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by Degita Danur Suharsono

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Developing English Learning Application Model for Vocational High School Students

Gullit Tornado Taufan*¹, Degita Danur Suharsono², Mushthofa Kamal³

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^{1,2,3}*Language, Communication, and Tourism Department*
Politeknik Negeri Jember, Indonesia

*Corresponding email: gullittaufan@polije.ac.id

Abstract

This is a research and development (R&D) with the aim of developing a vocational-themed English application model for SMK in Jember. There were three steps carried out to complete this study including categorizing the areas of expertise offered at State Vocational Schools (SMKN) in Jember, analyzing the use of information technology in learning English at SMKN in Jember by distributing questionnaire to the English teachers and interview, and designing a vocational-themed English learning application model. The result of the study is a model of an Android-based application for English learning specific for SMK under seven vocational expertise fields covering four English skills and two components. Those are reading, listening, writing, and speaking. Moreover, the application also covers grammar and vocabulary materials specific for SMK students. The application model is the basis of developing the prototype of the vocational-themed English learning application. From the model, an English learning application which is specifically designed for students of vocational high schools can be created based on 7 areas of expertise, as found through the study, including: 1) Technology and Engineering, 2) Information and Communication Technology, 3) Agribusiness and Agro-technology, 4) Maritime Affairs, 5) Business and Management, 6) Tourism, and 7) Arts and Creative Industries.

Keywords: *Educational Application model, Vocational High School (SMK), Vocational Education Technology, English Learning for Vocational Students*

1. Introduction

Rapid development of technology has had an impact on various sectors of life including the education sector. In fact, technology has become entity that cannot be separated from the world of education where teachers, students, policymakers, and any individuals or parties who have an interest in educational development are required to include technology as an important part that promises various benefits. The use of technology in language learning has attracted attention in recent years. Shrestha (2014), for example, explained that technology provides great opportunities for language learners to

communicate with the outside world. This allows learners to engage in meaningful and tangible activities with other technology users according to their daily needs. Thus, teachers are expected to be able to use technology creatively to support teaching and learning activities.

In line with the explanation above, Kervin and Derewianka (2011) stated that the virtual world, which refers to the internet-based 'life', offers various potentials and opportunities for language learners to enrich their scientific treasures in a realistic, social, and immersive way even though most of the resources that can be accessed via the internet are not specifically designed as language learning materials. Therefore, utilizing those potentials is beneficial, especially, due to the fact that most language learners are those who are considered as digital natives. It means that the language learning and acquisition will be quite favourable and natural for the learners.

What makes this discussion very important to get more attention is that today's technological developments are much more sophisticated than before. The logical consequence of this is that the potentials described above are even greater, especially in language learning. For instance, Saraswati et al. (2021), who conducted a study on the use of Mobile-Assisted Language Learning (MALL) using Duolingo, found that the platform could help students increase their motivation and attitudes in learning English in autonomous contexts. In addition, it is also reported that students also show positive perception and attitude toward the use of mobile-based learning platforms to support their learning activities inside the classroom (Yudhiantara & Nasir, 2017). This means that the online platform is potential to help students learn the language both inside and outside the classroom.

Recent data shows that internet users, especially in Indonesia, are steadily increasing. This illustrates that more and more people are digitally literate. Today, almost everything can be accessed online. Based on a report by the Indonesian Internet Service Providers Association, in the period of 2019-2020, there were 196.71 million internet users in Indonesia or 73.7% of the total population of the country. This shows a fairly large increase when compared to a survey conducted in 2017 by the same institution with the number of users reaching 143.26 million people (Indonesia Internet Service Provider Association, 2020).

Of the total internet users reported above, the majority of users are between the ages of 20-34 years which covers around 37.8%. Meanwhile, users among children and adolescents are in the range of 15.1% of the total users. From the percentage above, it can be concluded that the largest internet users in Indonesia are young people and some of them are currently studying at primary, secondary, and higher education. It means, most of the users are the ones who are actively learning, to certain extent, language as a part of their formal education.

Regarding the devices used by users to access the internet, 73.2% stated that they had never accessed the internet using a desktop computer (PC), 63.1% had never accessed the internet using a laptop, and 95.4% accessed the internet every day using cell phones. This shows that most internet users in Indonesia rely on their smartphones to surf in cyberspace. The data also shows that the rapid development of mobile-based applications, including foreign language learning applications, is a necessity that cannot be denied.

In line with the trend of using cellular phones among people, various studies in the field of the use of information technology in the field of language remain a hot topic for researchers to discuss. However, the use of information technology can, of course, also be done using other devices such as desktop computers or laptops.

Chen (2016) conducted research on language learning mobile apps available on the App Store (iOS) and Google Play (Android) to evaluate the apps using rubrics under seven categories: content quality, pedagogical coherence, feedback and self-correction, motivation, usability, customization, and features for sharing. The data obtained shows seven apps, out of hundreds found by searching the keyword "ESL" on the App Store and Google Play, then were analysed into three groups: 1) vocabulary apps including ShanBay Vocabulary and Youdao Dictionary, 2) language skills apps including Duolingo, Speak English Fluently, and Speak English-Listen, and 3) entertainment apps including BrainPOP Feature Movie and VoiceTube. Assessing foreign language learning abilities for adults, the researcher concludes that there is no single application that provides a unified solution to meet the needs of learners. However, the fact that learning applications offer various options and modalities makes it possible to develop language learning modules or curricula by integrating applications for language learners.

A similar study was also conducted by Heil et al. (2016) who examined fifty popular mobile-based language learning applications available on the App Store and Google Play and evaluated these applications based on several criteria. The researchers found that, according to the main trends after analysis, 1) vocabulary tends to be taught in a limited manner that is not contextual, 2) applications do not optimally accommodate individual user abilities, and 3) few applications provide corrective feedback in order to provide explanation to students.

Meanwhile, Gangaiamaran and Pasupathi (2017) classify mobile applications for language learning available on the App Store and Google Play to help students of various ability levels including elementary, intermediate, and college levels to choose the appropriate ones for learning. There are ten applications that are considered suitable for elementary level students, nine applications are suitable for intermediate level students, and ten applications are suitable for college students.

Another study reviewed popular language learning apps on mobile that can help improve language learning and found that these apps have various aspects that can help learners to learn while some of them have similar key elements including authentic

materials, learning motivation, progress tracking, and self-evaluation (Lieungnapar, 2019). This shows that today's language learning applications have been equipped with various features to support the learning activities including the materials and assessment. Therefore, to certain extent, the users are able to learn autonomously.

Based on the various studies above, it can be illustrated that useful mobile applications for language learning are available that offer various features that can be used by language learners to develop their abilities. Therefore, teachers, especially English, should see and take advantage of this potential to support the achievement of students in mastering English skills easily. To put it into context, this focuses on vocational schools in Indonesia or SMK.

The Government of the Republic of Indonesia, through the Directorate of Vocational Development, firmly views English as one of the areas that get the main priority to be developed considering that the ability to communicate in English can increase the competitiveness of SMK graduates. Unfortunately, the English language skills of SMK students, in general, are still far from expectations and have not been able to meet the needs in the world of work. Therefore, the Directorate of Vocational Development has specifically developed a strategy for implementing vocational revitalization through the bilingual learning ecosystem (Lee et al., 2017), as part of efforts to improve student's English language skills, especially to lead them to compete in the world of work.

In line with the idea above, various efforts to improve the English language skills of SMK students continue to be carried out. One of them is the development of learning multimedia carried out by Surjono and Susila (2013). In their research, they develop multimedia learning English to support the achievement of student learning mastery. As a result, students who use multimedia can complete learning by 70% while students who do not use it are only able to achieve completeness by 50%.

The explanation above shows that the role of English for SMK graduates is very essential in today's global era. Therefore, simultaneous efforts in providing learning facilities for students to improve their English language skills deserve more attention from various parties, especially educators and academics.

So far, English learning applications that are specifically designed for SMK students with vocational-themed learning features have not been found on Google Play or the AppStore. Thus, the English learning application model designed through this research is expected to be a scientific basis for developing similar learning applications in the future.

Seeing a large number of internet users, the potential benefits of information technology, as well as the challenges faced in the vocational field, it is important to develop learning media, including ICT-based English learning applications. This study aims to design a vocational-themed English learning application model that can be utilized by SMK learners both inside and outside the school contexts.

This study aims to design vocational-themed Android application model for learning English. The specific objectives are to 1) categorize the areas of expertise offered at State Vocational Schools (SMKN) in Jember, 2) analyse the use of information technology in learning English at SMKN in Jember, and 3) design a vocational-themed English learning application model.

2. Methodology

This study was a research and development or R&D. The results of an R&D study can be used to design new products or procedures (Borg, 2003). R&D involves 10 implementation steps, namely (1) needs analysis, (2) planning, (3) initial product design development, (4) initial field trials, (5) initial product improvements, (6) main trials, (7) product operational improvements, (8) field operational trials, (9) final improvements, and (10) dissemination and implementation (Rabiah, 2018).

This research was an initial part of developing an application and covered only the initial three steps of the ten described above. Thus, the results of this study are still in the form of a model of an English learning application which is the development of the data obtained at the data collection stage. Technically speaking, the model would be similar to mock up which would show how the application looked from the perspective of the users.

In accordance with the steps above, this research began with extracting data to find out what was needed to develop the model in question. At this stage, researchers conducted an analysis of existing sources to categorize scientific fields offered at state vocational high schools (SMKN) in Jember. It is important to note that the decision of conducting the study only by considering the state vocational high schools was due to the limited time available for the completion of the study. Therefore, the results of the data collection might not be able to portray the general condition of vocational high schools in Jember. The technique used at this stage was document analysis (Ary et al., 2010).

Data collection continued with the distribution of questionnaires and interviews with English teachers at SMKN in Jember. There are eight SMKN in Jember (Badan Pusat Statistik Kabupaten Jember, 2020) including SMKN 1, SMKN 3, and SMKN 4 in Patrang, SMKN 2 in Sumbersari, SMKN 5 in Sukorambi, SMKN 6 in Tanggul, SMKN 7 in Sumberbaru, and SMKN 8 in Semboro (Data Pokok SMK, n.d.). Questionnaires were distributed to all English teachers. In this case, the teachers were asked to fill out an open-ended questionnaire that allowed respondents to provide answers to the questions given in a concise and clear manner. After distributing the questionnaires, data collection was continued by using interviews in which one teacher from each level. The interviews were conducted in a semi-structured nature so that the answers given by the respondents were in accordance with the research focus but still provided space for the respondents to

elaborate further on the answers. Furthermore, the data obtained through data collection activities were analysed at the next stage.

The information collected through data collection was related to the use of information technology by the English subject teachers in the eight SMKN. In this case, the data collected included a variety of software used by teachers in learning English, both mobile-based and computer applications. In addition, the device used was also the information that was collected. In addition, the use of information technology based on the type of network used; online and offline was also asked. Thus, the data obtained are comprehensive covering important aspects related to the use of technology in English language learning by SMKN teachers in Jember.

The data obtained through interviews and questionnaires were arranged neatly and systematically into documents that were easy to analyse. In this case, the analytical technique used was document analysis (Ary et al., 2010) to obtain information from teachers regarding the use of information technology as well as an overview of the needs in learning English. The data obtained became the basis for the next stage.

After the data related to the needs analysis had been obtained, the researcher entered the next stage, namely planning. The results of this planning were then used as the basis for designing the intended application model. In this case, the researcher asked for expert opinion in the field of information technology to evaluate the resulting design. The final result of the stages in this study was an English learning application model with the theme of SMK which had the potential to be developed in later stages according to the previous explanation.

3. Findings and discussion

3.1. Categorization of the areas of expertise offered at SMKN in Jember

The initial activity carried out in this research was to search for data related to the fields of expertise offered at SMKN in Jember. The data was obtained through online searches by accessing sources that contain the required information, such as the official website of each SMKN, the social media page of the state vocational schools, as well as other easily accessible sources. In addition, the data that has been obtained is then strengthened by making visits to all SMKN at the same time as submitting research permits to the schools.

From the searches carried out, each state vocational school in Jember offers a variety of expertise competencies. The table 1. Expertise competence at SMKN in Jember shows the number of skill competencies offered at each SMKN in Jember.

Table 1. Expertise competence at SMKN in Jember

No.	Name of State Vocational School	Number of Skills Competencies Offered
1	SMK Negeri 1 Jember	6
2	SMK Negeri 2 Jember	12

3	SMK Negeri 3 Jember	9
4	SMK Negeri 4 Jember	6
5	SMK Negeri 5 Jember	7
6	SMK Negeri 6 Jember	6
7	SMK Negeri 7 Jember	5
8	SMK Negeri 8 Jember	3

The data related to the skill competencies above were then grouped into several categories. The category in question was a field of expertise based on nine Vocational Expertise Fields. The nine areas of expertise are: 1) Technology and Engineering, 2) Energy and Mining, 3) Information and Communication Technology, 4) Health and Social Work, 5) Agribusiness and Agrotechnology, 6) Maritime, 7) Business and Management, 8) Tourism, and 9) Arts and Creative Industries.

After analyzing the areas of expertise offered at SMKN in Jember, it could be concluded that the existing skill competencies could be categorized into seven areas of expertise, namely: 1) Technology and Engineering, 2) Information and Communication Technology, 3) Agribusiness and Agrotechnology, 4) Maritime, 5) Business and Management, 6) Tourism, and 7) Arts and Creative Industries. The data regarding the area of expertise was one of the bases used in designing a vocational English learning application model.

After gathering the data related to the areas of expertise, the next step was to collect the data related to the use of IT at the vocational high schools in Jember. The purposes of this was to investigate how prevalent was the use of IT in ELT at SMKN in Jember and, more importantly, the opportunities, learning sources, and teachers' roles in encouraging students to use IT to support learning English. In general, the results were to investigate the readiness of both students and teachers to use the English learning application in the future.

3.2. The use of information technology in English learning at SMKN in Jember

General use of IT at SMKN in Jember

Data related to the use of information technology in learning English at SMKN in Jember was obtained through two stages, namely the distribution of questionnaires and interview activities. Overall, the questionnaires were distributed to 32 English teachers who were teaching at seven SMKN. Meanwhile, there was one school that did not provide any response regarding the data collection through questionnaire and interview. This was due to administrative issue that made it unable for the writers to visit the school.

The distributed questionnaire contained points related to the use of information technology in learning English at SMKN in Jember. There were seven statements to be responded by respondents by giving a value to each question. A value of 5 was given if

the respondent strongly agreed with the statement; and so on, a value of 1 was given if the respondent strongly disagreed with the statement presented. The following was the figure of the data obtained through a questionnaire.

Regarding statements of the use of information technology in general, both online and offline, 21 respondents or 65.6% agreed, while the other 11 or 34.4% strongly agreed. Thus, it can be concluded that learning English in SMKN in Jember has been implemented by utilizing information technology. Furthermore, respondents were asked to provide feedback on the statement that the use of information technology supports learning English. The result, 16 respondents or 50% agreed, 12 respondents or 37.5% stated strongly agree, and 4 others or 12.5% stated somewhat agree.

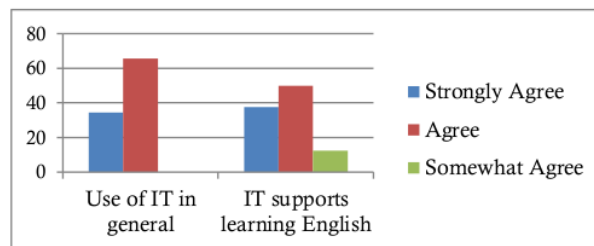


Figure 1. General use of IT in English learning

The use of internet and mobile based IT

Next, the teachers were asked to respond to statements related to students' opportunities to use information technology in learning English, the availability of sources for learning English based on information technology, as well as the teacher's role in encouraging students to use information technology in learning English.

Regarding the opportunities for students to use information technology in learning English, 25 respondents agreed, 5 respondents strongly agreed, and 2 others stated quite agree. Regarding the availability of learning sources, 21 respondents or 65.6% agreed, 2 respondents or 6.2% strongly agreed, 3 respondents or 9.4% stated somewhat agree and 6 respondents or 18.7% disagreed. Finally, respondents responded to statements about the teacher's role in encouraging students to use information technology. In this case, 25 respondents or 78.1% agreed, 5 respondents or 15.6% stated strongly agree, and 2 respondents or 6.2% stated somewhat agree.

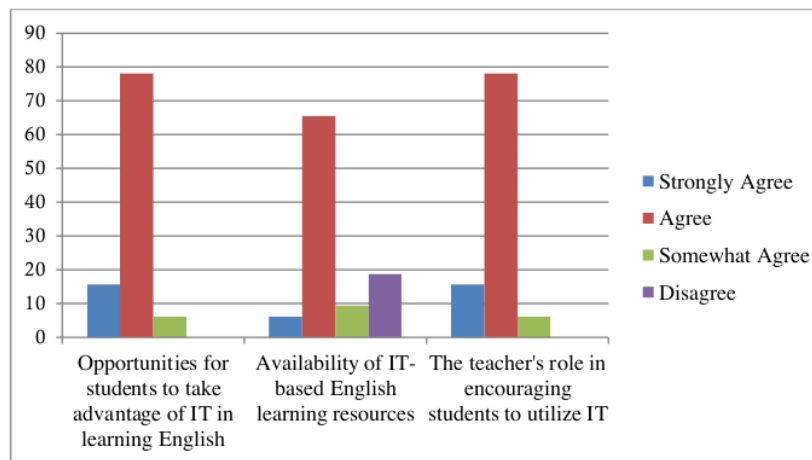


Figure 2. Opportunities, learning resources, and the role of teachers in IT utilization

From the data obtained through the distribution of the questionnaire mentioned above, it can be seen that in general teachers and students of SMKN in Jember have utilized information technology in learning English. Thus, a strong assumption can be drawn that they have readiness in utilizing information technology in the future. The implication is that teachers and students will have no difficulty in utilizing applications which are later expected to be developed from the model that is currently being made.

After distributing the questionnaires, the next process carried out was extracting data through interviews. Interviews were conducted with 7 English teachers from 7 SMKN in Jember. The purpose of this interview was to find out more about the use of information technology in learning English. Thus, the overall data obtained became more comprehensive.

From the interview, in general, data related to the use of information technology in English learning can be divided into two, namely the use of IT during the Covid-19 pandemic and before. The following is a description of the data obtained through interviews. It is important to note that the pandemic has brought educational process into new paradigm, especially regarding the use of IT in various aspects including the language learning.

During the Covid-19 pandemic, all respondents gave similar explanations regarding the use of information technology in learning English. All respondents stated that online learning during the Covid-19 pandemic made the use of IT more significant. Regarding the platform used, the respondents mentioned several mainstream programs such as Zoom, Google Meet, Google Forms, and Whatsapp as the most used programs. Regarding the Learning Management System (LMS) all respondents gave the same answer, namely Moodle. However, there were respondents who stated that learning English does not use

LMS. Regarding the devices used, cell phones were the most widely used devices by students. Meanwhile, for teachers, apart from cell phones, they also used laptops to carry out online learning activities.

Regarding the use of information technology before the Covid-19 pandemic, 6 out of 7 teachers interviewed gave similar answers. They explained that the use of information technology before the Covid-19 pandemic was quite rare considering that there was no urgent need when compared to its use during the Covid-19 pandemic. The teachers stated that the use of information technology was limited to playing listening materials, providing internet links as additional learning materials for students, and using equipment that supports the learning process in the classrooms.

Interestingly, there was one teacher who stated that the SMK where he teaches information technology had been used quite optimally. It was noted that the teachers at the school were accustomed to using several platforms which are products of Google such as Google Meet, Google Classroom, Google Forms, Google Docs, and Google Slides after receiving related training. In addition, information technology had also been used in giving tests by using Quizizz and learning vocabulary and pronunciation. Furthermore, teachers had also used information technology in making learning videos.

Regarding vocational-themed learning resources, all respondents explained that the application was not yet available. Thus, the respondents welcomed the idea of developing an English learning application that presents vocational-themed materials. In addition, all respondents also hoped to be able to utilize information technology in learning English considering that information technology has become an inseparable part of everyday life, including in the field of education.

3.3. English learning application model for vocational high school students

The design of the vocational-themed English learning application model was based on data obtained through data collection in the previous stage, namely the categorization of areas of expertise or majors and the use of information technology in learning English at SMKN in Jember. The learning application model is a mobile-based application model, especially Android, which is an information technology device that is widely owned by both students and teachers.

The English learning application model was designed by incorporating two major aspects, namely the linguistic aspect and the vocational aspect. The linguistic aspect was anything in the field of English that will be presented in the design of the application model. While the vocational aspect is related to the field of expertise or majors that are accommodated in the design of the application model.

Regarding the linguistic aspect, the vocational-themed English learning application model contains two things, namely English language skills which include reading, writing, listening, and speaking, and the English components which include vocabulary

and grammar. As has been discussed, this linguistic aspect was presented in accordance with the field of expertise or majors contained in the SMK in Jember.

The vocational aspect, as described above, relates to the areas of expertise available at SMKN in Jember. Therefore, other fields that are not offered by those eight SMKN are not part of the focus of this research. This means that those majors were not accommodated in the design of the vocational-themed English learning application model.

The areas of expertise or majors included in the design of this application model are: 1) Technology and Engineering, 2) Information and Communication Technology, 3) Agribusiness and Agro-technology, 4) Maritime Affairs, 5) Business and Management, 6) Tourism, and 7) Arts and Creative Industries.

The design of the vocational-themed English learning application model was presented in the form of a wireframe. Wireframe is the basic design or framework of the mobile application. In this case, there are several components that are described in the design of the application model, including the initial or landing page that consists of sign up and sign in menu. The homepage presented on the main screen page, and followed by other menus which are hierarchically derived from this main menu.

The design of this vocational-themed English learning application model had been shown to academics who have competence in the IT field. There were inputs and suggestions given as consideration for improving the existing design. In addition, the discussion also focused on the potential for developing this application model into an application that is functional and useful in the future, especially in the field of learning English for vocational students in Jember. The following is an application model for learning English with a vocational theme that has been developed through this research.

Sign up and log in page

The Sign In and Log In page in the design of this application presents sign up and sign in menu. To register or log in to access the features of this learning application, verification is required via email, telephone number, or the user's mainstream social media account. After going through the verification process, users can access the features of this application.



Figure 3. Sign up and log in page

Homepage

The homepage displays the main menu related to the vocational field. In this case, there are menus that can be selected based on the desired field of expertise or major. By selecting an area of expertise or major on the main page, users will be directed to learning menus located in the hierarchy below which present menus related to linguistic aspects as described above.

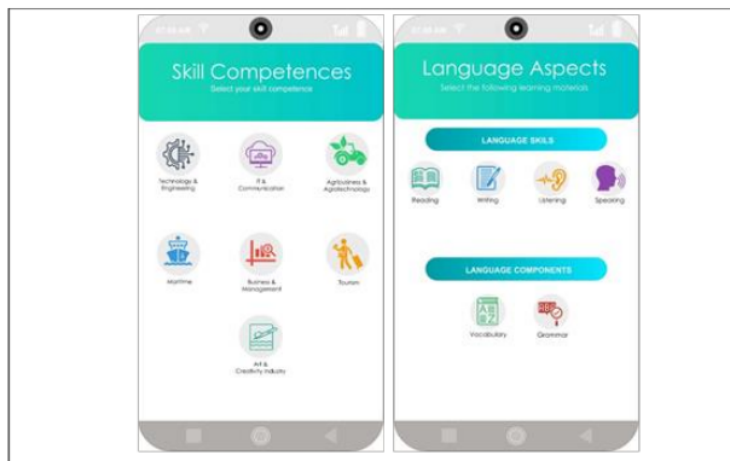


Figure 4. Homepage

Learning Page

This page is a page that provides a learning menu for users. As explained, on this page the user can choose the desired learning materials based on the choice of English language skills which include reading, writing, listening, and speaking, and language components which include vocabulary and grammar. By selecting one of the available menus, the user is directed to the choice of material according to the selected menu. After that, users can access learning materials that are already available according to the field of expertise or majors based on the choice of existing linguistic aspects.

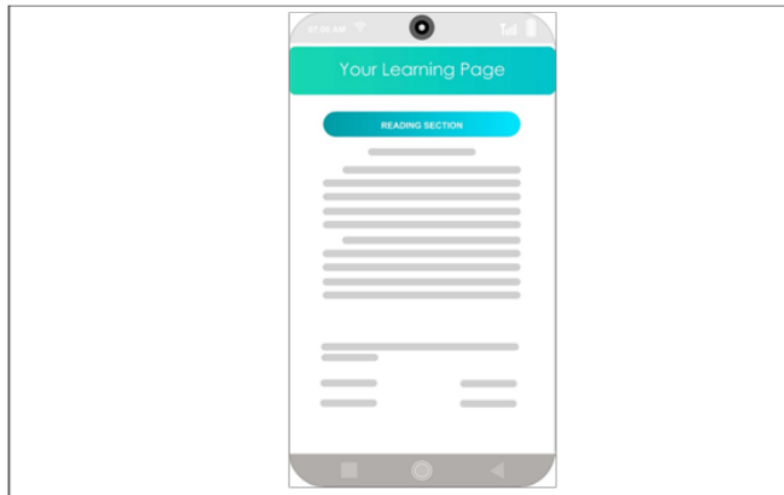


Figure 5. Learning page

Discussion

Technology has become a part of today's life and English language teaching is no exception. The fact that millions of Indonesians are active internet users, many of them are students, makes it undeniably important to bring technology into education, more specifically into ELT. Moreover, the Covid-19 pandemic has led to major changes in teaching and learning process in relation with the use of IT.

Scientific topics related to incorporating technology into learning atmosphere are undoubtedly popular amongst researchers and scholars. Even though educational technology may be, still, seen as a discipline with contribution to non-formal education regarding learning problem solving (Hanum & Suprayekti, 2019), the Covid-19 outbreak, as stated previously, has brought technology as an extremely crucial part of education including ELT in almost all parts of the nation as an effort to keep the teaching and learning process run even though it is not an easy challenge to face both for teachers and

students (Rahayu et al., 2022; Ubaedillah & Pratiwi, 2021). This is in line with the results of the interview in this study, in which the English teachers stated that the use of technology in ELT during the Covid-19 became way greater than ever.

Regardless of the Covid-19 outbreak, scholars have become more aware of the importance of IT in ELT. The development of IT-based learning media and materials, including digital applications, is a popular topic of research to conduct. Hamidah et al., (2021), for instance, developed e-dictionary for both online and offline use to help English tutors in teaching the students in their institution. For sure, there are a good number of studies with similar topics are easily found these days. Unfortunately, such English learning applications for vocational school students, especially the Android-based ones, seem to be far from sufficient. This makes the research and development essential to conduct due to the fact that SMK students should not be treated like SMA students with the same learning and target needs (Karmadi & Diyanti, 2016).

The final product of this study is an English learning application model specific for vocational schools. The next step to carry out is developing the application itself. At the end of the whole project, it is expected that the application will provide the teachers and students of vocational schools with specialized Android-based application.

4. Conclusion

The characteristic of ELT at SMK is different from one at SMA. SMK students are required to focus more on developing knowledge and skills related to their fields of study, including English. Consequently, English should be taught with the emphasis on supporting their specific needs. Unfortunately, English learning materials and media that are specifically designed for SMK students are, still, far from sufficient. Thus, developing vocational-themed English learning application model is needed.

The vocational-themed English application model is designed to meet the specific needs of SMK students. The contents that will be presented in the application are the ones specific to seven vocational expertise fields. The materials cover English four skills and two English components including vocabulary and grammar. To clarify, the model designed in this study is a mobile application, more specifically the Android-based one.

Due to the fact that this study only focuses on developing a model of application, it is expected that the real application is able to be developed soon; at least the prototype. Therefore, the result of this study is going to be the basis of the development of the vocational-themed English learning application.

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