

# INSANIA: Jurnal Pemikiran Alternatif Kependidikan

Vol. 28 No. 2, July-December 2023, 235-247 e-ISSN: 2598-3091; p-ISSN: 1410-0053 DOI: 10.24090/insania.y28i2.9529

# Deviant acts in the use of ChatGPT: An analytical study of student behaviour

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Received 3 September 2023; Accepted 5 December 2023; Published 28 December 2023

**Abstract:** Technological progress is indeed a necessity. However, the sophistication of existing technology is unfortunately not accompanied by the maturity of its users, especially students. Use ChatGPT in every task. Thus causing a decrease in creativity and a lack of originality in the work. The research method used is qualitative descriptive. Data were collected using participatory observation techniques, in-depth interviews, documentation, and focus group discussions. The results showed that the negative impact of using ChatGPT is over-reliance, which causes students to be unable to think critically, lack problem-solving skills, have decreased social interaction, and are vulnerable to receiving information bias. The treatment for students who are already addicted to using ChatGPT includes recognizing the signs of addiction that arise, collaborating with professional experts such as psychologists or counselors, training students to think critically and independently, and providing alternative activities that encourage them to participate in social activities. This research still needs improvement. So it needs some further development. These are some suggestions from this study: Investigate the psychological impact of students using ChatGPT, Design an Academic Curriculum by Collaborating with AI, and Develop an evaluation system that combines authentic tasks and the use of ChatGPT.

**Keywords:** ChatGPT; deviation; improving behavior; student.

#### A. Introduction

ChatGPT is a generative AI (Artificial Intelligence) released in November 2022. Artificial intelligence uses algorithms that automatically generate new data based on existing data. A survey in Japan showed that 32% of college students have used ChatGPT,

and about 14% use ChatGPT to write reports or other assignments (Kyodo, 2023). The survey shows that the ease of use and accessibility of ChatGPT is such that interest in its use is high among students. ChatGPT can be accessed through an online platform with a chat-based model. This convenience provides comfort for students to complete their tasks.

The development of technology is indeed a necessity. The main purpose of developing technological sophistication is to facilitate human affairs. Humans can do things more productively by leaving their easy tasks to technology. The birth of Artificial Intelligence in today's life is considered to bring extraordinary benefits. The presence of ChatGPT seems to be a breath of fresh air for everyone, including in the world of education, because it can help facilitate every job. ChatGPT provides time efficiency in completing human tasks.

On the other hand, the presence of ChatGPT is believed to be a threat to humans because it is feared that it will replace the human work system (Iskender, 2023). With ChatGPT's ability to produce human work systems, including in the world of education, it is feared that later students or students will become dependent on completing their tasks. ChatGPT can do tasks that are considered complicated, though, for example, math tasks are generally considered difficult because they are related to calculations and numbers (Serdianus & Saputra, 2023).

Previously, a professor of philosophy from Furman University in Greenville, South Carolina, Darren Hick, found the writing of his student writing about the 18th-century philosopher David Hume very good. The professor took the initiative to check the assignment, and the pattern of the writing structure was similar to the output of an AI chatbot. The result is that it turns out that both of them have similarities of up to 99.9% (Mitchell, 2022). It is recognized that technology can help humans find the information needed. For example, when someone needs information related to education in the classical era when searched using AI, it will undoubtedly bring up information about classical education, but the information conveyed does not appear specifically, and the source of the book obtained cannot be known credibility (Pantan, 2023).

The sophistication of existing technology is not accompanied by the maturity of its users, especially students. Students use ChatGPT in every task, thus causing a decrease in creativity and a lack of originality.

Based on the preliminary research that has been carried out, students said that ChatGPT was used to ask questions during the question and answer session after the presentation. The results of this interview show that the questions the students made were not purely the result of their thinking but rather the results of the robot.

Existing research related to the ChatGPT theme includes the sophistication of ChatGPT and how to use it as an educational support tool (Setiawan & Luthfiyani, 2023; Supriyadi, 2022; Waluyo et al., 2023), challenges of using ChatGPT in research and education (Faiz & Kurniawaty, 2023; Rahman & Watanobe, 2023), educational institutions need to create new policies to follow up on advances in ChatGPT technology to maintain academic integrity and prevent plagiarism (Ajevski et al., 2023; Chaudhry et al., 2023; Lo, 2023).

Some of the research above became the basis for this research. The similarity of the above studies with this study is to examine the same object, namely ChatGPT. The difference is that researchers examined deviant behavior carried out by students in using ChatGPT in the campus environment. This research aims to describe the various acts of deviance students commit and the impact of using ChatGPT on students. This research is important to determine the extent of deviant actions that have been committed by students so that they can be handled immediately.

#### B. Methods

This study used a qualitative descriptive research method. Researchers want to describe and analyze the phenomenon of deviant actions carried out by students using ChatGPT systematically (Sugiyono, 2018).

The research approach used is phenomenology (Moelong, 2018; Schimmel, 1994). This research was conducted at the UIN Saifuddin Zuhri Purwokerto campus, Madrasah Ibtidaiyah Teacher Education study program, semester 5, class of 2021. The author chose the location of this research based on previous research through interviews and observations with students. This data is also supported by teaching experience in the classes we teach. We found that most students did not use Chatgpt wisely during the learning process. When presenting, they only read the results from ChatGPT without analyzing or criticizing the results they obtained through ChatGPT in more depth. As an

Islamic-based campus, this certainly goes against the principles of ethical values and communication from an Islamic perspective. If this continues, it can potentially conflict with Islamic and academic principles, especially those related to ethics, which could decrease students' communication skills directly due to dependence on only using chatgpt without critical support. Apart from that, of course, this also conflicts with local values and, in the future, will negatively impact the sustainability of these values. This research does not intend to avoid technological progress, but the phenomenon aims to make students aware that technology is only a tool that can be used while still adhering to basic Islamic and ethical principles.

Researchers understand the meaning and experience of students in using ChatGPT. Data collection techniques used are in-depth interviews with students who use ChatGPT, direct observation of students who use ChatGPT, and documents in the form of screenshots of ChatGPT. Interview techniques were used to obtain data regarding students' understanding of ChatGPT, the intensity of ChatGPT use, and the purpose of using ChatGPT. Meanwhile, observation techniques are used to obtain data about student behavior when using ChatGPT. Documentation techniques are used to obtain supporting data regarding students' use of ChatGPT.

Research data analysis uses interactive analysis techniques from Miles and Huberman. The data obtained was then reduced to extract important and appropriate data for the research theme. Then, it is analyzed using theory and then presented. The validity of the data was checked using triangulation techniques. Researchers check the truth between interview data and observation data to determine the correctness of the data. The researcher also carried out source triangulation, namely checking the correctness of the data from the first source with the second source.

The data obtained can provide insights into student experiences, perceptions, and interactions with ChatGPT. The focus of analysis in this study is student understanding related to the use of ChatGPT, the challenges faced by students today, and the positive and negative impacts of using ChatGPT.

## C. Result and Discussion

#### 1. ChatGPT Weakness

ChatGPT is a product of technological sophistication. However, behind its convenience and advantages, there are weaknesses. First, it is unreliable. It is because ChatGPT only uses databases on the internet as material to answer each question, which may be unverified and inaccurate. ChatGPT does not have a deep understanding of the specific context or situation. This means these models may not respond appropriately in complex or ambiguous contexts. They are trained using data found on the internet, which may include unverified or potentially inaccurate information. Therefore, this model can produce unreliable responses when faced with questions that require high accuracy or verified information. It is important always to use ChatGPT responses with caution and not rely entirely on the information provided by this model. Carrying out independent verification through reliable sources remains important in ensuring the accuracy of the information received.

Second, the answers ChatGPT generated were weak analyses. The answers presented by ChatGPT can differ significantly from the purpose of a task. Because ChatGPT only answers in general. The information ChatGPT generates is not always correct. It happens because there is no valid source of data or information provided. In addition, the data generated through ChatGPT is accurate and cannot be accounted for.

Another problem that arises in the use of ChatGPT is pornography. Although, in ChatGPT, this is not deliberately looking for pornography, it is possible that advertisements and even pornography and gambling will appear on the internet network. Of course, this will be troubling if internet users do not use it wisely. Other negative impacts of internet use are cruelty, sadism, and fraud in gambling. It could happen because the internet site cannot be contained, so users of this site will find various ways to sell their site (Malay, 2022).

## 2. Deviant Behavior of Students

Students using ChatGPT engage in several deviant behaviors. Students using ChatGPT engage in several deviant behaviors. This is based on the presentation of interview results to students as follows.

Setahu saya teman-teman biasa menggunakan ChatGPT saat kegiatan presentasi Bu. Jadi saat sesi tanya jawab itu biasanya teman-teman yang bertanya, pertaaannya itu hasil dari ChatGPT. Begitu pula saat menjawab pertanyaan, hasil jawaban presenter

juga dari ChatGPT. Kalau yang paling parah, yang saya tahu, membuat tugas makalah atau jurnal dengan ChatGPT (M. M., personal communication, June 5, 2023).

[As far as I know, friends usually use ChatGPT during the presentation, ma'am. So during the question and answer session, friends usually use ChatGPT to ask questions. Likewise, when answering questions, the presenter answers are also from ChatGPT. The worst thing I know is making paper or journal assignments using ChatGPT.]

The interview results show that students use ChatGPT in three activities. First, use ChatGPT to find questions in the question and answer session during the class presentation. The observation results also showed that during the question and answer session, the audience was seen asking questions while reading the writing on their gadgets. Students do this to get an activeness score. The questions asked to the presenter are not the result of his thoughts but of those asked on ChatGPT. In a Wall Street Journal survey of 900 executives, 92% thought soft skills were just as important as technical skills. The soft skills in question are communicating, thinking critically, and being curious. And currently, very few people have good soft skills (Ashford, 2019).

Second, use ChatGPT to find answers in the question and answer session during the presentation. Students in charge of being presenters use ChatGPT to find answers to their questions. They use ChatGPT because the answers generated by ChatGPT are only one or generative. So they don't have to summarize anymore. I just read the results of the chatbot they wrote in ChatGPT. It's different when students use other browsers. Must summarize some of the articles produced by the browser. So, students think that using ChatGPT is more practical. The ease of obtaining answers with ChatGPT limits critical thinking and problem-solving skills (Rahman & Watanobe, 2023).

Third, use ChatGPT to create article tasks. This deviation falls into the category of plagiarism. That is, copy the entire result from ChatGPT without paraphrasing or including the source. Students have high confidence in the accuracy of ChatGPT answers (Sánchez-Ruiz et al., 2023). People who use ChatGPT outsource not only their writing but also their thoughts. Outsourcing critical thinking to technology is vulnerable to information manipulation (Chaudhry et al., 2023).

The above deviation indicates that students' understanding of the material discussed is still shallow. Students who serve as presenters also do not understand the material they present because the material compiled is not the result of their thoughts.

## 3. Negative Impact of ChatGPT Dependency

The use of the internet today is increasingly unstoppable. The internet makes it easier for everyone to access whatever they want—including, in this case, students completing their tasks. In addition to campus assignments, students use the internet to meet their needs in giving goods. Not only that, students also use the internet for entertainment content. However, if this continues to be left without wise direction from lecturers or teachers, it will have a negative impact (Saputro et al., 2023). The negative impact raised will reduce skills and lack of innovation, especially in later careers. The education curriculum in Indonesia aims to improve thinking, critical thinking, cooperation, and communication. Another goal is to grow and develop student potential, have a pancasilais character, believe in God's almighty noble character, be independent, mutually cooperate, and have diversity. If students depend on the ChatGPT internet, it is feared that the education goals expected by the Ministry of Education will not be achieved optimally (Dewi et al., 2021; Kemendikbudristek, 2022).

There are some negative impacts of chatGPT dependency. The first is over-reliance. That is too high of trust in any answer generated by ChatGPT. Thus causing students to become dependent (Holland, 2023). This too-high trust is caused by the prompt display from chatGPT, which only displays one complete answer so that students have a high sense of trust and believe that every answer presented by chatGPT is the truth without checking first.

Second, data bias. A weak analysis cannot be answered satisfactorily (Emenike & Emenike, 2023). John Searle calls this a Chinese room phenomenon. It's like a person trapped in a closed room with a package of Chinese characters and how to arrange them. Suddenly, people were asking from outside in Chinese. Only by following the guidebook can the trapped person answer people's questions in Chinese (Moural, 2003). The same happens to computer machines. AI only needs a lot of data. By itself, it will process. We know that anyone can write on the internet, whether a truth or a lie. AI can't detect that. The data generated by AI combines all data in the database with similar algorithms. It gives rise to information bias.

Fundamentally, in the academic tradition, it is important to include copyright. It means the source obtained must be clear from where it can be accounted for. It is not found

when using ChatGPT. In addition, it is also necessary for someone to discuss and communicate something to gain a sharp understanding and analysis. If we look at ChatGPT, we do not know the source from where and with whom we are talking. Based on faith in the One God. Although researchers admit that the presence of ChatGPT helps in carrying out tasks, they must still wisely use it to avoid getting stuck like the above (Quintans-Júnior et al., 2023).

Third, students are less critical of the data information obtained. Although students will obtain the information needed, this AI may misstate the information data source. So, if a student's digital literacy ability is low, it will automatically make the student less able to think critically and find the information. Therefore, in each course, lecturers should interact with students. The way lecturers do this can be by discussing the results of papers made by students. Then, lecturers can also do group work to discuss the writing results and should be equipped with supporting data. In the learning process, students should be led through teamwork and collaborate in solving these problems. In addition, lecturers can invite students to conduct interactive dialogues by throwing questions at students to foster their critical thinking. Learning can also be done by emphasizing aspects of knowledge, understanding, awareness, and skills that make them critical. The simulation could be that a lecturer directly introduces ChatGPT and its advantages by directly inviting students to access it through their devices. Then, the results of the ChatGPT search are shown to students, along with its shortcomings (Nugraha & Sufanti, 2023).

## 4. Lecturer Strategy

Lecturers are university-level educators who are tasked with developing and disseminating knowledge. Several strategies can be done by a lecturer in responding to current technological advances in the form of ChatGPT:

First, provide students with an understanding of academic ethics. Since the first meeting, lecturers have emphasized the importance of adhering to academic ethics. The first thing lecturers do in teaching academic ethics is to provide clear steps for doing assignments, instilling things that can be done and not done in doing assignments. In welcoming this millennial 5.0 era, the internet world is increasingly competing to innovate in facilitating information search. Among the popular web today is Open AI through its creation known as Artificial Intelligence, more familiarly known as ChatGPT. Through this

search engine, users will easily find the information they want. It is also included in the world of academics who help them complete tasks to produce work and other needs (Setiawan & Luthfiyani, 2023). However, it can be understood that technological sophistication with the internet base and all its conveniences that should be used wisely has a negative impact.

Second, review student assignments regularly. Correcting assignments regularly is effective in determining students' understanding of course material and the extent to which students apply academic ethics. After reviewing the assignment, the review results must also be conveyed to students. The interview results showed that some lecturers did not review student assignments, so students did not know where the mistakes were.

Third, integrate digital technology into learning. Today's lecturers are very important to keep up with the development of digital technology. It aims to produce highly competitive graduates. Students today are millennials with all the sophistication of technology in their hands. Therefore, lecture strategies must collaborate with digital technology (Ausat et al., 2023; Kraugusteeliana et al., 2023). Explaining to students related to academic ethics in digital media is also important to familiarize themselves so that students have sensitivity to academic ethics and avoid deviating.

Critical thinking skills must be trained and familiarized to students. Critical thinking skills are rational and systematic thinking skills. This skill helps students understand a situation and provide an appropriate evaluation. This skill can be trained by asking students to explain the material, analyze a phenomenon, and criticize a theory.

Suppose it is said that technology will continue to process and always develop for the better. Of course, this statement is true, but when will the results of ChatGPT develop? And how it will be generated from this virtual world. Of course, no one can guarantee its certainty. Regarding the development of ChatGPT in the future, no one can give a definite answer because ChatGPT is only a technology. Even more ironically, if students are always left addicted and dependent on ChatGPT to complete their tasks, then what else will they learn later? It is all certainly part of digital literacy and it is understood that digital literacy is not just good at operating digital devices and the internet. However, part of digital literacy skills in operating search engines on the data needed, which sources and pages are recognized for credibility in finding data and information on the internet as academics

must be critical and filter the information obtained. Then, know the ethics in quoting a reference by quoting by applicable scientific rules and avoid plagiarism (Arrajiv et al, 2021; Fernanda et al., 2020).

This article does not mean denying the presence of ChatGPT in the learning process. The author also acknowledges that the presence of ChatGPT helps in the learning process when used wisely. However, it should be understood that AI is only a tool for finding information and is used in the learning process. With so many tasks obtained by lecturers and students, ChatGPT can be one solution to completing their tasks. However, the task of lecturers in the learning environment has more challenges, how to keep students able to develop their skills and remain critical, problem-solving, and solutive. Educators must be able to carry out interesting learning activities to make it happen (Fadhilah & Adela, 2020).

## D. Conclusion

Based on the research results explained above, it can be concluded that technological sophistication is necessary so that the lecturer's task is not to prohibit students from using ChatGPT. Instead, it applies learning strategies that sharpen students to think critically, be sensitive to the natural and social environment, be independent, and be creative. With the ultimate goal of making students wise in using ChatGPT. The main essence arena of technology is as a learning aid. This research is still not perfect. So it needs some further development. These are some suggestions from this study: Investigate the psychological impact of students using ChatGPT, Design an Academic Curriculum by Collaborating with AI, and Develop an evaluation system that combines authentic tasks and the use of ChatGPT.

## References

Ausat A. M. A., Suherlan, S., & Azzaakiyyah, H. K. (2023). Is ChatGPT Dangerous for Lecturer Profession? An In-depth Analysis. *Jurnal Pendidikan Dan Konseling*, *5*(2), 3226–3229. https://doi.org/10.31004/jpdk.v5i2.13878

Ajevski, M., Barker, K., Gilbert, A., Hardie, L., & Ryan, F. (2023). ChatGPT and the Future of Legal Education and Practice. *The Law Teacher*, *00*(00), 1–13. https://doi.org/10.1080/03069400.2023.2207426

- Arrajiv, D. A., B. B. M. A., Wahyuningsih, T., Kartini, K., & Rahmawati, L. E. (2021). Tingkat Kemandirian Belajar Siswa Ditinjau Dari Implementasi Literasi Digital Siswa Sma Negeri 2 Sukoharjo. *Buletin Literasi Budaya Sekolah, UMS*, 55–64. https://doi.org/10.23917/blbs.v3i1.14278
- Ashford, E. (2019, January 16). *Employers Stress Need for Soft Skills*. American Association of Community Colleges. https://www.ccdaily.com/2019/01/employers-stress-need-soft-skills/
- Chaudhry, I. S., Sarwary, S. A. M., El Refae, G. A., & Chabchoub, H. (2023). Time to Revisit Existing Student's Performance Evaluation Approach in Higher Education Sector in a New Era of ChatGPT A Case Study. *Cogent Education*, 10(1), 1–30. https://doi.org/10.1080/2331186X.2023.2210461
- Dewi, R. R., Suresman, E., & Suabuana, C. (2021). Pendidikan Kewarganegaraan Sebagai Pendidikan Karakter di Persekolahan. *ASANKA: Journal of Social Science And Education*, *2*(1), 71–84. https://doi.org/10.21154/asanka.v2i1.2465
- Emenike, M. E., & Emenike, B. U. (2023). Was This Title Generated by ChatGPT? Considerations for Artificial Intelligence Text-Generation Software Programs for Chemists and Chemistry Educators. *Journal of Chemical Education*, *100*, 1413–1418. https://doi.org/10.1021/acs.jchemed.3c00063
- Fadhilah, N., & Adela, D. (2020). Penguatan Nilai-Nilai Pancasila di Sekolah Dasar. *Jurnal Belaindika (Pembelajaran Dan Inovasi Pendidikan)*, 2(3), 7–16. https://doi.org/10.52005/belaindika.v2i3.44
- Faiz, A., & Kurniawaty, I. (2023). Tantangan Penggunaan ChatGPT dalam Pendidikan Ditinjau dari Sudut Pandang Moral. *Edukatif: Jurnal Ilmu Pendidikan*, *5*(1), 456–463. https://doi.org/10.31004/edukatif.v5i1.4779
- Fernanda, F. F. H., Rahmawati, L. E., Putri, I. O., & Nur'aini, R. (2020). Penerapan Literasi Digital di Smp Negeri 20 Surakarta. *Buletin Literasi Budaya Sekolah*, *2*(2), 141–148. https://doi.org/10.23917/blbs.v2i2.12842
- Holland, B. (2023). handbook of Research on Advancements of Contactless Technology and Service Innovation in Library and Information Science. Brooklyn Public Library.
- Iskender, A. (2023). Holy or Unholy? Interview with Open AI's ChatGPT. *European Journal of Tourism Research*, *34*, 3414. https://doi.org/10.54055/ejtr.v34i.3169
- Kemendikbudristek. (2022). Salinan Keputusan Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan, Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. Nomor 009/H/KR/2022 tentang Dimensi, Elemen, dan Subelemen Profil Pelajar Pancasila pada Kurikulum Merdeka.

- Kraugusteeliana, K., Indriana, I. H., Krisnanik, E., Muliawati, A., & Irmanda, H. N. (2023). Utilisation of ChatGPT 's Artificcial Intelligence in Improving the Quality and Productivity of Lecturers 'Work. *Jurnal Pendidikan Dan Konseling*, *5*(2), 3245–3249. https://doi.org/10.31004/jpdk.v5i2.13650
- Kyodo. (2023, June 22). 32% of University Students in Japan Using ChatGPT, Survey Shows.

  The Japan Times.

  https://www.japantimes.co.jp/news/2023/06/22/national/chatgpt-use-university-students/
- Lo, C. K. (2023). What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature. *Education Sciences*, 13(4), 1–15. https://doi.org/10.3390/educsci13040410
- Malay, N. M. (2022). Dampak Positif Dan Negatif Penggunaan Internet Pada Kalangan Mahasiswa Kelas a, B, C, Dan D Angkatan 2021 Prodi Pend. Bahasa Dan Sastra Indonesia, Universitas Nusa Cendana. *Jurnal Lazuardi*, 5(1), 70–88. https://doi.org/10.53441/jl.vol5.iss1.72
- Mitchell, A. (2022, December 2022). *Professor catches student cheating with ChatGPT: 'I feel abject terror*. New York Post. https://nypost.com/2022/12/26/students-using-chatgpt-to-cheat-professor-warns/
- Moelong, L. J. (2018). *Metode Penelitian Kualitatif*. Remaja Rosdakarya.
- Moural, J. (2003). The Chinese room argument. *John Searle*, 1–47. https://doi.org/10.1017/CB09780511613999.010
- Nugraha, D., & Sufanti, M. (2023). Isu Terkini dalam Pembelajaran Sastra: Kelimpahan Informasi, Kecerdasan Buatan, dan Literasi Digital. *Kajian Linguistik Dan Sastra*, 8(1), 64–83. https://doi.org/10.23917/kls.v8i1.22024
- Pantan, F. (2023). ChatGpt dan Artificial Intelligence: Kekacauan atau Kebangunan Bagi Pendidikan Agama Kristen di Era Postmodern. *DIEGESIS: Jurnal Teologi, 8*(1), 11–124. https://doi.org/10.46933/DGS.vol8i1108-120
- Quintans-Júnior, L. J., Gurgel, R. Q., Araújo, A. A. de S., Correia, D., & Martins-Filho, P. R. (2023). ChatGPT: the new panacea of the academic world. *Journal of the Brazilian Society of Tropical Medicine*, *56*, e0060, 1-2. https://doi.org/10.1590/0037-8682-0060-2023
- Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for Education and Research: Opportunities, Threats, and Strategies. *Applied Sciences*, 13(9). https://doi.org/10.3390/app13095783
- Sánchez-Ruiz, L. M., Moll-López, S., Nuñez-Pérez, A., Moraño-Fernández, J. A., & Vega-

- Fleitas, E. (2023). ChatGPT Challenges Blended Learning Methodologies in Engineering Education: A Case Study in Mathematics. *Applied Sciences*, *13*(10), 1–22. https://doi.org/10.3390/app13106039
- Saputro, M. I., Prihanta, W., & Sucipto. (2023). Problem Based Learning: Upaya Strategis Peningkatan Hasil Belajar Siswa Kelas III Dalam Pembelajaran PKn Materi Kewajiban di Rumah. *JP2SD: Jurnal Pemikiran dan Pengembangan Sekolah Dasar,* 11(1), 33–43. https://doi.org/10.22219/jp2sd.v11i1.25308
- Schimmel, A. (1994). *Deciphering the Signs of God: A Phenomenological Approach to Islam*. State University of New York Press.
- Serdianus, S., & Saputra, T. (2023). Peran Artificial Intelligence ChatGPT dalam Perencanaan Pembelajaran di Era Revolusi Industri 4.0. *MASOKAN: Jurnal Ilmu Sosial Dan Pendidikan*, 3(1), 1–18. https://doi.org/10.34307/misp.v3i1.100
- Setiawan, A., & Luthfiyani, U. K. (2023). Penggunaan ChatGPT Untuk Pendidikan di Era Education 4.0: Usulan Inovasi Meningkatkan Keterampilan Menulis. *Jurnal PETISI*, 04(01), 49–58. https://doi.org/10.36232/jurnalpetisi.v4i1.3680
- Sugiyono. (2018). Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D). Alfabeta.
- Supriyadi, E. (2022). Eksplorasi Penggunaan ChatGPT dalam Penulisan Artikel Pendidikan Matematika. *Papanda Journal of Mathematics and Science Research(PJMSR)*, 1(2), 54–68. https://doi.org/10.56916/pjmsr.v1i2.252
- Waluyo, B. D., Astrid, E., Mulyana, D., Maruli, B., & Pakpahan, T. (2023). Chatgpt untuk Mendukung Pencarian Topik Skripsi di Fakultas Teknik Universitas Negeri Medan. *Jurnal TIK Dalam Pendidikan*, 10(1), 8–19. https://doi.org/10.24114/jtikp.v10i1.46478