosing this school are namely (1) it is representative in terms of the number to determine the population, (2) it is a public school which represents most primary schools in the country, and (3) the students in the schools have access on using technology in learning.

The study population was 283 students consisting of 99 of grade four, 89 grade five, and 95 grade six. Each grade was divided into three classes. The two intact group samples of the study were determined using a matching technique. According to Fraenkel et al. (2012), the matching technique can be used to make sure two intact groups were

insignificantly different. From the statistical matching technique carried out from three different classes of grade four, five, and six, respectively, two groups of grade four were insignificantly different in their English achievement before the treatment.

The main instrument of the study was the literacy test. The test consisted of vocabulary and reading comprehension, which was distributed to the two group samples after they were treated with the teaching of reading words and sentences with the assistance of different dictionaries, digital and printed. The test was validated in terms of content by expert judgment and empirically by being tried out in the field and analyzed for validity and reliability. Since there was only one correct answer for the item, its validity was measured using Pearson Product Moment and its reliability was calculated using Cronbach's Alpha.

The treatments to the students were given within three teaching sessions in the form of reading words and sentences based on three different themes from ten themes in the dictionaries (Greetings and Introduction, Family, and Things in the Classrooms) determined by the teacher. After the treatments were finished, the literacy test was delivered. Then, the questionnaire using the Likert scale was distributed to all students in the two classes. Next, the interview was conducted to confirm the students' responses on the implementation of the dictionaries.

There were two kinds of analysis of data. First, the data were analyzed using descriptive statistics, which measured the central tendency (mean, median, mode, standard deviation, and variance). Next, it was continued with inferential statistics using a t-test. Prior to t-test analysis, prerequisite testing was conducted, namely normality and homogeneity test. Furthermore, the effect size was calculated using the Hedges' g formula. Hedges' g was chosen because the number of samples in the two groups was different. For the interview result, the researchers narrated them in terms of excerpts.

IV. FINDING

This study aimed to investigate two research questions, (1) the difference of young learners' literacy being treated with a digital dictionary and printed dictionary and (2) learners' responses towards the implementation of digital and printed dictionaries. Thus, in this section, the researchers explain the study findings, including the descriptive statistical analysis result on learners' literacy score, the data normality and homogeneity tests results, and the inferential statistical analysis using an independent t-test. Then, it is followed with the calculation of the effect size and the student's responses on the implementation of the digital and printed dictionaries.

The Difference of Young Learners' Literacy being Treated with a Digital Dictionary and Printed Dictionary

A. Descriptive Statistical Analysis Result

The descriptive statistical analysis shows that the students who learned using a digital dictionary had better literacy scores than those who learned using a printed dictionary. It can be seen from the literacy test mean scores of those two groups of students. For those who learned using a digital dictionary, their literacy test mean score was 85.1, while for those who learned using a printed dictionary, it was 77.28. In addition, the students who learned using a digital dictionary got a better result than those who learned using a printed dictionary that can be identified from the minimum and maximum scores they achieved. The detailed results of the descriptive statistical analysis of the two groups are displayed in Table 1.

TABLE 1
DESCRIPTIVE STATISTICAL ANALYSIS RESULT

| N | Digital Dictionary | | Printed Dictionary | |
|----------------|--------------------|---------|--------------------|---------|
| | Valid | Missing | Valid | Missing |
| | 30 | 0 | 29 | 1 |
| Mean | 85.10 | | 77.28 | |
| Median | 85.00 | | 76.00 | |
| Mode | 79.00 | | 80.00 | |
| Std. Deviation | 4.67 | | 4.06 | |
| Variance | 21.81 | | 16.49 | |
| Range | 15.00 | | 16.00 | |
| Minimum | 78.00 | | 70.00 | |
| Maximum | 93.00 | | 86.00 | |

B. Prerequisite Tests

Before the researchers analyzed the data using an independent t-test, they carried out prerequisite tests that included normality and homogeneity tests. The normality and homogeneity test results are presented in Table 2 and Table 3.

TABLE 2
NORMALITY TEST RESULT

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|--|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Digital Dictionary | .104 | 29 | .200* | .946 | 29 | .140 |
| Printed Dictionary | .141 | 29 | .149 | .959 | 29 | .308 |
| a. Lilliefors Significance Correction | | | | | | |
| *. This is a lower bound of the true significance. | | | | | | |

Table 2 shows that the data from the two groups of students were normally distributed. It can be seen from the Kolmogorov-Smirnov and Shapiro-WilkSig. The values of the two groups were > 0.05 . In addition, the data were also proved homogenous from the result of the homogeneity test. It can be identified from the Sig. The value of the homogeneity test was > 0.05 , as shown in Table 3.

TABLE 3
HOMOGENEITY TEST RESULT

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| .815 | 1 | 57 | .370 |

When the data have been verified normal and homogenous, the researchers continued the analysis to the independent t-test analysis. The analysis results demonstrate that the learners' literacy scores of the two groups were significantly different. It can be observed from the Sig. (2-tailed) values of the independent t-test result that was < 0.05 .

TABLE 4
INDEPENDENT T-TEST RESULT

| | | t-test for Equality of Means | | | | | | |
|----------------|-----------------------------|------------------------------|--------|-----------------|-----------------|-----------------------|---|----------|
| | | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | Lower | Upper |
| Literacy Score | Equal variances assumed | -6.856 | 57 | .000 | -7.82414 | 1.14113 | -10.10921 | -5.53906 |
| | Equal variances not assumed | -6.873 | 56.381 | .000 | -7.82414 | 1.13840 | -10.10429 | -5.54399 |

The descriptive statistical analysis and the independent t-test analysis confirm that the digital dictionary was better than the printed dictionary in helping the learners get higher scores in literacy tests. To identify how large was the effect that the digital dictionary had compared to the printed dictionary, the researchers also performed effect size analysis using Hedges'g effect size analysis. The size effect analysis confirms that the digital dictionary had a large effect on the students' literacy scores. It was justified by the Hedges'g size effect that was > 0.8 . According to Cohen (1998), if the size effect $is \geq 0.8$, it will be categorized into a large effect (see Table 5). The calculation of the effect size using Hedges' g formula is presented in the following calculation:

$$\text{Hedges' } g = \frac{(M_1 - M_2)}{SD^*_{pooled}}$$

$$\begin{aligned} \text{Hedges' } g &= \frac{(85.1 - 77.28)}{4.380977} \\ &= 1.78499 \end{aligned}$$

TABLE 5
EFFECT SIZE CATEGORY

| Values | Category |
|--------|---------------|
| 0.2 | Small Effect |
| 0.5 | Medium Effect |
| 0.8 | Large Effect |

C. The Learners' Responses Towards the Implementation of Digital Dictionary and Printed Dictionary

The students' responses on the implementation of the digital and printed dictionaries were viewed from the criteria of good learning media. Five criteria were used to evaluate the two dictionaries. Those criteria were appropriateness, accuracy, currency, clarity, and presentation (Tan & Wong, 2004). The comparison of the students' responses on the digital and printed dictionaries is described in Table 6.

TABLE 6
THE COMPARISON OF STUDENTS' RESPONSES ON DIGITAL AND PRINTED DICTIONARIES

| No | Aspect | Score | |
|---|---|---------|---------|
| | | Printed | Digital |
| 1. | APPROPRIATENESS | | |
| | Match the characteristics of students | 5 | 5 |
| | Compatible with the availability of school facilities | 5 | 5 |
| 2. | ACCURACY | | |
| | The material is in line with the curriculum (what students should learn) | 5 | 5 |
| 3. | CURRENCY | | |
| | The media used is following technological developments | 3.93 | 4.93 |
| 4. | CLARITY | | |
| | The material is presented clearly | 4.93 | 4.93 |
| | The difficulty level of the material matches the student's level | 4.93 | 4.93 |
| 5. | PRESENTATION | | |
| | Text | | |
| | The size and type of text is appropriate so that it is easy to read | 5 | 4.93 |
| | Graphic | | |
| | Use pictures, diagrams, photos, or graphs that support the material explanation | 5 | 5 |
| | Use simple pictures, diagrams, photos, or graphs to avoid bias | 5 | 5 |
| | Use pictures, diagrams, photos, or graphs that attract students' attention | 4.93 | 4.93 |
| | Color | | |
| | Use of appropriate and harmonious composition, combination, and resolution of colors | 4.93 | 4.93 |
| | The colors used can attract students' attention to the important information to be conveyed | 4.93 | 4.93 |
| | The color combination used makes learning fun | 4.86 | 4.93 |
| | Audio | | |
| Provide audio that supports the explanation of the material | 1 | 5 | |

Based on the questionnaire result, it was discovered that the implementation of a digital dictionary was better in two aspects compared to a printed dictionary. They were in the currency and presentation aspects. The researcher interviewed the students to further confirm why the students gave a lower score in those two aspects for the printed dictionary. The interview result revealed that the students preferred to use the digital dictionary than the printed dictionary. They all stated they liked the digital one better because it was not heavy, not easily torn out, and lost. The experimental groups also agreed on the importance of oral pronunciations provided in digital dictionaries.

S3 : If it is on a smartphone and laptop, it is easier, not easily torn out and lost.

S8 : Better digital dictionary, it is not heavy to bring.

S2 : I like a digital dictionary because there are pronunciations of words.

S12 : It is easier to find a word I want using a digital dictionary.

S5 : I like to study using a smartphone. I just need to click it.

Being further questioned on how to make them speak English, they all affirmed that vocabulary is essential in learning. They realized that having a lot of English vocabulary will help them communicate in English. Below are their responses.

S1 : It is very important to have a lot of vocabulary so that we can speak English.

S7 : Yes, without vocabulary, I cannot speak English.

S13 : With a lot of vocabulary, I can speak English.

When asked about their opinion of using dictionaries in learning English, they agreed that a dictionary is important to build their understanding of the meaning of words. Below is the excerpt of their answers.

S10 : Yes, a dictionary is very important because it helps me understand the meaning of words.

S14 : I like the dictionary in different languages because it is easier to understand the meaning of words.

S4 : English words are difficult, so I like to use a dictionary to find the meaning in *Indonesian and Balinese*.

Being questioned about the pictures in the dictionaries, they all responded that they loved the use of colorful pictures, which made them more interested in learning words, as described in the excerpts below.

S1 : I love the pictures in the dictionary. It is fun. I like to study English, then.

S6 : I like there are colorful pictures. It is easier to understand the words.

S15 : It is better with pictures, it is interesting and makes the lesson easier.

V. DISCUSSION

This research aims to justify whether or not there is a significant difference in young learners' literacy after being treated with different types of dictionaries in the learning of words and sentences and to analyze the effect size of the treatment. To answer the first question, the descriptive and inferential statistics that have been conducted have justified

that there is a significant difference in the young learners' literacy after they were taught with the help of the different dictionaries.

The experimental group, which was treated with a digital dictionary, outperformed the students from the control group. The mean score of the experimental group was 85.10, while the control group was 77.28. This finding indicates that the digital dictionary is more effective in helping students improve their literacy skills. This finding was supported by the results of some studies that found technology involvement could indeed enhance the quality of the instruction (Agustini et al., 2019; Al-Amin et al., 2021; Azubuike et al., 2021; Piper et al., 2016; Zin et al., 2013).

In particular, the technology employed in this study was a digital dictionary, which helps young learners be more interested in their learning of English. Those students were more attracted to the use of technology because they were the generation Z born in 1995-2012 (Pichler et al., 2021; Sakdiyakorn et al., 2021), who cannot be separated with mobile devices (Ozkan & Solmaz, 2015; Sunday et al., 2021). This generation normally spends many hours on their smartphones and is competent in using technology (Andr Busch & McCarthy, 2021; Jaciow & Wolny, 2021). Thus, they were very happy to learn with technology devices.

In this study, the students' literacy was demonstrated from their ability to answer the test consisting of two parts: vocabulary and sentences. This finding strengthens Putra (2020) and Ganesis (2019) that the use of dictionary makes students could remember more vocabulary so that they possess better literacy skills. Their vocabulary development affected their ability to understand sentences which were revealed from the test result designed in the form of reading skills. Henceforth, it is congruent with Alqahtani (2015) and Patesan et al. (2019).

Regarding the achievement of the mean scores, both groups were not far apart. The students in the control group obtained a good category (77.28), while those in the experimental group possessed a very good category (85.10). This signifies that the two types of dictionaries help students learn vocabulary to build their language. Regardless of the types, the dictionaries help them master the vocabulary to use the language (Faraj, 2015; Nasri et al., 2015; Wulandari et al., 2021). Provided with the meanings of vocabulary in different languages (Indonesian and Balinese), the students can develop their knowledge of the words of the searched vocabulary (Tulgar, 2017).

The interesting finding from this study is that both dictionaries consisted of pictures to visualize the words with the example of the use of words in the context of sentences. The result indicates that the young learners are more captivated with the digital dictionary than the printed ones. Some previous studies also confirmed that the digital dictionary is more attractive than the printed dictionary (Filer, 2017). Apart from being easy and more flexible to use (Miagah & Nezarat, 2012; Nasri et al., 2015), this research finding corroborates the previous ones that the use of e-dictionaries was verified to have a better impact on students' reading and vocabulary skills while they were reading the text (Alharbi, 2016). They can build up their learning motivation when the media used is the digital one, which is more pertinent to their life as generation Z students who are more apt with technology use in education and they are perfectly good in almost all digital devices and are unable to live without these devices (Dashtestani, 2013; Takács et al., 2016). They will be more motivated and learn better when current technology is integrated with the learning process, and teachers give them a chance to learn at their own pace (DiMattio & Hudacek, 2020; Seibert, 2021). In addition, the use of mobile devices for learning has been proven to have a positive effect on students' achievement (Sung et al., 2016).

This resulted in the effect size, which established a large effect, meaning that the use of digital dictionaries highly affected the students' literacy skills. The finding of this research also confirms Ratminingsih and Budasi (2019) that digital media was more effective than printed one to improve the students' English achievement. Besides that, it is worth noting that the digital dictionary is equipped with the audio of pronunciation in three different languages. This might be the reason for the difference in their literacy, as Tulgar (2017) stated that the dictionary provides not only the meaning of vocabulary item but also pronunciation, which helps students use the language appropriately, either written or oral. It is consistent with Ratminingsih and Budasi (2019) that combining pictures, texts, and sound effects brought differences. It also corresponds with Wulandari et al. (2021) that good literacy skills enable students to understand, create, and communicate information in oral or written form.

VI. CONCLUSION

Based on the study results, two major things can be concluded. First, there is a significant difference in the effect of digital and printed dictionary implementation on the young learners' literacy. This study confirms that a digital dictionary has a better impact on the students' literacy. The effect size also affirms that it is large, which signifies that the different treatment impacts literacy. Second, the students have positive responses towards the use of both dictionaries. However, the digital dictionary works better because it fits the young learners' characteristics and is a suitable learning medium for young learners, who are the generation Z that cannot be separated with digital devices. Specifically, they believed that the digital dictionary were better in the currency and presentation aspects. Since this study only involved a small number of samples, a further study needs to be conducted to get a more valid result that can be generalized to a larger population.

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