

## THE EFFECT OF USING THE DUOLINGO APPLICATION ON SENIOR HIGH SCHOOL STUDENTS' MASTERY OF GERMAN PERSONALPRONOMEN

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**Abstract** : The aim of this study is to assess the impact of utilizing the Duolingo application on the comprehension of personal pronouns in the German language among students at SMA 2 Negeri Tondano. The chosen research methodology is a Pre-experimental design known as the One-Group Pretest-Posttest design. Data gathering involves administering pretest-posttest assessments and documenting the outcomes. The collected data will be analyzed using both Descriptive Statistical Analysis and Inferential Statistical Analysis. The findings of the study indicate that hypothesis  $H_1$  is accepted, while  $H_0$  is rejected, indicating a positive influence of the Duolingo application on students' understanding of personal pronouns in class XI IPS at SMA Negeri 2. This research is anticipated to provide a constructive contribution to educational practitioners by improving the quality of learning through the utilization of the Duolingo application.

**Keywords** : *Influence, Duolingo Application, Personalpronomen*

### INTRODUCTION

Information and communication technology has changed many aspects of life in this era. In Indonesia, people are increasingly connected to these advancements, especially through widespread internet access and the increasing use of smartphones (Alam, *et al.*, 2021). With the internet, people can easily access information from various sources, communicate with people around the world, and carry out various activities digitally. It also enables people to participate in various online platforms, such as social media and knowledge-sharing applications. The presence of information and communication technology has changed the way we interact, learn, work and live our daily lives (Kontostavlou & Drigas, 2019).

Apart from serving as a means of communication, the internet can also be used as an abundant source of knowledge

(Goldman, *et al.*, 2012). Along with the times, the learning process has also undergone a transformation. In the beginning, teachers were the main source of information and knowledge in the context of learning. Then, the emergence of books as a medium of learning allowed individuals from various backgrounds to gain access to the knowledge they wanted. Nowadays, books can also be accessed through the internet in digital form (e-books), expanding accessibility to information and knowledge (Maru, *et al.*, 2021).

The impact of the internet on the language learning process, especially German, also has a significant influence (Malik, 2019). To achieve optimal results in German language learning, adequate facilities and infrastructure need to be available. The utilization of information and communication technology as a German language learning resource is a

step to increase the effectiveness of student learning (König, *et al.*, 2020). The development of information technology that provides learning information in the form of audio, visual, and audio visual has resulted in the concept of virtual learning.

The use of audio media can benefit students in developing listening skills and practicing pronunciation in language learning. The development of information and communication technology also has a significant impact on the education sector, with the emergence of various technological products that facilitate the learning process of students (Kundi & Nawaz, 2010). In Indonesia, the use of smartphones is increasingly widespread, so the education sector needs to adopt innovations and utilize this technology in learning activities. One of the media used in education is Mobile Learning, which utilizes smartphones, laptops, and tablets. Through Mobile Learning, students can learn flexibly, whenever and wherever they are (Wang & Jou, 2023). This approach helps students in understanding the material more efficiently and in less time compared to conventional learning media.

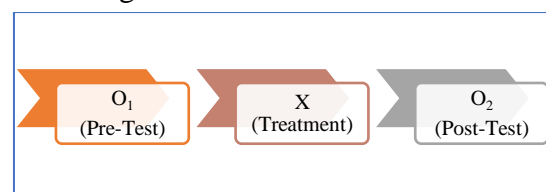
There are many mobile-based educational applications that adopt the concept of educational games. One example is the Duolingo application which acts as a learning media. Duolingo is a popular application in Indonesia for learning foreign languages. The advantages of this application lie in its practicality, effectiveness, and being an alternative for those who want to improve foreign language skills outside the context of formal learning. Duolingo offers various languages, including German, and can be accessed for free through smartphone devices. The use of Duolingo App provides an engaging and inspiring learning experience, encouraging students' passion and interest in learning German.

From the above, proficiency in German has a significant importance for students, especially for those who intend to continue their education to college or work in companies that have relations with the German state. However, mastering the German language is not an easy thing, especially in understanding the use of Personalpronomen (personal pronouns) which has a striking difference with Indonesian.

In an effort to learn German, many people rely on books, taking courses, or even being directly in the German country. However, with the advancement of information and communication technology, Indonesian people have also begun to utilize foreign language learning applications such as Duolingo. Therefore, this study aims to evaluate the impact of using Duolingo Application on the mastery of Personalpronomen in German by the students at SMA Negeri 2 Tondano.

## RESEARCH METHOD

This study uses a quantitative approach, which involves evaluating indicators and collecting data by administering tests to respondents. The collected data will be analyzed using statistical methods. The research design applied in this study is Pre-Experimental or Pre-Experimental Designs with one-group pretest-posttest type (initial testing - final testing on one group). According to Arikunto (2010: 124), one-group pretest-posttest design is a research activity that provides an initial test (pretest) before being given treatment, after being given treatment then gives a final test (posttest). The pattern of the one-group pretest-posttest design method is as follows:



**Figure 1.** One-group pretest-posttest design method

This study involves the examination of two variables: the independent variable (also referred to as the predictor variable) and the dependent variable (the outcome variable). The independent variable that is the focus of this study is the use of Duolingo application, while the dependent variable is students' ability to understand the use of personal pronouns. The research population consisted of 15 students of class XI social studies at SMA Negeri 2 Tondano. The research sample included the entire population, as all students of class XI social studies were selected using the simple random sampling method so that each student had an equal opportunity to be randomly selected as research participants.

In the framework of this study, a measuring instrument in the form of a test consisting of 20 multiple choice questions was used. The questions were designed to test the understanding of Personal pronomen cases in the nominativ case and adapted from the material contained in the teacher's textbooks, namely Kontakte Deutsch 2 and Super Deutsch 1. To ensure that this 20 multiple choice questions test has good validity and reliability, testing was carried out using the SPSS 22 application. To test the validity of the instrument in this study, the correlation coefficient was calculated using the Pearson Product Moment formula as follows:

$$r_{xy} = \frac{n \sum X_i - (\sum X_i) (\sum Y_i)}{\sqrt{\{n \sum X_i^2 - (\sum X_i)^2\} \{n \sum Y_i^2 - (\sum Y)^2\}}}$$

To evaluate the validity of each question item, a criterion is used which states that a question item is considered valid if the correlation value (r<sub>count</sub>) exceeds the critical value (r<sub>table</sub>). Conversely, if the correlation value (r<sub>count</sub>) is lower than the critical value (r<sub>table</sub>), then the question item is considered invalid. The validity test in this study was carried out using the SPSS 22

application, and the results of the question item analysis can be found below:

**Table 1.** The result of validity test

Question No.	Total	Criteria
1,2,7,9,11,12,14,15,16,19	10 soal	Valid $r_{\text{count}} > r_{\text{table}}$
3,4,5,6,8,10,13,17,18,20	10 soal	Tidak Valid $r_{\text{hitung}} < r_{\text{tabel}}$

In order to test the reliability of this study, the SPSS 22 application was used. The reliability test was conducted using the Cronbach Alpha formula, which was implemented as follows:

**Table 2.** The Result of Cronbach Alpha Test.

Cronbach Alpha	N of Item
0,903	10

In the last stage of this research, the data that has been collected is analyzed using descriptive statistical analysis techniques and inferential analysis. Descriptive statistical analysis techniques are used to describe and explain the data that has been collected without making conclusions that apply generally. In the context of this study, descriptive statistical analysis was used to describe the learning outcomes of students' mastery of German personal pronouns before and after treatment using the Duolingo App. Descriptive statistical analysis includes information about the number of samples, mean, median, mode, minimum value, maximum value, and the total amount of data that has been collected.

**FINDINGS AND DISCUSSION**

This research was conducted at SMA 2 Negeri Tondano during the second semester of the 2023/2024 academic year. This research data was obtained from one class consisting of 15 students. The following are the pretest and posttest

scores produced by students of class XI IPS:

**Table 3.** The score of the Pretest and Posttest

No	Students	Pretest Score	Posttest Score
1	A.U	60	90
2	B.L	60	90
3	B.N	60	80
4	D.S	50	80
5	E.K	50	70
6	E.M	50	80
7	K.W	40	80
8	L.M	30	70
9	M.M	50	100
10	P.M	70	100
11	S.S	50	90
12	T.W	40	80
13	V.M	40	70
14	V.R	40	70
15	Y.K	60	90
<b>Total</b>		<b>750</b>	<b>1240</b>
<b>Mean Score</b>		<b>50,00</b>	<b>82,67</b>

The pretest and posttest data have been analyzed using SPSS 22, a statistical software used for social sciences. The following are the results of data calculations which can be seen in the following form:

**Table 4.** Pre-test and Post-test analysis

N	Pretest	Posttest
Valid	15	15
Missing	0	0
Mean	50,00	82,67
Median	50,00	80
Mode	50	80
Minimum	30	70
Maximum	70	100
Sum	750	1240

The table shows the results of the pretest and posttest given to students in this study. The pretest data consisted of 15 samples with a total score of 750. The average value of the data is 50.00, the median value is 50.00, the mode value is 50, the minimum value is 30, and the

maximum value is 70. Meanwhile, the posttest data also consists of 15 samples with a total value of 1240. The average posttest score was 82.67, the median score was 80.00, the mode score was 80, the minimum score was 70, and the maximum score was 100. Through the use of Duolingo App in this study, there was a change in the mastery of Personalpronomen by students based on the comparison between the pretest and posttest.

Furthermore, inferential statistical analysis was conducted to test the hypothesis in the study. The hypothesis consists of  $H_0$  which states that there is no effect of using Duolingo App on students' mastery of German Personalpronomen, and  $H_1$  which states that there is an effect of using Duolingo App on students' mastery of German Personalpronomen.

The test was conducted by analyzing the pretest and posttest scores using t-test. After calculating the  $t_{count}$  of 15.827622 and  $t_{table}$  of 2.16037, it was found that  $t_{count}$  is greater than  $t_{table}$ , namely  $15.827622 > 2.16037$ . This indicates that the difference between the pretest and posttest results is statistically significant. Thus, it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted. The results of this study provide support for the hypothesis that the use of Duolingo App has a positive influence on the mastery of German Personalpronomen of XI social studies students at SMA Negeri 2 Tondano.

In this study, an experimental method with a One Group Pretest-Posttest design was used. In the first stage, 15 students were given an initial test before they received treatment using the Duolingo App, and a final test was given after treatment using the app. The results showed that the comparison of statistical values indicated that the lowest score on the pretest was 30 and the highest score was 70. Meanwhile, on the posttest, the

lowest score was 70 and the highest score was 100. The average pretest score was 50.00, while the average posttest score was 82.67.

Learning is a process that brings changes to individual self-development in various aspects, such as cognitive, affective, and psychomotor. After the research was conducted at SMA Negeri 2 Tondano, it was clear that there were changes in each student before and after using the Duolingo App. These changes include increased understanding and a stronger spirit of learning, especially in learning German Personalpronomen.

Learning outcomes reflect students' abilities after following the learning process that can be assessed. The results showed that in the pretest category, there was 1 student with a score of 30, 4 students with a score of 40, 5 students with a score of 50, 4 students with a score of 60, and 1 student with a score of 70. While in the posttest results, there were 4 students with a score of 70, 5 students with a score of 80, 4 students with a score of 90, and 2 students with a score of 100. This shows that there is an increase in the mastery of German Personalpronomen by students after using the Duolingo Application.

In the t-test, the calculated  $t_{\text{count}}$  is 15.827622 with a degree of freedom (db) of 13. At the 5% significance level, the  $t_{\text{table}}$  value is 2.16037. Because the value of  $t_{\text{count}} > t_{\text{table}}$  ( $15.827622 > 2.16037$ ), then  $H_0$  is rejected and  $H_1$  is accepted. Thus, the hypothesis in this study is accepted, namely there is a positive relationship between the use of Duolingo Application and the mastery of Personalpronomen of XI social studies students at SMA Negeri 2 Tondano.

## CONCLUSION

Based on the research results and data that have been presented, it can be concluded that the utilization of the Duolingo Application has a positive

impact on the understanding of the Personalpronomen of students in class XI IPS at SMA Negeri 2 Tondano. This conclusion is also supported by the results of hypothesis testing, where the calculated  $t_{\text{count}}$  (15.827622) is greater than the  $t_{\text{table}}$  value (2.16037), so that the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_1$ ) is accepted. Therefore, it can be concluded that in this study there is a positive correlation between the use of Duolingo App and students' mastery of Personalpronomen.

Based on the research conclusions above, there are several recommendations that can be proposed to improve the quality of education, among others:

- German teachers are expected to provide various learning tools and alternatives to students at school. This aims to provide variations in learning methods so that students can learn more effectively and enjoyably.
- Practitioners or researchers in the field of German language teaching are also advised to conduct similar research with a different focus. This will provide a comparison and a deeper understanding of the use of the Duolingo App or other learning approaches in improving students' understanding of Personalpronomen.

## REFERENCES

- Alam, M. M., Awawdeh, A. E., & Muhamad, A. I. B. (2021). Using e-wallet for business process development: challenges and prospects in Malaysia. *Business Process Management Journal*, 27(4), 1142-1162.
- Ammon, U., & Charlston, D. (2019). *The position of the German language in the world*. Routledge.
- Angreany, F., & Saud, S. (2017). Keefektifan Media Pembelajaran Flashcard Dalam Keterampilan Menulis Karangan Sederhana Bahasa Jerman Siswa Kelas Xi Ipa Sma Negeri

- 9 Makassar. *Eralingua: Jurnal Pendidikan Bahasa Asing dan Sastra*, 1(2), 138-146.
- Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. PT. Rineka Cipta.
- Dosi, F., & Budiningsih, C. A. (2019). Pengembangan multimedia pembelajaran untuk meningkatkan keterampilan menyimak bahasa Jerman. *Jurnal Inovasi Teknologi Pendidikan*, 6(1), 1-13.
- Fathonah, U., & Bukhori, H. A. (2021). Analisis kesulitan siswa dalam pelaksanaan pembelajaran bahasa Jerman secara daring selama pandemi Covid-19 Di Sekolah Menengah Atas. *Edukatif: Jurnal Ilmu Pendidikan*, 3(4), 1152-1160.
- Goldman, S. R., Braasch, J. L., Wiley, J., Graesser, A. C., & Brodowinska, K. (2012). Comprehending and learning from Internet sources: Processing patterns of better and poorer learners. *Reading research quarterly*, 47(4), 356-381.
- Ilmia, Syahidah Nur (2021) *Pengaruh penggunaan media pembelajaran aplikasi berbasis android terhadap hasil belajar siswa materi kegiatan ekonomi kelas V MI Yaspuri Kota Malang*. Undergraduate thesis, Universitas Islam Negeri Maulana Malik Ibrahim.
- Keraf, G. (2005). *Diksi dan Gaya Bahasa*. PT. Gramedia Pustaka Utama.
- König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European journal of teacher education*, 43(4), 608-622.
- Kontostavlou, E. Z., & Drigas, A. S. (2019). The Use of Information and Communications Technology (ICT) in Gifted Students. *Int. J. Recent Contributions Eng. Sci. IT*, 7(2), 60-67.
- Kundi, G. M., & Nawaz, A. (2010). From objectivism to social constructivism: The impacts of information and communication technologies (ICTs) on higher education. *Journal of Science and Technology Education Research*, 1(2), 30-36.
- Malik, A. R. (2019). The Influence of Instagram and Auditory Learning Style on German Language Mastery in Students of SMAN 1 Maros. In *International Conference on Cultural Studies* (Vol. 2, pp. 279-283).
- Maru, M. G., Pikirang, C. C., Setiawan, S., Oroh, E. Z., & Pelenkahu, N. (2021). The internet use for autonomous learning during COVID-19 pandemic and its hindrances. *International Journal of Interactive Mobile Technologies*, 15(18), 65-79.
- Nuralie, A. (2019). *Hubungan Antara Penggunaan Aplikasi Duolingo Sebagai Media Pembelajaran dan Kemandirian Belajar Dengan Kemampuan Berkomunikasi Bahasa Inggris Siswa*. Universitas Negeri Semarang.
- Purba, M. S., Simanjuntak, T. A., & Hutagalung, I. S. (2022). Pengaruh Aplikasi Duolingo Terhadap Peningkatan Kosakata (Wortschatz) Peserta Didik Kelas XI TKJ SMK Swasta HKBP Pematang Siantar. *Jurnal Pendidikan dan Konseling (JPDK)*, 4(6), 5467-5476.
- Sugiyono. (2010). *Metode Penelitian Pendidikan Pendekatan Kualitatif, Kuantitatif dan R&D*. Alfabeta.
- Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kualitatif, Kuantitatif dan R&D*. Alfabeta.
- Wang, J., & Jou, M. (2023). The influence of mobile-learning flipped classrooms

on the emotional learning and cognitive flexibility of students of different levels of learning achievement. *Interactive Learning Environments*, 31(3), 1309-1321.