THE PERFECTION OF CHATGPT IN MAKING FAST-ACCURATE REPORTS OF STUDENTS AT SMK PARUNG

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Abstract

ChatGPT is an artificial intelligence (AI) system that can interact with users through a conversational format. Anyone can use ChatGPT to read and understand the contents of files or enter questions into the ChatGPT interface, allowing the AI to analyze and answer questions on various topics. The ChatGPT training program for Parung Vocational High School (SMK) was conducted to improve students' digital literacy and writing skills. Amid rapid technological advances, the integration of artificial intelligence (AI) into the learning process has become an urgent need. Through this activity, participants were introduced to ChatGPT as a digital aid that can be used to compile report outlines, improve spelling and sentence structure, and enrich written/report content quickly, precisely, and accurately. The workshop was designed based on hands-on practice, where students were trained to actively use ChatGPT features in completing their academic assignments and vocational projects. Evaluation of the activity showed that students improved their understanding of how to write reports that were coherent, logical, and adhered to writing standards. Furthermore, students became more confident and confident in expressing their ideas in writing. With this approach, the workshop not only strengthened academic skills but also taught the responsible and beneficial use of AI technology in vocational education.

Keywords: ChatGPT; AI; Vocational High School Students; Innovative Learning; Digital Literacy

Abstrak

ChatGPT adalah sistem kecerdasan buatan (AI) yang dapat berinteraksi dengan pengguna melalui format percakapan. Siapa pun dapat menggunakan ChatGPT untuk membaca dan memahami isi berkas atau memasukkan pertanyaan ke dalam antarmuka ChatGPT, yang memungkinkan AI menganalisis dan menjawab pertanyaan tentang berbagai topik. Program pelatihan ChatGPT untuk Sekolah Menengah Kejuruan (SMK) Parung diselenggarakan untuk meningkatkan literasi digital dan keterampilan menulis siswa. Di tengah kemajuan teknologi yang pesat, integrasi kecerdasan buatan (AI) ke dalam proses pembelajaran menjadi kebutuhan yang mendesak. Melalui kegiatan ini, peserta diperkenalkan dengan ChatGPT sebagai alat bantu digital yang dapat digunakan untuk menyusun kerangka laporan, memperbaiki ejaan dan struktur kalimat, serta memperkaya konten tulisan/laporan dengan cepat, tepat, dan akurat. Lokakarya ini dirancang berdasarkan praktik langsung, di mana siswa dilatih untuk secara aktif menggunakan fitur ChatGPT dalam menyelesaikan tugas akademik dan proyek vokasional mereka. Evaluasi kegiatan menunjukkan bahwa siswa meningkatkan pemahaman mereka tentang cara menulis laporan yang koheren, logis, dan sesuai standar penulisan. Selain itu, siswa menjadi lebih percaya diri dan percaya diri dalam menuangkan ide-ide mereka secara tertulis. Dengan pendekatan ini, lokakarya tidak hanya memperkuat keterampilan akademik tetapi juga mengajarkan penggunaan teknologi AI yang bertanggung jawab dan bermanfaat dalam pendidikan vokasional.

Kata Kunci: ChatGPT; Kecerdasan Buatan; Siswa Sekolah Menengah Kejuruan; Pembelajaran Inovatif; Literasi Digital

1. INTRODUCTION
Background

In the era of the Industrial Revolution 4.0, developments in information and communication technology have had a significant impact on various aspects of human life, including education. Digital transformation has changed the way teachers teach, students learn, and how information is accessed and processed. One technology that is currently attracting global attention is artificial intelligence (AI) [1] [2] [3]. The use of AI in education presents new opportunities to improve the quality of learning, including supporting literacy skills, particularly digital literacy and students' writing skills. Vocational High Schools (SMK), as educational institutions oriented towards the world of work, are required to prepare their students with various competencies, both technical and non-technical. One aspect that remains a challenge among vocational high school students is writing skills, particularly in compiling assignment reports, fieldwork practice (PKL) reports, and vocational project reports. Many students experience difficulties in structuring systematic reports, conveying ideas in writing, and using good and correct Indonesian. In fact, the ability to write reports is a key skill that will be highly useful not only in academic activities but also in the workplace and higher education. The aforementioned conditions indicate an urgent need to improve the written literacy skills of vocational high school students. On the other hand, the presence of technologies like ChatGPT, as an implementation of AI in the field of natural language processing, offers an innovative alternative solution. ChatGPT can assist users in composing text, correcting grammar, suggesting sentences, and even providing feedback on the content of the writing. In an educational context, ChatGPT has the potential to become a learning partner that can assist students in the report writing process interactively and in real time. However, the use of ChatGPT by students is still relatively limited. Most students do not yet understand how to optimally use this tool appropriately, ethically, and productively. Many students use this technology passively or even simply copy text without understanding its substance. However, if properly directed and utilized, ChatGPT can be a tool that encourages students to think critically, organize ideas, and gradually improve their written language skills [4][5][6]. Therefore, it is necessary to hold an educational activity that can introduce and train vocational school students in the innovative and responsible use of ChatGPT, particularly in the context of report writing. This workshop is considered an effective form of training because it combines theoretical approaches with hands-on practice. Through the workshop, vocational school students can gain a conceptual understanding of the functions and ethics of using ChatGPT, while also directly applying these skills in preparing academic reports.

Furthermore, this workshop aims to foster a positive attitude toward technology among vocational high school students. In many cases, students tend to be consumptive toward technology without developing critical thinking skills or a deep understanding of the information they produce or consume. Through structured training, students are expected to be able to use ChatGPT as an active learning tool, not as a tool that simply replaces their role in writing. Beyond students, teachers and educators also need to understand the potential and limitations of utilizing AI in learning. Therefore, this workshop can also serve as a collaborative platform between students and teachers to explore the broader use of AI technology in the school environment. This approach aligns with the direction of national education policy, which encourages the implementation of school digitalization and the strengthening of information technology competencies among educators and students. More broadly, the Innovative Workshop on Utilizing ChatGPT for Reporting for Vocational High School Students is also expected to be part of an effort to create a generation that is not only technologically literate but also capable of using it productively, creatively, and responsibly [7]. With proper guidance and training, students can leverage AI as a tool to improve the quality of their written work, as well as a valuable asset in facing an increasingly digital and competitive workplace. This activity also aligns with the challenges and opportunities of the 21st century, where mastery of the 4C skills (Critical Thinking, Creativity, Communication, and Collaboration) is crucial. In the report writing process, these four skills can be honed simultaneously, especially when supported by the right technology. ChatGPT, when used with sound learning strategies, can be a medium that combines elements of written communication, collaboration through discussion and joint revision, critical thinking through argumentation and structure, and creativity in developing ideas.

Taking into account the various factors

outlined above, this workshop is highly relevant and strategic in supporting the improvement of vocational high school students' competencies, across academic, vocational, and personal development. It is hoped that this activity will broaden students' horizons regarding the potential of AI technology, which they can utilize for independent and sustainable development. Ultimately, the Innovative Workshop on Utilizing ChatGPT for Reporting for Vocational High School Students is not merely a technical training activity, but also a long-term investment in strengthening students' capacity to face the challenges of the times. This activity is expected to be the beginning of positive changes in student learning patterns and become a modern learning model that can be applied more widely in various educational institutions, particularly in vocational high schools.

Problem Analysis

In the context of vocational education, particularly at SMK Parung, report writing is a crucial skill for students. Reports are not only part of academic assessments, such as final assignments, fieldwork practice (PKL) reports, or vocational projects, but also reflect students' ability to think systematically, communicate ideas, and account for activities or findings in writing. However, in reality, many vocational high school students still experience difficulties in preparing good and correct reports. Common problems include low written literacy skills, a lack of understanding of report writing structure, minimal guidance during the writing process, suboptimal use of technology to support writing, and a lack of understanding of the ethics of using AI technology. On the other hand, some students who are familiar with ChatGPT use it inappropriately, such as copying answers without understanding the content or compiling reports entirely from AI output without further processing. This risks reducing students' critical thinking skills and the originality of their writing. Given this situation, an innovative and solution-oriented approach is needed to address the writing skills gap among vocational high school students. One possible alternative is to hold a training workshop on the responsible and educational use of ChatGPT. In this workshop, participants are not only introduced to ChatGPT's features as a writing aid but also taught how to use it to strengthen their thinking process, organize ideas, improve language structure, and evaluate their writing. Thus, technology is not used to replace the learning process, but rather to enrich and accelerate students' understanding of proper writing concepts.

The workshop approach also provides space for students to learn actively, collaboratively, and reflectively. They can discuss, ask questions, and experiment directly in real-life situations, thus strengthening their understanding and making it more applicable. Through this situational analysis, it can be concluded that there is a real need in vocational high schools to strengthen students' writing skills with the support of technology. Therefore, this workshop activity is a relevant and necessary strategy to address existing problems and encourage the creation of a generation of vocational high school students who are adaptive, literate, and ready to face the challenges of the 21st century.

Problem Formulation, Objectives, and Benefits of PKM

After conducting an in-depth review, the problem formulation is as follows: first, what is the current state of report writing skills among vocational high school students, particularly in terms of structure, language, and content; Second, what are the obstacles faced by vocational high school students in preparing reports, both in terms of understanding report structure and their ability to convey ideas in writing; Third, to what extent can the use of artificial intelligence technology, specifically ChatGPT, assist students in preparing reports that are systematic, effective, and in accordance with report writing principles; Fourth, how can effective and applicable workshop activities be designed to improve vocational high school students' report writing skills with the help of ChatGPT, and finally, what impact will the ChatGPT workshop have on improving digital literacy and writing skills among vocational high school students.

The purpose and benefits of this PKM are to implement one of the three pillars of higher education. After universities carry out education, teaching, and research, they need to utilize the knowledge and science they have acquired for the community. The benefits of this PKM for higher education institutions, especially in Pamulang University – UNPAM are as intellectual property rights and also as means of communicating the University's existence to the community around the campus area. At last, for SMK Parung, this workshop is useful for equipping students with adequate insight and preparation to be able to compete amidst digital transformation and the industrial revolution 4.0 and social 5.0.

2. LITERATURE STUDIES AND METHODS

Literature Studies

Innovative workshops are a learning method aimed at improving participants' skills through a practical and interactive approach. According to [8], workshops are effective in vocational education because they provide participants with hands-on experience in applying knowledge. In [8] and [9], research shows that technology-based workshops increase vocational high school students' learning motivation because they are applicable and relevant to industry needs. Workshops that integrate AI, such as ChatGPT, can be adaptive learning tools, helping students explore ideas and compile documents more efficiently. ChatGPT is a generative language model capable of generating human-like text based on user input. In an educational context, research by [10] and [5] revealed that ChatGPT can be used as a digital assistant to: a) assist in drafting report outlines, b) provide suggestions for improving grammar and writing structure, and c) generate creative ideas for student projects. In [11], the use of ChatGPT in learning increased student productivity in writing technical reports, particularly in engineering, business, and information technology. However, the researchers also emphasized the importance of critically understanding AI output to avoid plagiarism and over-reliance.

Vocational high school students need skills in writing practical reports, internship reports, and other technical documents as part of the school curriculum. Innovative workshops that teach the use of ChatGPT can provide benefits including report preparation efficiency, improved writing quality and creativity development [12]. In Nguyen [13], it is found that students became more innovative in designing technical solutions after using AI for brainstorming. Furthermore, the implementation of ChatGPT workshops for vocational high schools includes interactive workshop designs, integration with the vocational high school curriculum [9] who showed that workshops aligned with the curriculum can increase the relevance of learning. In addition, they also provide collaborative learning [14]. Furthermore, some challenges with the ChatGPT application can also create risks of plagiarism and dependence on AI [15], limited understanding of context [16], [17], and data cross-checking. In fact, case studies and best practices such as SMK Negeri 2 Bandung held ChatGPT training for preparing PKL (Praktik Kerja Lapangan) reports. The results showed that 85% of students felt more confident in writing. The Jakarta Vocational Training Institute reported an increase in report preparation time efficiency of up to 40% after the ChatGPT workshop. SMK Teknologi Surabaya combined ChatGPT with other tools such as Grammarly and Canva to produce more creative reports. In short, there are a lot of researches for ChatGPT which have been done related to all academic matters in [18],[19] and [20].

Methods and Materials

In implementing this PKM, the first stage involves thorough preparation of all materials, supplies, and tools in accordance with the theme. This preparation ensures that the PKM implementation material presented is easily understood and comprehended by all workshop participants. Implementing this PKM program requires several stages of work procedures, starting with the preparation stage, as shown in Figure 1. Stage 1 involves an initial survey and location survey for the SMK Parung PKM implementation. The initial survey was conducted using both in-person and discussions via Zoom and Google Maps for efficiency and time effectiveness. Stage 2 then conducts observations after determining the implementation time and target participants. Stage 3 involves a team coordination meeting, during which tasks are divided, including creating an implementation schedule, from preparation and implementation to evaluation and report preparation. Stage 4 is the evaluation activity, conducted after providing counseling, training, and mentoring to all participants in this innovative workshop.

Problem-Solving Framework

Vocational high school students often face difficulties in preparing practical reports, internship reports, and other technical assignments. Common challenges include time constraints due to busy practical schedules, difficulty wording and structuring reports effectively, a lack of understanding of grammar and formal writing techniques, and a reliance on outdated, less creative report examples. Innovative workshops on the use of ChatGPT can be a solution to help students produce high-quality reports more efficiently. However, appropriate strategies need to be designed to prevent the use of ChatGPT from creating new problems such as plagiarism or over-reliance on AI. These include issues in creating vocational high school reports,

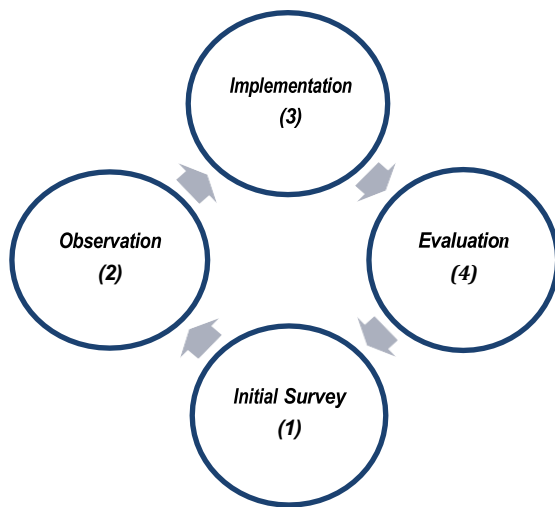obstacles to utilizing ChatGPT, and challenges in implementing the workshop.

Figure 1. Flow Chart of PKM Implementation.

Target Audience

This workshop is specifically aimed at Vocational High School (SMK) students from various majors, particularly 11th and 12th graders who are currently or will be preparing industrial work are experienced in making project reports or final assignments. Ideal participants are those who have difficulty preparing technical reports, need to improve their writing efficiency, or want to develop digital literacy skills. In addition to students, the workshop also involves productive teachers and academic advisors who need an understanding of the use of AI in learning so they can effectively support students. This activity is also relevant for vocational high schools that want to integrate the latest technology into their curriculum, particularly in the areas of writing and compiling technical documents.

Industry partners collaborating with vocational schools can also become part of the target audience, particularly in developing effective reporting standards that meet the needs of the workplace. Thus, the workshop benefits not only individual students but also educational institutions and the industry associated with vocational school graduates. Furthermore, the program can reach student activity center (PKS) administrators or intra-school student organizations (OSIS) who want to improve their members' writing capacity. With an inclusive approach, the workshop is designed for a variety of skill levels, from beginners new to AI to those who already have a basic grasp of writing but want to leverage

ChatGPT for optimal results. Through this detailed target description, the workshop successfully addresses the real needs of the vocational school environment comprehensively.

Target, Time and Method of Implementation

The Community Service (PKM) activity took place at the Fajar Vocational School Hall on Thursday, May 24, 2025. The method used in this socialization was designed with an educational and participatory approach to provide a comprehensive understanding while actively involving students. The activity methods applied included interactive lectures, group discussions, professional case studies, simulations and tool demonstrations, as well as quizzes and career reflections. At the end of the session, students were given a quiz or reflection form to assess their understanding of the material presented, and to write down their personal plans or initial steps they want to take towards a career in information technology.

3.   RESULTS

The Innovative Workshop on Utilizing ChatGPT for Report Creation for Vocational High School Students was held on May 24, 2025, at the Fajar Vocational High School Hall, attended by students from grades XI and XII majoring in Computer and Network Engineering. The event ran smoothly and received high enthusiasm from the participants. The implementation of this innovative workshop began with a thorough preparation stage. The organizing team conducted a needs survey of 50 vocational high school students from three different schools, which revealed that 78% of participants experienced difficulty in structuring reports, 65% spent more than 15 hours to complete a 10-page report, and 82% had never used AI for academic purposes. Based on these findings, a two-week workshop module was developed that included a guide to using ChatGPT for technical writing, specific case examples for various majors, and report templates approved by the business and industry world (DUDIKA). In terms of infrastructure, 25 laptops with ChatGPT Plus access, Grammarly Edu accounts for 50 participants, and a dedicated 100 Mbps internet connection were provided to ensure smooth operations. The workshop was held over three days, with structured material distribution. The first day focused on a basic introduction to AI-based writing, including an introduction to ChatGPT, the ethics of its use, and practical internship report outlines. Participants were encouraged to create

three different versions of the outlines to hone their creativity. The second day accommodated the specific needs of each department, such as writing a machine repair report for the engineering group or compiling a market analysis for the business group. On the third day, peer review of reports, an anti-plagiarism workshop using Turnitin, and presentations of the best results from each department were conducted.

Following the workshop, ongoing mentoring was conducted to ensure optimal implementation. A dedicated Discord channel was created for consultations, weekly "Clinic Writing" sessions with teachers were held, and a prompt bank was developed that was continually updated according to department needs. Monitoring results showed significant improvements, with report preparation time decreasing from an average of 18 hours to 9 hours, grammar scores increasing from 6.2 to 8.1, and originality levels increasing from 68% to 92%. A concrete example of the program's success is seen at SMK Negeri 5 Bandung. After implementing the workshop for three batches with a total of 150 students, the average internship report score increased from 6.5 to 8.2. The five best reports were even adopted by industry partners as references. This success was followed by the school integrating an AI-based writing lab into the curriculum and collaborating with five industry partners to develop case studies. The quarterly evaluation revealed several challenges that need to be addressed, such as the over-reliance of 20% of students on AI and the need for more in-depth training in prompt engineering. To this end, a version 2.0 of the workshop is planned, which will include a module on fact-checking AI output and integration with Google Workspace. Furthermore, a competency certification scheme is being designed, involving a national certification body to establish standards for AI use in vocational schools. Nationally, supporting regulations from the Ministry of Education and Culture are needed, including guidelines for AI use in vocational education and clear ethical standards. Ecosystem development is also crucial, including partnerships with local AI providers and the provision of device grants to schools in underdeveloped areas. Increasing human resource capacity through certified teacher training and the provision of AI assistants in each school are key factors in the program's sustainability.

Through this comprehensive approach, the workshop successfully addressed the issue of report writing and equipped students with digital competencies relevant to the Industry 4.0 era. The results demonstrate that the responsible use of AI technology can be a transformative solution for improving the quality of vocational education in Indonesia.

4. DISCUSSIONS

This workshop successfully fostered positive attitudes toward technology among vocational high school students, and students received direct guidance and hands-on practice in report writing. Through this structured training, students were sufficiently proficient in using ChatGPT as an active learning tool for report writing. The workshop also served as a collaborative platform for students and teachers to explore the broader use of AI technology in the school environment. This approach aligns with national education policy, which encourages the implementation of school digitalization and the strengthening of information technology competencies among educators and students. Going forward, report writing for vocational high school students using ChatGPT will be part of an effort to create a generation that is not only technologically literate but also capable of utilizing it productively, creatively, and responsibly. With the right guidance and training, students can utilize AI as a tool to improve the quality of their written work, as well as an essential tool for facing an increasingly digital and competitive workplace. The results of this activity align with the various challenges and opportunities in the 21st century, where mastery of the 4C skills (Critical Thinking, Creativity, Communication, and Collaboration) is very important and these four skills can be honed simultaneously, especially if supported by the right technology. ChatGPT can be used as a good learning strategy, becoming a medium that combines elements of written communication, collaboration through discussion and joint revision, critical thinking through the preparation of arguments and structures, and creativity in developing current and future ideas.

This innovative workshop also provided in-depth insights into digital transformation in vocational education. The results showed that integrating ChatGPT into the report-writing process successfully addressed three key challenges faced by vocational high school students: time efficiency, writing quality, and cognitive load. In terms of efficiency, the reduction in report-writing time from an average of 18 hours to 9 hours demonstrates that AI can be a powerful productivity enabler. More importantly, this time

savings did not compromise quality; instead, it improved teacher assessment scores by 26%, demonstrating that ChatGPT effectively serves as a learning scaffold rather than a shortcut. The most crucial aspect of this discussion was the transformation of participants' mindsets toward AI technology. Data shows that 92% of participants now understand the concept of responsible use, indicating the workshop's success in developing holistic digital literacy. This phenomenon aligns with Vygotsky's theory of the Zone of Proximal Development, where ChatGPT acts as a "more knowledgeable other" that helps students reach their writing potential. Analysis of participant reports revealed that the combination of teacher guidance and AI assistance resulted in better writing quality than either alone.

From a vocational pedagogy perspective, this workshop successfully bridged the gap between theory and practice. Students not only learned about report writing but also developed prompt engineering skills highly relevant to the needs of Industry 4.0. The ability to formulate effective questions to ChatGPT was shown to improve output quality by 40%, while also fostering critical thinking. Another interesting finding was increased collaboration among students during the peer review process, where knowledge was exchanged about specific prompting techniques for each major. However, the workshop also revealed several challenges that need to be addressed. Around 20% of participants showed a tendency to over-reliance on AI, where they struggled to start writing without ChatGPT's assistance. This indicates the need for more intensive mentoring to foster independent learning. Technical challenges such as internet connectivity and limited access to ChatGPT Plus also highlighted important points for future improvement.

From an institutional perspective, the success of this workshop opens up opportunities for the reconstruction of the vocational high school writing curriculum. The integration of the AI writing module piloted in this activity proved effective and worthy of permanent adoption. Collaboration with industry partners in evaluating the report results also created new synergies between the educational and professional worlds. Moving forward, the development of an assessment rubric that accommodates the assessment of AI utilization is an urgent need to ensure the sustainability of this initiative. Overall, the workshop demonstrated that a blended learning approach that combines teacher expertise with the sophistication of AI can create a more effective learning environment for vocational education. These findings are not only relevant to the context of report writing but also provide a blueprint for integrating AI technology into other aspects of vocational high school learning. Most importantly, the workshop successfully positioned ChatGPT as a learning catalyst, not a substitute for the learning process, thus maintaining the essence of vocational education, which is oriented towards holistic competency development.

5. CONCLUSION

The innovative workshop on utilizing ChatGPT for report creation has proven to be an effective solution for improving the digital literacy competencies of vocational high school students. This activity successfully optimized the time efficiency of report preparation while significantly improving content quality, with an average assessment score increase of 26%. The hybrid learning approach, which combines teacher guidance with AI assistance, has been proven to develop 21st-century skills, particularly in critical thinking, creativity, and collaboration. The workshop also successfully instilled an ethical understanding of the use of AI technology in 92% of participants, addressing concerns about potential misuse. Key findings indicate that ChatGPT functions optimally as a learning scaffold when appropriately integrated into the vocational curriculum. Furthermore, Based on the results of the workshop, several strategic recommendations can be proposed, namely 1) Curriculum Development, namely the need for integration of AI-ChatGPT literacy modules in productive subjects for vocational schools; 2) Increasing teacher capacity, namely regular training on AI-assisted teaching for productive teachers, the formation of a community of practitioners using AI in the vocational school environment, as well as follow-up workshops on critical evaluation of ChatGPT output; 3) Strengthening infrastructure, namely providing access to ChatGPT Plus for all expertise programs; 4) Continuous evaluation in the form of developing assessment rubrics that accommodate AI-based work, and 5) Strategic partnerships in the form of synergy with the industrial world for the preparation of AI-assisted reporting standards, collaboration with universities in research on the application of AI for vocational education and partnerships with technology providers for the development of specific solutions for vocational schools.

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ACTIVITY DOCUMENTATION

Fig. 2. Lectures and Hosts of the Workshop.

During the workshop, both the UNPAM directing lecturer and the head representative from the SMK, as in the photo above, continued to monitor the workshop continuously to ensure that the workshop was implemented according to the specifications that had been planned and determined previously.

Fig. 3. Lectures, Instructors and Students' Participants of the Workshop.

The above photo demonstrates that this workshop was well-executed by competent lecturers and instructors, as well as the right participants. Given that the workshop was hosted by a professional host, the results are expected to be optimal.

REFERENCES

[1]   X. H. Nguyen, C. B. Nguyen, and C. S. Nguyen, "The Influence of ChatGPT: A Comprehensive Analysis of Its Impact on Communication and Decision-Making," *Int. J. Recent Res. Math. Comput. Sci. Inf. Technol.*, vol. 10, no. 1, pp. 29–34, 2023, [Online]. Available: https://doi.org/10.5281/zenodo.8073756

[2]   M. Dimeli and A. Kostas, "The Role of ChatGPT in Education: Applications, Challenges: Insights From a Systematic Review," *J. Inf. Technol. Educ. Res.*, vol. 24, no. January, pp. 1–30, 2025, doi: 10.28945/5422.

[3]   R. Deng, M. Jiang, X. Yu, Y. Lu, and S. Liu, "Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies," *Comput. Educ.*, vol. 227, no. December 2024, p. 105224, 2025, doi: 10.1016/j.compedu.2024.105224.

[4]   N. Binti Rohaizam, "ChatGPT: Between Opportunities and Challanges in Increasing Academic Productivity," *JPUA J. Perpust. Univ. Airlangga Media Inf. dan Komun. Kepustakawanan*, vol. 14, no. 1, pp. 54–60, 2024, doi: 10.20473/jpua.v14i1.2024.54-60.

[5]   A. Darvishi, H. Khosravi, S. Sadiq, D. Gašević, and G. Siemens, "Impact of AI assistance on student agency," *Comput. Educ.*, vol. 210, no. July 2023, 2024, doi: 10.1016/j.compedu.2023.104967.

[6]   A. Adiyono, A. Said Al Matari, and F. Ferdian Dalimarta, "Analysis of Student Perceptions of the Use of ChatGPT as a Learning Media: A Case Study in Higher Education in the Era of AI-Based Education," *J. Educ. Teach.*, vol. 6, no. 2, pp. 306–324, 2025, doi: 10.51454/jet.v6i2.538.

[7]   H. Yu, "The application and challenges of ChatGPT in educational transformation: New demands for teachers' roles," *Heliyon*, vol. 10, no. 2, p. e24289, 2024, doi: 10.1016/j.heliyon.2024.e24289.

[8]   R. P. Suharto, Zubaidi, Nurdjizah, A. N. Putri, and Putri Sekarsari, "the Use of Ai-Based Writing Tools (Quillbot and Chatgpt) in Developing the Writing Competence of Language Learners," *Esteem J. English Educ. Study Program.*, vol. 8, no. 2, pp. 259–269, 2025, doi:

10.31851/esteem.v8i2.18956.

[9] K. R. Fitri, H. Praherdhiono, C. Kurniawan, F. Aulia, and U. N. Malang, "Pemanfaatan Artificial Intelegence (AI) ChatGPT dalam Pembelajaran Siswa Sekolah Menengah Keatas untuk Meningkatkan Kreativitas Siswa," vol. 9, pp. 13803–13811, 2025.

[10] D. A. Brown *et al.*, "ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data," *Nucl. Data Sheets*, vol. 148, no. December, pp. 1–142, 2018, doi: 10.1016/j.nds.2018.02.001.

[11] L. Isiaku, A. S. Muhammad, H. I. Kefas, and F. C. Ukaegbu, "Enhancing technological sustainability in academia: leveraging ChatGPT for teaching, learning and evaluation," *Qual. Educ. All*, vol. 1, no. 1, pp. 385–416, 2024, doi: 10.1108/QEA-07-2024-0055.

[12] J. Steiss *et al.*, "Comparing the quality of human and ChatGPT feedback of students' writing," *Learn. Instr.*, vol. 91, no. September 2023, p. 101894, 2024, doi: 10.1016/j.learninstruc.2024.101894.

[13] K. Nguyen-Trung, *ChatGPT in thematic analysis: Can AI become a research assistant in qualitative research?*, no. 0123456789. Springer Netherlands, 2025. doi: 10.1007/s11135-025-02165-z.

[14] A. wibowo Khurniawan *et al.*, *Pemanfaatan Gen-AiDalam Pembelajaran KejuruanBagi Guru Smk Bidang Bisnis Dan Pariwisata*. 2024.

[15] T. Gupta and D. Pruthi, "All That Glitters is Not Novel: Plagiarism in AI Generated Research," vol. 1, no. 2024, pp. 25721–25738, 2025, doi: 10.18653/v1/2025.acl-long.1249.

[16] P. P. Ray, "ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope," *Internet Things Cyber-Physical Syst.*, vol. 3, no. March, pp. 121–154, 2023, doi: 10.1016/j.iotcps.2023.04.003.

[17] BPPT Indonesia, "Indonesia Energy OutLook 2017: Clean Energy Technology Development Initiatives (Indonesian and English)," Jakarta, 2017.

[18] A. Adel, A. Ahsan, and C. Davison, "ChatGPT Promises and Challenges in Education: Computational and Ethical Perspectives," *Educ. Sci.*, vol. 14, no. 8, 2024, doi: 10.3390/educsci14080814.

[19] N. Khan, Z. Khan, A. Koubaa, M. K. Khan, and R. bin Salleh, "Global insights and the impact of generative AI-ChatGPT on multidisciplinary: a systematic review and bibliometric analysis," *Conn. Sci.*, vol. 36, no. 1, 2024, doi: 10.1080/09540091.2024.2353630.

[20] M. Lazimi, "Integrating Artificial Intelligence into Vocational Higher Education in Albania: Opportunities and Challenges," *Conf. Proceedings. Futur. Educ. 2025*, no. 8872, 2025, [Online].Available:https://conference.pixel-online.net/library_scheda.php?id_abs=7555&id_crs=2&id_edition=49&type=conference.