



GPT Chat with Project-Based Learning in Learning: A Review

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Abstract

The advancement of technology in education has created opportunities for creative pedagogies. One such ground-breaking technology is ChatGPT, a learning model created by Open AI, which has enormous potential to boost productivity while also enhancing pedagogy for more captivating educational opportunities. This study aims to evaluate how well GPT Chat integrates with project-based learning. The Preferred Reporting Items for Review method was used in this study. The study's findings clarify that educational institutions need to prepare students for new forms of literacy in the fields of data, technology, and human resources in the context of the Industrial Revolution Era 4.0. Project-based learning is an approach to education that emphasizes students working together to solve a variety of problems through a sequence of steps that include information collection, project planning, and the production of a specific result that is packaged as project work. Determining fundamental questions, creating a project plan, creating a timeline, monitoring, testing findings, and experience evaluation are the phases of project-based learning. ChatGPT is a "thought partner" and research tool that can be used for many different types of educational activities. In Indonesia, the PjBL model's implementation may enhance students' motivation and academic performance. Thus, to significantly improve the standard of education and student motivation in Indonesia, more attention needs to be paid to the integration of GPT chat with project-based learning.

Keywords: PjBL, GPT Chat, Education 4.0

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Introduction

The Industrial Revolution 4.0 may bring about new opportunities for information gathering, sharing, and utilization. In recent years, the term "Industry 4.0" has proliferated and gained more

recognition. This idea was initially mentioned in a November 2011 German government study that was part of the high-tech 2020 strategy plan. The term "Industry 4.0" has become more significant in recent years. The worldwide industrial environment has been significantly impacted by recent technological advancements and discoveries (Javaid et al., 2022). This is connected to information technology advancements and globalization, which have significantly enhanced knowledge's ability to travel farther and faster, opening up additional possibilities for its development (Kraus et al., 2021). The key to the higher education system is the role of highly qualified and competent teachers. In addition to how technology and globalization affect education. Thus, an education department that prepares its students to teach effectively and educate future generations in borderless information technology not only meets industry needs but also ensures the best possible student experience in this industry 4.0 era of the twenty-first century (Lestariningsih, 2020). Interaction between students, teachers, and learning materials in a classroom setting constitutes the process of learning. According to (Darling-Hammond et al., 2020), learning is the support that teachers give students to enable them to acquire knowledge, develop skills and habits, and establish attitudes and beliefs. Put another way, learning is a process that aids in pupils' effective learning. Learning is a fundamental activity in the educational process because it is hoped that by engaging in this activity, students will be able to achieve their behavioral goals and that all students will receive learning outcomes that meet or exceed the learning objectives.

According to (Dwivedi et al., 2023a), the learning process is an expression of how subjects—students—interact with objects that are made up of events, processes, and products. Students' inability to focus and concentrate, learning challenges with the material, and many disorders can all contribute to their inability to concentrate on learning. These disorders include a lack of self-motivation, an unfavorable learning environment, unsupportive health conditions, boredom, and conceptual mismatches. The capacity to comprehend and articulate a comprehended item is known as comprehension. The conceptual knowledge that each student has of the subject matter varies depending on their experiences and study habits both before and after school (Montenegro-Rueda et al., 2023). This is a difficulty that needs to be addressed on the part of educators. Instructors need to be able to spark students' attention, pique their curiosity, and make it possible for them to learn. Instructors need to be able to comprehend their students.

Methodology

A review should take into account certain factors. This study will primarily concentrate on the following topics: ChatGPT in Learning; Project-Based Learning in the 21st Century; Learning in the Era of Education 4.0; and Integration of Chat GPT with Project-Based Learning in Learning. This contributes to the foundation of our evaluation. First, using a few carefully chosen keywords, we gathered the most recent research on the use of GPT Chat in writing scientific publications. Other than that, we restricted the kind of literature to only books published in conferences and journals.

Results and Discussion

Education at the age of 4.0 era

To ensure that students are prepared to study the trends of the Industry 4.0 era, there are many education 4.0 trends that you should be aware of and keep an eye on as they emerge. specifically: Students do not necessarily have to study in class and attend lectures from dawn to night. Instead, they can choose different times and locations. They can use e-learning to study remotely from various locations. With the help of laptops and other devices, learning systems like the Learning Management System (LMS) will make it easier for all students to complete their coursework from any location. Personalized learning refers to the ability of students to use an LMS that is tailored to their individual needs. This suggests that to attain more equitable learning results, all students have an equal opportunity to work independently on assignments that are deemed difficult. Students who

have these issues will have more study time if they make the most of e-learning and LMS (Alyoussef, 2023).

Project-Based Education

A tactic to alter typical classrooms that emphasize contextual learning through challenging activities is project-based learning. Project-based learning is a systematic teaching approach that involves students in gaining information and skills through an organized process and genuine, in-depth experiences intended to generate products, according to the Buck Institute for Education (Markula & Aksela, 2022); (Hussein, 2021). Through the active design of learning objectives, students create actual products or projects as part of the project-based learning approach. Student-created projects foster a range of talents, including practical abilities like goal-setting, overcoming insufficient or wrong information, and teamwork, in addition to technical knowledge and issues.

Identifying the key questions

Essential questions are asked at the start of the first stage because they have the potential to spark students' interest in the subject matter and have an impact on the project assignments that need to be finished. This inquiry will address real-world issues with current reality to foster critical thinking in kids. Instructors make an effort to make the topics they cover pertinent to the pupils.

Create a project schedule.

The teacher and students work together to plan as part of the second step. Students will be pleased with the work they do as a consequence. Plan components include choosing exercises, rules for the game, and things that can help solve significant issues by merging different subjects that have been covered. They also involve choosing resources and tools that can be utilized to finish the project.

Establish a timetable.

The third step involves teachers and students working together to create a schedule. One of the tasks in this step is for the teacher and students to create a timeline for finishing the project. The teacher gives the class instructions to come up with a new plan of action; teachers frequently lead classes; the teacher ask students to defend their choices.

Observing

Teachers need to keep an eye on how their pupils' projects are coming along. By guiding and assisting pupils at each stage of the work, the teacher monitors their progress. A Rubik was created to make the monitoring process simpler and capable of recording all significant activities. Stated differently, the instructor serves as an observant of the student's actions.

Test outcome

Instructors execute an assessment procedure to find out how much learning has been done, whether or not learning activities were successful, and to give comments on the student's comprehension so that future learning strategies can be developed.

Experience Assessment

The last stage of the exercise is event assessment. Teachers and students are contemplating the ultimate learning process (Coman et al., 2020);(Kintu et al., 2017). This reflection focuses on the activities and results of the project. During this reflection process, which can be done individually or in groups, students will be encouraged to talk about and share their emotions and experiences. Students and the instructor will talk about how to perform better so that by the end of the project-based learning process, new knowledge has been acquired to address the problems brought up in the initial phase

View ChatGPT as an educational resource.

By approaching ChatGPT as a collaborative learning tool, educators may assist students in moving from competitiveness and evaluation to mastery and teamwork (Hattie & Timperley, 2007); (Dwivedi et al., 2023b); (Chan, 2023). For instance, a science instructor might give their pupils the task of using ChatGPT to create a hydroponic vegetable garden plan. In this case, students can use ChatGPT to debate the need for producing vegetables, come up with proposals for hydroponic system designs, and weigh the advantages and disadvantages of the designs. Because they emphasize the learning process rather than merely the final grade, these activities are intended to promote content mastery.

Use ChatGPT to boost self-assurance.

Students are less prone to cheat when they have faith in their ability to do the tasks assigned to them. Offering pupils chances to succeed is a crucial step in helping them become more confident. ChatGPT can help with that by providing students with tailored coaching and decomposing difficult difficulties into manageable tasks or challenges (Grassini, 2023). Let's say that students are tasked with creating a fictional car that uses gasoline more effectively than conventional autos. Students who are having difficulty with the project and might be inclined to cheat can use ChatGPT to divide more difficult assignments into manageable chunks. Before choosing the sort of fuel to use or the vehicle's dimensions and weight, ChatGPT can suggest that they create an overall design for the vehicle. Instructors can also assign homework where students contrast the steps that ChatGPT recommends with those that come from other sources.

Ask ChatGPT to give you encouraging comments.

You can ask ChatGPT to provide you feedback in an upbeat, sympathetic, and supportive manner. For instance, ChatGPT can initiate a dialogue with a student after they complete a math problem incorrectly, as opposed to merely stating, "You are wrong and the correct answer is..." This is an actual response from ChatGPT: "While it is quite common to come into the odd mistake or misunderstanding along the route, your response is not correct. These little failures shouldn't deter you—you're headed in the right direction! I'm available to help and respond to any inquiries you might have. Students will get feedback for growth and a sense of support and understanding as a result. Instructors can quickly demonstrate to students how to set ChatGPT to deliver that feedback. We think that students are more likely to learn more and cheat less when professors use ChatGPT and other AI chatbots responsibly and urge students to do the same with their coursework (Kiryakova & Angelova, 2023). In addition, aside from the plagiarism issue which is now the largest drawback to ChatGPT, ChatGPT can be very beneficial for future research endeavors. ChatGPT will keep evolving, and its flaws will keep getting better. For instance, OpenAI has created a WebGPT prototype; more research has been done to connect chatbots to reference citation systems, however, ChatGPT is not yet able to perform in-text referring. Soon, writing processes will naturally incorporate tools like ChatGPT, many ways science and mathematics use computers and calculators, data processing and testing use statistical and econometric software, and writing spelling and grammar improvement use artificial intelligence (AI) tools like Grammarly.

Integration of Project-Based Learning and GPT Chat in Education

Integration of Project-Based Learning with GPT Chat in Education (GPT Chat with Project-Based Learning in Education);

Assisting Students in Personalized Education

To provide individualized learning support for every student. Through GPT Chat, students can ask questions and receive pertinent answers that will improve their understanding of the course material (Lo, 2023). As a result, learning will be more personalized and adaptive.

Instantly Responding to Student Inquiries

Instantaneous student question answering is one of the key advantages of using GPT Chat as a learning aid (Javaid et al., 2023). Instead, of waiting for their time to speak with the teacher, students can use GPT Chat for assistance right away if they need further explanations or help to understand a complex idea. This will enhance classroom learning effectiveness (Kamalov et al., 2023).

Boosting Involvement of Students

Student engagement in the learning process can rise when GPT Chat is used as a learning aid. Through discussions, games, and even inquiries, students can engage with GPT Chat. Students will find this to be a more engaging and enjoyable experience, which will increase their motivation to learn (Almusaed et al., 2023).

Helping Instructors with Classroom Management

Instructors can also improve classroom management by using GPT Chat as a learning aid. GPT Chat can assist students with questions, offer more reading material, or offer guidance on tasks. The quality of teacher-student interactions can be enhanced by teachers focusing on providing individual guidance and support to students, thanks to the use of this learning aid.

Increased Interaction in Education

When Chat GPT is used in the classroom as a learning aid, instruction will become more participatory. Pupils can work together to solve problems, take part in GPT Chat conversations, and complete group tasks. Students' ability to collaborate and communicate will grow as a result, and an inclusive learning atmosphere will be established. Ineffective biology teaching strategies used by teachers have an impact on students' learning. For instance, when professors just employ the lecture style of instruction, the result is that pupils become drowsy, bored, and obliging, and they only take notes on the things that the teacher explains. Processive educators dare to experiment with new techniques, which can enhance instruction and learning activities and boost students' enthusiasm to study.

Conclusion

The use of ChatGPT with Project Learning in education has started to spread because it can enhance the standard of instruction, and save time. After all, learning can take place anywhere and at any time, produce engaging and dynamic learning, and enable the creation of novel learning breakthroughs. Learning can be made more enjoyable, simpler, and meaningful through the usage of ChatGPT with Project Learning in a variety of contexts, including the educational sector. This is why it would be appropriate to employ ChatGPT's integration with Project Learning as an inventive alternate learning medium for biology education.

Conflicts of Interest

No Conflicts of Interest

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