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Transformasi Digital

Workshop Pemanfaatan AI untuk Peningkatan Kompetensi Guru

Digital Transformation

Workshop on Using AI to Improve Teacher Competency

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Abstract

Advances in science and technology have brought significant changes to the world of education, one of which is the development of Artificial Intelligence (AI), which can be utilized to improve the learning process. This article is the result of a community service activity carried out by the IPDN West Sumatra Campus Lecturer Team in collaboration with the Education Office, which aims to improve the understanding of teachers and teaching staff throughout Payakumbuh City about the role of Artificial Intelligence (AI) in education. The knowledge transformation was carried out in the form of a technology workshop where the material was presented using lectures, discussions, and direct practice methods. This workshop focused on the use of ChatGPT and Gamma Ai as interactive learning media. Attended by 75 elementary and junior high school teachers and teaching staff. The results of this workshop showed that 95% of participants understood the use of ChatGPT and 90% mastered Gamma Ai. It is hoped that this article will serve as a foundation for teachers and teaching staff to be able to utilize Artificial Intelligence (AI) technology in future learning practices.

Keywords

Artificial Intelligence (AI); Workshop; Teachers; Payakumbuh City.

Abstrak

Kemajuan ilmu dan teknologi membawa perubahan yang signifikan dalam dunia pendidikan, salah satunya perkembangan Artificial Intelligence (AI) yang dapat

dimanfaatkan dalam peningkatan proses pembelajaran. Artikel ini merupakan hasil kegiatan pengabdian kepada masyarakat yang dilaksanakan oleh Tim Dosen IPDN Kampus Sumatera Barat dan bekerja sama dengan Dinas Pendidikan yang bertujuan untuk meningkatkan pemahaman guru dan tenaga pengajar se-Kota Payakumbuh tentang peran *Artificial Intelligence* (AI) dalam bidang pendidikan. Transformasi ilmu dilakukan dalam bentuk *workshop* teknologi di mana materi disajikan dengan metode ceramah, diskusi dan praktik langsung. Kegiatan *workshop* ini berfokus pada pemanfaatan ChatGPT dan Gamma Ai sebagai media pembelajaran interaktif. Diikuti sebanyak 75 orang guru dan tenaga pengajar tingkat SD dan SMP. Hasil *workshop* ini menunjukkan 95% peserta memahami penggunaan ChatGPT dan 90% menguasai Gamma Ai. Diharapkan, artikel ini menjadi fondasi bagi guru dan tenaga pengajar untuk dapat memanfaatkan teknologi *Artificial Intelligence* (AI) dalam praktik pembelajaran ke depannya.

Kata Kunci

Artificial Intelligence (AI); Workshop; Guru; Kota Payakumbuh.

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1. Introduction

The rapid development of technology today has undeniably impacted all aspects of human life. In the field of education, digital advancements – particularly the integration of technology across all aspects of learning – have introduced a new paradigm in how we learn, teach, and interact within the teaching and learning process. One of the most significant developments in digital transformation is the utilization of Artificial Intelligence (AI). Artificial Intelligence (AI) technology has emerged as an innovation capable of making a substantial impact across various sectors, including education (Pambudi et al., 2023).

Teachers play a vital role as the driving force in the world of education. Competence is one of the

essential assets that enables teachers to become agents of change in the educational process (Damayanti et al., 2021). Therefore, teachers are not only required to master the material they teach but also to be able to leverage technological developments to create more engaging, professional, and effective learning experiences. The use of Artificial Intelligence (AI) in education and learning, as well as its role in shaping today's educational landscape, has become a central topic in policy discussions (Holmes & Tuomi, 2022).

Adopting Artificial Intelligence (AI) in education, however, is not without challenges. One of the main issues is the digital divide, which remains a serious concern for both students and teachers. Economic limitations and restricted internet access continue to be significant

barriers to equitable education. Furthermore, one of the key challenges faced by teachers is their readiness and ability to utilize technology effectively in the learning process (Ma'arif & Nursikin, 2024).

On the other hand, digital transformation also presents opportunities to enrich the learning experience by using more engaging and interactive media. By accommodating different learning styles, it is possible to improve students' understanding and learning preferences. Artificial Intelligence (AI) can serve not only as an "intelligent partner" for teachers – helping them identify students' needs and design effective learning strategies – but also as a tool to reduce administrative burdens, such as managing students' grades, thereby allowing teachers to focus more on

direct interaction during learning activities (Luckin & Holmes, 2016).

The emergence of AI-powered applications such as Canva, ChatGPT, and Gamma Ai provides teachers with tools to create engaging, effective, and interactive learning materials. Canva and Gamma Ai, for example, can be utilized to design visually appealing instructional media, as the engagement and enjoyment level of the learning process – which helps motivate students – are heavily influenced by the quality of the learning materials (Budiman, 2016). Beyond offering visually engaging content creation, Gamma Ai also includes features for real-time virtual collaboration and communication between students and teachers through online discussion forums, thus creating a more personalized and adaptive learning experience (Anas, 2024).

Similarly, ChatGPT can be used to generate various types of practice questions – including multiple-choice, essay, true/false, and analytical exercises – enabling teachers to better assess students' understanding of the material delivered.

However, the limited skills of many teachers in designing innovative, interactive learning materials and effective assessment tools remain one of the major issues in education today. Even in several developed countries that have already adopted Artificial Intelligence (AI) in learning activities, challenges persist due to teachers' limited capacity to fully harness this technology. Many teachers still lack sufficient knowledge of digital technologies and AI-based applications, highlighting the need for intensive training to

ensure that these tools can be effectively utilized to enhance the teaching and learning process.

2. Method

This community service activity was carried out to introduce and provide an understanding of Artificial Intelligence (AI) technology. The primary target of this program was elementary and junior high school teachers and teaching staff across Payakumbuh City who are interested in utilizing Artificial Intelligence (AI) technology. The training was designed to enhance teachers' and teaching staff's competencies in applying AI technology to develop more interactive and effective learning materials. Additionally, the training aimed to equip teachers with foundational knowledge of Artificial Intelligence (AI), integrate it into the

learning process, design instructional materials, and utilize AI in student assessment and evaluation.

The training materials delivered in this workshop included: 1) Perspectives on Artificial Intelligence (AI) – covering philosophical, historical, legal, and sociological perspectives; 2) Utilization of Artificial Intelligence (AI) across various fields; 3) How to maximize the use of ChatGPT; 4) How to use Gamma Ai to design learning materials.

The concrete outcomes hope to be achieved in this training included:

- a. Teachers and teaching staff gained a comprehensive understanding of Artificial Intelligence (AI) regarding its concepts, development, regulations, and impacts;
- b. Teachers and teaching

staff understood how Artificial Intelligence (AI) can improve productivity, efficiency, and drive innovation across various fields;

- c. Teachers and teaching staff learned how to maximize the use of ChatGPT for finding learning materials, preparing learning assessments and evaluations, and generating innovative ideas for teaching and learning activities;
- d. Teachers and teaching staff learned how to utilize Gamma Ai to automatically and more rapidly create presentations that more professional, visually engaging, and interactive, as well as to use Gamma Ai to assist in preparing syllabi and instructional materials.

This workshop was conducted as an independent Community Service Activity (PKM) by eight lecturers from the IPDN West Sumatra Campus, consisting of four lecturers from the Government Information Engineering Technology (TRIP) program and four lecturers from the Public Finance (KP) program. The activity was also supported by five Praja Muda (students) from Batch XXXIV of the IPDN West Sumatra Campus.

The workshop was held on Friday, October 25, 2024, from 08:30 AM to 11:30 AM WIB, at the Auditorium of the Payakumbuh City Education Office, West Sumatra Province. It was attended by 75 (seventy-five) representatives of elementary and junior high school teachers across Payakumbuh City. The event was officially opened by the Head of the Payakumbuh City Education Office, Dr. Dasril, S.Pd., M.Pd.



Figure 1. Opening of the Workshop by the Head of the Payakumbuh City Education Office

The stages of the workshop implementation can be seen in Figure 2.

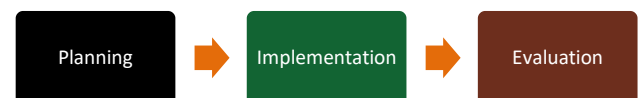


Figure 2. Workshop Implementation Stages

2.1. Planning

The planning stage is an important process in carrying out any activity. This stage is conducted to ensure that the activities run smoothly and achieve the desired objectives. In

implementing this technology workshop, several planning steps were carried out, including:

- a. Conducting a survey on the availability of schedules, rooms, and facilities required for the workshop implementation;
- b. Conducting a needs analysis for workshop materials related to Artificial Intelligence (AI) technology;
- c. Designing the materials to be presented;
- d. Designing workshop mechanisms and flow;

Determining the workshop schedule, concepts, and agenda.

2.2. Implementation

Before the workshop was conducted, participants were given several preliminary questions to

assess the extent of teachers' and teaching staff's understanding of the theoretical aspects of AI utilization in education, particularly regarding the use of

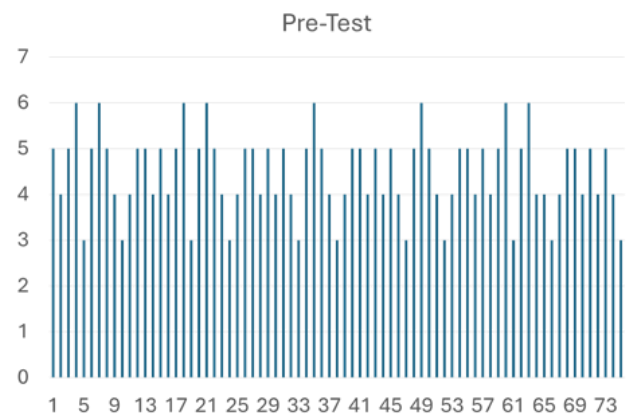


Figure 3. Diagram of Workshop Participants' Pre-Test Results

For the assessment, a questionnaire consisting of ten multiple-choice questions (options A, B, C, and D) was administered.

Based on the pre-test results (Figure 3), it was found that, out of ten theoretical questions about the benefits of AI technology, participants were able to answer a maximum of six questions

correctly, with a minimum of three correct answers.

Following this, the workshop proceeded with material presentations, interactive discussions, and hands-on practice using the applications. Participants were required to bring their own laptops for the training session. During the introduction to ChatGPT and Gamma Ai, each participant was guided through direct practice using these applications. Through this hands-on learning approach, it was expected that the teachers and teaching staff participating in the workshop would gain a deeper understanding and be able to implement the knowledge in their teaching and learning activities at school.



Figure 4. Introduction of the PKM Implementation Team from IPDN West Sumatra Campus



Figure 5. Materials Presentation on AI Application Introduction



Figure 6. Materials
Presentation and Practical
Session on ChatGPT and
Gamma Ai Applications

2.3. Evaluation

The Artificial Intelligence (AI) technology workshop conducted for teachers and teaching staff was evaluated comprehensively by the Community Service Activity (PKM) implementation team across all aspects, with a particular focus on assessing participants' understanding of the delivered materials. Each participant was required to submit the results of their practical exercises on using ChatGPT and Gamma Ai, which were then reviewed and assessed by the PKM implementation team. The evaluation results before and after the workshop showed a significant improvement in participants' understanding. These findings serve as both an accountability report and

a basis for preparing a scientific article on the community service activity. This scientific article is expected to serve as both an inspiration and a reference for similar activities in the future.

The knowledge transfer method regarding Artificial Intelligence (AI) technology in this workshop was designed through a combination of material presentations, discussions, and hands-on practice. The implementation of this workshop is considered highly significant in motivating teachers and teaching staff to enhance their digital competencies so they can keep pace with the rapidly evolving technological landscape. The materials were delivered directly by lecturers with expertise in their respective fields, allowing participants to comprehend the content more

effectively.

Comprehensive materials on Artificial Intelligence (AI) concepts, as well as how AI can enhance productivity, efficiency, and drive innovation across various sectors, were presented through lectures and discussions. Meanwhile, practical sessions on using ChatGPT and leveraging Gamma Ai were conducted through guided presentations and direct practice. Throughout the sessions, participants were highly active and enthusiastic. During the practice, all participants were directly assisted by the Praja Muda Batch XXXIV from IPDN West Sumatra Campus. It is expected that participants will not only become familiar with and understand the applications but also be motivated to apply their knowledge in improving the teaching and learning process.

3. Results and Analysis

The knowledge transfer activity conducted through this technology workshop was attended by elementary and junior high school teachers and teaching staffs from across Payakumbuh City. A total of 75 participants attended the event, each bringing their own laptop. The purpose of this workshop was to provide participants with the knowledge and skills to utilize Artificial Intelligence (AI) in developing learning media, aiming to enhance students' learning motivation and, ultimately, improve their understanding and skills.

Before the workshop began, the organizing team distributed a set of questions related to the materials to be presented in order to measure participants' initial level of understanding.

The results showed that many participants were not yet familiar with and undderstand the benefits of AI, and some even had no prior knowledge of AI-related applications, such as ChatGPT and Gamma AI.

During the hands-on session on using ChatGPT, participants were tasked with creating lesson plans, designing practice questions, searching for learning materials, and providing feedback for students. The evaluation results showed that 95% of participants successfully understood how to use the application. Meanwhile, during the practical session on Gamma AI,

participants were instructed to create well-structured learning materials, prepare engaging presentation slides, and practice importing and exporting files using the application. The evaluation revealed that 90% of participants successfully completed the exercises, while a few participants managed to try the application but still required additional guidance. These findings are consistent with the **post-test results** conducted after the workshop, as illustrated in the diagram below:

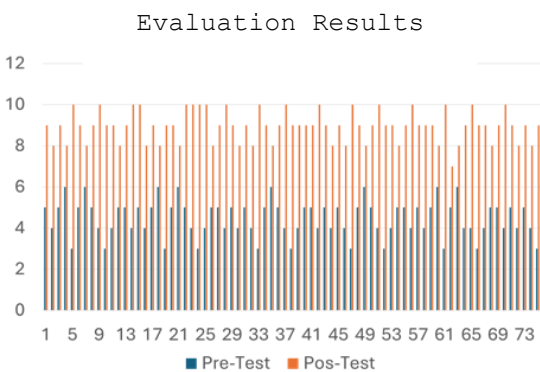


Figure 7. Diagram of Pre-

Test and Post-Test Results of Workshop Participants

The diagram shows a significant improvement in participants' level of understanding compared to their pre-test scores. To support further learning, the Community Service (PKM) implementation team has also provided opportunities for participants who wish to discuss the materials in greater depth to meet directly with the lecturers at IPDN West Sumatra Campus.

The knowledge transfer regarding the utilization of Artificial Intelligence (AI) in the field of education is a crucial step in this digital era. Artificial Intelligence technology offers substantial benefits in improving the quality of teaching and learning in Payakumbuh City. By understanding how to

leverage AI, teachers and teaching staffs are able to design learning media that are more engaging, interactive, effective, and personalized for their students.

However, the implementation of AI in both elementary and junior high schools still faces several challenges and limitations, including: 1) Inadequate school infrastructure, such as unstable internet access or a lack of computer devices; 2) Varying levels of digital literacy among teachers, which requires more time for some educators to adapt to new technologies; 3) Integration of AI-based learning tools into the school curriculum, which demands coordination with multiple related stakeholders.

Based on the results of the workshop and the challenges encountered, participants suggested

that the PKM team conduct follow-up activities, including more advanced training sessions with deeper, topic-specific materials, as well as regular mentoring sessions to ensure the effective utilization of AI technology in schools.

Overall, the implementation of this Community Service (PKM) activity was successfully carried out. The knowledge and skills of elementary and junior high school teachers in Payakumbuh City regarding the use of

4. Conclusion

The Community Service (PKM) activity entitled "Digital Transformation: Artificial Intelligence (AI) as a Teacher's Partner in Learning and Teaching Activities" was successfully conducted to enhance teachers' skills and understanding in using

AI technology have improved significantly. While several challenges remain in its practical implementation, this workshop has laid a strong foundation for digital transformation in the education sector. All participants expressed hope that similar activities will continue to be organized to support the enhancement of teachers and teaching staffs' competencies and the overall improvement of education quality in Payakumbuh City.

AI-based applications to support the learning process. This is evidenced by the workshop participants' practical results, where 95% of participants were able to use ChatGPT effectively and 90% were able to create interactive visual presentations.

The workshop successfully

improved participants' capabilities significantly, both in terms of theoretical understanding and practical skills, particularly in using ChatGPT and Gamma AI applications. It is undeniable that the utilization of Artificial Intelligence (AI) technology can increase efficiency and effectiveness in the learning process and provide a more personalized learning experience for students.

For the sustainability of this initiative, the workshop implementation team hopes that the Payakumbuh City Government can provide better infrastructure for each school to support the application of AI technology. Additionally, we recommend that this activity be conducted regularly, including coaching sessions to

monitor AI implementation in schools, and the establishment of a Payakumbuh AI Teacher Community for knowledge sharing among educators.

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