



ПЕДАГОГІЧНА АКАДЕМІЯ:
НАУКОВІ ЗАПИСКИ

ТЕОРІЯ ТА МЕТОДИКА НАВЧАННЯ

УДК 378.091.33:004.8]:[003.07:001]]:82-04(045)

DOI <https://doi.org/10.57125/pedacademy.2024.05.29.13>

Employing Artificial Intelligence in Teaching Academic Writing to University Students: Creating Problem-Solving Essays

Vovk Olena Ivanivna

Doctor of Pedagogy, Professor, Professor of the Department of English Philology and Methods of Teaching the English Language, Bohdan Khmelnytsky National University in Cherkasy 81, Shevchenko Blvd., Cherkasy, Ukraine, 18031 <https://orcid.org/0000-0002-6574-1673>

Kryvoshyia Daryna Yuriyivna

Master student, Bohdan Khmelnytsky National University in Cherkasy 81, Shevchenko Blvd., Cherkasy, Ukraine, 18031 <https://orcid.org/0009-0006-5541-4587>

Прийнято: 13.05.24 | Опубліковано: 29.05.24

***Abstract. Introduction.** Numerous technological advancements in the field of Artificial Intelligence (AI) demonstrate that Chat Generative Pre-Trained Transformer (ChatGPT) may have multiple potentials in various environments. Experience suggests that nowadays, capabilities of AI are increasingly used in educational contexts, which indicates that in the nearest future, AI and ChatGPT as one of its types will be widely employed in academia. On the one hand, ChatGPT may turn out beneficial for students, since it can significantly save their study time, channel and direct them in their research, and specify the problems to be delved into; on the other hand, excessive*



reliance and overdependence on ChatGPT may turn out detrimental for mental development of students engendering parasitism and intellectual inertia among them.

The objective of this article is to illuminate potential possibilities and limitations of using ChatGPT in teaching University students how to write problem-solving essays and acquire academic writing experience and proficiency.

Methods. Employing theoretical positioning, comparative analysis, and qualitative research methods, this study examines prospects of using ChatGPT in academic writing, elucidating its benefits and possible challenges, while also delineating the structure and procedure of producing problem-solving essays.

Results. The article first exposes distinct features of a typical problem-solving essay, its structure and stages of its creation, and specifies a strategy of its writing. Then the article illustrates how ChatGPT can be procedurally employed in academic writing classrooms. Every stage of creating a problem-solving essay is instantiated with corresponding examples of how ChatGPT assists in this. The paper also discloses feasible limitations for students when using ChatGPT to produce academic essays and warns against over-reliance on this chat.

Conclusion. Besides, this article offers possible implications for further research in the realm of utilizing AI when acquiring academic writing proficiency by students completing a master's degree.

Key words: academic writing, problem-solving essay, artificial intelligence, ChatGPT, benefits and challenges of using ChatGPT in teaching academic writing.

Використання штучного інтелекту в навчанні академічного письма студентів університету: написання проблемного есе

Вовк Олена Іванівна



докторка педагогічних наук, професорка, професорка кафедри англійської філології та методики навчання англійської мови Черкаського національного університету імені Богдана Хмельницького, б-р Шевченка, 81, м. Черкаси, Україна 18031, <https://orcid.org/0000-0002-6574-1673>

Кривошия Дарина Юріївна

студентка магістратури Черкаського національного університету імені Богдана Хмельницького, б-р Шевченка, 81, м. Черкаси, Україна 18031, <https://orcid.org/0009-0006-5541-4587>

Анотація. Вступ. Багаточисленні технологічні досягнення в галузі штучного інтелекту (ШІ) демонструють, що Chat Generative Pre-Trained Transformer (ChatGPT) може мати значні можливості в різних середовищах. Досвід свідчить про те, що сьогодні до ШІ дедалі частіше звертаються в освітніх контекстах: це означає, що в найближчому майбутньому ШІ і ChatGPT, як один із його видів, будуть широко використовуватися в академічних колах. З одного боку, ChatGPT може виявитися корисним для студентів, оскільки він здатен значно заощадити їхній навчальний час, спрямувати їх в їхніх дослідженнях та конкретизувати проблеми, в які потрібно заглибитися; з іншого боку, надмірна залежність від ChatGPT може розвинути паразитизм та інтелектуальну інерцію серед студентів.

Мета цієї статті полягає в тому, щоб висвітлити потенційні можливості та обмеження використання ChatGPT у навчанні студентів-магістрантів методики написання проблемного есе та набуття академічного досвіду й умінь продукувати якісні академічні твори.

Методи. Застосовуючи методи теоретичного позиціонування, порівняльного та квалітативного аналізу, ця стаття вивчає можливості



використання ChatGPT в академічному письмі, з'ясовуючи його переваги й потенційні виклики, з якими можуть стикнутися викладачі та студенти, а також окреслює структуру і процедуру створення проблемного есе.

Результати. У статті розкриваються особливості типового проблемного есе, його структура та етапи створення, а також деталізується стратегія його написання. До того ж, у пропонованій статті ілюструються можливості поетапного використання ChatGPT на заняттях з академічного письма. Кожен етап створення проблемного есе ілюструється відповідними прикладами застосування ChatGPT у цьому процесі. Крім того, стаття розкриває потенційні обмеження для студентів під час використання ChatGPT у ході написання академічного есе та попереджає про небезпеку надмірної залежності від цього ресурсу.

Висновки. У статті пропонуються також перспективи подальших досліджень у сфері використання ШІ під час набуття студентами, які здобувають ступінь магістра, умінь академічного письма.

Ключові слова: академічне письмо, проблемне есе, штучний інтелект, ChatGPT, переваги та виклики використання ChatGPT у навчанні академічного письма.

Introduction. Recent theoretical developments in the field of AI have revealed that Chat Generative Pre-Trained Transformer (ChatGPT) being an AI type possesses a significant potential for being widely utilized in various areas, particularly in education [12, p. 62; 16; 8; 4, p. 228–239; 9]. At the same time, the issue that teachers may confront is determining how to effectively integrate ChatGPT into a learning process. The reasonable solution to this issue may require a significant amount of research to be conducted. So far, a limited number of studies have examined the employment of ChatGPT in the context of teaching Academic Writing (AW) [2; 3].



The objective of this article. To this end, this paper addresses the subject of teaching AW within University curricula involving AI. At that, the primary emphasis is placed on the possibility of leveraging ChatGPT to instruct master students how to produce quality problem-solving academic essays. Additionally, the article seeks to establish a comprehensive framework for potential applications of ChatGPT in an AW course. To achieve the goal set, the methods of theoretical positioning, comparative analysis and qualitative research are employed.

At present, it is now generally accepted that ChatGPT represents a relatively new field that has emerged alongside the advancements in AI. Although many recent studies extensively investigate the use of ChatGPT in education [12, p. 62; 16; 8; 4, p. 228–239; 9], there are only a few examples about how it can enhance the process of creating a quality academic essay by master students. With the goal of bridging this gap, this study seeks to delve into the phenomenon of ChatGPT, focusing on the detailed elucidation of its major features, as well as its benefits and limitations. In addition, it will make an attempt to clarify the concept of a problem-solving essay, revealing its purpose, characteristics, structure, and stages of its production.

Formulation of the problem. A number of researchers acknowledge the significance of integrating ChatGPT into the process of teaching AW [12, p. 62; 10]. Nonetheless, unresolved issues appear on the surface regarding the extent to which AI can be incorporated within AW instructional settings. Considering the simultaneous emergence of ChatGPT and the attendant concerns it has engendered, it is imperative to thoroughly delineate possible applications of ChatGPT within the realm of AW.

Analysis of the literature on the theme. In the context of AI, a problem-solving academic essay is a type of scholarly writing that mainly aims to clearly outline a certain problem, lucidly articulating it for the reader, and then suggests efficacious remedies to mitigate or redress the mentioned issue. Engaging in this genre affords multiple opportunities to cultivate critical thinking acumen, foster linguistic



proficiency, and refine the art of articulating ideas within a meticulously structured framework [14].

A problem-solving essay shares a structural resemblance with a cause-and-effect essay [20]. Distinctively, in delineating the structure of the former, two predominant ways, categorized as block and chain structures, emerge, akin to the structure observed in the latter. Within the block structure, an enumeration of problems precedes a subsequent listing of corresponding solutions. Conversely, the chain structure aligns each problem with its immediate solution. Noteworthy, both frameworks offer explicit advantages: the former facilitates lucidity, particularly beneficial for producing concise compositions, whereas the latter fosters a seamless integration wherein solutions are intricately linked to the antecedent problems [18]. In addition, the writing style of a problem-solving essay is similar to that of a persuasive essay, in which the author seeks to engage readers with the significance of the problem, proposes a well-supported solution bolstered with facts, data, and statistics, and systematically addresses and refutes potential objections or counterarguments [20].

Typically, a problem-solving academic essay embraces four critical constituents, namely, the situation, the problem, the solution, and the evaluation of the problem. The mentioned constituents are supposed to be exposed in three major parts of an essay: the introduction, the main body, and the conclusion, each distinguished by explicit characteristics necessitating consideration during the process of writing [20]. These parts require cursory specification.

It is conventionalized that the introduction of an essay creates the context of a studied problem, whereas the conclusion offers an assessment of the explored problem. The main body primarily requires exposing the core of the problem, working out and formulating potential solutions for its successful resolution. Respectively, the introduction aims at familiarising readers with the created context, specifying the problem to be solved and delineating its gist, as well as reasoning the necessity to solve



it. Articulating the rationale for addressing the issue entails the formulation of an argumentative and contentious thesis statement, which outlines the proposed solution to the identified problem [20].

The commonly accepted structure of the main body encompasses three interrelated paragraphs, in which several solutions to the identified problem as well as their feasibility have to be delineated. Besides, it is also advisable to mention anticipated outcomes of the implementation of the proposed solutions. Moreover, it is essential to discuss possible advantages and disadvantages of each solution. Additionally, assuming that there is any information on previous attempts to address the issue being considered, it should be also covered [7].

Once the introduction and the main body are composed, the focus has to be shifted to drawing the relevant conclusion. It requires finalizing the paper in the proper way repackaging, rephrasing, and reaffirming the thesis statement without altering its underlying meaning. Furthermore, it is requisite to recapitulate key concepts of the essay, evaluate suggested solutions, emphasize the importance of taking action or implementing solutions, and finishing with a call to action, a thought-provoking statement or a question [7]. It is clear therefore that it is imperative to take into account specific features of a problem-solving essay during the process of writing, which will conduce to its quality.

Generally, creating a high-quality problem-solving essay involves advancing through a procedure embracing a number of subsequent stages that presume: 1) obtaining a topic; 2) identifying the problem to be discussed and solved; 3) working out possible solutions to the identified problem; 4) devising a detailed sequential outline; 5) writing a solid and well-grounded introduction; 6) formulating a debatable thesis statement; 7) producing logically organized main body paragraphs; 8) making a conclusion; 9) editing and proofreading an essay [6]. Each stage is characterized by distinct properties.



It is commonly accepted in University educational contexts that the teacher proposes a topic for a problem-solving essay. It is crucial to have a substantial degree of familiarity with the topic for effective development of ideas and their logical argumentation. That is why, prior to commencing a writing activity, a preliminary scrutiny of the topic has to be done in order to avoid obscuring ideas and misleading the potential reader. The next stage implies delineating a clear vision of how the worked out solution/s can be implemented and actualized. The production of a concise outline requires a few sentences for each section to perspicuously gear the direction of an essay. An outline plays a vital role not only in organizing data but also in preventing the paper chaos. Outlining the essay entails writing a well-grounded and reasonable introduction. Its purpose is to effectively convey the author's ideas and intentions. Besides, it aims at engaging and captivating the interest of an audience. Simultaneously, it is imperative to keep succinct and avoid excessive verbosity. The next stage involves concisely sketching the objectives of an essay, crafting a robust thesis statement, and plainly stating the problem/s. Subsequently, providing a clear direction of thoughts and ideas ensures that the audience comprehends the line of reasoning. Employing such an approach to writing helps to formulate a set of instructions rather than just discuss abstract concepts [6].

Once the foundation for the main body of the essay has been laid, the body paragraphs have to be produced. The primary goal of an initial paragraph is to thoroughly expound the problem, and a subsequent paragraph – to present a viable solution to the problem. When addressing multiple problems, it is necessary to allocate a separate paragraph and a corresponding solution to each problem. Upon completing the main sections of an essay, the concluding paragraph should be composed. It incorporates summarizing the key points of an essay, restating the thesis, and emphasizing the effectiveness of advanced solutions. The objective of this part is to conclude elegantly, demonstrating proficiency and holistic comprehension of the topic.



The final stage of creating a problem-solving essay is editing and proofreading. The essay has to be carefully edited, removing unnecessary points or, on the contrary, adding more details, rectifying grammar and lexical errors, and ensuring the clarity, coherence, and overall quality of the produced text [6]. Hence, the procedure of creating a problem-solving academic essay necessitates compliance with the identified and delineated stages and taking account of their specific features.

Results. The evidence seems to indicate that throughout the writing process, students may encounter numerous obstacles connected inter alia with understanding a problem and developing ideas for its solutions, creating a comprehensive outline, etc. At this point, ChatGPT may prove beneficial. It is apposite to note that ChatGPT is a conversational language model made by OpenAI in 2018. It is part of the Generative Pre-Trained Transformer (GPT) family of models based on the Transformer architecture and trained on vast amounts of text data to generate human-like coherent and natural-sounding text [17, p. 273; 16; 11, p. 3].

It is recognized that ChatGPT embodies multiple advantages that render it highly valuable within the educational realm, particularly in the context of AW. One notable attribute of ChatGPT's advanced functionality lies in its ability to promptly process and respond to inquiries, thereby significantly enhancing its efficacy in assignments requiring timely completion [23]. Furthermore, ChatGPT demonstrates efficacy in generating exceptional outcomes across diverse domains, ranging from technical coding support to content creation and imaginative writing. In the province of creative writing, ChatGPT exhibits a capacity to emulate writing styles, maintain a consistent tone, and tailor texts to cater to different audiences. Additionally, ChatGPT can function as a personalized tutor, addressing student queries, elucidating complex concepts, and providing illustrative instances. This tailored assistance can prove helpful for learners seeking supplemental guidance beyond traditional classroom environments [5]. Moreover, ChatGPT's adaptability to individual student needs may



contribute to establishing a learner-centric educational atmosphere [15]. Lastly, the availability of ChatGPT round the clock enables students to access assistance at their convenience [22]. Finally, the multifaceted capabilities of ChatGPT position it as a valuable asset in educational settings, particularly in enhancing AW proficiency and expertise.

It is also purported that ChatGPT, owing to its numerous advantages, can be effectively utilized in the process of composing problem-solving academic essays. First of all, ChatGPT can help to single out and explicate the problem by breaking it down into simpler terms and highlighting its key components. The remainder part of this paper will progressively illustrate how ChatGPT can assist students in producing a quality problem-solving essay following the mentioned above stages.

The 1st figure demonstrates the formulated task for an essay. From ChatGPT it is required to identify and clarify the problem embedded in the assignment that follows [19; 21, p. 58] (Figure 1).

The screenshot displays a ChatGPT chat window. At the top, there is a task prompt: "Identify and clarify the problem raised in this passage: Five defining characteristics of stupidity, it seems to me, are readily apparent. First is sheer ignorance: ignorance of critical facts about important events in the news, and ignorance of how our government functions and who's in charge. Second is negligence: the disinclination to seek reliable sources of information about important news events. Third is wooden-headedness, as the historian Barbara Tuchman defined it: the inclination to believe what we want to believe, regardless of the facts. Fourth is shortsightedness: the support of public policies that are mutually exclusive, or contrary to the country's long-term interests. Fifth, and finally, is a broad category I call bone-headedness, for want of a better word: the susceptibility to meaningless phrases, stereotypes, irrational biases, and simplistic diagnoses and solutions that play on our hopes and fears." Below the prompt, the ChatGPT response is shown, identifying the problem as the prevalence of behaviors and attitudes categorized as "stupidity" within society, listing the five characteristics: sheer ignorance, negligence, wooden-headedness, shortsightedness, and bone-headedness. The response further clarifies how these behaviors hinder critical thinking and informed decision-making, and concludes that addressing the problem requires promoting critical thinking skills and fostering a culture of open-mindedness and rational discourse.

Figure 1. Identification and clarification of the problem made by ChatGPT



In addition, ChatGPT can generate relevant background information (Figure 2). In a similar fashion, it is able to provide statistics and context to ensure a comprehensive understanding of the raised problem.

ChatGPT

- To provide a comprehensive understanding of the issue outlined in the passage, it's essential to contextualize it within broader societal trends and provide relevant background information and statistics.
- Background Information:
- In today's rapidly evolving world, access to information is more abundant than ever before. However, the quality and reliability of this information vary widely, contributing to challenges in discerning truth from misinformation.
 - The rise of digital media and social networking platforms has transformed the landscape of news consumption, with many individuals turning to online sources for information.
 - Alongside the proliferation of information, there has been a concerning trend of declining trust in traditional institutions, including government bodies and media outlets.

Figure 2. Background information provided by ChatGPT

Along with the foregoing, ChatGPT is capable of generating a variety of potential solutions by drawing on a wide range of information and perspectives, providing further evaluation of the feasibility, advantages, and disadvantages of each proposed solution (Figure 3).



Certainly! Here are several potential solutions to address the issue of misinformation, ignorance, and susceptibility to flawed decision-making:

Media Literacy Education:

- **Solution:** Implement comprehensive media literacy education programs in schools and communities to teach critical thinking skills, information evaluation techniques, and media literacy.
- **Feasibility:** Media literacy programs can be integrated into existing curricula or offered as standalone courses. However, funding and resources may be required to develop and implement these programs effectively.
- **Advantages:** Media literacy education empowers individuals to critically evaluate information, recognize bias and misinformation, and make informed decisions.
- **Disadvantages:** It may take time to see the long-term impact of media literacy education, and there may be resistance from those who benefit from the status quo.

Fact-Checking Initiatives:

- **Solution:** Support fact-checking organizations and initiatives that verify the accuracy of news and information and debunk false claims.
- **Feasibility:** Fact-checking initiatives can be funded through government grants, private donations, or partnerships with media organizations.
- **Advantages:** Fact-checking helps combat misinformation, promotes accountability among media outlets and public figures, and provides reliable information to the public.
- **Disadvantages:** Fact-checking efforts may be limited in scope or reach, and false information can still spread rapidly before being debunked.

Government Regulation:

- **Solution:** Enact regulations or policies to address misinformation and promote transparency in media and online platforms.
- **Feasibility:** Governments can introduce legislation or regulatory frameworks to hold media outlets and online platforms accountable for disseminating false information.
- **Advantages:** Government regulation can create standards for responsible journalism, curb the spread of misinformation, and protect consumers from deceptive practices.
- **Disadvantages:** Regulatory measures may raise concerns about censorship, freedom of speech, and government overreach, and enforcement can be challenging.

Figure 3. Solutions to the problem generated by ChatGPT

Analogously, ChatGPT can assist in creating a clear and logical outline, ensuring that all critical sections (introduction, problem description, solution proposals, evaluation, and conclusion) are included, when it comes to structuring the essay. This may direct the way of students' train of thought. While transitioning from one idea to another, it is crucial to maintain a smooth and logical flow. Therefore, ChatGPT may propose effective transitional phrases and sentences to guarantee a seamless continuity between various sections and ideas. Ultimately, at the stage of editing and proofreading, ChatGPT is capable to identify and correct grammatical, punctuation, and spelling errors, suggest improvements in style and tone to ensure the essay is appropriately academic, as well as refine sentences and paragraphs for clarity and conciseness, making the essay more efficacious and readable (Figure 4).



ПЕДАГОГІЧНА АКАДЕМІЯ: НАУКОВІ ЗАПИСКИ

  ChatGPT ▾

Correct all the mistakes: In today rapidly evolving digital landscape, misinformation and ignorance presents significant challenges to informed decision-making and civic engagement. According to a 2020 Pew Research Center study nearly half of Americans reported encountering misinformation online frequently. This pervasive issue not only undermines trust in institutions but fosters division and impedes progress. It is important look into different ways to fix this mess, see if they could actually work, and figure out what kinda impact they might have.



In today's rapidly evolving digital landscape, misinformation and ignorance present significant challenges to informed decision-making and civic engagement. According to a 2020 Pew Research Center study, nearly half of Americans reported encountering misinformation online frequently. This pervasive issue not only undermines trust in institutions but also fosters division and impedes progress. It is important to look into different ways to address this issue, assess their potential effectiveness, and determine the impact they might have.

    



Figure 4. Correction of errors suggested by ChatGPT

At this point, a stipulation is needed – although ChatGPT offers a wide range of applications, it is advisable to utilize it specifically at the stages where challenges arise. Basically, students are required to independently contemplate ideas and formulate solutions. Subsequently, they may solicit guidance from ChatGPT, thus potentially enriching their original concepts and solutions from the perspectives offered by ChatGPT or opting to dismiss such insights. Such an approach may prevent overusing and over-relying on this resource making sure that students develop their own critical thinking and AW skills.

Also, there are some other crucial issues, which require consideration while employing ChatGPT. First and foremost, it is important to clearly understand the topic, because ChatGPT may generate a low-quality, fictional or just inaccurate output. This may further lead to a phenomenon of «AI hallucination», which compromises the reliability and factual accuracy of an essay [1]. Second, its constrained accessibility to



post-2021 data may necessitate dependence on sources that could potentially be outdated [13]. Ultimately, the utilization of ChatGPT may raise a concern regarding a thorough assessment of students' submissions [10]. Therefore, while acknowledging commendable perspectives of ChatGPT, it is essential to recognize and mitigate its shortcomings within academic environments.

Regarding the aforementioned, such key implications of using ChatGPT in AW emerge: first, the prudent and measured integration of ChatGPT may serve to facilitate the process of writing problem-solving academic essays, thus assisting students in overcoming challenges encountered at some stages. Contrariwise, the misuse or excessive reliance on ChatGPT can potentially impede students' cognitive development and compromise the quality of their essays. These fundamental conclusions are consistent with existing research, underscoring a necessity for thoughtful consideration prior to implementing ChatGPT in AW classrooms. Furthermore, an additional limitation pertains to the efficacy of AI in accurately assessing essays produced with ChatGPT assistance, particularly in the context of teaching AW to University students. Consequently, this unresolved issue necessitates further investigation.

Conclusion. To summarize, this article examines the incremental integration of ChatGPT into the educational paradigm of teaching AW to University master students. Specifically, it focuses on the issue of creating problem-solving academic essays. The study elucidates the notion of a problem-solving academic essay in terms of its purpose, specific features, and stages of its production. Additionally, it clarifies from various perspectives the concept of ChatGPT, outlining its merits and demerits, which can respectively augment or impede the writing process and its resultant quality. Thus, as the adoption of AI technologies like ChatGPT continues to expand within educational environments, it is crucial not to discount its potential benefits and drawbacks. Moreover, this study acknowledges a notable limitation: the absence of scrutiny



regarding the evaluation standards for essays generated with the aid of ChatGPT, indicating potential areas for future research. To sum up, this paper though far from being conclusive nonetheless offers several insights into the understanding of how ChatGPT can be effectively utilized in teaching University students how to produce successful problem-solving academic essays.

REFERENCES

1. Adam, J. (2024). Should I Use ChatGPT for My Essays? *ESSAYPRO.com*. URL: <https://essaypro.com/blog/should-i-use-chatgpt-for-my-essays>. (Last accessed: 05.05.2024).
2. Bašić, Ž., Banovac, A., Kružić, I. et al. (2023). ChatGPT-3.5 as Writing Assistance in Students' Essays. *Humanities and Social Sciences Communications*. 10(750). URL: <https://doi.org/10.1057/s41599-023-02269-7>. (Last accessed: 05.05.2024).
3. Bishop, L. (2023). A Computer Wrote This Paper: What ChatGPT Means for Education, Research, and Writing. *SSRN – Social Science Research Network*. URL: <https://cutt.ly/3wFWLZZ2>. (Last accessed: 05.05.2024).
4. Cotton, D. R. E., Cotton, P. A., and Shipway, J. R. (2024). Chatting and Cheating: Ensuring Academic Integrity in the Era of ChatGPT. *Innovations in Education and Teaching International*. 61(2), p. 228–239. URL: <https://www.tandfonline.com/doi/full/10.1080/14703297.2023.2190148>. (Last accessed: 05.05.2024).
5. Go, S. (2024). 15 Benefits of ChatGPT (+8 Disadvantages). Semrush Blog. URL: <https://www.semrush.com/blog/benefits-chatgpt/>. (Last accessed: 05.05.2024).
6. How to Craft a Problem Solution Essay? | Step-by-Step Guide & Topics. (n.d.). *SpeedyPaper*. URL: <https://speedypaper.com/blog/how-to-write-a-problem-solution-essay>. (Last accessed: 05.05.2024).



7. How to Write a Problem Solution Essay – Comprehensive Guide. (2020). *PEACHY ESSAY*. URL: <https://peachyessay.com/blogs/writing-problem-solution-essay/>. (Last accessed: 05.05.2024).
8. Kasneci, E. et al. (2023). ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education. *ScienceDirect*. URL: <https://cutt.ly/CwFGlxNn>. (Last accessed: 05.05.2024).
9. Kramer, L. (2023). The 7 Types of Essays Every Student Needs to Know. *Grammarly*. URL: <https://www.grammarly.com/blog/types-of-essays/>. (Last accessed: 05.05.2024).
10. Lo, C. K. (2023). What is the Impact of ChatGPT on Education? A Rapid Review of the Literature. *Education Sciences*. 13(4). URL: <https://cutt.ly/wwFGILsT>. (Last accessed: 05.05.2024).
11. Mehta, V. (n.d.). ChatGPT: an AI NLP Model. *LTIMindtree*. URL: <https://cutt.ly/2wFW01KV>. (Last accessed: 05.05.2024).
12. Mohammad, A., Mohanad, G., Ahmed, H. A. et al. (2023). ChatGpt: Open Possibilities. *Iraqi Journal for Computer Science and Mathematics*. 4(1), p. 62–64. URL: <https://journal.esj.edu.iq/index.php/IJCM/article/view/539/258>. (Last accessed: 05.05.2024).
13. Ortiz, S. (2024). How ChatGPT (and Other AI Chatbots) Can Help you Write an Essay. *ZDNET*. URL: <https://cutt.ly/BeyXoU3V>. (Last accessed: 05.05.2024).
14. Problem-Solution Essay. (n.d.). *Boğaziçi University Online Writing Lab: Writing and Academic Support Center (WASC)*. URL: <https://buowl.bogazici.edu.tr/problem-solution-essay>. (Last accessed: 05.05.2024).
15. Rahman, M., Watanobe, Y. (2023). ChatGPT for Education and Research: Opportunities, Threats, and Strategies. URL: <https://cutt.ly/yeyXiMiM>. (Last accessed: 05.05.2024).



16. Sakib, I. (2023). What is ChatGPT? *ResearchGate*. URL: <https://cutt.ly/iwFGgF91>. (Last accessed: 05.05.2024).
17. Sami, A. et al. (2023). Getting to know ChatGPT: an Introduction to Implementation and Working. *Computing technologies, Tools and Applications: Proceedings of 1st International Conference*. Peshawar : The University of Agriculture. P. 273–277.
18. Sheldon, S. (2022). Problem-Solution Essays. *EAPFoundation.com*. URL: <https://www.eapfoundation.com/writing/essays/problemsolution/>. (Last accessed: 05.05.2024).
19. Shenkman, R. (2008). Just How Stupid Are We? Facing the Truth About the American Voter. *goodreads*. URL: <https://www.goodreads.com/review/show/588462905>. (Last accessed: 05.05.2024).
20. Taylor, G. (2023). A Quick Guide to Writing an Awesome Problem-Solution Essay. *MyAssignmentHelp*. URL: <https://cutt.ly/NeyXixIu>. (Last accessed: 05.05.2024).
21. Vovk, O. (2023). Workbook in Academic Writing (for master students majoring in Linguistic Fields and Bilingual Education). 4th ed., revised and expanded. Cherkasy: Nechytailo. 187 p.
22. Vovk, O., Kryvosyha, D. (2024). ChatGPT in Academic Writing: New Opportunities or Risks? *Innovative development of science, technology and education: proceedings of the 8th International scientific and practical conference*. Vancouver : Perfect Publishing. P. 323–330. URL: <https://cutt.ly/ZeyXu2Rs>. (Last accessed: 05.05.2024).
23. Vovk, O., Kryvosyha, D. (2024). ChatGPT in Teaching Analytical Essay. *Modern research in science and education: proceedings of the 9th International scientific and practical conference*. Chicago : BoScience Publisher. P. 390–396. URL: <https://cutt.ly/2eyXuu0A>. (Last accessed: 05.05.2024).