

Effectiveness Of Using The Application Duolingo To Improve Students' Writing Skill

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Abstract

This research was conducted to determine the effectiveness of using the Duolingo application to improve students' writing skills. The participants of this research are students of INSTIKI who are taking the subject Bahasa Inggris Dasar. The method used was Classroom Action Research and analyzed using Duolingo. The results showed significant progress in the pre-test, implementation, and post-test. The results showed that students writing skills in their application letters have improved much through the number of mistakes/errors. The results of this research have shown that the implementation of AI, especially the application of Duolingo and CAR has a good impact and positive outcomes to improve students' writing skills. The results of Cycle I and Cycle II have shown that from 5 kinds of mistakes/errors, there were a significantly decreased number of errors that were: 1) prepositions from 20 to 5 errors; 2) agreement of numbers and nouns from 15 to 4 errors; 3) pronouns from 8 to 2 errors; 4) verbs from 20 to 6 errors; and 5) nouns from 20 to 8 errors. As students of IT College, the participants are encouraged to improve their skills in IT and foreign languages especially English. This finding has shown that the implementation of AI like Duolingo for IT Students is relevant to their field of study. in this digitalization era.

Keywords: effectiveness, Artificial Intelligence, Duolingo, writing skill

Abstrak

Penelitian ini bertujuan adalah untuk mengetahui keefektifan penggunaan aplikasi Duolingo dalam meningkatkan keterampilan menulis mahasiswa. Partisipan dari penelitian ini adalah mahasiswa INSTIKI pada mata kuliah Bahasa Inggris Dasar. Metode penelitian yang digunakan adalah metode Penelitian Tindakan Kelas dan dianalisa menggunakan Duolingo. Hasil penelitian menunjukkan peningkatan yang signifikan pada tes awal, implementasi dan tes akhir. Hasil penelitian menunjukkan bahwa kemampuan menulis mahasiswa melalui penulisan surat lamaran menunjukkan peningkatan melalui berkurangnya jumlah kesalahan. Hasil penelitian menunjukkan bahwa implementasi AI atau Kecerdasan Buatan khususnya Duolingo dan PTK telah menunjukkan dampak yang positif dan hasil yang menunjukkan peningkatan keterampilan menulis mahasiswa. Hasil dari Siklus I dan Siklus II menunjukkan 5 jenis kesalahan yang menurun secara signifikan yaitu: 1) preposisi dari 20 menjadi 5 kesalahan; 2) kesepakatan jumlah dan nomina dari 15 menjadi 4 kesalahan; 3) pronomina dari 8 menjadi 2 kesalahan; 4) verba dari 20 menjadi 6 kesalahan; dan 5) nomina dari 20 menjadi 8 kesalahan. Sebagai mahasiswa dari sebuah Kampus IT, partisipan didorong untuk meningkatkan kemampuan IT mereka dan bahasa asing khususnya bahasa Inggris. Penelitian ini telah menunjukkan bahwa implementasi Kecerdasan Buatan seperti Duolingo bagi mahasiswa IT adalah sesuai dengan keilmuannya di era digitalisasi sekarang ini.

Kata kunci: efektivitas, Kecerdasan Buatan Duolingo, keterampilan menulis

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INTRODUCTION

In this digitalization era, Artificial intelligence (AI) has become important in our people's daily lives. According to (Pratikno, 2017), Artificial Intelligence (AI) is a field of technology that enables people to employ robot-like motions as helpers. Its presence is represented via a computer system's virtual display. In addition, (Fitria, 2021) stated that Artificial intelligence (AI) is a technology where

machines can learn and understand logic like humans. This technology is said to be able to help simplify human life which is very complex. AI itself works by combining the presence of several data, iterative processing, and intelligent algorithms. This allows the software to learn automatically from patterns or features in the data. AI can also be said to be a very broad field of study. The scope of theories, methods, technologies, and subfields that exist in AI is very wide, including machine learning, neural networks, cognitive computing, computer vision, and scientific language processing. Meanwhile, according to (Garcia, 2013), Duolingo is a free online language learning service to assist users in learning languages by utilizing their learning activities via the Web and apps. Duolingo contains a variety of up-to-date language-learning strategies. This can help pupils understand, be interested in, and enjoy studying since it creates a sense of learning while they are learning. Duolingo offers a variety of languages from which language learners can pick, including English, Arabic, Spanish, French, Dutch, and others. In addition, (Nushi, M., Eqbali, 2017) stated that Duolingo is one of the popular applications in this increasing technology era. Moreover, Duolingo is a kind of online learning media that improves students' language skills. Many languages are provided inside this Duolingo Application, which can be used to help language learning all over the world. English is one of the languages provided in Duolingo learning media. According to (Alex Osmond, 2016), writing is one of four language skills (listening, speaking, and reading), at university, students have to develop in-depth knowledge and analytical skills in fields like for example, business, computing, creative writing, or philosophy, and, in addition, the writing skills to express this knowledge effectively.

The previous research about Duolingo is presented as follows: The first research was conducted by (Alvons Habibie, 2020) entitled “ Duolingo as An Educational Language Tool to Enhance EFL Students' Motivation in Learning English”. This research aims to investigate students' motivation to learn English through Duolingo. This research used a mixed method to explore and describe the phenomenon. The participants were 40 students of the English department. Data collection techniques in this study were questionnaires and interviews, while the data analysis techniques were data reduction, data presentation, and conclusions. The study revealed that the use of the Duolingo application was quite effective in enhancing the students' motivation to learn English. This study showed that Duolingo is an application where every beginner can start learning a second language as it motivates students to keep on making progress.

The second research was conducted by (Nugroho Ishak Yuwono, 2022) entitled “ The Effectiveness of the Duolingo Application In Teaching Vocabulary at The Seventh-Grade Students of Junior High School”. This research aimed to describe the implementation of the Duolingo application in teaching vocabulary and to describe the effectiveness of Duolingo's application in teaching vocabulary. The population was all the students of Mts. Gondang Wonopringgo Kabupaten Pekalongan Grade VII. The researcher used Cluster Random Sampling and the instruments used were tests, interviews, questionnaires, and documentation. The technique of data analysis employed was a paired sample t-test. The results showed that the students' scores after being taught by using the *Duolingo* application

showed significant results. The result showed that $P\text{-value} < 0,0511,664 > 8955$ which means that there were no significant influences between scores of the pre-test and post-test. Therefore, Duolingo application can be one of the alternative media to teach English to young learners.

The third research was conducted by (Diah Permatasari, 2023), entitled “Duolingo: An Enchanting Application to Learn English for College Students”. The method of this research was qualitative, with a questionnaire as the instrument to collect the data. The participants were students from several universities in Indonesia. There were 15 questions in the questionnaire in the form with four answers namely, “strongly agree”, “agree”, “disagree”, and “strongly disagree”. The participants can choose 'strongly agree or agree if they agree and 'disagree or strongly disagree' if they don't agree. The research revealed that Duolingo is considered an application that greatly supports college students in learning English and is an application that has effective innovation amid the rapid development of technology.

The fourth research was conducted by (Deden N. S, Ervina CMS, Puspita S, Hero GD, Dianita, 2023), entitled “Duolingo as an Artificial Intelligence Technology-Based Learning System in English”. The purpose of this research is to determine how to use Duolingo media to help students learn English more effectively. A qualitative methodology and action research in the classroom design were employed in this study. This research was conducted at SMAN 11 Garut, involving 50 students. Data obtained from the results of observations, interviews, and tests. The results of this study indicate that there is an increase in students' ability to learn English by using Duolingo media.

The fifth research was conducted by (Dewi IK, Iftiah R, Citra I, 2024), entitled “The Effectiveness of Duolingo as Technology-Based Instructional Media in Learning English Speaking”. This research implemented experimental research with a pre-experimental design. The participants of this research were 25 students enrolled in the eleventh grade at a State Senior High School in Jombang, East Java, Indonesia. Speaking tests in the form of paired dialogue were used to measure students' speaking skills before and after learning English using Duolingo. The data analysis using the Wilcoxon Signed Rank Test was used to answer the research questions. The results showed that there was a significant difference in students' speaking skills before and after learning by using Duolingo as technology-based instructional media. Further, this study also revealed that using Duolingo in learning to speak was effective in every aspect – fluency, accuracy, pronunciation, and vocabulary.

METHOD

This research is aimed to identify the use of the application Duolingo to improve students' writing skills. To find out the result, the research uses a qualitative approach. According to (Taylor, S. J., Bogdan, R., DeVault, 2016), qualitative methodology refers in the broadest sense to research that produces descriptive data—people's own written or spoken words and observable behavior. In addition, the method used is Classroom Action Research (CAR). According to Kemmis (Dr. Alek,

2016), action research is a form of self-reflective inquiry undertaken by participants in a social (including educational) situation to improve the rationality and justice of (a) their social or these practices, (c) the situations in which practices are carried out educational practices, (b) their understanding of these practices, and (c) the situations in which practices are carried out. Meanwhile, according to (Suharsimi Arikunto, 2006), CAR is a research activity that is done to solve the problem in the learning process based on the cycle. In every cycle, there are four levels those are planning; acting; observing, and reflection. These four levels are done as a repeated cycle based on research needs. This cycle will be stopped if the aims of the research are achieved. The data collecting technique of this research is done in three ways; those are observation, interview, and literary research. The observation is done through Pre-Implementation/ Cycle I, implementation/lecturing, and Cycle II. This research was conducted in Institut Bisnis dan Teknologi (INSTIKI) Denpasar with 33 students of Bahasa Inggris Dasar Classroom as its participants.

RESULTS AND DISCUSSION

The results of this research are presented as follows: the researcher did the observation with the participants in their class and gave the participants a pre-test when they were asked to write an application letter without using the application Duolingo. The results of the pre-test showed that there were mistakes/errors, those were: 1) prepositions (20 errors); 2) agreement of numbers and nouns (15 errors); 3) pronouns (8 errors), 4) verbs (20 errors), and 5) nouns (20). The examples of errors presented are shown in Table 1 below:

Table 1: Kinds errors on pre-implementation/Cycle I

No.	Kinds of errors	Errors in sentences	Grammatical sentences
1.	prepositions	I live <u>on</u> Denpasar City	I live <u>in</u> Denpasar City
2.	Agreement of numbers and nouns	I give you the best of my five <u>design</u>	I give you the best of my five <u>designs</u>
3.	pronouns	I am eager to continue to <u>it</u> continued success.	I am eager to continue to <u>its</u> continued success.
4.	verbs	The company <u>want</u> to hire people to join your best team...	The company <u>wants</u> to hire people to join your best team...
5.	nouns	Enclosed <u>my</u> resume for your <u>rivew</u> .	Enclosed is <u>my resume</u> for your <u>review</u> .

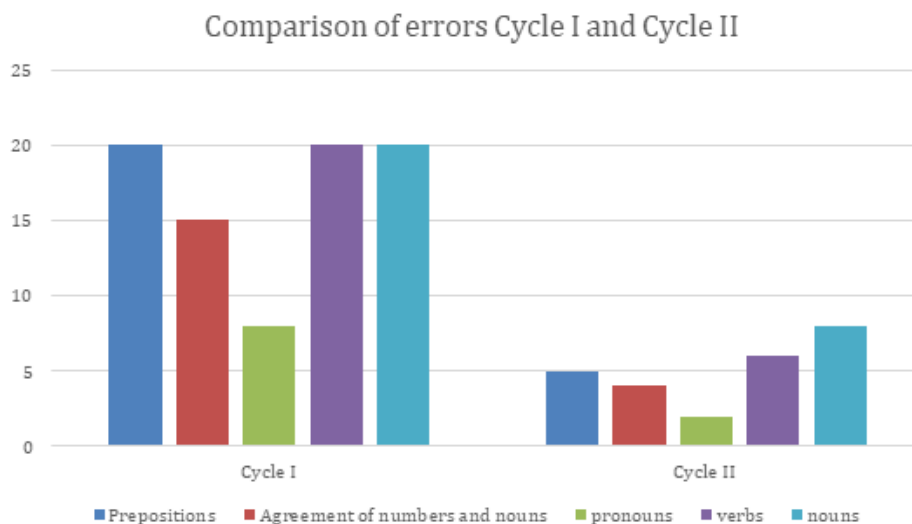
Based on the pre-implementation/Cycle I results, the researcher conducted lecturing and introduced the application Duolingo to the participants. The participants registered themselves and did some practices based on the errors made before and the explanations given. Furthermore, the participants were given another chance to write down their application letter and did the check using the application Duolingo. The application Duolingo showed the participants the errors they made and gave them the correction of grammatical sentences. This activity is known as Cycle II. The results of Cycle II showed that there were significant improvements in participants writing skills. The number of

errors decreased and is shown as follows: 1) prepositions (5 errors); 2) agreement of numbers and nouns (4 errors); 3) pronouns (2 errors), 4) verbs (6 errors), and 5) nouns (8). The examples of errors presented are shown in Table I1 below:

Table 1: Kinds errors on Cycle II

No.	Kinds of errors	Errors in sentences	Grammatical sentences
1.	prepositions	I got the info <u>in newspaper</u>	I got the info <u>from the newspaper</u>
2.	Agreement of numbers and nouns	I am looking forward <u>for</u> your <u>decisions</u> .	I am looking forward <u>to</u> your <u>decision</u> .
3.	pronouns	I propose <u>my self</u> as a new employee in your company.	I propose <u>myself</u> as a new employee in your company.
4.	verbs	The candidate should <u>acknowlege</u> a genuine <u>weaknes</u> and <u>discus</u> the <u>step</u> they are taking to improve.	The candidate should <u>acknowledge</u> genuine weaknesses and <u>discuss</u> the <u>steps</u> they are taking to improve.
5.	nouns	I am a perfect <u>candidates</u> for the vacancy.	I am a perfect <u>candidate</u> for the vacancy.

Furthermore, the comparison of Cycle I and Cycle II is shown in Graph I below:



Discussion

The results from the implementation of CAR and the application Duolingo have shown significant improvement in students' writing skills and English grammar understanding that was shown through decreased numbers of mistakes/errors. It can be concluded that the implementation of CAR and the application of Duolingo are effective and relevant to the students of IT college. The use of Duolingo is evidence that AI has an important role and positive impact in improving students' writing skills and also for the implementation of participants' knowledge and best practices for their knowledge in informatics and technology.

CONCLUSION

The results of this research have shown that the implementation of AI, especially the application of Duolingo and CAR has a good impact and positive outcomes to improve students' writing skills. The results of Cycle I and Cycle II have shown that from 5 kinds of mistakes/errors, there were a significantly decreased number of errors that were: 1) prepositions from 20 to 5 errors; 2) agreement of numbers and nouns from 15 to 4 errors; 3) pronouns from 8 to 2 errors; 4) verbs from 20 to 6 errors; and 5) nouns from 20 to 8 errors. As students of IT College, the participants are encouraged to improve their skills in IT and foreign languages especially English.

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