HELLOTALK: AN APPLICATION TO IMPROVE UNIVERSITY STUDENTS' WRITING SKILLS

[1]Fifi Arifida, [2]Raihana Diani, [3]Sintia Febrianda, [4]Meta Keumala, and [5]Marisa Yoestara
[1,2,3,4,5]Universitas Serambi Mekkah, Indonesia
*meta.keumala@gmail.com

ABSTRACT

This study intends to find out the university students' experience in using the Chat feature in the HelloTalk application. The method used was a mixed method researching 55 university students from several universities in Aceh consisting of 13 male and 42 female students. The instruments used in this research were a questionnaire and an interview with several selected this research, researchers used descriptive analysis to analyse the data from the questionnaire and thematic analysis to analyse the data from the interviews. The result revealed that the university students felt improvement in the writing element while using the chat feature in HelloTalk, especially the vocabulary element.

Keywords: *HelloTalk, writing, elements of writing*

1. INTRODUCTION

In this globalization era, humans can no longer be separated from technology. According to Putri (2022), technological development is very rapid. In the current era of technological development, many people are already using technology in their daily activities. The role of technology for humans includes facilitating information and communication between individuals or organizations. Apart from that, technology can also help humans by providing access to various learning resources, one of which is the HelloTalk application.

Hermawan and Amri (2022) state that HelloTalk is a language-based application for mobile conversations that creates cultural immersion and language learning, so that language practice becomes easy, interesting, and intuitive because it makes it possible for users to connect and talk with native speakers from all over the world. The HelloTalk application has various features, one of which is the chat feature. With this feature, students can practice their writing skills in English.

Writing is the creation of notes or information on a medium using characters which is usually done on paper using tools such as pens or pencils. Writing is also defined as the act or process of creating a written text, showing how a person communicates his or her thoughts and feelings by visible signs, understandable not only by himself but also by all people (Indrilla, 2018). There are several elements in writing, including mechanics, grammar, vocabulary, and fluency in writing. Mechanics in writing are needed to be considered for producing good writing, such as spelling (Prihatmi, 2017). Spelling is important in writing, particularly to avoid misunderstanding the meaning of the written word. Besides, punctuation as the writing mechanics also plays an important role in a sentence or text. Punctuation includes the use of certain signs in writing to separate sentences, mark breaks, organize the flow of text, and indicate intonation. Some examples of punctuation marks are commas, periods, question marks, exclamation marks, semicolons, and hyphens. The use of punctuation affects understanding, rhythm, and articulation in writing, clarifying the structure and meaning of a text.

Grammar is a set of rules and practices that govern the structure, development, and use of language and that define standards and norms for the structure of sentences and the relationships between different sentence parts. In other words, grammar helps keep language coherent. It contains rules about word order, verb conjugation, punctuation, spelling, and other elements of language use. The Department of grammar is concerned the rules of language and their application in writing, speaking, and listening. Studying grammar can help students improve their writing and communication skills, as well as their overall understanding of the language. Grammar is the science that studies how language works in communication (Takadisihang, 2022).

Vocabulary is the collection of words and phrases that a person knows in a particular language. It is the collection of all words and expressions that a person can understand and use, including the different meanings, definitions, and implications of each word or expression. For effective communication and understanding, it is important to have a wide and varied vocabulary, to be able to express more nuances and precision and to better understand the language. In addition, learning new vocabulary also broadens knowledge and improves thinking and self-expression skills in a specific language.

Fluency is the main thing thing that someone needs to pay attention to when studying English (Sholeh, 2015). Fluency is the ability to communicate ideas and information clearly and effectively in written form. The ability to write confidently, freely, and simply is an essential part of effective communication in writing. Writing fluency can be developed through practice, including writing and revising, reading and analyzing good writing, and receiving feedback and advice from teachers, editors, or peers. It is important to remember that writing fluency is a process and cannot be mastered overnight. With the right practices and resources, writing skills can be improved.

There have been several studies that have examined the application of HelloTalk in improving writing skills, such as research from Solihin et al. (2023) with the title "Improving Writing Skills by Using a Project-Based Learning Model Through the HelloTalk Application", and there is also another research from Safitri (2023) with the title "Using the HelloTalk Application to Improve Students' Writing Skills in Descriptive Texts in First Grade SMA Ma'arif NU 5 Purbolinggo". However, unfortunately, there has been no research focussing on Hellotalk in improving the five aspects of writing. Therefore, researchers were interested in conducting this research to find out how the university students experience in using the chat feature in HelloTalk, particularly in term of the elements of writing improvement.

2. METHODS

A scientific method is a strategy to gather information or accomplish specific goals in a study. The method of this research comprises design, participants or subject, instrument, collected data process, and technique of analyzed data.

Design

The design used in this research was a mixed method with an explanatory sequential design. According to Azhari et al. (2023), explanatory sequential design is a research design that collects and analyzes the quantitative data in the first stage, followed by the collection and analysis of qualitative data in the second stage, to support the findings of the quantitative data carried out in the first stage, aiming to gather more thorough, accurate, dependable, and impartial data. In this research, the researchers described the university students' experience in using the chat feature in HelloTalk to improve the elements of writing skills. In this research, measurable data with a comparative aspect was obtained by quantitative procedures which was by distributing the questionnaire. The obtained quantitative data is then expanded upon, proven, and persuaded by using the qualitative methods, which was through the interview. The quantitative data obtained was used to see how much the contribution of the use of chat feature in the HelloTalk application had on improving the elements of writing skills according to university students' experiences. Meanwhile, the qualitative data was used to strengthen the findings from the quantitative data.

Participant

In this research, there were 55 university students in Aceh as the research participants, consisting of 13 male and 42 female students. They were students from several state and private universities, including 26 students from Serambi Mekkah University, 7 students from Syiah Kuala University, 8 students from UIN Ar-Raniry, 3 students from Abulyatama University, 4 students from Muhammadiyah Aceh University, 1 student from Almuslim University, 2 students from IAIN Lhokseumawe University, 1 students from Lhokseumawe State Polytechnic University, 1 student from Stikes Muhammadiyah Lhokseumawe University, 1 students from

Ubudiyah Indonesia University, and 1 student from Malikussaleh University. Research participants in this research were students from the 2020 to the 2023 academic years. The total of university students for the 2020 academic year was 13, the 2021 academic year was 25, the 2022 academic year was 7, and the 2023 academic year was 10.

Instrument

The instruments the researchers used in this research was questionnaire and interview. A questionnaire is a technique for collecting data or information through forms containing questions that can be addressed to a person or group of people in an organization to get responses or answers that will be analyzed by parties who have a specific purpose, through a questionnaire, the party can study the reciprocal results provided by the respondents and try to measure what can be found in the process of filling out the questionnaire. Besides, it is also to determine how broad or limited the sentiments conveyed in a questionnaire are (Wijaya, 2016). In this research, the questionnaire was in the form of closed statements containing 20 statements regarding university students' experiences in using the Chat feature in the HelloTalk application regarding writing skills elements improvement The 20 questions covered four aspects/elements in writing, the first five questions were about mechanics, the second five questions were about grammar, the third five questions were about flow in writing and the last five questions were about vocabulary, completed with four Likert-scale answers, namely strongly agree, agree, disagree and strongly disagree. Ten minutes were required to complete the questionnaire. The researchers created a questionnaire bay using Google Forms and distributed the questionnaires via WhatsApp to university students who used the HelloTalk application in Aceh Regency.

Another instrument used to collect data in this mixed-method research was an interview. Data collection techniques using interviews is a face-to-face contact between two or more parties for a specified goal, such as gathering data or obtaining information (Fadhallah, 2021). In this research, the researchers created six questions for interviews related to elements of writing skills improvement through HelloTalk. The questions in the interview included, (1) How long have you used the HelloTalk application? (2) How do you think the mechanics of writing improve when using the Chat feature in the HelloTalk application? (3) How do you think the grammar improves when using the Chat feature in the HelloTalk application? (4) How do you think the fluency of writing improves when using the Chat feature in the HelloTalk application? (5) How do you think the vocabulary improves when using the Chat feature in the HelloTalk application? (6) What elements of writing are most improved while using the Chat feature in the HelloTalk application? This data collection process was carried out by interviewing five university students who used the HelloTalk application from university representatives in Aceh via voice call in WhatsApp.

Procedures

According to Makbul (2021), procedures are approaches or strategies that researchers can employ to get information. In the quantitative research stage of data collection, university students in Aceh who used the HelloTalk application were given an online questionnaire. The researchers gave the university students questionnaires and then waited for 10 days to get responses. The questionnaire was closed by the researcher after ten days. After that, the researchers used online interviews to conduct the second stage of qualitative investigation. To collect information for the second stage, researchers contacted five university students from each university in Aceh who had used the HelloTalk application via voice call. Next, the researchers asked seven questions. The result of the questionnaire and interview obtained were then analysed by the researchers.

Data Analysis

Octaviani and Satriani (2019), say that the goal of data analysis is to categorize and organize data. At this point, efforts are made to set away other sets of data that are similar but not the same, group the same data, equate the same data, and distinguish the different data. The data obtained in this research was then analyzed to

determine the university students' experiences using the Chat feature in the HelloTalk application in terms of the improvement of writing elements.

Data from questionnaires on university students' experiences in using the Chat feature in the HelloTalk application were analyzed using descriptive statistics. Descriptive statistics were used to examine data from questionnaires about university students' experiences by using the Chat feature in the HelloTalk application. According to Solikhah (2016), to provide results, descriptive statistics must organize and analyze facts and figures to present a clear, concise, and organized picture of a symptom, event, or situation. The descriptive statistics used in this study were by calculating the percentage as in the following formula:

$$P = F/N \times 100\%.$$

Explanation:
P = the percentage sought
F = the frequency for which the percentage is being sought
N = number of participants

Data from interview on university students' experiences in using the Chat feature in the HelloTalk application related to the improvement of elements in writing skills were analyzed using thematic analysis. The process of finding, examining, and summarizing themes or patterns in data is known as thematic analysis (Sitasari, 2022). If a researcher wants to closely study qualitative data to identify connections between patterns in the degree to which occurrences occur as perceived by the researcher, this approach works very well.

3. RESULTS & DISCUSSION

The result of this research was presented based on the twenty questions in the questionnaire and seven questions in the interview.

3.1 Questionnaire Result

Table 1. Questionnaire Results of University Students' Experiences to Improve Mechanics in Writing by Using the HelloTalk Application in Chat Feature.

No.	Statement	Answer Alternatives				Average
		Strongly Disagree	Disagree	Agree	Strongly Agree	
1.	The biggest improvement in learning English by using the HelloTalk application in the chat feature is the writing mechanics.	1	1	42	11	96%
2.	Learn English by using the HelloTalk application in the chat feature to help users correct punctuation errors.	0	3	37	15	94%
3.	Learning English using the HelloTalk application in the chat feature helps in forming clearer and more structured sentences.	1	1	36	17	96%
4.	Learning English using the HelloTalk application in the chat feature can improve and perfect spelling.	1	1	37	16	96%
5.	Learning English by using the HelloTalk application in the chat	2	8	34	11	82%

	feature can increase fluency in writing due to the consistency of correct language use.					
	The average percentage of the score					93%

Based on the university students' experiences using the HelloTalk chat feature, the table above shows that writing mechanics experienced a high improvement in English learning, with up to 96% of participants stating this. 94% of university students said that using the chat feature in the HelloTalk application to learn English could help with punctuation correction, 96% of participants felt very helpful in forming clearer and more structured sentences through the chat feature in the HelloTalk application, 96% of respondents stated that learning English using the chat feature on the HelloTalk application can improve and perfect spelling, and 82% of participants found that by consistently using the correct language when learning English through the chat feature of the HelloTalk application, they were able to improve their writing fluency. The use of the chat feature in the HelloTalk application improves the writing mechanism for most university students, as can be seen from the average questionnaire score percentage of 93% which is quite high.

More clearly, the percentage of university students experiences to improve mechanics in writing by using HelloTalk application in chat feature can be seen in the following diagram.
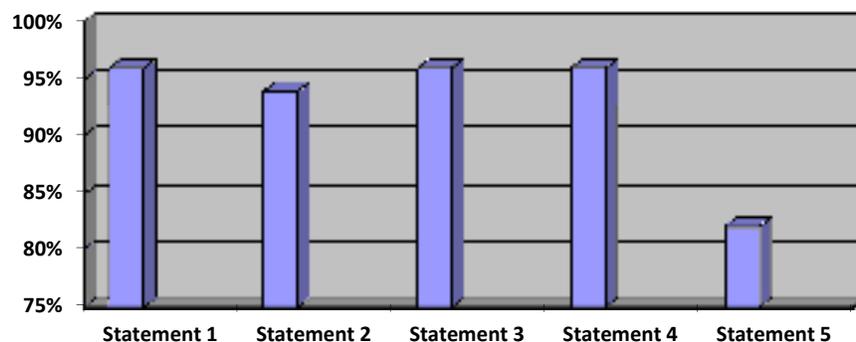
Figure 1. Questionnaire Results of University Students' Experiences to Improve Mechanics in Writing by Using the HelloTalk Application in Chat Feature.

In addition to improving writing mechanics through the use of chat features on the HelloTalk application, university students were also asked to fill in statements that discuss grammar improvement through the use of chat features on the HelloTalk application.
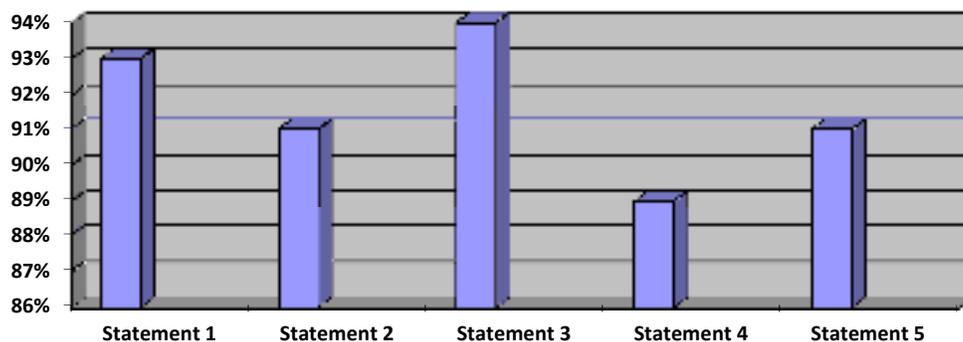
Table 2. Questionnaire Results of University Students' Experiences to Improve Grammar in Writing by Using the HelloTalk Application in Chat Feature.

No.	Statement	Answer Alternatives				Average
		Strongly Disagree	Disagree	Agree	Strongly Agree	
1.	The biggest improvement in learning English by using the HelloTalk application in the chat feature is grammar.	0	4	35	16	93%
2.	Learning English by using the Hellotalk application on the chat feature can help in constructing sentences with correct grammar.	2	3	33	17	91%

3.	Learning English by using the Hellotalk application on the chat feature can correct grammatical errors and improve understanding of correct sentence structure.	2	1	38	14	94%
4.	Learning English by using the Hellotalk application on the chat feature can strengthen learning and application of grammar rules.	1	5	35	14	89%
5.	Learning English by using the HelloTalk application in the chat feature made me interested in learning more about grammar.	2	3	37	13	91%
The average percentage of the score						92%

Based on the table above, it can be seen that most students agreed that learning English by using the Hellotalk application in the chat feature can correct grammar errors and improve understanding of correct sentence structure, 84% of participants stated this. and there were 93% who agreed that the biggest improvement in learning English by using the HelloTalk application in the chat feature was grammar. And there were 93% who agreed that the biggest improvement in learning English by using the HelloTalk application in the chat feature was grammar. Statements 2 and 4 had the same average, which was 91%. It can be seen that students agreed that the HelloTalk application in the chat feature can help in constructing sentences with correct grammar, and made them interested in learning more about grammar. The last statement was about learning English by using the Hellotalk application on the chat feature can strengthen the learning and application of grammar rules, 89% of students agreed with the statement. The survey's average percentile score of 92% indicates that most students felt that using HelloTalk's chat helped their grammar. More specifically, the following graph illustrates the percentage of students who used the HelloTalk chat to improve their grammar.

Figure 2. Questionnaire Results of University Students' Experiences to Improve Grammar in Writing by Using the HelloTalk Application in Chat Feature

In addition to improving the elements mentioned, students are also required to fill out a statement regarding vocabulary improvement through the use of the HelloTalk application in the chat feature.

Table 3. Questionnaire Results of University Students' Experiences to Improve Vocabulary in Writing by Using the HelloTalk Application in Chat Feature

No.	Statement	Answer Alternatives	Average

		Strongly Disagree	Disagree	Agree	Strongly Agree	
1.	The biggest improvement in learning English by using the HelloTalk application in the chat feature is vocabulary.	0	5	34	16	91%
2.	Learning English by using the Hellotalk application on the chat feature can help apply the vocabulary received from HelloTalk in daily life.	2	0	38	15	96%
3.	Learning English by using the HelloTalk application in the chat feature can expand your vocabulary by learning new words and everyday phrases.	0	2	33	20	94%
4.	Learning English by using the HelloTalk application in the chat feature can deepen your understanding of meaning and correct usage.	0	3	38	14	94%
5.	Learning English by using the HelloTalk application in the chat feature made me interested in learning more about vocabulary.	1	1	34	19	96%
	The average percentage of the score					95%

As seen in the table above, the second and fifth statements were the most selected statements by the university students. 96% of students agreed that vocabulary was the element that improved the most when using the HelloTalk application in the chat feature and made them interested most in learning more about vocabulary. Both statements three and four also had the same percentage amount of 94%. students agreed that the HelloTalk application in the chat feature can expand their vocabulary by learning new words and everyday phrases, and can also deepen their understanding of meaning and correct usage. The last statement was the first statement that sounds like "The biggest improvement in learning English by using the HelloTalk application in the chat feature is vocabulary", in which 91% of university students agreed with the statement above.

More precisely, the percentage of students who used the HelloTalk chat feature to increase their vocabulary is seen in the following graph.
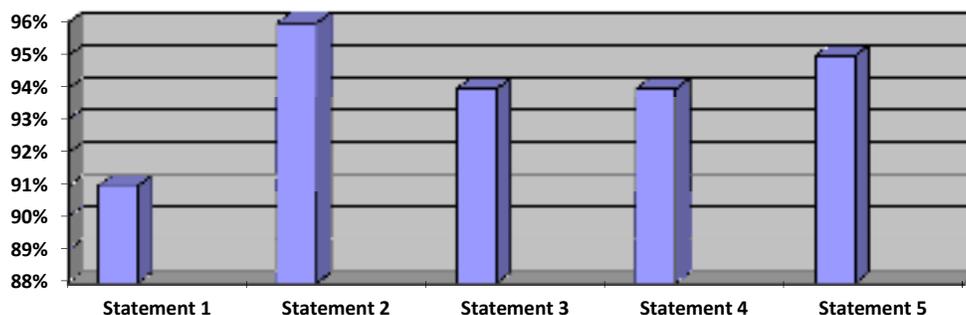
Figure 3. Questionnaire Results of University Students' Experiences to Improve Vocabulary in Writing by Using the HelloTalk Application in Chat Feature.

Moreover, the university students were also required to complete a statement regarding the improvement of the writing flow through using the chat feature on the HelloTalk application.

Table 4. Questionnaire Results of University Students' Experiences to Improve Flow in Writing by Using the HelloTalk Application in Chat Feature.

No.	Statement	Answer Alternatives				Average
		Strongly Disagree	Disagree	Agree	Strongly Agree	
1.	The biggest improvement in learning English by using the HelloTalk application in the chat feature is the flow in writing.	1	6	38	10	87%
2.	Learning English by using the HelloTalk application in the chat feature can help keep writing from being monotonous.	0	6	38	11	89%
3.	Learning English by using the HelloTalk application in the chat feature can help make writing more natural.	2	1	41	11	94%
4.	Learning English by using the HelloTalk application in the chat feature makes writing more logistical and connected.	1	2	39	13	94%
5.	Learning English by using the HelloTalk application in the chat feature can increase fluency in writing due to the consistency of correct language use.	1	1	40	13	96%
	The average percentage of the score					92%

Based on university students' experiences using the HelloTalk chat feature, the table above shows that flow in writing experienced the biggest improvement in English learning, with up to 87% of participants stating this. 89% of university students said that using the chat feature in the HelloTalk application to learn English could help keep writing from being monotonous, writing more naturally could be aided by learning English through the HelloTalk application in the chat feature, according to 94% of students, 94% of respondents stated that learning English using the chat feature on the HelloTalk application could makes writing more logistical and connected, and 96% of participants discovered that by consistently employing the proper language when learning English with the HelloTalk application in chat feature, writing fluency may be increased. The average questionnaire score percentage of 92% indicates that most university students find that using the chat feature in the HelloTalk application helps the flow of their writing.

More precisely, the accompanying diagram illustrates the percentage of university students who have used the HelloTalk conversation tool to improve their fluency in writing.
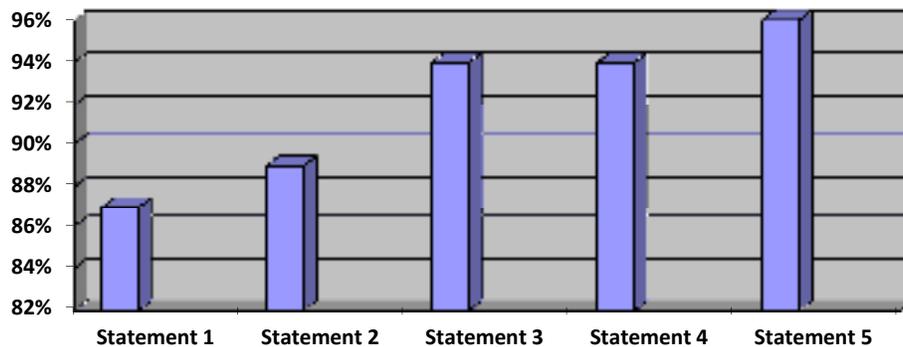
Figure 4. Questionnaire Results of University Students' Experiences to Improve Flow in Writing by Using the HelloTalk Application in Chat Feature.

3.2 Interview Result

The first question was about how long university students have been using HelloTalk Application. Most of the participants said that they have used HelloTalk for one year, and one of them has been using it for almost two years, and the other two have only been using it for about two months and eleven months. The findings are shown in the following excerpt.

Excerpt 1
Q1-P2: I have used HelloTalk app for 1 year.

Excerpt 2
Q1-P4: I have been using HelloTalk for almost 2 years.

However, in the second interview question about how university students think the writing mechanism is improved when using the chat feature in the HelloTalk application. All participants in this research interviews agreed that the writing mechanism is improved when using the HelloTalk application.

Excerpt 3
Q2-P1: Very helpful, especially when I first started using the HelloTalk application.

In terms of the next interview question about what university students think of the grammar improvement when using the Chat feature in HelloTalk application. All participants in this research interviews agreed that the grammar is improved when using the HelloTalk application.

Excerpt 4
Q3-P4: I think the HelloTalk application is very helpful for correcting our grammar when using the application because the grammar checking feature and also translation help us see if there are errors in the writing we write.

The fourth question was about how university students think about writing fluency improvement when using the Chat feature in the HelloTalk application. All participants in this research interviews also agreed that HelloTalk improves the writing mechanics. Some comments can be seen in the following excerpts.

Excerpt 5

Q4-P1: It is good because when I use the HelloTalk app while writing and there are mistakes in writing, they will be automatically corrected.

Excerpt 6
Q4-P4: I think the HelloTalk application is very helpful for improving writing fluency, especially if we have a partner who is suitable for chatting every day.

For the next question about how university students think their vocabulary has improved while using the HelloTalk application. All of the participants agreed that their vocabulary has improved while using the HelloTalk application, as could be seen in the following excerpt.

Excerpt 7
Q5-P1: Very much improved especially during the time I used this application.

Excerpt 8
Q5-P5: while using the HelloTalk app my vocabulary has greatly improved.

For the last question was about what element of university students writing that has improved the most while using Chat feature in HelloTalk, most of the participants said that their vocabulary has improved most when using HelloTalk application, but one of them said grammar is the element that improved most when using HelloTalk application. The comments are shown in the following excerpts.

Excerpt 9
Q6-P5: The element of writing that has improved the most is vocabulary.

Excerpt 10
Q6-P3: The element that improved the most when I used the HelloTalk application was grammar.

The finding in this research revealed that the HelloTalk application is very helpful in improving university students' writing skills, especially vocabulary. Vocabulary is the writing element that has improved the most among the other elements. These findings are similar to the previous study by Solihin et al. (2023) because the researchers were both researching the HelloTalk application to improve students' writing skills. The results of their research show that students can improve their writing skills by using the HelloTalk application. However, there is a difference between this research and previous research, in this research, the researchers examined how the HelloTalk application with chat features could improve writing skills with four elements; meanwhile, in the previous research, researchers only examined how the HelloTalk application could improve writing skills in general, and did not use chat features.

4. CONCLUSION

Based on the results of data that has been carried out through questionnaires and interviews distributed to students, it can be concluded that the writing ability of university students can improve while using the HelloTalk application on the chat feature, especially vocabulary. This research not only discusses vocabulary elements but also discusses other elements such as mechanics, grammar, and fluency. Furthermore, the element that are mostly improved from the results of university students' experience are vocabulary with a total of 94%.

REFERENCES

Fadhallah, R. A. (2021). Wawancara [The interview]. UNJ Press.

Hanson, W. E., Creswell, J. W., Clark, V. L. P., Petska, K. S., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, *52*(2), 224.

Hasan, H. (2018). Improving students' English vocabulary by using the Tic Tact Toe game at the second Year of SMP Negeri 7 Satap Maiwa Kabupaten Enrekang. Edumaspul: Jurnal Pendidikan, 2(2), 77-86.

Herlisya, D., & Wiratno, P. (2022). Having good English through the TikTok application. *Journal Corner of Education, Linguistics, and Literature*, *1*(3), 191-198.

Hermawan, I. (2019). Educational research methodology (qualitative, quantitative and mixed method). Hidayatul Quran.

Indrilla, N., & Ciptaningrum, D. S. (2018). An approach in teaching writing skills: does it offer new insight in enhancing students writing ability. *LLT Journal: A Journal on Language and Language Teaching*, *21*(2), 124-133

Makbul, M. (2021). Metode pengumpulan data dan instrumen penelitian. OSF Preprints.

Octaviani, R., & Sutriani, E. (2019). Analisis data dan pengecekan keabsahan data. *INA-Rxiv*

Pratiwi, Z. F., & Education, E. (2022). The impact of using Joox to increase vocabulary and learn how pronounce the word. *Pustakailmu. Id, 2(2)*

Prihatmi, T. N. (2017). English academic writing bagi mahasiswa di Institut Teknologi Nasional Malang: Hambatan dan solusi. Prosiding SENIATI, *3*(2), C54-1

Putra, R., Astuti, I. F., & Kridalaksana, A. H. (2014). Pembelajaran bahasa Inggris dengan analisis grammar. *Informatika Mulawarman: Jurnal Ilmiah Ilmu Komputer*, *9*(3), 43-48.

Putri, E. (2022). An impact of the use Instagram application towards students' vocabulary. *Pustakailmu. id*, *2*(2), 1-10.

Safitri, S. D. (2023). The use of HelloTalk applications to improve students' writing skills in descriptive text at the first grade of SMA Maarif NU 5 Purbolinggo. Universitas Lampung.

Sholeh, A., & Muhaji, U. (2015). Pronunciation difficulties encountered by EFL students in Indonesia: Sebuah studi kasus pada mahasiswa kelas integrated course semester 1 FKIP Bahasa Inggris Universitas Kanjuruhan Malang. *Jurnal Inspirasi Pendidikan*, *5*(2), 698-707.

Sholikhah, A. (2016). Statistik deskriptif dalam penelitian kualitatif. *KOMUNIKA: Jurnal Dakwah Dan Komunikasi, 10*(2), 342-362.

Sijabat, H. N., Tampubolon, S., & Sidabutar, U. (2023). An error analysis of using punctuation in writing narrative text of tenth-grade students at SMA Gajah Mada Medan. *Innovative: Journal of Social Science Research*, *3*(5), 2560-2573.

Sitasari, N. W. (2022). Mengenal analisa konten dan analisa tematik dalam penelitian kualitatif. *In Forum Ilmiah, 19* (1), 77-84.

Solihin, R. K., Hartono, R., Rukmini, D., & Wahyuni, S. (2023, September). Enhancing writing skills by using the project-based learning model through the Hello Talk application. *In International Conference on Science, Education, and Technology, 9,* 657-665.

Takadisihang, M., Pamantung, R. P., & Sigarlaki, S. J. (2022). Ucapan langsung dan tidak langsung bahasa Inggris dan bahasa Sangir (suatu analisis kontrastif). *Jurnal Elektronik Fakultas Sastra Universitas Sam Ratulangi, 30.*

Tiara, A. D., Rahman, M. A., & Handrianto, C. (2021). The student's perception about use of Duolingo application for improving English vocabulary. *International Journal of Education, Information Technology, and Others*, *4*(4), 690-701.

Umbola, H., Maru, M. G., & Hampp, P. (2022). Improving students' vocabulary by using word game applications. SoCul: *International Journal of Research in Social Cultural Issues, 2*(5), 668-675.

Wijaya, H. O. L., & Mediriansyah. (2016). Perancangan sistem informasi data survei sosia ekonomi daerah (suseda) berbasis web mobile. https://jurnal.pcr.ac.id/index.php/jkt/article/view/202.