Implementation of AI Chatbot as an Interactive Learning Medium on Accounting Lessons in SMK

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Abstract: *The purpose of this research is to describe how the implementation of AI-based accounting learning Chatbot as well as any obstacles faced by teachers in class X SMK Batik 1 Surakarta major Financial Accounting and Institutions (AKL). This type of research is qualitative by using case study methods against students who will use AI Chatbot on accounting subjects. Research was conducted at SMK Batik 1 Surakarta. The subjects in this study are X-grade students and teachers in financial and institutional accounting. (AKL). Primary data is obtained from students who are going to use the Chatbot AI application and secondary data from previous research as a journal that matches the research topic. Data analysis techniques include data collection, data presentation, data reduction, and conclusion drawings. In this implementation effectively enhance the understanding and skills of students and teachers in the use of artificial intelligence technology. The use of AI Chatbot has the potential to enhance student engagement and expand the availability of diverse learning materials, while also facilitating the development of problem-solving and analytical skills among students. However, obstacles such as inadequate understanding, resource constraints, and effective integration into the learning process must be overcome. Given these issues, it is vital to build long-term collaboration and provide sustainable assistance between educational foundations, formal education institutions, and government agencies.*
Keywords: Implementation, Learning Media, AI Chatbot, Accounting Education.

Implementasi AI Chatbot sebagai Media Pembelajaran Interaktif pada Mata Pelajaran Akuntansi di SMK

Abstrak: Tujuan dari penelitian ini untuk mendeskripsikan bagaimana implementasi pembelajaran akuntansi berbasis AI Chatbot serta apa saja hambatan yang dihadapi guru pada kelas X SMK Batik 1 Surakarta jurusan Akuntansi Keuangan dan Lembaga (AKL). Jenis penelitian ini adalah kualitatif dengan menggunakan metode studi kasus terhadap siswa yang akan menggunakan AI Chatbot pada mata pelajaran akuntansi. Penelitian dilakukan di SMK Batik 1 Surakarta. Subjek dalam penelitian ini adalah siswa kelas X dan guru pada jurusan Akuntansi Keuangan dan Lembaga (AKL). Data primer didapatkan dari siswa yang akan menggunakan aplikasi AI Chatbot dan data sekunder didapatkan dari penelitian terdahulu berupa jurnal yang sesuai dengan topik penelitian. Teknik analisis data berupa pengumpulan data, penyajian data, reduksi data, dan penarikan kesimpulan. Dalam implementasi ini secara efektif meningkatkan pemahaman dan keterampilan siswa dan guru dalam menggunakan teknologi kecerdasan buatan. Penggunaan AI Chatbot memiliki potensi untuk meningkatkan keterlibatan siswa dan memperluas ketersediaan bahan belajar yang beragam, sementara juga memfasilitasi pengembangan kemampuan pemecahan masalah dan kemampuan analitis di antara siswa. Namun, hambatan seperti pemahaman yang tidak memadai, keterbatasan sumber daya, dan integrasi yang efektif dalam proses belajar harus diatasi. Mengingat isu-isu ini, sangat penting untuk membangun kolaborasi jangka panjang dan memberikan bantuan berkelanjutan antara yayasan pendidikan, lembaga pendidikan formal, dan badan pemerintah.
Kata Kunci: Implementasi, Media Pembelajaran, AI Chatbot, Pendidikan Akuntansi.

1. Introduction

The Internet is a direct example of the industrial revolution of this century that supported the birth of various educational technology innovations. In addition, the mechanism of social interaction enables educational human beings as users of the implementation of educational technology to be able to communicate from one place to another without limit of time and space via the Internet. Nowadays, the global community is using a lot of

Facebook Instagram blogs, and other social media platforms to communicate and share knowledge. The growth of Internet users today is very rapid and a primary necessity. Internet users compared to 10 years ago had a remarkable boost that peaked at the time of Covid-19. The Internet can be easy without knowing the social class and income (Rahman & Eitedal, 2020).

In terms of the application of technology, precision and operational efficiency are of course far superior when compared to human resources. This is due to the compilation of a technology operating system that automatically performs its tasks based on a systematically defined program (Skjuve et al., 2021)

Artificial Intelligence or Artificial Intelligence (AI) is one of the most popular technologies today that is widely used in various sectors (Ardiansyah, 2023). Around the 1950s, Alan Turing introduced Artificial Intelligence (AI) through a test known as the Turing Test performed with a computer (Ardiansyah & Sari, 2023). Artificial Intelligence (AI) studies the mechanisms of the human brain. It includes the way the human mind thinks in giving instructions. By 2023, during the rapid advancement of educational technology, it has begun to adopt Artificial Intelligence (AI), which focuses on understanding how human brains work. One type of Artificial Intelligence (AI) product is a Chatbot (Yusriadi et al., 2023)

The development of information and communication technology has taken a tremendous leap since COVID-19 hit the world in early 2020 and has affected all aspects of life. After the COVID-19 pandemic, there are a lot of interesting things to see from a variety of perspectives that have made drastic advances in the field of information technology. One of those areas is education.

Educational technology moves after the advancement of information and communication systems. This is the cause of the birth of several media that are increasingly sophisticated in support of maintenance in various forms of education such as higher education. Chatbots are educational technologies that can be used (Annafi Franz et al., 2023).

Chatbots begin to work by identifying how the human brain works to study specific topics such as decision-making and problem-solving (Dirko G. S. Ruindungan, 2021). Chatbot's working mechanisms make users pretend to be socially familiar with Chatbots (Brandtzaeg et al., 2021). The AI application uses the identification results to help answer questions, provide system services and procedures, which are generally

reliable in service to the customer when applied to the accounting sector (Ahmad et al., 2021).

Chatbots are crucial for education, especially the learning process on accounting subjects because they have a systematic work pattern. It is also part of an effort to make the education system more innovative. On the other hand, the implementation of Chatbots is in line with the Free Learning policy, which gives students the freedom to choose what they learn and what media they use to their learning goals (Qotrunnida et al., 2023).

The application of educational technology in Solo City, Central Java Province at various levels of education has began at the time of the COVID-19 pandemic. Chatbot applications will therefore be a complementary medium for the development of more creative, innovative and effective learning models based on educational technology (Fitria, 2023).

Chatbot is a crucial media as an alternative to educational technology for students because Solo City of Central Java Province has been implementing online education since the time of COVID-19. On the other hand, there are still students who are less interested in studying outside the classroom because of the non-academic bustle and media that tends to be boring for students. So the problem is access. Subject learning will fail because of poor learning media and low interest in learning (Ali et al., 2023).

In the long run, graduates will find it difficult to compete in the labour market and industry. Therefore to help students to learn independently outside the classroom, Chatbots have an advantage that can solve such problems. The advantages of Chatbots include: 1) being able to communicate personally, creating an interactive version of the website so that no application needs to be installed) its use in real-time; 4) the way the system works designed to provide answers to the obstacles encountered by the user (students) and 5) triggering users (student/costumer and others) to reuse it repeatedly (Joko Prakosta Santu Aji & Masnita, 2023).

The ability to work systematically is one of the advantages of Al technology. Al-based Chatbots can communicate in ways that are like human logic and can work in a systematically way through machine learning and deep learning.

Chatbots are applications designed to help humans communicate with machines and can interact with users using both text and audio and collaboration. With the help of an artificial intelligence-based Chatbot, the education

industry can accelerate the development of effective learning methods to learning goals and efficiency in a relatively fast time (Sari, 2021).

Students can use the Chatbot just by clicking its link on their Android phone or laptop. A Chatbot that has been designed with interactive capabilities will greet the user and ask the user's name. Chatbots will also display several features that are available to the user. It also allows the user to ask directly about the topic in the chat column if the user finds something not understood. Next, the robot will answer a student's question. (user). Therefore, this application is called a Chatbot. The term Chatbot refers to the nature of interaction between a user as a commander (question) and a robot designed specifically to answer questions asked by a user. (user). For commands or questions that do not exist in the Chatbot database, the robot will suggest that you ask the content creator/teacher directly on the related subject that designed the Chatbot system so that the educator (teacher) can add standard keywords for questions and answers to the Chatbots (Andika Isma et al., 2023).

Chatbots, in helping provide services, have been applied to various fields and fields of duty such as Chatbot that serves the acceptance of prospective students serving online consultations so that it can cut procedures that exist on conventional methods. AI-based Chatbots allow students to instantly obtain daily curriculum updates, tuition fees, assignment scores, and a variety of other information (Nguyen et al., 2021).

Research carried out (Nguyen et al., 2021) showed that a Chatbot developed with a deep learning model could detect more than fifty types of keyword questions entered by users (students) with an accuracy of 97.1% on a test set applied to the official National Economics University admission fan page on the Facebook platform, which is the most popular social network in Vietnam. Similarly, the application of a Chatbot to a business that sells beauty products suggests that Chatbot can serve online consultation for consumers such as product benefits, stock availability, prices, and more (Fidiyanti et al., 2023). According to (Nasution & Dar, 2022), Chatbot implementation in basic Javanese language learning reaches 90% as its accuracy rate. The implementation of Chatbot in English learning achieved an accuracy rate of 97.5% (Sarosa et al., 2022).

According to (Mostafa & Kasamani, 2021), Chatbot*s* as Artificial Intelligence instruments change the nature of online services by revolutionizing service provider interactions with consumers including compatibility, convenience felt by *users* and expectations of maximum service performance and building social interaction between humans and robots. The results of the study (Mostafa & Kasamani, 2021) stated that *user* trust for the first time using *a* Chatbot can increase the intention to use *the* Chatbot the next time and encourage user engagement.

Chatbots designed to have Artificial Intelligence are increasingly used today and in the future in various fields, especially in the field of education. There are many opportunities for the use of Artificial Intelligence in accounting because of the complexity of its working mechanism and the large amount of data that must be deciphered both in the business and education sectors (Gultom, 2024). Therefore, Artificial Intelligence is needed that can help students learn independently. However, in the learning process, there is an emotional intelligence factor that also influences students when doing the tasks given by the teacher, including in terms of the completeness of learning outcomes.

Information technology (IT) is a type of technology consisting of the collaboration of hardware and software to facilitate the activity of processing data and storing information, and disseminating it for various human needs whose media is a computer. The role of IT in an organization is very important because it can help expedite service and business operations in an organization. Information systems are software. Databases hardware and people who collect, modify, and disseminate information for an organization. Therefore, it can be said that an information system is a form of cooperation between computers and humans that processes data entered a database and then becomes an information system. The information system will produce information for humans as recipients (Senduk & Sitokdana, 2022)

Accounting is a family of economics that is divided into various sectors such as accounting, education, management accounting, corporate accounting, audit accounting, government accounting, and various other accounting fields that continue to grow along with human needs, both for the needs of human resource development in the world of education and in the industrial and business world. At the same time, the rapid advancement of the technology and information industry encourages almost all lines of life and business to come into contact with technology including accounting (Kharis et al., n.d.). This is proven by the application of Artificial Intelligence (AI) which is popularly

discussed by various accounting sectors. According to (Mostafa & Kasamani, 2021). Artificial Intelligence is a science that studies communication styles between humans and computers through automatically programmed natural language. One type of Artificial Intelligence is a Chatbot built using an information technology (IT) system is natural language processing (NLP) (Serdianus, 2023). Chatbot is a conversational agent that interacts with users in natural language (Accenture interactive), for example Indonesian, English and Arabic so that it can be used for personalized services (Mostafa & Kasamani, 2021)

There are two types of Chatbot applications , namely: 1) Web-based online Chatbots that run in the cloud and can be accessed through the website interface; and 2) Standalone application-based offline Chatbots that can be accessed on Android or computers. Chatbots with dialog flow have also been developed for general educational and learning media that feature speech recognition and speech synthesis technology (Muhammad, 2020).

Chatbot access security settings are an effort to prevent the system from accessing irresponsible parties. Generally, a system has three stages of security: 1) user identity, which shows the user name / ID and password; 2) authentication, namely proof of user validity related to the name / ID shown when accessing the system by providing proof of validity such as tokens, verification codes both voice and short messages; and 3) access rights/permissions, namely after identification and authentication are successfully carried out, the user can log in to the system according to the access rights owned, for example, only have permission to view certain files or menus (Isono & Prilliadi, 2023).

To support the achievement of educational goals, various types of learning media are needed according to the level of difficulty of each subject so that students are interested in independent learning outside the classroom and stay connected to current technological developments including accounting subjects. Thus, in answering these needs, this research is important to be carried out so that the implementation of An AI-based accounting learning Chatbot as one of the educational technology-based learning applications becomes a new effort in the world of education, especially at SMK Batik 1 Surakarta.

2. Research Methods

This type of research is qualitative using the case study method of students who will use AI Chatbot in accounting subjects. The research was conducted at SMK Batik 1 Surakarta in January 2024. The subjects in this study were grade X students and teachers in the Department of Financial and Institutional Accounting (AKL).

The types of data in this study are primary and secondary data, where primary data is obtained from students and teachers who will use the AI Chatbot application and secondary data is obtained from previous research in the form of journals in the *Google Scholar* database that discusses AI Chatbot with a period of 2017-2024.

Data analysis techniques in this study consist of four, namely, data collection, data presentation, data reduction, and conclusions. In this study, researchers collected data in the field using three ways, namely, observation, interviews and, documentation.

3. Results and Discussion

Based on the results of research in the field, the results of the research were obtained. In this study, the efforts looked for by researchers are related to how to introduce and apply the AI Chatbot application to help students and teachers solving problems in accounting learning in the classroom.

In this study, researchers tried to provide information about how to use AI Chatbot. The implementation or application in this study consists of three stages: the introduction of AI in education, the use of AI Chatbot, and practices related to its use.

In the first stage, researchers tried to explain the basic concepts of AI and its benefits in education. Students as well as teachers will learn the application of AI in learning and related challenges. The second stage focuses on using AI Chatbot as virtual assistance in learning. Students will learn how to integrate AI Chatbot in learning and its benefits for students and teachers.

In the third stage, researchers discussed how to use AI Chatbot as a search engine to solve learning problems in accounting subjects. Participants will learn how to integrate AI Chatbot in learning and its benefits for students and teachers.

The purpose of the implementation or introduction of AI Chatbot is to provide an understanding of the use of AI technology in learning and improve the quality of learning. The success indicator is the increase in participants' knowledge about AI concepts, the use of AI Chatbot and its utilization in learning.

The implementation of training is carried out in several stages with the following conditions:

Introduction of AI in education: Learners as well as teachers are introduced to the basic concepts of AI and its benefits in education. In

this case, learners as well as teachers learn AI applications for learning and related challenges. The application of AI Chatbot is carried out through presentation sessions and interactive discussions.

Utilization of AI Chatbot in learning: Students and teachers are involved in the application of AI using AI Chatbot as virtual assistance in learning. In this they learn how to integrate AI Chatbot in learning and understand the benefits for students and teachers. The application of AI Chatbot involves hands-on exercises and collaborative discussions.

Practice how to use AI Chatbot in learning: Students and teachers are involved in the application of AI using AI Chatbot as a search engine to solve accounting problems in classroom learning.

The application of AI Chatbot is held in a collaborative and interactive atmosphere, with participants actively engaged in discussion and hands-on practice. Researchers provide the necessary guidance and guidance to ensure good understanding and practical application in learning.

With the implementation of AI Chatbot-based accounting learning in class X of SMK Batik 1 Surakarta, students and teachers are expected to understand and integrate AI technology, such as AI Chatbot in learning. This is expected to improve the quality and effectiveness of learning and assist students and teachers in solving problems related to accounting subjects in the classroom.

The target audience of the implementation of learning using AI Chatbot is students and teachers in class X of SMK Batik 1 Surakarta Financial and Institutional Accounting program. In this case, students and teachers are directly involved in the learning process and have an important role in providing and receiving educational activities that take place in the classroom.

This study validates key findings from prior research regarding the advantages of AI in education, including enhanced student comprehension and engagement in learning. This aligns with a study conducted at a university in Toraja, which demonstrated that AI has facilitated improved understanding of lessons, offered valuable assistance in task completion, and provided substantial feedback. Furthermore, the utilization of artificial intelligence has facilitated improved utilization and customization of educational experiences. Students can utilize resources that align with their proficiency level, preferred learning styles,

and individual requirements, hence fostering a more adaptable and pertinent learning encounter (Pertiwi et al., 2023).

The objective of this project is to equip teachers and students with knowledge and expertise in utilizing AI technology, specifically in the application of AI Chatbot in the field of accounting education. Therefore, this research holds significance for educators and learners specializing in Financial and Institutional Accounting (AKL) in Class X SMK Batik 1 Surakarta.

4. Conclusions and Suggestions

In this study related to the implementation of AI Chatbot-based accounting learning in class X of SMK Batik 1 Surakarta, researchers sought to provide understanding and training to teachers and students regarding the use of AI technology, such as AI Chatbot. In learning has the potential to improve the quality and effectiveness of learning. In this implementation, it has succeeded in increasing the understanding and skills of students and teachers in using AI technology. The use of AI Chatbots can increase student engagement and expand access to varied learning resources and can facilitate their problem solving and development of students' analytical skills.

However, challenges such as insufficient understanding, limited resources, and proper integration in learning need to be addressed. In facing this challenge, there needs to be continuous cooperation and support between educational foundations, formal educational institutions, and the government. By integrating AI technology in learning, this can improve the quality of education in Indonesia and prepare students to face the challenges of the digital era and industry 5.0 or better known related to the innovation-based industrial revolution.

Bibliography

Ahmad, Z., Rahim, S., Zubair, M., & Abdul-Ghafar, J. (2021). Artificial intelligence (AI) in medicine, current applications and future role with special emphasis on its potential and promise in pathology: present and future impact, obstacles including costs and acceptance among pathologists, practical and philosoph. *Diagnostic Pathology*, *16*(1), 1–16. https://doi.org/10.1186/s13000-021-01085-4

Ali, N., Hayati, M., Faiza, R., & Khaerah, A. (2023). Artificial Intelligence (AI) dalam Pendidikan Islam: Trends, Persepsi, dan Potensi Pelanggaran Akademik di Kalangan Mahasiswa. *INJIRE: Indonsian Journal of*

Islamic Religious Education, *1*(1), 51–66. https://injire.org/index.php/journal/article/view/18

Andika Isma, Rosidah, R., Sigit Sahalik Rahman, Nasrullah, N., Arif Setiawan Syam, & Novita Sari. (2023). Analisis Penggunaan Chatbot Berbasis AI pada Model Hybrid di Jurusan Teknik Informatika dan Komputer. *Journal of Vocational, Informatics and Computer Education*, *1*(2), 79–92. https://doi.org/10.61220/voice.v1i2.20239

Annafi Franz, Eny Maria, Suswanto, Yulianto, Budi Rachmadani, Eko Junirianto, Asep Nurhuda, Ida Maratul Khamidah, Suci Ramadhani, Muslimin, Husmul Beze, Reza Andrea, Syafei Karim, Emil Riza Putra, Fajar Ramadhani, Bagus Satria, & Imron. (2023). Pelatihan Penerapan Artificial Intelligence (AI) untuk Menunjang Aktifitas Pembelajaran pada Sekolah Dasar Daarul Hijrah Al_Amin Samarind. *JLP : Jurnal Lentera Pengabdian*, *Volume 01*(04), 1–9.

Ardiansyah, A. (2023). Pendampingan Perancangan Chatbot Sebagai Media Interaktif Dalam Menghadapi Tantangan Era Digitalisasi. *Lamahu: Jurnal Pengabdian Masyarakat Terintegrasi*, *2*(1), 44–55. https://doi.org/10.34312/ljpmt.v2i1.18078

Ardiansyah, & Sari, H. F. A. (2023). Analisis Minat Mahasiswa Dalam Menggunakan Aplikasi Chatbot Pada Mata Kuliah Akuntansi. *Jurnal Teknodik*, *8*(2), 33–50. https://doi.org/10.32550/teknodik.vi.1009

Brandtzaeg, P. B., Skjuve, M., Dysthe, K. K., & Folstad, A. (2021). When the social becomes non-human: Young people's perception of social support in chatbots. *Conference on Human Factors in Computing Systems - Proceedings*. https://doi.org/10.1145/3411764.3445318

Dirko G. S. Ruindungan, A. J. (2021). Chatbot Development for an InteractiveAcademic Information Services using the RasaOpen Source Framework. *Jurnal Teknik Elektro Dan Komputer*, *10*(p-ISSN : 2301-8402, e-ISSN : 2685-368X ,available at: https://ejournal.unsrat.ac.id/index.php/elekdankom), 61–68.

Fidiyanti, F., Subagja, A. R., Wachyu, R. P., Madiistriyatno, H., & Jakarta, U. P. (2023). *Analisis strategi pengembangan bisnis menggunakan teknologi artificial intelegence*. *2*(7), 1994–2001.

Fitria, T. N. (2023). Artificial intelligence (AI) technology in OpenAI ChatGPT application: A review of ChatGPT in writing English essay. *Journal of English Language Teaching*, *12*(1), 44–58. http://journal.unnes.ac.id/sju/index.php/elt

Gultom, F. (2024). *Perancangan Web Dengan Chat GPT Untuk Meningkatkan Kualitas Akademik (Studi Kasus : Universitas Efarina)*. *4*, 5589–5600.

Isono, I., & Prilliadi, H. (2023). *Accelerating Artificial Intelligence Discussions in ASEAN : Addressing Disparities , Challenges , and Regional Policy Imperatives*. *488*.

Joko Prakosta Santu Aji, B., & Masnita, Y. (2023). The Influence of Chatbot Anthropomorphism on Trust, Intention, and Engagement of Indonesian State-Owned Bank Customers: Investigation Using the DOI Theory. *International Journal of Applied Business Research*, *2023*(2), 152–166. https://doi.org/10.35313/ijabr.v5i02.293

Kharis, M., Hidayat, E., Ardiansyah, R., & Ebner, M. (n.d.). *Mobile Gramabot : Development of a Chatbot App for Interactive German Grammar Learning*. *1*, 52–63.

Mostafa, R. B., & Kasamani, T. (2021). *Antecedents and consequences of chatbot initial trust*. https://doi.org/10.1108/EJM-02-2020-0084

Muhammad, A. F. (2020). *Developing English Conversation Chatbot Using Dialogflow*. *September*. https://doi.org/10.1109/IES50839.2020.9231659

Nasution, F. A., & Dar, M. H. (2022). Application Of Artificial Intelligence in Chatbot Application As Palm Oil Price Information System and Capacity On Ramp in Labuhanbatu. *Technology, and Organizational Behavior (IJBTOB)*, *2*(4), 2775–4936. https://ijbtob.org

Nguyen, D. M., Chiu, Y. T. H., & Le, H. D. (2021). Determinants of continuance intention towards banks' chatbot services in vietnam: A necessity for sustainable development. *Sustainability (Switzerland)*, *13*(14), 1–24. https://doi.org/10.3390/su13147625

Pertiwi, A., Bara, Y. P., & Pakiding, Y. (2023). Mengoptimalkan Pengalaman Belajar menggunakan AI dalam Dunia Pendidikan pada Mahasiswa Teknologi Pendidikan. *Seminar Nasional Teknologi Pendidikan UKI Toraja*, 1–12.

Qotrunnida, N., Supriatna, E., & Naufal Arzaqi, R. (2023). Penggunaan Chatbot Mela terhadap Peningkatan Kemampuan Kosa Kata Bahasa Indonesia Anak di RA Darul Mu'minin. *Murhum : Jurnal Pendidikan Anak Usia Dini*, *4*(1), 448–459.

https://doi.org/10.37985/murhum.v4i1.24
1

Rahman, A., & Eitedal, M. S. R. (2020). *The Impact of Using Artificial Intelligence on the Accounting and Auditing Profession in Light of the Corona Pandemic*. 6(9), 2018–2021.

Sari, I. K. (2021). Blended Learning sebagai Alternatif Model Pembelajaran Inovatif di Masa Post-Pandemi di Sekolah Dasar. *Jurnal Basicedu*, *5*(Vol. 5 No. 4 (2021): August Pages 1683-3000), 2156–2163. https://jbasic.org/index.php/basicedu/article/view/1137

Sarosa, M., Wijaya, M. H., Tolle, H., & Rakhmania, A. E. (2022). Implementation of Chatbot in Online Classes using Google Classroom. *International Journal of Computing*, *21*(1), 42–51. https://doi.org/10.47839/ijc.21.1.2516

Senduk, H. Y., & Sitokdana, M. N. N. (2022).

Perancangan Sistem Informasi Pencatatan Gudang Berbasis Website (Studi Kasus Slingbag Salatiga). 9(1).

Serdianus, S. (2023). *QUO VADIS PENDIDIKAN DI ERA ARTIFICIAL INTELLIGENCE ?* 1–20.

Skjuve, M., Følstad, A., Fostervold, K. I., & Brandtzaeg, P. B. (2021). My Chatbot Companion - a Study of Human-Chatbot Relationships. *International Journal of Human Computer Studies*, *149*(January). https://doi.org/10.1016/j.ijhcs.2021.102601

Yusriadi, Y., Rusnaedi, Siregar, N. A., Megawati, S., & Sakkir, G. (2023). Implementation of artificial intelligence in Indonesia. *International Journal of Data and Network Science*, *7*(1), 283–294. https://doi.org/10.5267/j.ijdns.2022.10.005