International Journal of Teaching and Learning (INJOTEL) e-ISSN: 3025-8308
Vol. 4 No. 3 (2026), pages: 47~58

OPTIMIZING THE LECTURE METHOD TO ENHANCE STUDENTS' INTERACTION AND LEARNING INTEREST IN THE DIGITAL ERA

Rendy S. Sambara
IAIN Sultan Amai Gorontalo
Corespondensi author email: rendisambara419@gmail.com

Fahmi
IAIN Sultan Amai Gorontalo
fahmifami44@gmail.com

Gesika Avelina
IAIN Sultan Amai Gorontalo
gesikaavelina2004@gmail.com

Abstract

This study aims to examine how the lecture method can be optimized to enhance student interaction and learning interest in the digital era. This study is motivated by the current phenomenon in which the lecture method is often perceived as less effective due to its predominantly one-way communication, leading to student boredom and, consequently, a decline in learning interest. This research employed a qualitative approach using a library research design by reviewing scholarly articles and other relevant and credible sources. The findings indicate that the lecture method remains relevant in contemporary education when combined with digital technology and interactive instructional strategies to improve learning effectiveness. Several strategies that contribute to the effectiveness of the lecture method include promoting interactive learning, utilizing digital media, and integrating the lecture method with other instructional approaches, such as interactive discussions and project-based learning. Furthermore, teachers' readiness and pedagogical competence in implementing these strategies play a crucial role in determining their success. Therefore, optimizing the lecture method through technology-based and interactive approaches can significantly enhance student participation and learning interest in the digital era.

Keywords: Lecture Method, Student Interaction, Learning Interest.

INTRODUCTION

Education is a fundamental pillar in building a nation's civilization, as it plays a vital role in shaping the character, intellectual capacity, and skills of future generations. In the digital era, rapid technological advancements have brought significant changes across various aspects of life, including the field of education (Riska Aini Putri, 2023). Contemporary education faces new challenges, particularly in selecting instructional methods that can effectively promote active student engagement. One instructional approach that continues to be widely used is the lecture method. However, this method is often perceived as less effective because it

relies primarily on one-way communication. According to Hilda Marta's study, the lecture method tends to create a monotonous learning atmosphere, as students merely listen to the teacher's explanations. As a result, students often become passive participants, which may ultimately reduce their interest in learning (Marta et al., 2020).

Abdul Aziz and Supratman Zakir, in their study, argued that the effectiveness of the lecture method can be optimized through the integration of digital technology into the learning process (Aziz & Zakir, 2022). With the rapid advancement of information and communication technology, various innovations in instructional methods have been introduced to create learning environments that are more engaging, flexible, and responsive to students' needs. Therefore, instructional methods must be adapted to keep pace with technological developments and to foster greater student engagement and participation in the learning process.

According to a UNESCO report, more than 70% of educational institutions worldwide have adopted digital technologies within their teaching and learning systems. This transformation accelerated significantly during the COVID-19 pandemic, when many educational institutions were required to transition to online and hybrid learning models to ensure the continuity of education. The integration of digital technology into education encompasses various aspects, including the use of Learning Management Systems (LMS), interactive learning media, and artificial intelligence to support learning analytics and instructional decision-making. Furthermore, many countries have invested substantially in strengthening digital infrastructure by expanding internet access, providing technological devices, and developing technology-oriented curricula. These developments have not only transformed instructional practices but have also reshaped the patterns of interaction between teachers and students. As digital technologies become increasingly integrated into education, learning systems across the world are evolving toward more flexible, efficient, and adaptive approaches that are better suited to the demands of the digital era (Muthmainnah et al., 2024).

The lecture method has long been one of the most widely used instructional approaches across various levels of education. Although it is often regarded as a less interactive teaching method, numerous studies have demonstrated that lectures can remain an effective instructional strategy when integrated with complementary learning approaches. Ermawati's study found that combining the lecture method with interactive discussions can improve students' comprehension by up to 30%. This improvement is attributed to the opportunities provided for students to ask questions, share their perspectives, and clarify concepts they have not fully understood (Ermawati, 2022).

Meanwhile, a study conducted by Helnanelis and Ahya Ulyanti found that integrating digital media into the lecture method such as interactive presentations, instructional videos, and technology-based simulations can increase students'

attention by up to 40%. These findings indicate that the lecture method remains relevant and applicable in contemporary education, provided that it is integrated with digital technologies and other interactive instructional strategies to enhance the effectiveness of the learning process (Helnanelis & Ulyanti, 2023).

This study aims to analyze and examine the optimization of the lecture method in enhancing student interaction and learning interest in the digital era. In the context of contemporary education, instructional approaches that rely solely on conventional lectures are considered less effective, particularly when addressing the learning characteristics of Generation Z students, who are highly familiar with digital technology. Therefore, this study addresses three main research questions. First, how can interactivity be effectively incorporated into the lecture method? Second, how can digital technology be integrated into the lecture method to improve learning outcomes? Third, how can the lecture method be effectively combined with other instructional approaches? This study is expected to contribute to the development of more adaptive, interactive, and learner-centered instructional strategies that meet the demands of education in the digital era. Furthermore, its findings are intended to serve as a reference for educators in designing more innovative and effective teaching practices.

RESEARCH METHOD

This study employs a literature review approach using a descriptive qualitative method. Descriptive research aims to explore possible solutions to current problems by collecting, organizing, classifying, analyzing, and interpreting relevant data. The data collection technique used in this study was a library research method. Library research is a data collection technique that involves gathering and analyzing various documents, including written documents, images, and electronic sources. The written documents utilized in this study include books, scholarly journals, and scientific articles relevant to the research topic.

The research method employed in this study is a qualitative approach through library research, which involves processing data and information by reviewing, examining, discussing, and collecting relevant literature from contemporary sources. This study applies a descriptive content analysis method, which analyzes the content of the research object based on relevant references and scholarly sources. The object of this study focuses on the optimization of the lecture method in enhancing student interaction and learning interest in the digital era (Mazaimi & Sary, 2023).

The data were processed through content analysis of various relevant articles to obtain valid and reliable information. Subsequently, the collected data were analyzed through several stages, including selecting, comparing, synthesizing, and categorizing relevant findings from the reviewed sources. This systematic process was conducted to identify patterns, relationships, and significant insights related to the

optimization of the lecture method in enhancing student interaction and learning interest in the digital era.

RESULT AND DISCUSSION

Interactivity in the Lecture Method

The lecture method can enhance student engagement when it is delivered through interactive and engaging approaches. One effective strategy is to involve students through question-and-answer sessions, discussions, and reflection activities, allowing them not only to become passive listeners but also to actively think and participate in the learning process. Furthermore, variations in instructional delivery, such as the use of visual media, educational videos, and case studies, can make learning materials more engaging, meaningful, and easier for students to understand (Mazaimi & Sary, 2023).

Student engagement can be enhanced by connecting learning materials with students' real-life experiences, allowing them to develop a stronger connection with the topics being taught. The use of humor and storytelling in lectures can also create a more relaxed and enjoyable learning atmosphere. By implementing these strategies, the lecture method not only becomes more effective in delivering instructional content but also contributes to increasing students' motivation and active involvement in the learning process (Sambara et al., 2026).

The utilization of interactive media and technology can further enrich and enhance the effectiveness of content delivery. The lecture method, which is often characterized by one-way communication, can become more interactive and engaging through the integration of various technological tools. For instance, educators can utilize visual media, instructional videos, or animations to illustrate and clarify the concepts presented during lectures, enabling students to better understand complex learning materials (Mazaimi & Sary, 2023).

Interactive technologies, such as online learning platforms and quiz applications, can be utilized to directly engage students during or after lectures, for example through platforms such as Google Classroom and Google Meet. Educators can provide interactive quizzes or polls to assess students' understanding in real time, offer opportunities for students to ask questions or participate in discussions through online forums, and encourage them to collaborate in small groups using digital collaborative tools. By integrating interactive media and technology into the lecture method, the learning process becomes not only more engaging but also more adaptive to students' needs, thereby enhancing their involvement and participation in the learning process (Depita, 2024).

Furthermore, interactive feedback and evaluation are essential components in enhancing student engagement and strengthening the learning process. Through constructive feedback, students can identify their strengths and recognize areas that

require improvement in their understanding. This process enables them to refine and develop the skills and knowledge they have acquired. Interactive feedback and evaluation significantly enhance the effectiveness of the lecture method and promote greater student involvement. Although lectures are often characterized by one-way communication, the implementation of interactive feedback can transform them into a more dynamic and meaningful learning experience (Sari & Alfiyan, 2023).

The combination of effective feedback and interactive evaluation supports a more personalized and responsive learning process. Through this approach, students feel more engaged, motivated, and encouraged to continuously improve and develop throughout the learning process.

The Utilization of Technology in the Lecture Method

Digital learning media refers to various technology-based tools and resources used to support the learning process. These media include different types of content, such as text, images, videos, animations, and simulations, which can be accessed through digital devices such as computers, tablets, or smartphones. The use of digital learning media enables a more flexible, engaging, and personalized learning experience that can be adapted to students' needs. One of the main advantages of digital learning media is its ability to present learning materials in visual and interactive formats, helping students understand complex concepts in a more accessible and engaging way. Furthermore, digital media also facilitates distance learning, allowing students to access learning materials anytime and anywhere, thereby providing greater opportunities for independent learning (Jafnihirda et al., 2023).

Furthermore, online learning platforms, educational applications, interactive quizzes, and tutorial videos are examples of digital learning media that are frequently utilized in educational contexts. These media not only enrich the learning experience but also enhance student engagement, as learners can interact directly with instructional materials through various more engaging formats. Examples of such platforms include Google Classroom, Zoom, Google Meet, and many other digital learning tools. When utilized appropriately, digital learning media can serve as highly effective tools for improving the quality and effectiveness of learning, enabling a more personalized, accessible, and flexible educational experience (Fitriah & Khotimah, 2025).

The utilization of Artificial Intelligence (AI) also offers various advanced solutions to support more personalized and adaptive learning experiences. Through AI, learning systems can adjust instructional materials according to individual students' needs and abilities, provide exercises that correspond to their level of understanding, and deliver automated feedback that can be received immediately by students. Furthermore, AI can analyze students' learning performance data and generate recommendations that help improve the effectiveness of the learning process (Evy Nur Rohmawaty et al., 2024).

The integration of interactive technology and Artificial Intelligence (AI) in education enables a more flexible, efficient, and personalized learning process. These technologies not only enhance student engagement but also accelerate students' adaptation to more complex and diverse learning materials. On the other hand, educators can utilize data generated by AI to design more targeted and responsive learning strategies that address students' specific needs (Sitorus & Murti, 2024).

Integration with Other Learning Methods

Combining the lecture method with interactive discussions can create a more dynamic learning experience and enhance student engagement. The lecture method, which is typically characterized by one-way communication, can be strengthened through interactive discussion elements that actively involve students in the learning process. The following are several ways to integrate these two instructional approaches:

1. Opening with Guiding Questions
   Before starting the lesson, educators can pose introductory questions to stimulate students' interest and encourage them to think critically about the topic to be discussed. This approach provides students with an opportunity to begin developing their ideas and preparing arguments for the subsequent discussion(Mazaimi & Sary, 2023).
2. Group Discussions
   After delivering a portion of the learning material, educators can divide students into small groups to discuss specific topics. These discussions allow students to exchange ideas and explore the material more deeply. Additionally, group discussions provide opportunities for peer learning and collaborative knowledge construction (Mazaimi & Sary, 2023).
3. Interactive Question-and-Answer Sessions
   During the learning process, educators can conduct direct question-and-answer sessions, allowing students to ask questions or express their opinions regarding the material being presented. This approach transforms the learning process from one-way communication into two-way interaction, encouraging students to think critically and participate actively (Mazaimi & Sary, 2023).
4. Technology Integration
   The use of interactive technology, such as polling applications or online quizzes, can be incorporated during teaching to assess students' understanding in real time. This integration can also enrich discussions by providing immediate information regarding concepts that students have understood or areas that still require further clarification (Mazaimi & Sary, 2023).
5. Reflection Sessions

At the end of the learning process, educators can encourage students to reflect on the learning activities that have taken place. Reflective discussions provide opportunities for students to connect learning materials with their personal experiences and gain deeper insights into the topics being studied (Mazaimi & Sary, 2023).

The combination of the lecture method with interactive discussions provides a balance between systematic knowledge delivery and opportunities for students to actively participate in the learning process. This approach encourages deeper understanding and makes learning more engaging and effective.

The lecture method can also be combined with Project-Based Learning (PBL) to create a more holistic learning experience and strengthen students' practical skills. While the lecture method primarily focuses on delivering information and theoretical concepts, PBL encourages students to apply the knowledge they have acquired in real-world contexts. The following are several ways to integrate these two instructional approaches:

1. Introduction/Opening Phase
   The lecture method can be used to provide foundational knowledge or theoretical concepts required to understand a particular topic or problem. Educators can deliver essential concepts, fundamental principles, and relevant information that serve as a basis for the projects to be undertaken by students (Rineksiane, 2022).
2. Project Development Based on the Lecture Material
   Students can be assigned to design and carry out projects related to the learning materials presented during the lecture. These projects provide opportunities for students to apply the knowledge gained from lectures in real-world contexts. For example, after a lecture on climate change, students may be assigned a project to design an awareness campaign or conduct research on its impacts within their local environment (Rineksiane, 2022).
3. Project Collaboration
   Project-Based Learning encourages collaboration among students. Through project activities, students work in groups to solve problems or create specific products. Educators can utilize lectures to provide guidance and discuss relevant theories, while students collaboratively apply the knowledge they have acquired to complete their projects (Rineksiane, 2022).
4. Reflection and Feedback Sessions
   After completing the project, educators can conduct discussion sessions to analyze project outcomes and provide constructive feedback. These discussions allow students to reflect on the learning process they have

experienced, identify their strengths and weaknesses, and deepen their understanding of the concepts they have learned (Rineksiane, 2022).

5. Continuous Evaluation
   Throughout the project implementation, educators can provide continuous feedback through brief explanations, consultations, or individual guidance. This feedback is essential to ensure that students remain on the right track and maintain an appropriate understanding of the learning concepts related to their projects (Rineksiane, 2022).

By combining the lecture method with Project-Based Learning, students not only gain a deeper theoretical understanding but also develop practical skills in applying their knowledge. This approach makes learning more contextual, relevant, and actively involves students in the learning process, enabling them to become better prepared to face real-world challenges.

Furthermore, the lecture method can be integrated with technology-based learning approaches. This integration can enhance the effectiveness of the learning process by making lectures more engaging, interactive, and relevant to the needs of students who are increasingly familiar with digital technologies. The following are several ways to integrate these two approaches:

1. The Use of Visual Media and Multimedia
   In the lecture method, educators can utilize technologies such as presentation slides, videos, animations, and infographics to clarify and enrich the learning materials being delivered. These visual media not only make lectures more engaging but also assist students in understanding complex concepts through more accessible and comprehensible representations (Syamsurijal et al., 2023).
2. Interactive Lectures Using Learning Applications
   Technology can be utilized to transform content delivery into a more interactive process. For example, educators can use learning applications or online platforms to deliver lecture materials, allowing students to access additional resources, participate in online discussions, or take quizzes to evaluate their understanding in real time (Syamsurijal et al., 2023).
3. Online Learning Platforms (E-Learning)
   Technology-based learning enables lectures to transcend limitations of time and place. Through e-learning platforms, educators can record lectures and provide learning materials that students can access anytime. This approach gives students greater opportunities to engage in independent learning and review previously studied materials (Syamsurijal et al., 2023).
4. The Use of Simulation and Virtual Reality (VR)
   In lectures involving topics that require conceptual understanding or real-world visualization, technologies such as simulations and Virtual Reality (VR) can be

utilized. For instance, in physics or biology lessons, students can interact with simulations or three-dimensional models that represent experiments and scientific processes that are difficult to observe directly in real-life situations (Syamsurijal et al., 2023).

5. Gamification and Interactive Quizzes
   To maintain students' attention and engagement, educators can incorporate gamification elements into lectures, such as interactive quizzes, challenges, or educational games supported by digital applications. This approach provides students with opportunities to actively participate in lectures while assessing their understanding in an enjoyable learning environment (Syamsurijal et al., 2023).
6. Digital Collaboration
   Through technology, students can collaborate on projects or discussions using digital collaborative tools such as Google Docs, online forums, or communication applications like WhatsApp and Slack. During lectures, educators can assign collaborative tasks that require students to work together virtually, thereby increasing interaction and engagement in the learning process (Syamsurijal et al., 2023).

By integrating the lecture method with technology-based learning, the traditionally one-way nature of lectures can be transformed into a more flexible, interactive, and engaging learning experience. Students can access learning materials more easily, actively interact with instructional content, and receive immediate feedback, making the learning process more effective and enjoyable.

Based on the findings of this study, the lecture method continues to play an important role in education; however, strategic efforts are required to enhance its effectiveness. This study demonstrates that the lecture method can be optimized to remain relevant within digital-based learning systems. This optimization can be achieved through several strategies. First, enhancing interaction, which includes: (1) increasing student engagement, (2) utilizing interactive media and technology, and (3) implementing interactive feedback and evaluation. Second, the utilization of technology, which involves: (1) digital learning media, (2) online learning platforms, and (3) interactive technologies and Artificial Intelligence (AI). Third, integration with other instructional methods, including: (1) combining the lecture method with interactive discussions, (2) integrating the lecture method with Project-Based Learning (PBL), and (3) incorporating the lecture method with technology-based learning approaches.

Compared to conventional lectures, which are characterized by one-way communication, interactive lectures enable students to become more actively involved in the learning process (Tubagus et al., 2024). The use of technology also

serves as an important factor, particularly within the current context of digital learning.(Akhyar, 2024) Through the utilization of digital media, students are no longer positioned as passive listeners but are given opportunities to access, explore, and engage with learning materials more extensively (Aziz & Zakir, 2022).

However, according to Faiqah and Nurul, the success of the learning process is not solely determined by the use of attractive methods, approaches, or instructional strategies, but also depends on the competence of the teacher (Faiqah & Nurul, 2017). Therefore, teachers need to possess the necessary skills and abilities to manage the classroom and implement instructional methods effectively in accordance with the intended learning objectives. This is supported by Sylva Alkornia's study, which emphasizes that educators must have adequate classroom management skills, including mastery of subject matter and the ability to apply appropriate teaching methods (Alkornia, 2016).

Overall, the optimization of the lecture method can be achieved through increasing interactivity, utilizing technology, integrating it with other instructional methods, and strengthening teachers' skills in implementing appropriate teaching methods and approaches. With effective strategies, the lecture method can remain a relevant and effective instructional approach for improving students' interest and understanding in the learning process.

CONCLUSION

The results of this study indicate that the lecture method remains relevant for implementation in education when combined with technology and other interactive strategies to enhance learning effectiveness. These strategies include increasing interactivity, utilizing digital technology, and integrating the lecture method with other instructional approaches, such as interactive discussions, Project-Based Learning (PBL), and technology-based learning. However, the success of this learning approach largely depends on the skills, competencies, and ability of educators to effectively implement these strategies in the learning process.

REFERENCES

Akhyar, M. (2024). *Implementasi Kepemimpinan Guru Pai Dalam Meningkatkan Motivasi Belajar Siswa Melalui Pemanfaatan Teknologi Di Era Digital*. *18*(6), 4234–4248.

Alkornia, S. (2016). Studi Deskriptif Kompetensi Pedagogik Dan Profesionalisme Guru Paud Dharma Wanita Binaan Skb Situbondo. *Jurnal Pancaran*, *5*(4), 143–158.

Aziz, A., & Zakir, S. (2022). *Integrasi Teknologi dalam Pendidikan: Tantangan dan Peluang Pembelajaran Digital di Sekolah Dasar*. *2*(3), 1030–1037.

Depita, T. (2024). Pemanfaatan Teknologi Dalam Pembelajaran Aktif (Active Learning) Untuk Meningkatkan Interaksi dan Keterlibatan Siswa. *TARQIYATUNA: Jurnal Pendidikan Agama Islam Dan Madrasah Ibtidaiyah*, *3*(1), 55–64. https://doi.org/10.36769/tarqiyatuna.v3i1.516

Ermawati, E. (2022). Peningkatan Kualitas Pembelajaran Peserta Didik dengan Metode Diskusi Interaktif di Sekolah Menengah Pertama. *Pijar : Jurnal Penelitian Bidang Pendidikan Dan Pembelajaran*, *2*(1), 1–10. https://doi.org/10.56393/pijar.v2i1.1553

Evy Nur Rohmawaty, Danial Hilmi, M Sholih Salimul Uqba, & Ummu Sulaimah Saleh. (2024). Peran Artificial Intelligence (AI) dalam Pembelajaran Bahasa Arab Mahasiswa Pascasarjana UIN Maulana Malik Ibrahim Malang. *Khatulistiwa: Jurnal Pendidikan Dan Sosial Humaniora*, *4*(3), 316–328. https://doi.org/10.55606/khatulistiwa.v4i3.4023

Faiqah, & Nurul. (2017). Manajemen Pembelajaran Bahasa Arab Di Sekolah (Studi Kasus di SMK Muhammadiyah 2 Playen Yogyakarta). *Jurnal At-Tafkir*, *X*(1), 64–85.

Faudy Akbar, R., Prasetiyo, M. J., Ilham, M., & Zakaria, Z. (2024). Strategi Pembelajaran Aktif Dalam Meningkatkan Motivasi Belajar IPS Peserta Didik Di MTS N 1 Kudus. *Jurnal Sosial Dan Humaniora*, *1*(4), 44–56. https://doi.org/10.62017/arima

Fitriah, D., & Khotimah, K. (2025). *Pengembangan Media Pembelajaran Kreatif Dan Interaktif Melalui Teknologi Informasi dan Komunikasi (TIK) Dalam Pendidikan*. *3*, 1–8.

Helnanelis, H., & Ulyanti, A. (2023). Pengembangan Media Pembelajaran ICT berbasis Platform Nearpod untuk Meningkatkan Motivasi Siswa pada Materi Sejarah Perkembangan Islam di Asia Tenggara. *Jurnal Basicedu*, *7*(6), 3886–3894. https://doi.org/10.31004/basicedu.v7i6.6426

Jafnihirda, L., Suparmi, Ambiyar, Rizal, F., & Pratiwi, K. E. (2023). Efektivitas Perancangan Media Pembelajaran Interaktif E-Modul. *Innovative: Journal Of Social Science Research*, *3*(1), 227–239. https://j-innovative.org/index.php/Innovative/article/view/2734

Marta, H., Fitria, Y., Hadiyanto, H., & Zikri, A. (2020). Penerapan Pendekatan Contextual Teaching and Learning Pada Pembelajaran Ipa Untuk Meningkatkan Hasil Belajar Dan Motivasi Belajar Siswa Sekolah Dasar. *Jurnal Basicedu*, *4*(1), 149–157. https://doi.org/10.31004/basicedu.v4i1.334

Mazaimi, Z., & Sary, I. (2023). *Teknologi Pendidikan Perbandingan Efektivitas Pembelajaran Tradisional dan Teknologi Pendidikan*. *2*(1), 72–79. https://doi.org/10.56854/tp.v2i1.221

Muthmainnah, N., Rahmayanti, V. A., & Faizin, M. (2024). Modernitas Alat Pendidikan Dalam Perspektif Artificial Intelligence Fenomena Kemajuan Zaman Pendidik Abad 21. *Pedagogi: Jurnal Ilmu Pendidikan*, *24*(1), 46–55. https://doi.org/10.24036/pedagogi.v24i1.1937

Nikmatulaili, N., Rifma, R., & Syahril, S. (2023). Peran Guru dalam Pembentukan Karakter Peserta Didik. *Journal of Education and Instruction (JOEAI)*, *6*(1), 262–269. https://doi.org/10.31539/joeai.v6i1.5696

Rineksiane, N. P. (2022). Penerapan Metode Pembelajaran Project Based Learning Untuk Membantu Siswa Dalam Berpikir Kritis. *Jurnal Pendidikan Manajemen Perkantoran*, *7*(1), 82–91. https://doi.org/10.17509/jpm.v7i1.43124

Riska Aini Putri. (2023). Pengaruh Teknologi dalam Perubahan Pembelajaran di Era Digital. *Journal of Computers and Digital Business*, *2*(3), 105–111. https://doi.org/10.56427/jcbd.v2i3.233

Sambara, R. S., Solong, N. P., Mardeli, M., Pratama, A. R., Yasin, Z., Avelina, G., & bin

Mohammed Zabidi, A. F. (2026). Effect of Free Nutritious Meals on Qur'an Hadith Learning Interest via Motivation. *ZAD Al-Mufassirin*, *8*(1), 497–512.

Sari, D. N., & Alfiyan, A. R. (2023). Peran Adaptasi Game (Gamifikasi) dalam Pembelajaran untuk Menguatkan Literasi Digital: Systematic Literature Review. *UPGRADE : Jurnal Pendidikan Teknologi Informasi*, *1*(1), 43–52. https://doi.org/10.30812/upgrade.v1i1.3157

Sitorus, M., & Murti, M. D. F. (2024). Analisis Pengaruh Penggunaan Artificial Intelligence Pada Pembelajaran di Cyber University. *Jurnal Ilmu Komputer Sistem Informasi & Teknologi Informasi (Innotech)*, *1*(2), 90–101.

Syamsurijal, S., Sabillah, B. M., Hakim, U., & Irsan, I. (2023). Relevansi Penggunaan Metode Ceramah pada Pembelajaran Di Sekolah Dasar Di Era Digital. *Edukatif : Jurnal Ilmu Pendidikan*, *5*(4), 1758–1767. https://doi.org/10.31004/edukatif.v5i4.5495

Tubagus, M., Feby, E., Lubis, R., Manado, I., & Utara, S. (2024). *Studi Komparatif Antara Pembelajaran Berbasis Proyek dan Metode Ceramah dalam Memperkuat Konsep Fisika Serta Kemampuan Pemecahan Masalah*. *2*, 120–129.

Yasinta, & Manggus. (2023). Implementasi Metode Ceramah Dalam Pembelajaran Bahasa Indonesia Untuk Meningkatkan Keaktifan Belajar Siswa Kelas 1 Sekolah Dasar. *Jurnal Citra Pendidikan Anak*, *2*(1), 82–88. https://doi.org/10.38048/jcpa.v2i1.1545