


Duolingo Mobile Application for English Listening Skill Improvement of Vocational School Students

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ABSTRACT

Duolingo application in mobile assisted language learning can help students flexibly to learn English listening skills by its game-based features. Meanwhile, listening skill as one of significant language aspects for oral communication purpose is highly required for professional need by vocational senior high school. Therefore, this research was intended to find out the progress of eleventh grade students' English listening skill in SMK Analis Kesehatan Nasional Surakarta using Duolingo and students' perceptions toward the mobile application. This study used quantitative research with pre-experimental design to analyze the data. Meanwhile, its data collection used pre-test, post-test, and close-end questionnaire. The findings show that scores of students' pre-test and post-test show significant improvement of students' English listening skill with 73.25 of the average students' pre-test score, 83.3 of the average students' post-test score, and 90% of students' positive perception to the usage of Duolingo mobile application in English language learning.

Keywords: Duolingo, Duolingo application for English Learning, English Listening Skill, Mobile Assisted Language Learning, Vocational Senior High School

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INTRODUCTION

Listening is one of significant language aspects in learning English, especially for international communication purpose. For academic purpose in Indonesia, listening skill also becomes one of final tests and even graduation tests with passing grade in English school subject. English listening skill is not only listening to the audio, but also students should comprehend situation and context of speech from the speakers. Moreover, English listening skill can increase speaking skill gradually because students will automatically repeat and imitate English speech from English teachers or even native speakers. Rost also stated that communication theory views speaking and listening as equal parts of a co-construction process and the goal of listening is not primarily comprehension of messages, but rather establishing interactive connections with one's interlocutors and mutually moving toward goals (Rost, 2011). Thus, students know and understand English as second language for the first time by listening English speech from other people or even native English speakers. Listening comprehension skill even becomes compulsory to have for vocational high school students as one of English language learners since these students focus on English for profession. Sadiku even assumed in the research that "The more efficient a listener you are

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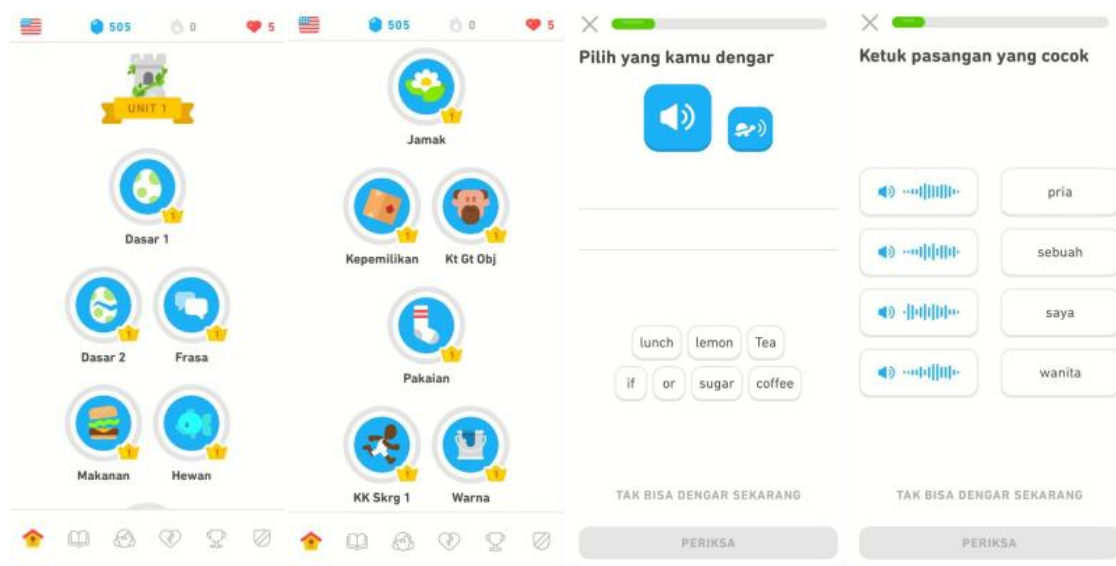
the more successful and satisfied you will be. Listening is not merely hearing: it is a state of receptivity that permits an understanding of what is heard and grants the listener full partnership in the communication process” (Sadiku, 2015). Therefore, vocational high school students having good English listening skill also support their hard skill at work and later improve self-quality to communicate with foreign colleagues since students can response others speaking English by hearing or listening first.

Dealing with listening comprehension for English language learner, there are some types of listening. Brown assumed these listening types as follow: (1) Intensive: listening for perception of the components (Phonemes, words, intonation, discourse markers, etc) of a larger stretch of language ; (2) Responsive : Listening to a relatively short stretch of language (a greeting, question, command, comprehension check, etc) in order to make an equally short response; (3) Selective : Processing stretches of discourse such as short monologues for several minutes in order to “scan” for certain information; (4) Extensive : Listening to develop a top-down, global understanding of spoken language by listening for the gist, for the main idea, making inferences, and even deriving messages from lectures or conversation (Brown, 2004). These listening types are common in listening audio to help students for broadly reach other English skills. Teachers understanding these listening types certainly recommend simple learning media to help vocational high school students in learning English, especially for listening skill. Nowadays, digital technology breaks the boundary of English learning media and offer flexibility for both teachers and students. There are six categories of teaching media such as human media, printed media, audio media, visual media, audio-visual media, and multimedia (Arsyad, 2015). One of research example belongs to Damayanti and Sumarningsih’s research. The research used Technology, Entertainment, Design, and Education (TED-Ed) to teach English listening skill for eleventh grade students and it shows significant improvement in students’ English listening skill and positive perceptions of media usage from these students (Damayanti & Sumarningsih, 2022). Moreover, the content of innovative media provides learning material or resource for teaching English (Jasmin & Yanto, 2021). Thus, suitable teaching media for language learner stage can help the language learners to get language acquisition. Therefore, the choice of proper learning media for medical vocational high school students can support better teaching and learning process.

Digital technology offers English learning applications with its simplicity to access in mobile phone whether those are premium applications or free applications. Duolingo is a game-based platform for learning foreign languages, especially English as international language and moreover, the application is available as a browser-based application or an iOS, Android, or Windows mobile application (Mulya & Refnaldi, 2016). People can also access in personal computer (PC) by accessing website <https://schools.duolingo.com/> for school purpose so that the students as second language learners can also learn English in provided personal computer at school in case the school regulation do not permit the student for not bringing or using mobile phone at school. It also helps the teacher to give solution for keeping the concept of technology assisted language learning. In the research of Mulya et all in 2016, there are advantages that second language learners and teachers can get from Duolingo (Mulya & Refnaldi, 2016). The first one is Duolingo lets teachers easily track students' language learning progress. The second one is students are able to share their language learning progress directly with their teacher who can then track their progress through a dedicated dashboard. The third one, since teachers can track students’ progress, these teachers are able to plan lessons, assign Duolingo skills as homework, and award extra credit points accordingly. The fourth one, Duolingo motivates the students to keep going and beat their previous records, and the students can also compete with their friends. The fifth one, the students can also get experience points (XP) and pass different levels in order to get lingots for purchasing items and bonus lessons. The sixth one, the interface is clean and very easy to use. The seventh one, for English learning exercises, Duolingo offers a nice

balance between translation, listening, matching, and speaking exercises. The last one, its voice recognition program is not too bad (Mulya & Refnaldi, 2016).

Duolingo starts from the basic level by providing the option of source and target language. There is progress bar showing the visual indicator of user after completing each question in challenge. Therefore, students should continue each challenge from each level. Students can choose the favorite topic of challenge game to finish the level. Every challenge has different goal and achievement. Therefore, if students have already finished the level, they will get score. Picture 1 below is example of features in Duolingo mobile application:



Picture 1. Some Features of Duolingo Application

Dealing with exercises of Duolingo mobile application, Nushi and Eqbali's research about Duolingo mentioned there are 5 types of exercises in Duolingo. Those are: (1) Translation exercises, (2) Matching exercises, (3) Pairing exercises, (4) Listening exercises, and (5) Speaking exercises (Nushi & Eqbali, 2017). For translation exercises, the users as English language learners enable to translate the source language to target language and vice versa. For matching exercises, the users enable to see a colourful picture and match it with the words given. For pairing exercises, the users will have number of equivalent words to pair from source language to target language. For listening exercises, users enable to listen a short phrase in second language and type it correctly. For speaking exercise, users enable to imitate words from audio. However, Nushi and Eqbali's research in 2017 only focused on application review without taking pre-test and post-test from school students as second language learner.

Another previous study about Duolingo application, Mehtälä (2015: 1) focused on sociocultural theory and ecological perspective. Mehtälä's qualitative study found the most notable affordances in Duolingo were related to learning in the ZPD (Zone Proximal Development) through scaffolding with peers and more knowledgeable others (MKOs), and developing language awareness in discussions with other users. Because of the gamification feature in Duolingo with its reward for the learner, it brings motivation for daily practise along with the sense of competence. It is similar with the conclusion of Habibie' research that Duolingo application motivates every beginner to learn second language by keeping the user on making progress (Habibie, 2020). Habibie' research focused on writing skill for fourth-year college students. Dealing with Duolingo application in vocabulary learning, Tiara et al (Tiara et al., 2021) presented the findings of their research focusing on the vocabulary skill. Tiara's research showed the positive students' perception of improving vocabulary skill using Duolingo Application. Previous studies deal with Duolingo application need to be

explored more since the studies above did not take medical vocational high school students as subject of research and did not focus on listening skill.

METHOD

This study used quantitative research involving the steps of collecting data, analysing data, interpreting the findings, and writing the findings of research. These processes were mentioned by Cresswell that quantitative researches involve the processes of collecting, analysing, interpreting, and writing the results of a study (Cresswell & Cresswell, 2018). Meanwhile, the method of this research was pre-experimental design which only need a single group as subject of research for pre-test and post-test without other groups to be compared. In short, Cresswell stated that pre-experimental design does not need a control group to compare with the experimental group (Cresswell & Cresswell, 2018). In this research, the data collection was from pre-test scores before treatment and post-test scores after treatment. The results of average pre-test scores and post-test scores were compared so that there will be differences in scores before the treatment and after the treatment using Duolingo mobile application. This research was intended to find the progress of vocational senior high school students' listening skill after using Duolingo application in mobile assisted language learning by comparing the results of pre test scores and post test score and understanding students' perception toward Duolingo mobile application after the treatment.

Respondents

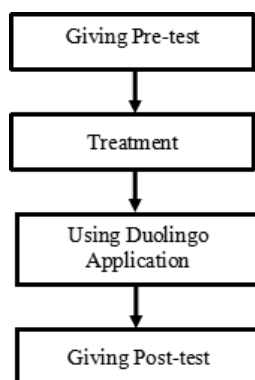
The data in this research was taken from eleventh grade students of vocational high school in SMK Analis Kesehatan Nasional Surakarta. This research focused on 20 students at class XI-A for academic year 2022/2023 as the respondents. This research had been conducted in July 2022 until September 2022 within 10 class meetings.

Instruments

The data collection in this study used 2 instruments which are tests (Pre-test and Post-test) and questionnaire. Students did the offline pre-test with 15 questions having points of pictures analysis, questions and responses, short talk, and short conversation. After the pre-test, students were asked to install Duolingo application in their mobile phone. For the treatment, students used Duolingo application for English listening exercises during English lesson in 10 class meetings. After treatment, students did offline post-test with 15 questions having points of pictures analysis, questions and responses, short talk, and short conversation. Meanwhile, for the questionnaire instrument, this research used closed ended questions which providing options to choose by giving mark for the answer based on respondents' experience (Arikunto, 2010). These vocational high school students as the respondents of this research filled 5 questions in online questionnaire form to know students' perception toward the use of Duolingo mobile application during English listening skill learning.

Procedure

For the first meeting as the first treatment, students were given English listening questions as pre-test by using audio from the school. Afterwards, researchers directed the students to know Duolingo briefly, install Duolingo in their mobile application from Play store, and learn features and usage. In the second until ninth meeting, students were given challenges together to finish listening exercises in Duolingo mobile application. In the tenth meeting, researcher shared link of questioner from Google Form for the respondents to know students' perception toward Duolingo application. The figure below is the illustration of research procedure:



Picture 2. Research Procedure

Data Analysis

Pre-experimental method in this research used one group pre-test and post-test design based on Creswell. Sugiyono illustrated pre-experimental design for its pre-test and post-test as follows (Sugiyono, 2014):

Table 1. Pre-experimental Design

Pre-test	Treatment	Post-test
O_1	X	O_2

O_1 = Pre-test Value (Before Treatment)

X = Treatment

O_2 = Post-test (After Treatment)

This paradigm of this research design has pre-test before treatment for the respondent so that the treatment result reaches the accuracy because it can compare with the situation before treatment. These pre-test and post-test scores were analyzed by taking the average of the scores. Meanwhile, this research also used questionnaire to know students' perception toward Duolingo mobile application during teaching and learning process for English listening skill. This online questionnaire form was given to 20 vocational high school students of SMK Analis Kesehatan Nasional Surakarta after the post-test.

FINDINGS AND DISCUSSION

This section presents results of pre-test, post-test, and questionnaire from the respondents of this research. These results show the improvement of vocational high school students in English listening skill using Duolingo mobile application as English learning media

Students' Pre-Test and Post-Test Score

Pre-test scores appear after the vocational high school students in SMK Analis Kesehatan Nasional Surakarta as respondents did the test before the treatment. Table 2 below shows the result of students' pre-test scores.

Table 2. Students' Pre-Test Scores

No	Students' Initials	Pre-Test Score
1	AA	70
2	AB	72
3	BC	70
4	CD	74
5	DE	76
6	EF	78
7	FG	76
8	GH	86
9	HI	86
10	IJ	88
11	JK	60
12	KL	62

13	LM	64
14	MN	78
15	NO	82
16	OP	72
17	PQ	78
18	QR	60
19	RS	70
20	ST	62
Total Score		1.463

Beside showing the scores of students' pre-test for listening skill, the table above also shows that the total of the respondents' scores is 1.463. From this total score and the number of students, the mean value of pre-test was calculated by using this formula:

$$X1 = \frac{\sum X_1}{N}$$

$$X1 = \frac{1463}{20}$$

$$X1 = 73,15$$

Note:

X1 = Mean value/ average

$\sum X_1$ = Total of students' scores

N = The number of students

From the calculation above, the mean value of English listening pre-test is 73.15. From the pre-test scores in table 2, the lowest score is 60 and the lowest score is not only one student but also 2 students. It means a lot of respondents as vocational high students in SMK Analis Kesehatan Nasional Surakarta still has poor English listening skills. Meanwhile, from 20 students, the highest score is 88 obtained by a student. Thus, the students need a lot of practices to be able to improve their English listening skill. From the average value or mean of the pre-test, 73.15 is still low because it does not reach School Minimum Completeness Criteria (KKM) in SMK Analis Kesehatan Nasional Surakarta, in which the score criteria for English subject are 75. From this situation, the respondents as vocational high school students need treatment that can support the progress of students' listening skill. Meanwhile, the result of students' English listening post-test is on the table below:

Table 3. Students' Post-Tense Scores

No	Students' Initials	Post-Test Score
1	AA	80
2	AB	80
3	BC	84
4	CD	82
5	DE	84
6	EF	86
7	FG	84
8	GH	94
9	HI	90
10	IJ	96
11	JK	76
12	KL	76
13	LM	78
14	MN	84
15	NO	90
16	OP	86
17	PQ	82
18	QR	76
19	RS	80
20	ST	78
Total Score		1.666

Table 3 shows respondents' post-tense with the total score of 1.666. Similar with the mean formula of pre-test, the total score of post-test above was divided with the number of students as follows:

$$X_2 = \frac{\sum X_2}{N}$$

$$X_2 = \frac{1666}{20}$$

$$X_2 = 83.3$$

Note:

X_1 = Mean value/ average

$\sum X_1$ = Total of students' scores

N = The number of students

From the calculation above, the mean value of English listening pre-test is 83.3. Table 3 shows the highest score of the respondents' post-test is 96 and lowest one is 76. Even though 76 is the lowest score in this post-test, this score actually passes School Minimum Completeness Criteria (KKM) in SMK Analisis Kesehatan Nasional Surakarta. Students should get more than 75 for the score if they want to pass the score criteria in SMK Analisis Kesehatan Nasional Surakarta. From mean value of both of pre-test and post-test, there is significant difference. The mean value of students' pre-test score is 73.15 in this research while the post-test score is 83.3. It means there is improvement from students' progress to learn English listening skill by using Duolingo application.

Students' Perceptions on Duolingo Mobile Application

This research used close ended questionnaire to know vocational students' perception toward Duolingo application for improving English listening skill. The result of questionnaire in this section is presented in table of percentage based on questions in questionnaire below:

Question 1: Duolingo Application Mobility for Students

This first question point in the questionnaire refers to whether Duolingo application can be accessed anywhere and anytime or not. Table 4 below shows the respondents' perceptions on Duolingo application mobility from 11th grade vocational senior high school students in SMK Analisis Kesehatan Nasional Surakarta

Table 4. Students' Perception on Application Mobility

Answer Options	Frequency	Percentage
Strongly Agree	12	60%
Agree	8	40%
Disagree	0	0%
Strongly Disagree	0	0%

From the description of the table above, there are 12 students as respondents who strongly agree with a percentage of 60% and 8 students also agree with a percentage of 40%. Meanwhile, none of the students here chose strongly disagree or disagree. It shows that students can open and access Duolingo application wherever and whenever with supported device and internet. In this technology era with internet access everywhere, it is definitely easy for students to study and adapt with its application mobility. Since Duolingo application can set the learning schedule to finish all of the quizzes and challenges, it gives motivation to vocational high school students as respondents to access the application anytime. It is supported by research conclusion of Yusda et al that Duolingo application can be used anywhere and anytime in Smartphone so that it makes learning more practical (Yusda et al., 2020).

Question 2: Duolingo Application Ability for Improving English Listening Skill

This second question point in the questionnaire refers to whether Duolingo application is able to improve students' English listening skill or not. Table 5 below shows the respondents' perceptions on Duolingo application ability to improve English listening

skill of 11th grade vocational senior high school students in SMK Analis Kesehatan Nasional Surakarta.

Table 5. Students' Perception on Application Ability for Improving English Listening Skill

Answer Options	Frequency	Percentage
Strongly Agree	10	50%
Agree	10	50%
Disagree	0	0%
Strongly Disagree	0	0%

This question point in questionnaire deals with the ability of Duolingo mobile application can improve English listening skill for vocational high school students by its features of quiz for students' exercises. From table 5 above, it shows 50% respondents (10 students) chose strongly agree and 50% respondents (10 students) chose agree in this question point. No one of the respondents chose answer options of disagree and strongly disagree. In short, this table 8 shows that students as respondents in this research stated that Duolingo application is absolutely useful to support their English learning process and especially improve English listening skill. This result gets along with Nushi and Egbali's research evaluation that Duolingo reassures learners that they can achieve their learning goals and relieves their fear of doing something so demanding as learning a language. Even with 5 to 10 minutes of daily practice, Duolingo helps learners feel they have accomplished something, a feeling that keeps them motivated (Nushi & Egbali, 2017). Thus, Duolingo as digital learning media affects the students' learning activity. It is in line with Maisani et al.'s research that student responded positively to digital technology affecting learning activities and being beneficial for students (Maisani et al., 2022). Therefore, Duolingo application in students' perception in this research felt that this online application is an alternative learning media to improve English listening skill.

Question 3: Duolingo Application Usability for Students

This third question point in the questionnaire refers whether Duolingo application is easy to understand and operate or not. Table 6 below shows the respondents' perceptions on Duolingo application usability from 11th grade vocational senior high school students in SMK Analis Kesehatan Nasional Surakarta.

Table 6. Students' Perception on Application Usability

Answer Options	Frequency	Percentage
Strongly Agree	15	75%
Agree	5	25%
Disagree	0	0%
Strongly Disagree	0	0%

Table 6 above shows that 75% respondents (15 students stated strongly agree and 25% respondents (5 students) stated agree with Duolingo application usability. Thus, Duolingo application is very easy to access by vocational high school students. Moreover, 75 % respondents also shows that its features are very easy to understand and study. This finding gets along with the research conclusion of Habibie that students felt comfortable and easy to use the application in their daily activities. Moreover, this finding is also on the line with Tiara et al.'s research. In the research, its respondents positively perceive that Duolingo is easy to use, has fewer steps to do the task, has an appealing design, and has simplified the display (Tiara et al., 2021). Therefore, Duolingo application can be concluded as simple English learning media that even easy to install in supported device with internet connection.

Question 4: Duolingo Application Ability for Creating English Listening Habit

This fourth question point in the questionnaire refers to whether Duolingo application is able to create students' English listening habit or not. Table 7 below shows the respondents' perceptions on Duolingo application ability to create English listening habit of 11th grade vocational senior high school students in SMK Analis Kesehatan Nasional Surakarta.

Table 7. Duolingo Application Ability for Creating English Listening Habit

Answer Options	Frequency	Percentage
Strongly Agree	8	40%
Agree	10	50%
Disagree	2	10%
Strongly Disagree	0	0%

This question point as variable in the questionnaire deals with the ability of Duolingo application can help students to learn English listening skill and create the learning process as habit by daily quiz or challenge. Table 7 above shows that 8 students stated strongly agree with percentage of 40% and 10 students stated agree with percentage of 50%. Meanwhile, 2 students stated disagree with percentage of 10% and there was no respondents chose option of strongly disagree. It means that Duolingo mobile application can help students to create English learning habit, especially for improvement of English listening skill by its feature of exercises. Jaskova's research even found that Duolingo has an excellent learning strategy because it has very motivating learning system. It uses a strategy of game mechanics to create the incentive to keep students learning since Duolingo uses mainly drills and repetitive exercises in the lessons (Jaskova, 2014). By having game and notification system, Duolingo tries to interact with the user as English language learner and sets the activity as habit. One of efforts to overcome the challenges during the pandemic is create good interactive lesson set to promote students' critical thinking and encourage the students' participation in online learning (Sari & Djamdjuri, 2021). Therefore, Duolingo is very useful as interactive learning media to break the learning activity boundary during pandemic.

Even though there were 2 students who stated disagree, it was based on real situation at school since a few students have lack of interest and motivation to learn English and improve English listening skill. This finding shows that teacher role is still needed to direct these students with lack of English learning motivation and communicate with these students in order to give attention and motivation for learning English in passion.

Question 5: Fun Duolingo Application Features for English Learning

This fifth question point in the questionnaire refers to the interesting features of Duolingo mobile application to attract vocational high school students in English learning, especially for English listening skill. In short, this question point refers to whether Duolingo mobile application is more interesting and fun to be English learning media or not. Table 8 below shows the respondents' perceptions on fun Duolingo application features for English learning of 11th grade vocational senior high school students in SMK Analis Kesehatan Nasional Surakarta.

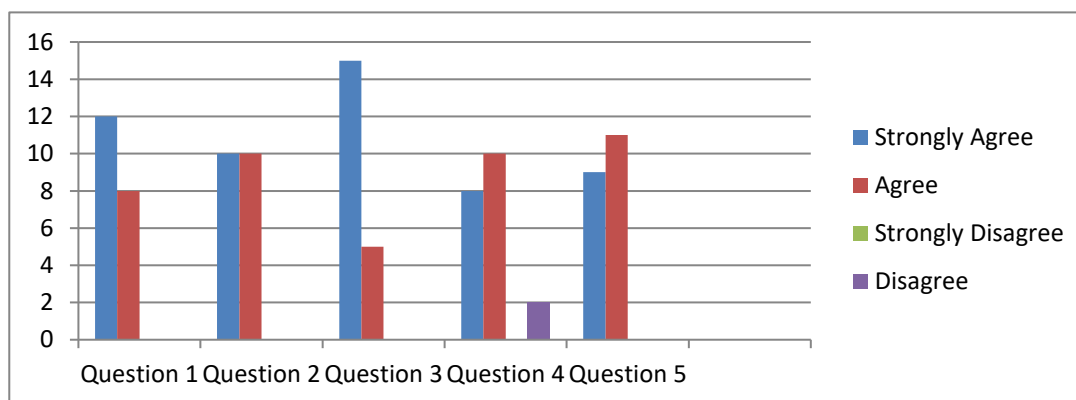
Table 8. Fun Application Features for English Learning

Answer Options	Frequency	Percentage
Strongly Agree	9	45%
Agree	11	55%
Disagree	0	0%
Strongly Disagree	0	0%

Table 8 above shows that 45% respondents or 9 students in this research stated strongly agree and 55% respondents or 11 students stated agree. Meanwhile, there is no respondent who chose answer options of strongly agree and disagree in the questionnaire form. Thus, the table above also presents Duolingo application is very fun for vocational high school students. Moreover, students in this research brought perception that they enjoy using the application as modern English learning media and finishing their English listening exercises as game challenge. This finding is in line with Tiara et al.'s findings that Duolingo application offers options to draw student's attention, for example students can get Lingot as gift to shop and get the route to create the learning additional accessible (Tiara et al., 2021).

From the presentation of questioner above, it shows that Duolingo application is absolutely useful for vocational high school students in SMK Analis Kesehatan Nasional Surakarta to support English learning and improve their English listening skill. In

technology era nowadays, teacher and students can do teaching and learning process by online application everywhere and it even support individual learning in certain situation, for example pandemic. The teachers also should be fun to learn and prepare the teaching strategy using Duolingo application. Rachmawati et al.'s research proved that teachers get positive attitude and good experience during their teaching practice using mobile assisted language learning (MALL) (Rachmawati et al., 2021). Therefore, Duolingo application is one of online learning media that can get along with mobile assisted language learning concept for schools in technology advance. This diagram below shows all of questionnaire results in each variable:



Picture 3. Diagram of Students' Perception on Duolingo Application

Picture 3 above shows the diagram of student's perception toward Duolingo application after the treatment of improving English listening skill. Each variable is from the questions in questionnaire that has been described before in table 4, 5, 6, 7, and 8. The respondents from eleventh grade vocational high school students in SMK Analis Kesehatan Nasional Surakarta gave responses by choosing answer options in closed-end questionnaire. In the diagram of picture 3, most of students or respondents responded strongly agree and agree in each variable. The highest number students that chose strongly agree is in the question 3 dealing with Duolingo application ability for improving English listening skill. It means that students in this research found attractive application features to try that fit with their learning model. Moreover, picture 3 also reveals that most of students also chose answer option of Agree that become the second highest number in the diagram after answer option of Strongly Agree.

In this state, almost all of students have high motivation and interest to learn English, not only in listening skill but also all of language skills including vocabulary, speaking, writing, and reading skills since Duolingo application provides text, picture, and audio recording (Idaryani & Fidyati, 2021). Thus, Duolingo mobile application has innovative digital technology to bring positive interaction and motivation for these medical students to learn English, especially English for specific purpose. It goes along with the research that students are more interactive, collaborative, and motivated in learning ESP when innovative technology was adopted in teaching-learning ESP. Niah and Pahmi also stated that using technology such as duolingo application certainly can help improve students' English skills specifically listening and speaking skills (Niah & Pahmi, 2019). Because of ongoing updated features, Duolingo application can support its exercises for English listening skill with other English language skills so that students can feel comfortable to use the features and do the English exercises.

CONCLUSIONS

Nowadays, technology advances are very fast and it becomes a part of our lives. In education field, mobile assisted language learning is a part of afforded technology even after

online learning as the impact of pandemic. Since Duolingo application is one of language learning media, this study shows the improvement of vocational high school students' listening skill in SMK Analis Kesehatan Nasional Surakarta after using Duolingo mobile application. The scores of students' pre-test and post-test presented significant increase of students' English listening skill by using Duolingo mobile application. The average students' pre-test score was 73.25 while the average students' post-test score was 83.3. It was supported by students' perception from closed-end questionnaire that 90% students gave positive perception to the usage of Duolingo mobile application in their English learning process. One of the important factors that makes Duolingo application perceived well by vocational senior high school students in this research is the usability of application which is easy to install and access everywhere and every time by these students.

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