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REVOLUTIONIZE THE POTENTIAL OF CHATGPT AS TEACHING MATERIAL TO ENGAGE STUDENTS IN LEARNING

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Abstract:

Since ChatGPT was released to the public, several students have used it for academic purposes. This study aimed to investigate the feasibility of implementing ChatGPT as teaching material to motivate students to learn. This study used a survey method through a questionnaire to obtain data. The respondents of this research were the students of the Engineering faculty at Makassar State University, consisting of 77 students. The instrument used was a questionnaire using the Likert scale. Data were analyzed using SPSS version 26. The findings of this study highlighted that most respondents believed that ChatGPT as teaching material impacted students' motivation to learn Pancasila and citizenship education courses. The implications of this research are to motivate students to learn, and the lecturers should prepare their materials with the appropriate technology, design effective teaching models, and develop curricula and learning activities that can improve comprehensive understanding of the material being taught, the right learning resources, the right technology, and the right teaching instructions.

Abstrak:

Sejak ChatGPT dirilis ke publik, beberapa mahasiswa telah menggunakannya untuk keperluan akademis. Penelitian ini bertujuan untuk mengetahui kelayakan penerapan ChatGPT sebagai bahan ajar untuk memotivasi siswa belajar. Penelitian ini menggunakan metode survei melalui kuesioner untuk memperoleh data. Responden penelitian ini adalah mahasiswa fakultas Teknik Universitas Negeri Makassar yang berjumlah 77 mahasiswa. Instrumen yang digunakan adalah angket dengan menggunakan skala Likert. Data dianalisis menggunakan SPSS versi 26. Temuan penelitian ini menunjukkan bahwa sebagian besar responden berpendapat bahwa ChatGPT sebagai bahan ajar berdampak pada motivasi siswa mempelajari mata kuliah Pendidikan Pancasila dan Kewarganegaraan. Implikasi dari penelitian ini adalah untuk memotivasi mahasiswa dalam belajar, dan dosen hendaknya menyiapkan materi dengan teknologi tepat guna, merancang model pengajaran yang efektif, dan mengembangkan kurikulum dan kegiatan pembelajaran yang dapat meningkatkan pemahaman komprehensif terhadap materi yang diajarkan, sumber belajar yang tepat, teknologi yang tepat, dan instruksi pengajaran yang tepat.

Keywords:
ChatGPT, Teaching Material, Motivation, Technology

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INTRODUCTION

The output quality of university college students is low. Several factors cause this case. Students in higher education struggle to understand lectures in class, show little interest in actively participating, and are reluctant to offer constructive criticism within the established pedagogical framework (Muthmainnah, Apriani, & Seraj, 2024). Other causes, such as trouble with the subject, a lack of enthusiasm, low motivation, difficulty understanding the material, and a lack of technology support, can lead to low productivity in the class. In education, technology has improved and simplified life. Artificial Intelligence (AI) is one of the new trend technologies that can help improve students' motivation in learning (Dimitriadou & Lanitis, 2023).

Currently, AI is being used in various educational contexts. The use is not limited to intelligent tutoring, automated rating, and individualized learning platforms. These tools promise to improve students' academic outcomes and equip educators to provide more individualized lessons (Huang, Lu, & Yang, 2023). Intelligent tutoring systems may tailor lessons to individual students, for example, providing immediate feedback and guidance. With the time they gain from automated grading systems, teachers can devote themselves to more meaningful tasks, such as lesson planning and student support. Personalized learning platforms increase students' attention and effort since they respond to their individual needs and areas of interest.

Rapid development in the field of artificial intelligence (AI) has resulted in significant changes to numerous areas of modern life in ways both positive and negative. One of its recent developments impacting society and education is ChatGPT (Haluza & Jungwirth, 2023; Crompton & Burke, 2023). Luan, Lin, & Li (2023) and Firat (2023) are only a few of the early researchers who examined how Chat GPT could motivate students to learn. Although artificial intelligence (AI) in the classroom is not a new concept, the meteoric rise of the Open AI ChatGPT program has made it a hot topic in the first quarter of 2023. The literature around GPT-4 has grown rapidly, even though it has only just entered mainstream use. Artificial intelligence-powered chatbots in educational institutions are gaining traction as a viable strategy to increase student participation and

performance. In particular, the effect of ChatGPT on teaching procedures and its implications for learning motivation is the subject of this research.

Using chatbots powered by artificial intelligence (AI) is a promising field for strengthening student motivation and retention in the classroom. Chatbots have been shown to increase student motivation, engagement, and learning outcomes; improve student interaction and the learning process (D'Mello, Lehman, Pekrun, & Graesser, 2014); and impact on student success in higher education (Winkler & Söllner, 2018). However, at this time, it is too early to claim widespread agreement among teachers on ChatGPT in particular. The results showed that implementing chatbots into the classroom dramatically increased achievement and retention rates. Sullivan, Kelly, & McLaughlan (2023) found that ChatGPT can lead to better education for college students despite concerns about academic integrity.

ChatGPT, released in 2022 by OpenAI (San Francisco, CA), is a powerful machine learning software that uses the Generative Pre-trained Transformer (GPT) algorithm to generate human-like responses to text-based inputs. Articles, webpages, books, and textual chats contributed to ChatGPT's training data. Fine-tuning, which includes dialogue optimization, has allowed ChatGPT to react to cues conversationally. Advanced language models, such as generative pre-trained transformers (GPTs), use deep learning to improve their output. These models are educated with massive amounts of data. GPTs respond to user questions by synthesizing the proper phrases and words or generating relevant images by recognizing patterns and regularities in the data based on the information provided. ChatGPT can translate text, summarise text, answer questions, write creatively (such as poetry or fiction), generate high-quality long- or short-form content (such as blog posts), respond to conversational prompts, explain complex subjects, concepts, or themes, and fix errors in existing code or generate new code among many other things (Adiguzel, Kaya, & Cansu, 2023).

ChatGPT offers decent education services, but it still has several limitations. Although ChatGPT provides easy access to information on the internet, its domain may not be specific enough to answer questions about more difficult STEM or scientific learning topics. Additionally, there is a high probability of spreading false information, as ChatGPT's replies are based on its training data and may not be thoroughly fact-checked. It can also hinder a productive educational experience due to a lack of emotional intelligence and personalized pedagogical advice. The transmission of prejudice and stereotypical ideas in schools also raises ethical questions. Although promising, encouraging students to think critically and independently is difficult with ChatGPT due to low engagement and the danger of dependency. Therefore, it is critical to evaluate the limitations of ChatGPT carefully and to integrate it responsibly into educational environments, even when ChatGPT shows potential for academic support. Additionally, these systems can have difficulty answering user questions in the same context if the system does not fully understand the user's goals due to limited rules and pre-programmed answers, thereby reducing user happiness (Hua, Jin, & Jiang, 2024).

Because of its proficiency with natural language queries and the capacity to generate responses that sound human, ChatGPT has become a go-to resource for instant solutions to problems ranging from the mundane to the very technical. People can tell it only by using words that begin with a certain letter, and it will swiftly summarise a lengthy scholarly work. Not only does it figure out what's wrong, but its self-programming fixes it accurately. ChatGPT has rapidly become an invaluable tool for novice and experienced GIS users. Newly published on March 14, 2023, ChatGPT-4 is said to be more robust and capable of handling more difficult tasks than previous versions. ChatGPT-4 has been taught using a more extensive and varied dataset. The expanded scope of the model enables more sophisticated NLP operations. The ability to reason and comprehend impulses in various fields increases flexibility and capability to take on difficult tasks. For instance, if a user uploads an image and asks for a description, it will provide one. It can also react to questions written out and shown graphically.

Several studies have been conducted to determine the use of ChatGPT in education. According to Farrokhnia, Banishashem, & Noroozi (2023), ChatGPT can deeply influence educational goals, assessment procedures, pedagogical practices, and evaluation methods. Besides, AI in higher education demonstrates teaching and learning (Mhlanga, 2023). Similarly, the authors argue that AI has the potential to revolutionize teaching materials by freeing teachers and students to access a variety of academic tasks more practically. Jungherr (2023) investigated the use of ChatGPT and found that it helps scholars produce well-organized, thorough, and logical articles. Allowing students to use AI tools to complete subject-domain activities is also recommended, as it emphasizes creative and critical thinking more than broad skills development. Lecturers can design classroom learning activities by involving ChatGPT as a learning resource. Based on these results, we need a new type of assessment that emphasizes aspects of developing ChatGPT-based teaching materials and looking at their impact on student learning motivation. Muthmainnah, Ganguli, & Al Yakin (2023) used AI as a teaching materials perspective in their study of developing teaching materials using chatbots in EFL instruction. Those results show that chatbots are expected to contribute to the academic field by improving students' thinking skills and linguistics, facilitating learning, and providing quick feedback about their progress and language use.

ChatGPT can help students in their academics and maintain their learning motivation. According to Dörnyei (2020), students' motivation must be guaranteed to build their involvement in the classroom. He argues that keeping students' interest in a topic should be a central focus of any instructional design, whether for face-to-face or online training. In addition, in a study by Wang, Chen, & Ayesh (2023), student motivation to learn can be accurately predicted by their level of involvement in the learning process. Learning motivation and learning results appear to be associated, as shown by the research of Huang, Lu, & Yang (2023), that ChatGPT is gaining popularity among educators because of their proven ability to increase students' interest in learning and, hence, their performance in class. Students more engaged in their studies are more likely to be intrinsically motivated to do well in school.

This study was carried out to investigate the framework related to reviewing the development of teaching materials in class and how student learning motivation is based on ChatGPT. Therefore, this study examines students' opinions regarding the impact of developing ChatGPT-based teaching materials on motivation to learn civics education and to identify any significant differences.

RESEARCH METHOD

This study used a questionnaire to obtain data from a general sample about their thoughts on the use of ChatGPT by students while studying a civics education course. This research period was 3 months, starting in October 2022 and ending in January 2023. The participants in this study were students at the Faculty of Engineering, with a total population of 6986 students. The sample for this research was taken using the purposive sampling technique to survey the impact of using ChatGPT as teaching material in Pancasila and civics education courses with 77 respondents. The link to the questionnaire was sent to respondents who had studied using ChatGPT via the class WhatsApp group account, and the response was awaited no later than one week.

Instrument

A questionnaire with a Likert scale was used to collect responses from research respondents. It was created with the help of the previous research by Ali (2022). A five-point Likert scale ranging from "strongly agree" to "strongly disagree" measures how much a respondent agrees or disagrees with each question. Five scores were included in the survey to measure respondents' opinions on whether ChatGPT encouraged or not motivated them to learn by using ChatGPT as teaching material in the classroom. The first part consisted of questions about respondents' opinions about ChatGPT-based material, and the second part consisted of six questions that investigated whether ChatGPT increases students' motivation to learn Pancasila and civics education, the ability to study independently, self-esteem, enjoy learning, and improve their learning activity. Their response classification can be seen in Table 1 as follows.

Table 1. Categories of students' responses

Score		Classification
86-100	5	Strongly agree
71-86	4	Agree
56-70	3	Neutral
41-55	2	Disagree
<40	1	Strongly disagree

(Adopted from Sugiyono, 2008)

Procedure

Fourteen subject topics must be passed; each only took 2 x 60 minutes per meeting. The lecturer explained the material at each meeting and then asked students to analyze and evaluate each topic with ChatGPT. Students discussed and expressed their opinions

at the collaboration stage after interacting with ChatGPT. Because most of the material was ChatGPT-based, the respondents had challenges reading and analyzing the results of interactions with lecturers and ChatGPT. Their previous learning motivation was low, so we hypothesized that the ChatGPT application would attract their interest because it was better adapted to their needs. The students were less interested than others due to their learning difficulties in understanding the material and not being focused. We decided to introduce this ChatGPT to teach civics education materials. Before the experiment, not all respondents were exposed to the same information. To reduce the impact of difficulties understanding learning material, instructors were encouraged to focus on conveying knowledge about transferable abilities in this study.

Figure 1. Students' activities in the class with ChatGPT

Data Collection and Analysis

Google Forms were used to create questions for survey, and then the questionnaire link was shared with respondents. The researcher received approval from the college dean to administer the survey. The department chair then forwards the link to the faculty member, requesting that first-year engineering department students be given a survey. The data obtained was then exported to Microsoft Excel (xlsx) format, which we could then analyze. The information was then analyzed using Ms. Excel's latest version and SPSS version 26 for statistical analysis. Research topics were discussed through the use of descriptive and inferential analysis.

RESULTS AND DISCUSSION

Results

The results of this research were analyzed quantitatively. If the absolute value of the skewness index was less than three and the absolute value of the kurtosis index was less than 10, then the variable was normally distributed (Kline, 2011). The dependent measure was the average of how respondents rated each of the five points on the questionnaire (1 = strongly disagree to 5 = strongly agree). Figure 2 shows the demographic of students from the engineering department. They are 81% male and 19% female, aged between 19- to 21-year-old.

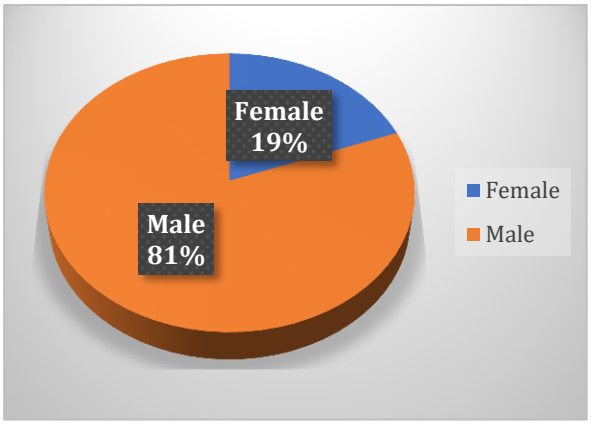

Figure 2. Students' Demographic

The normality test of respondents' views towards using ChatGPT as teaching materials to motivate them to learn Pancasila education shows a normal category. Table 2 shows that the size of ChatGPT-based motivation to learn Pancasila and citizenship education is distributed regularly.

Table 2. One-Sample Kolmogorov-Smirnov Test

		ChatGPT
N		77
Normal Parameters[a,b]	Mean	65.9221
	Std. Deviation	11.23876
Most Extreme Differences	Absolute	.116
	Positive	.079
	Negative	-.116
Test Statistic		.116
Asymp. Sig. (2-tailed)		.012[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on data analysis, the questionnaire results of the 77 respondents in this study met the criteria for analysis of their opinions on the ChatGPT as teaching materials of Pancasila education course and their motivation to learn. After grading each student's response to the questionnaire answer and the mean score in Table 3 is 65.75, with an average motivation category as follows.

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ChatGPT	77	38.00	79.00	65.7532	11.02528
Valid N (listwise)	77				

There were 18 questions in the questionnaire used in this research. Those questions required answers using the 1-5 range of the Likert scale. All questions related to the students' motivation to to learn Pancasila education by using ChatGPT. The highest score was 4, and the lowest score was 3.12. Table 4 shows all of the results of 18 questions as follows.

Table 4. Means and standard deviations for the individual items (N=77)

	N	Minimum	Maximum	Mean	Std. Deviation
1. Would you rate your overall motivation for learning when using ChatGPT as a teaching material?	77	2	5	3.92	.900
2. Do you believe that ChatGPT has the potential to increase your motivation to study?	77	2	5	3.95	.958
3. Would you prefer to use ChatGPT as an additional learning tool and as a primary teaching resource?	77	2	5	4.00	.843
4. Would you prefer to use ChatGPT as an additional learning tool and as a primary teaching resource?	77	2	5	3.87	.879
5. Would you prefer to use ChatGPT as an additional learning tool and as a primary teaching resource?	77	2	5	3.79	1.004
6. What do you think about using ChatGPT to answer questions in class?	77	1	5	3.12	1.135
7. Do you think using ChatGPT can replace the teacher's role in the classroom?	77	1	5	3.68	.952
8. Do you think using ChatGPT can replace the teacher's role in the classroom?	77	1	5	3.51	.955
9. Do you think using ChatGPT can replace the teacher's role in the classroom?	77	0	5	3.68	1.019
10. Does ChatGPT help you understand the course material?	77	2	5	3.75	.891
11. Does ChatGPT provide sufficient solutions to your questions and problems in the learning process?	77	2	5	3.78	.837
12. Does ChatGPT make you more motivated to explore new topics in learning?	77	2	5	3.70	.933
13. How has the experience of using ChatGPT affected your level of confidence in studying?	77	2	5	3.77	.887

14. Does the experience of using ChatGPT affect your level of confidence in studying?	77	1	5	3.44	1.006
15. Does the experience of using ChatGPT affect your level of confidence in studying?	77	1	5	3.60	.950
16. Does using ChatGPT make you more efficient at learning course material?	77	2	5	3.21	1.080
17. Does using ChatGPT make you more efficient at learning course materials?	77	2	5	3.53	.852
18. Do you feel more motivated to learn when using ChatGPT than when learning without the help of ChatGTP?	77	1	5	3.64	.916
Valid N (listwise)	77				

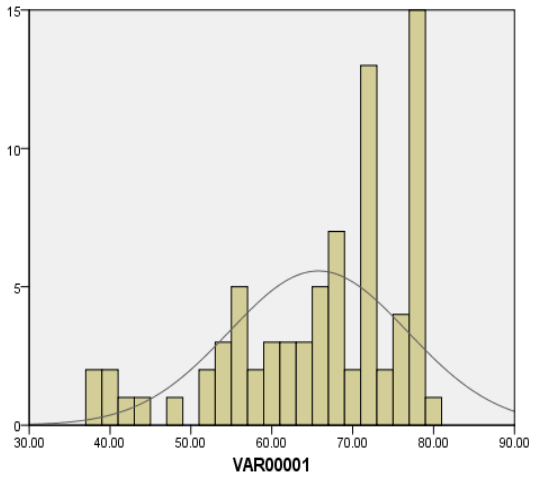

Figure 3. ChatGPT histogram

Figure 3 shows the histogram chart after applying ChatGPT as teaching materials. It illustrates the range of value by students from the lower score of 30, 40, 50, 60, and 70 to 80. The histogram bar displays the highest value is 80, and it is assumed that the students' motivation value is 80.

Discussion

The students were given a questionnaire, which included comments on how highly motivated they were in learning Pancasila education from ChatGPT-based lecturers. The results indicated that involving students using Artificial Intelligence, ChatGPT could increase their involvement in learning Pancasila education in Engineering faculty. No students opposed using ChatGPT, and the data showed that the mean value of the questionnaire was 65.75. They were quite motivated by ChatGPT and used it as a learning resource to share ideas about the material. The findings show that some students have high learning motivation by integrating ChatGPT in the classroom. The histogram of Figure 3 shows student scores ranging from the highest 80, representing

high motivation, to the lowest 30, representing very low motivation. The survey indicated that engineering faculty students were interested in learning more using the instructor's ChatGPT to deliver content. Based on the survey responses, the researchers concluded that students were motivated to learn and hear more about the inventiveness of ChatGPT-based instructors. Most students believed incorporating ChatGPT into lectures as one tactic could increase their confidence and trigger greater interest in learning Pancasila education because of the ease of accessing information. Nonetheless, this study also found that there were still students who were not sure that ChatGPT would improve their skills in accurately analyzing the phenomenon of Pancasila history compared to previous textbooks.

The questionnaire results showed that whether ChatGPT helped broaden students' knowledge regarding subject matter, they responded positively. They strongly agreed with this statement. Chatting with the ChatGPT application made them confident when discussing and sharing ideas, opinions, and exams. They even agreed to recommend this ChatGPT for learning. However, some students felt unsure that ChatGPT could help them achieve other academic goals. They believed that technology did not fully help them achieve their academic goals because, apart from technology, motivation, confidence, mentality, and good communication skills are needed. In addition, using ChatGPT as teaching material helped them understand the material with the speed of access to gathering information by ChatGPT, the accuracy of the data provided, and the speed in responding to questions asked have been shown to arouse students' curiosity and enthusiasm for assignments given by lecturers. The findings of Al Yakin, Muthmainnah, & Ganguli (2023) indicated that cyber-socialization is socializing technology as a learning tool and an appropriate learning material and resource that allows teachers and students to have fun while teaching and learning. In line with the findings of other researchers, one of the main abilities of a great lecturer in addressing teaching performance is determined by his/her skills in designing innovative and creative teaching materials in the teaching and learning process (Muthmainnah, Al Yakin, & Ganguli, 2023).

To maintain the smooth running of the education system, teachers or lecturers need various abilities. One of them is increasing one's literacy. Law Number 14 of 2005 concerning Teachers and Lecturers states that teachers are professional educators with the main task of educating, teaching, leading, training, assessing, and evaluating students in early childhood education through formal, basic, and medium education. ChatGPT, besides functioning as media and technology, also functions as a teaching material that can motivate students to study independently and autonomously. The results of this study are aligned with those of other researchers. Kohnke, Moorhouse, & Zou (2023) and Cooper (2023) found that incorporating dynamic and interesting learning technologies has increased student involvement. ChatGPT can potentially engage students and keep them engaged in the learning process because of its conversational style and ability to deliver individualized responses. Despite the positive feedback from undergraduate students about ChatGPT, issues like plagiarism, data security, ethical use, and illogic persist in line with scholarly findings by Zeb, Ullah, & Karim (2024), Mhlanga (2023),

and Rudolph, Ismail, & Popenici (2024) who found that limitation of ChatGPT in the class like cheating intention, ethical used, plagiarism and ghosting.

Furthermore, Amani, White, & Balart (2023) argued that individualized learning experiences could increase students' intrinsic motivation. Customized explanations, advice, and feedback are just some ways ChatGPT can respond to each learner's unique set of circumstances and interests. Motivating students by catering to their needs can help them feel more invested in their education. Yan (2023) stated that the learning and motivation of students greatly benefit from immediate feedback. ChatGPT's real-time responses can give students instantaneous feedback on their conceptual or methodological progress. A sense of accomplishment through this rapid feedback loop can keep students motivated to continue their efforts. ChatGPT is available around the clock, providing students access to tutoring outside traditional school hours. Students can get immediate answers to their questions, which can keep them from getting frustrated and motivated to learn.

ChatGPT profoundly affected student motivation in this study since it made learning interesting and fun. ChatGPT's natural language processing capabilities provide students with a highly adaptable and individualized learning environment. ChatGPT's conversational style is a major factor in the program's success in inspiring students. Students can interact with the AI conversationally, asking questions, requesting clarification, and exploring concepts more naturally than in traditional one-way instruction. This kind of conversation encourages involvement, turning education into more of a team effort than a one-way transmission of knowledge. Moreover, ChatGPT's dynamic and personalized responses are crucial in inspiring and engaging students. The AI can offer tailored feedback and instruction based on the individual's skills, shortcomings, and learning pace. Students benefit from this personalized approach because it makes them feel like they have someone in their corner while they complete their education.

ChatGPT's ease of use and availability boosts students' enthusiasm for learning. Because the AI is always on call, students can get help with their studies whenever needed. Students gain a sense of agency and intrinsic drive when they are free to learn quickly and on their own time. In essence, the conversational style, responsiveness, extensive knowledge base, gamification features, and accessibility of ChatGPT all lead to greater student interest in learning. It is undeniable that ChatGPT has revolutionized the way students interact with educational content, inspiring in them a lifelong love of learning and a hunger for new information by making classroom instruction more dynamic and individual. Studies show that incorporating technology into the classroom can boost student motivation because of its novelty and interest. As a conversational agent powered by Artificial Intelligence, ChatGPT is an innovative and interesting resource that can pique students' interest in trying new approaches to learning. While the preceding sections provide an overview of potential advantages, it is crucial to stress that additional research and empirical studies are required to validate the influence of

ChatGPT or comparable AI-based technologies on student motivation and learning results in various educational environments.

CONCLUSION

ChatGPT enables individual and student-focused learning experiences that contribute to improving educational quality standards by increasing motivation to study Pancasila and citizenship education courses. The results of the descriptive statistics of this research show that students believe that using ChatGPT as teaching material can motivate them to study Pancasila and citizenship education. This can be useful for Pancasila education instructors who want to incorporate technology into their lessons to benefit their students. The findings indicate that using ChatGPT can inspire students to learn more. Students would be more interested and motivated to learn if their lecturers could design innovative teaching materials. Several implications have been put forward by researchers, including the following: to use ChatGPT as an effective teaching material, lecturers develop curricula and learning activities that can improve comprehensive understanding of the material being taught; this includes, but is not limited to, the right learning resources, the right technology, and the right teaching instructions. Teachers can increase student engagement and motivation, improving learning outcomes and making the classroom more enjoyable for everyone by concentrating on these elements.

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