Enhancing Medical Record Students' Accessibility in Learning Medical Vocabulary Materials with A Web-Based Application

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ABSTRACT
The rise of online learning during the pandemic era has changed the educational field. Through e-learning, learning is no longer limited by space and time. In respond to significant demand, many free online learning platforms emerges in supporting teaching and learning in the virtual classroom. Realizing this phenomenon and based on the needs of the students, the researchers conducted a study aimed at enhancing students' access in learning medical vocabulary materials through a web-based application, namely Wix-Site. The research design was R&D, with five steps or stages namely need analysis, studying recent theories, developing the product, validating the product to experts, and field testing the product. The subject in this study was medical records students on the first semester in the 2020/2021 academic year. The data collection method was implemented by distributing questionnaires to the students and then analyzed quantitatively. Finding of this research indicated that the implementation of the Wix-site as a means to facilitate students' access in learning English medical vocabulary was considered effective.
Keywords: vocabulary, medical records, web-based application, pandemic era

INTRODUCTION

Nowadays, technology has a very important role in education as the medium to provide easy access to learning. As stated by Husaini (2014:3), the use of technology in the field of education has important meaning especially in the framework of equality education and improving the quality of education. A form of information technology that applied in the field of education in virtual form was called as e-learning (Onno W. in Husaini, 2014). Lutfiana (2019:16) affirmed that e-learning divided into several types such as computer-based learning, internet-based learning, and web-based learning. Through e-learning, learning is no longer limited by space and time that can be accessed anywhere and anytime.

The Covid-19 has unceremoniously thrusted the developing of online learning in educational field. Numerous online learning platforms emerges in supporting teaching and

learning in the virtual classroom including web-based learning application. It replaces desktop applications and emerges as a pivotal media in all areas around the world including in educational field. One of the web-based application used for learning is called Wix-Site. Wix-site is an internet service that provided a flash-based website builder (Hariyadi, 2011:5). It has a number of advantages, as revealed by Arata (2019:5), as one of websites that offers an easy access for users to customize with an attractive appearance, a simple site management, a fairly stable and fast performance. Moreover, with this web application, it is not necessary for users to install additional software. It can be accessed from all gadgets, such as smartphones, laptops or computers as it will run on a user's browsers no matter what operating system is installed. Hence, it can be used as a tool to assist and stimulate learning process.

In term of learning EFL, vocabulary is one of English components to master. Takac in Basuki (2017:13) defined vocabulary as a dictionary or a set of words. Cameron in Alkaftani (2015) stated that vocabulary as one of the knowledge areas in language, plays a great role for learners in acquiring a language. Indeed, vocabulary represents the basic for development of all other skills, they are listening, reading, speaking, and writing. When talking to native speakers, watching western movies without subtitles, listening to English songs, reading English books, journals, or news, people always need words to get engaged, to express and to understand. Using the right words when talking makes people more effective communicators. Indeed, vocabulary is the main tool for students in their attempts in using English effectively. In a nutshell, mastering vocabulary is one of the most important skills necessary for teaching and learning a foreign language.

According to curriculum used in the medical records study program of IIK Bhakti Wiyata and referred to the Association of Indonesian Higher Schools of Medical Records and Health Information Management (APTIRMIKI), English is compulsory subject that must be taken by the medical records students for at least one semester. According to the result of the questionnaire distributed to the medical records students of IIK Bhakti Wiyata on the first semester in the 2020/2021 academic year, most of students had a limited access in learning medical English vocabulary. During this pandemic era, students only got the source of references and materials from PowerPoint media shared by lecturers. They found difficulties in accessing more English vocabularies related to their background of knowledge in medical records. They felt the need of resources that could be accessed anytime and anywhere and supported the learning process. They needed a friendly and helping tool or media to promote their accessibility in learning medical English vocabulary materials. Considering the background above, in this study, the researchers utilized a web-based application namely vocabulary Wix-site as a learning media to assist medical records students in achieving their needs especially in learning medical English vocabulary materials related to their background of knowledge. This study emerged with a problem statement that how was the development of vocabulary Wix-site to enhance medical records students' accessibility in learning medical English vocabulary materials in IIK Bhakti Wiyata Kediri thus resulting the ability of the students to learn English every time and everywhere without using a book.

LITERATURE REVIEW

Facing the Covid-19 pandemic, most institutions switched from in-person teaching to remote instruction including in educational sectors. Schools and even universities around the world brought their students back with online learning or e-learning. Onno W. in Husaini (2014:4) stated that e-learning was a form of information technology that applied in the field of education in virtual form. Through e-learning, there was no limited space and time in learning. While Horton in Umar (2012:8) stated e-learning was any use or use of internet and web technology to create learning experiences. As stated by Lutfiana (2019:16) e-learning is divided into several types such as computer-based learning, internet-based learning and web-based learning. In short, e-learning was a form of information technology that applied in virtual form to create learning experiences with no limitation in space and time.

One of the types of e-learning is web-based learning. Lutfiana (2019:16) stated that it is a system or process for carrying out distance learning activities through web applications and internet networks. Although in principle web learning can run in the local area (LAN), but web-based learning is an embodiment of efforts to develop e- learning with web-based. The difference between web-based learning and other web information was in the process of interaction between students and teachers or between students themselves. Lutfiana (2019:19) added some advantages of e-learning for students and teachers. Through e-learning, the development of the product may optimize student learning flexibility, where students can access learning materials at any time and repeatedly. Students can also communicate with the teacher any time. Meanwhile, for teachers, it is easier to update learning materials which their responsibilities by the demands of scientific development that occur. Teachers develop themselves to conduct research to increase insight because they have more relaxing time, controlling students' learning habits. They check whether students work on practice questions after studying a particular topic, the students' answers and the results as well.

In addition, one of the web-based application used for learning is called Wix-Site. Wix-site is an internet service that provided a flash-based website builder (Hariyadi, 2011:5). It has a number of advantages, as revealed by Arata (2019:5), as one of websites that offers an easy access for users to customize with an attractive appearance, a simple site management, a fairly stable and fast performance. Moreover, with this web application, it is not necessary for users to install additional software. It can be accessed from all gadgets, such as smartphones, laptops or computers as it will run on a user's browsers no matter what operating system is installed. Hence, it can be used as a tool to assist and stimulate learning process.

Learning vocabulary is a significant part of learning a language. Most learners believe that mastering vocabulary is a must, and thus they spend most of their time on learning new words and expressions. Further, vocabulary is seen as an important component of language. Thornbury in Basuki et.al (2018:123) strictly argues that without grammar very little can be conveyed, without vocabulary nothing can be conveyed. In addition, Allen in Basuki et.al (2018) states, experienced teacher of English as a second language know very well how important vocabulary is. They know students must learn thousands of words that speakers and

writers of English use. Thus, vocabulary is very important; it is as the core of language complexities and as a starting point of those who are learning a new language.

However, learning vocabulary is not easy. The vocabulary materials must be selectively chosen whether it is to acquire a specific and or general target of language learning or others. For medical record students, for example, according to curriculum referred to the Association of Indonesian Higher Schools of Medical Records and Health Information Management (APTIRMIKI), English is compulsory subject that must be taken by the medical records students for at least one semester and the materials should meet the needs of the students and related to their background of knowledge in medical records. In respond to this

RESEARCH METHOD

Research design in this study was a research & development (R&D). As Gall et al. in Basuki et al. (2017: 124) stated that education R & D is an industry-based development model whose results were used to create new products and procedures, which are then tested, evaluated, and refined to meet criteria of effectiveness, quality, or similar standards. In addition, Sugiyono (2017) confirmed that this method was used to produce new products and try the effectiveness of products that had also been produced for many people. In this study, the researchers used R&D method to develop a web application called medical vocabulary Wix-Site that would be interesting and beneficial for medical records students. It was intended to solve the problem in learning and understanding medical English words and terminologies. To develop teaching media in this research, the researchers took five steps adapted from Latief in Basuki et.al (2017:124), they were need analysis, studying recent theories, developing the product, validating the product to experts, and field testing the product.

The first step was conducting a need analysis. This stage aimed at collecting relevant information according to the needs of the students. To collect the students' needs, the researchers distributed a questionnaire to the medical records students to collect information about their needs and analyzed them based on the data. The second step was studying recent theory of the product. Referring to the theory conducted in the research development and its product development, it was necessary to review the related and supported theories. The researchers studied some theories about R&D, e-learning, teaching vocabulary and web application. In this section, the researchers used Wix-site for manual users. The next step was developing the product. This step was based on the need analysis and studying recent theories. In this stage, the researchers developed the prototype of medical vocabulary Wix-site, by drafting the product, collecting the material, developing the product, and polishing the product. After developing the product, the researchers validated it to the expert to perceive whether the product was proper or not. The validity of this product was carried out by the expert of material and media. The researchers then distributed questionnaires to the expert to ascertain the revisions or additions. The last step was field testing the product. In this stage, the researchers used an experimental research to test the effectiveness of vocabulary Wix-site as the learning media. The researchers made an observation on how the students' responses to the tested product and distributed a questionnaire to the students to get more specific information.

The researchers conducted this research at IIK Bhakti Wiyata Kediri with 97 medical records students on the first semester in the 2020/2021 academic year as the population of this study. Sampling for research, according to Arikunto (2010: 112), if the subject is less than 100 people should be taken altogether, if the subject is large or more than 100 people can be taken 10-15% or 20-25% or more. However, the researchers used a nonprobability sampling technique namely purposive sampling. Purposive sampling was the determining sample technique with certain considerations (Sugiyono (2017:124). Researchers' reasons for selecting samples using purposive sampling indicated those who had minimum scores in English medical vocabulary test and faced some problems using English medical vocabularies. The researchers determined 26 students as the sample of this research; 18 females and 8 males.

According to Sugiyono (2017: 224) data collection techniques are a strategic step in research because the main purpose of the research is to obtain data. In this research, the researchers used quantitative data, and those data collected by using questionnaires. The researchers distributed questionnaires three times. In need analysis step, the researchers used a questionnaire to know the student's needs. In the field-testing the product, the researchers used pre-questionnaire and post-questionnaire to know the students' opinions in perspective before and after applying the product. These questionnaires were in the form of open-closed questionnaires, indicated "strongly disagree, disagree, neutral, agree, and strongly agree" questions scale. It consisted of some questions to know the student's needs and their responses after using this product.

Data questionnaire analyzed by using a quantitative way. The data is going to analyze by using the Likert scale and the Guttman scale. First, the Likert scale is constructed by assembling a large number of statements about an object, approximately half of which express a favorable attitude and half of which are unfavorable (Ary, 2010:209). Second, Guttman scales are another way of determining how the items are behaving to one number (Kline, 2005:42). Each item of the Likert scale is scored as follows:

Table 1. Likert scale

Interpretation	Score
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly agree	5

The questionnaire was given to 26 students. Then, calculating the score range for each set of questionnaires as follows: maximum score 15 x 5 x 26 = 1950, minimum score 15 x 1 x 26 = 390, score range 1950 – 390 = 1560. The criteria of score interpretation of each questionnaire set and the continuum diagram for the score interpretation is presented as follows.

Table 2. Criteria of Score Interpretation

Interpretation	Score

Strongly disagree	1950 – 1560
Disagree	1559 – 1169
Neutral	1168 – 778
Agree	777 – 391
Strongly agree	390

| Strongly agree | Agree | Neutral | Disagree | Strongly disagree |

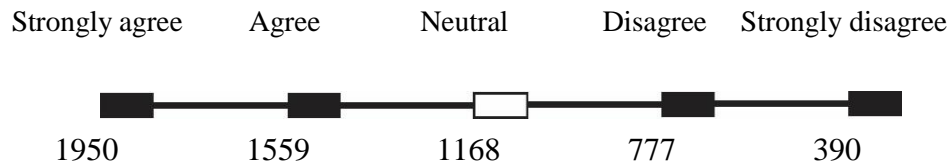| 1950 | 1559 | 1168 | 777 | 390 |

Figure 1. Continuum Diagram

According to Sugiyono (2017: 121) Validity Test is the accuracy between the data collected and the data that occurs on the object under study. The test technique used is the correlation technique through the product-moment correlation coefficient. The ordinal score of each question item tested for validity is correlated with the overall item ordinal score, if the correlation coefficient is positive, then the item is valid, whereas if it is negative then the item is invalid and will be excluded from the questionnaire or replaced with a statement of improvement. Product Moment Correlation Formula:

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\, n\Sigma x^2 - (\Sigma x)^2\,][\, n\Sigma y^2 - (\Sigma y)^2\,]}}$$

Where:
rxy = the correlation index between two correlated variables
r = the coefficient of the validity of the items sought, two variables which is correlated
x = score for the selected statement

y = total score obtained from all items

ΣX = number of scores in distribution X
ΣY = number of scores in the distribution Y
$\Sigma X2$ = number of squares in the distribution score X
$\Sigma Y2$ = number of squares in the distribution score Y
n = number of respondents

To obtain a significant value, a correlation test is performed by comparing the r count with r table. The t-test formula is performed asfollows:

$$t\ hitung = \frac{b}{Sb} \qquad atau \qquad t\ hitung = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

169

The decision on testing the validity of the respondent's items is as follows:

1. The value of r is compared with the value of r table with dk =n-2 and a significance level of 5%
2. Statement items examined are said to be valid if r Calculate> rTable
3. Statement items examined are said to be invalid if r Calculate <r Table

Furthermore, Arikunto (2010:109) mentioned that a measurement instrument is reliable if its measurements are consistent and meticulously accurate. The instrument's reliability test is done to know the consistency of the instrument as a measure. The results of a measurement canbe trusted. The formula used to test the reliability of the instruments in this study was to be able with the SPSS test or by the formula. Instrument Reliability Test in this research author using the SPSS test. The following is the formula of the (α) of the Cronbach Daro;

$$r_{11} = \left[\frac{n}{n-1}\right]\left[1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right]$$

Where;

$$\sigma^2 = \frac{-\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

r_{11} = sought of reliability
n = how many items
$\sum \sigma i^2$ = number of variances of each itemσt^2
       = total of variance
N   = number of respondents

The conclusion criterion is, if the calculated value is greater than the value, then the instrument is said to be reliable.

RESULT AND DISCUSSION

a. Finding of need analysis

Before distributing a need analysis questionnaire, the researchers conducted validity and reliability test to get valid and reliable instruments. In validity, all items of need analysis were declared valid (>0.38) with the value of 2nd (0.525), 3rd (0.393) and 13th (0.520) items were considered low. The value showed in the Alpha Cronbach table is 0.916 which means reliability and considered good (> 0.911). There were 15 statements on the questionnaires. The following continuum diagram showed the score range and interpretation of each item score. Meanwhile, the students' need analysis questionnaire

result obtained data as follow; maximum score (15x5x26) = 1950, minimum score (15x1x26) = 390, score range (1950-390) = 1560, total score = 1456.
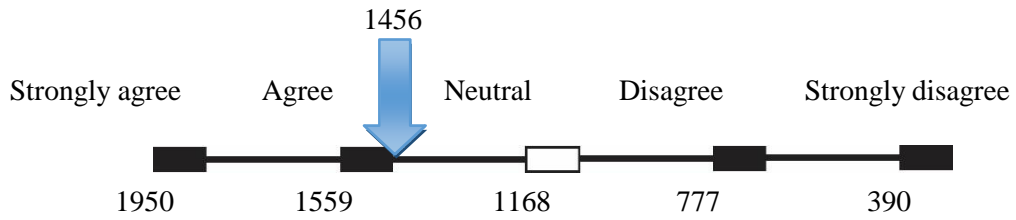

Figure 2. Continuum diagram of students' need analysis

b. Finding of product development

This product is Vocabulary Wix-Site. The development of this product was based on some steps including the finding on the need analysis, studying recent theory of R&D, e-learning, teaching vocabulary, and Wix-site for manual user. The material product development of this research was inspired by many sources, such as vocabulary books, handbook from lecturer, and the internet.
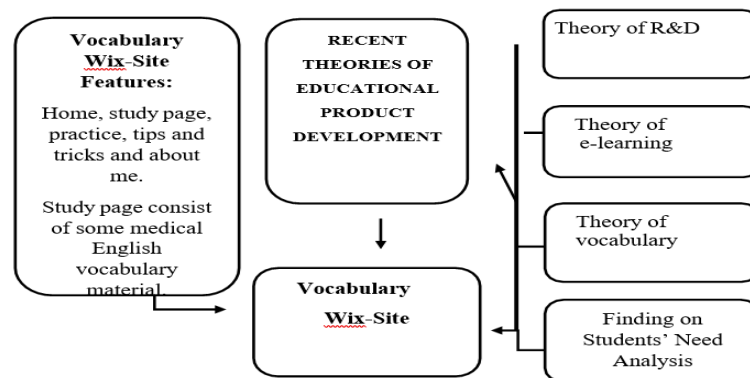

Figure 3. Characteristics, contents, and features of the product

c. Finding of Validating to Expert

After the product was developed completely, the researchers consulted the product to the expert of English language learning media to get evaluation and suggestions for an acceptable product through a website link. The expert gave an evaluation and a judgement, she argued that the product was good enough yet it needed some revisions. The researchers gave the website link twice on the different days. On the second validation, the expert accepted the product after the researchers revised it based on her suggestions. After that, the researchers continued to the next step, field testing the product to the subject.

Table 3. Product Comparison Before and After Validating to Expert

Before	After
Correct the grammar	Change the illustration into "English"
Some fonts unsightly	since your target is English
Adding more illustration	students.

d. Finding of Field Testing the Product

Before distributing the students' feedback questionnaire, the researchers conducted validity and reliability test to get valid and reliable instruments. In validity, all items of need analysis were declared valid (>0.38) with the value of 5th (0.741), 10th (0.642) and 13th (0.646) items were considered low. The value showed in the Alpha Cronbach table is 0.943 which means reliability and considered good (> 0.942). There were 15 statements on the questionnaires. The following continuum diagram showed the score range and interpretation of each item score. Meanwhile, the students' need analysis questionnaire result obtained data as follow; maximum score (15x5x26) = 1950, minimum score (15x1x26) = 390, score range (1950-390) = 1560, total score = 1722.

1722

Strongly agree Agree   Neutral   Disagree   Strongly disagree

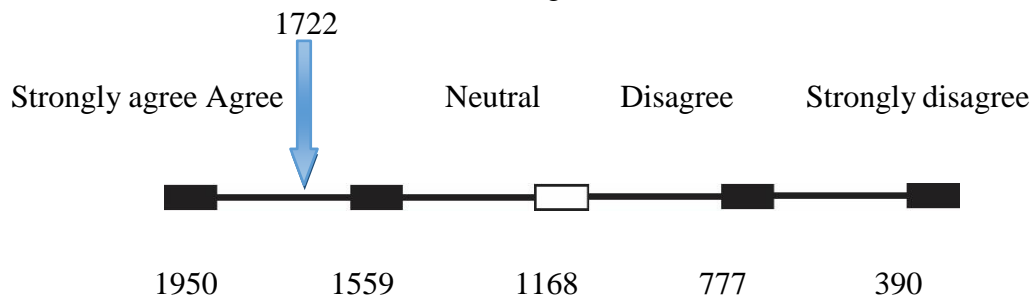1950   1559   1168   777   390

Figure 4. Continuum Diagram of Students' Field Testing

Pretest and posttest were the steps between the need analysis and field testing in utilizing Vocabulary Wix-site to promote students' learning accessibility. It was used to know how effectively the product before and after the treatments. Before giving the student pretest and posttest, the researchers conducted validity and reliability test to get the valid and reliable instruments. In validity, all items of need analysis were declared valid (>0.338) with the value of 4th (0.398), 6th (0.328) and 9th (0.357) items were considered low. In reliability test, the value showed in Alpha Cronbach table is 0.571 which mean reliable and considered average (> 0.567).

Based on the interpretations of students' pretest on experimental group, the pretest consisted of 15 questionnaires. From the 13 students of experimental group, the highest score was 52 and the frequency was 1. The highest score showed one student who has problems in learning medical English vocabularies. While the minimum score was 34 with the frequency also 1. Meanwhile, the mean was 46.7; median: 48 and

modus 48 with 17.8 standard deviation. In short, from the pretest on the experimental group, there was many students who unable to get learning access properly. Meanwhile from the interpretations of students' pretest on control group, the pretest consisted of 15 questionnaires as well. From the 13 students of the control group, the highest score was 54 and the frequency was 1. The highest score showed that one student who problems in learning vocabulary. While the minimum score was 41 with the frequency also 1. Meanwhile, the mean was 48.6; median: 49 and modus 49 with 17.8 standard deviation. In short, based on the pretest on the experimental group, there were many students who unable to get learning access properly yet the control group was better than the experimental group.

According to the interpretations of students' posttest on experimental group, the exercises consisted of 15 questionnaires. From the 13 students of experimental group, the highest score was 55 and the frequency was two. The highest score showed that there were two students who could access the learning resource easily. While the minimum score was 45with the frequency 4. There was only a little gap of the ability of each student to access the learning resource. Meanwhile, the mean was 50; median: 52 and modus 45 with 5,25 standard deviations. In short, from the posttest on the experimental group, most of the student could access the learning resource with vocabulary Wix-site. Meanwhile from the interpretations of students' posttest on control group, the exercises consisted of 15 questionnaires. From the 13 students of control group, the highest score was 75 and the frequency was 1. The highest score showed that there was one student who could access the learning resource easily. While the minimum score was 57 with the frequency1, the mean was 48.6; median: 49 and modus 49 with 5,25 Standard Deviation. It could be concluded that from the posttest on control group, some of the student could access the learning resource with vocabulary Wix-site.

The researchers, then, conducted a T-test for pretest and posttest experimental groups. It was used to find out how far the improvement of students' learning accessibility after using vocabulary Wix-site. Based on the paired sample statistics on the experimental group, it indicated that the value of mean in the posttest was higher than the pretest. It could be seen from the mean score, pretest showed 46.7 while the score had been increased 50 in posttest. Beside the paired statistics, it was also tested on paired sample t-test for experimental group to know the significance value of the pretest-posttest.

Based on the research finding explained above, the discussion of thefindings on this research were elaborated as follows. The developed product of this research was vocabulary Wix-site that had several features such as study page and practices, and was in line with the students' need. In developing the product, the researchers took five steps that were in line with expert explanation: need analysis, studying recent theories of education product development, developing the educational product, validating the product to expert and field-testing the product. Meanwhile, to conduct

the research, the researchers used quasi experimental with pretest before field testing and posttest after field testing. Meanwhile, there were inabilities in conducting this research. First, the researchers were unable to explain directly and provided a demo about how to use Vocabulary Wix-site to students, it made the students get difficulties to operate some features. Second, since distributing the questionnaires via online, it took time to get students' responses to fill out the questionnaires

CONCLUSION

The outcome of this study was Vocabulary Wix-site. The researchers adapted research procedure from Latief in (Basuki, 2017:124) with five steps conducted to create a developed product as a media in this research. In need analysis stage, the researchers found that the students got lack of learning accessibility. There were some learning resources but they could not get that opportunity because of lack of tools and media. Furthermore, the researchers studied recent theories to conduct a media that could promote students' learning accessibility. In field testing step, the researchers found there were significant score from pretest and posttest. It can be proven that Vocabulary Wix-site could enhance medical records students' learning accessibility. There were some suggestions for people who expected to get some benefits of this research. For lecturers who already had their own coursebook of their subject it was better to create or utilize website as a media, it can help you and your students to access the lesson anytime and anywhere. For next researcher who might use the research finding of this study as the information and reference for their research, it was suggested to develop another web-based application to support teaching and learning process.

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