SCOPE
Journal of English Language Teaching
| p-ISSN 2541-0326 | e-ISSN 2541-0334 |
https://journal.lppmunindra.ac.id/index.php/SCOPE/

Research Article

ChatGPT in Action: Unraveling its Impact on Student Motivation in English Language Learning

Herlandri Eka Jayaputri[1]

[1] *Akademi Perikanan Kamasan Biak, Papua, Indonesia*

KEYWORDS

ChatGPT;
Motivation;
ELL;

CORRESPONDING AUTHOR(S):

E-mail: herlandrieka@gmail.com

A B S T R A C T

The utilization of Natural Language Processing (NLP) technology has emerged as a valuable instrument for students due to its considerable potential in transforming the educational process. The proliferation and acceptance of AI in educational settings have garnered considerable attention from scholars, prompting comprehensive investigation. This study employs an experimental design utilizing a One Group Pretest-Posttest arrangement to assess the impact of ChatGPT on student motivation in learning the English language. The study participants comprised 40 students from the Fisheries Academy in Biak, Papua, Indonesia, selected based on criteria such as technology possession, English language proficiency, and willingness to partake. Data collection was conducted through English language proficiency assessments and questionnaires, subsequently analyzed employing SPSS 25.0 software. Results revealed a notable enhancement in student motivation subsequent to the implementation of ChatGPTin English language learning. Both English proficiency test outcomes and questionnaire responses exhibited significant elevations in student motivation from the pre-test to the post-test phase. Statistical scrutiny verified substantial disparities between pre-test and post-test scores, affirming the efficacy of ChatGPTin augmenting student motivation. Factors contributing to this elevation encompass personalized and real-time interactions, adaptive learning methodologies, and the user-friendly nature of AI technology.

INTRODUCTION

English, recognized as a global language, assumes a pivotal role in facilitating worldwide communication, fostering career advancement, and granting access to educational and informational reservoirs. Within the educational landscape of Indonesia, English serves as a foreign language, and for some, it is regarded as a secondary language. Consequently, numerous educational experts have devised diverse methodologies and technologies aimed at aiding students in mastering English proficiency. Historically, technological interventions in education primarily manifested as learning management systems and electronic textbooks, primarily focusing on tracking student learning progression and furnishing educational materials (Linn, M. C., Gerard, L., Ryoo, K., McElhaney, K., Liu, O. L., & Rafferty, 2014; Pellegrino & Quellmalz, 2010). However, these technological innovations often offer limited assistance in addressing

DOI: http://dx.doi.org/10.30998/scope.v8i2.22375

relatively straightforward educational hurdles, thereby failing to adequately cater to the multifaceted and individualized learning requisites of students at large (Linn et al., 2023; Zhai, 2021).

In the context of the digital age, the proliferation of artificial intelligence (AI) technology extends across diverse spheres of society, notably within the realm of education. A notable manifestation of AI garnering attention is the utilization of artificial intelligence-driven Chat Boxes, particularly featuring GPT (Generative Pre-trained Transformer) AI Chat. The capability of Artificial Intelligence (AI) to comprehend human language and visual data presents significant prospects for advancement and incorporation within the educational domain, potentially reshaping contemporary educational paradigms as articulated by (Zhai et al., 2020).

The emergence of Open AI ChatGPTin 2022 resulted in its rapid adoption, attracting one million users within a span of just five days. This remarkable feat stands in stark contrast to the timelines observed by Facebook, which took 300 days, and Instagram, which took 75 days, to achieve comparable levels of user engagement (Biswas, 2023; Firat, 2023). Chatbots integrated with artificial intelligence are specifically engineered to replicate human conversation through text or voice-based interactions, thereby furnishing information through dialogue (Labadze et al., 2023). Artificial intelligence (AI) denotes the development of machines capable of executing cognitive functions akin to those of humans, encompassing perception, reasoning, interaction, and learning (Rai et al., 2019). This technological advancement entails the creation of systems engineered to emulate human cognition, thereby possessing the capacity to accomplish predefined objectives (Akgun & Greenhow, 2021). The utilization of Natural Language Processing (NLP) technology has emerged as a valuable asset for students due to its immense potential in revolutionizing the educational landscape. The escalating availability and adoption of AI within educational settings have spurred academic interest, prompting comprehensive research endeavors. Existing studies lend credence to the beneficial impact of employing AI applications, both in enhancing students' affective engagement (Baker, 2016; Huang et al., 2023) and promoting academic attainment in controlled educational environments (Chang et al., 2022; Li et al., 2019; Van Lehn et al., 2020; Zheng et al., 2023).

The improvement of learners' affective engagement is closely related to motivation. When learners feel emotionally involved and have positive experiences in the learning process, it tends to enhance their motivation to engage more actively and enthusiastically in learning. Thus, motivation assumes a pivotal role as a primary determinant of academic achievement (Donnermann et al., 2021; Y.-M. Wang et al., 2022), as it closely intertwines with the process of learning (Vallerand et al., 1992). Learning motivation can be construed as a impetus towards objectives, beliefs, and emotions (Ford, 1992) that supply vigor, direction, and perpetuate student conduct to engage in a specific direction and persist in exploring that notion (Fredricks et al., 2004; Y. Wang et al., 2023). There exist two variants of learning motivation, intrinsic and extrinsic motivation. Intrinsic motivation entails involvement in an endeavor without explicit reward, aside from the satisfaction derived from the activity itself, such as personal gratification. Conversely, extrinsic motivation pertains to undertaking an activity due to its perceived importance in achieving outcomes that offer additional value beyond the activity itself, such as potential gains (Teo et al., 1999). Motivation and interest wield substantial influence on the degree to which students can assimilate knowledge. As posited by Deci & Ryan (2000), motivation is delineated as "internal energy that initiates, directs, and sustains behavior towards attaining specific goals." The level of student engagement is contingent upon their degree of participation in class and their demonstrated enthusiasm towards the subject matter being studied (Fredricks et al., 2004; Y. Wang et al., 2023). Students who exhibit fervor and invest in their academic pursuits stand a better chance of realizing their educational objectives. In contextualizing the literature on Chat GPT-driven motivation, this study is situated within a pertinent research framework. As articulated by Zoltan Dornyei (2020), student motivation is inseparable from their classroom engagement; hence, fostering motivation is imperative to foster active learning. He contends that the primary aim of instructional design, whether for traditional or online learning, should be to sustain student interest in the learning content.

Previous research has indicated that apprehensions regarding technology can lead to task confusion, diminish motivation, and affect the inclination towards technology adoption (Davis et al., 1992; Meuter et al., 2005; Teo et al., 1999). Moreover, dependence on chatbot technology may curtail meaningful social interactions and the empathetic connection with teachers in face-to-face settings (Tlili et al., 2023). Conversely, a human-centric approach to learning interactions might overlook the potential contributions of AI chatbots in furnishing prompt and adaptive feedback (Subiyantoro et al., 2023). Nonetheless, multiple studies affirm that AI-supported learning, particularly through ChatGPT, can augment the language acquisition process. Yilmaz & Karaoglan Yilmaz (2023) assert that AI-powered tools and environments have the capacity to enhance student engagement and motivation by engaging them in personalized interactions and offering tailored assistance and feedback during programming exercises. Data from studies conducted by Tlili et al.,

(2023) and Chamorro-Atalaya et al., (2023) indicate a notable surge in the utilization of AI chatbots over the past two years, particularly within the realm of education.

In the contemporary era, numerous studies delve into the influence of AI chatbots on the educational landscape. Initially, the research conducted by Fuchs & Aguilos (2023) demonstrates that the integration of AI chatbots yields positive outcomes in student learning, particularly among university students at Helsinki University and Jyväskylä University. Moreover, the capacity of AI chatbots to engage students through natural language interactions has been observed to foster their interest in learning content. Additionally, Lai et al. (2023) contends that ChatGPT, a robust artificial intelligence chatbot, holds significant potential for active learning owing to its ability to provide instantaneous responses to academic inquiries and promote spontaneous interactions among undergraduate students in Hong Kong. Furthermore, Subiyanto et al.'s research elucidates the impact of chatbots (specifically ChatGPT) on education through a qualitative investigation. The findings of this study unveil various benefits associated with the utilization of AI chatbots, including enhanced material accessibility, personalized learning support, and assistance in overcoming individual learning challenges. Nonetheless, there exist drawbacks, such as the potential erosion of crucial social interactions between educators and students, alongside concerns regarding privacy and ethical data usage. In the present study, researchers aim to investigate the impact of implementing ChatGPT on learner motivation. Drawing insights from diverse research endeavors on the influence of ChatGPT across different study cohorts, this research focuses on students in the fisheries sector on the island of Biak, Papua, Indonesia. The primary objective of this study is twofold: firstly, to quantitatively assess the influence of ChatGPT on student motivation, and secondly, to delineate the effects of AI chatbots (specifically Chat GPT) on motivation among tertiary level learners, drawing from the acquired data. The anticipated outcome of this research is to offer a substantial contribution towards enhancing student-centered learning approaches, strategies, and methodologies through the prudent and conscientious utilization of AI chatbots within educational settings. This study is centered on perspectives from experienced academics and practitioners, where each advantage and obstacle is juxtaposed with one or more proposition statements, aimed at providing invaluable insights for researchers, educators, and practitioners within higher education contexts. The article's structure will encompass an elucidation of ChatGPTand constructivist learning theory, with a particular focus on elucidating the impact of ChatGPTon student motivation. The envisaged results of this investigation are anticipated to play a pivotal role in the advancement of approaches, strategies, and learning methodologies that prioritize student-centric learning by leveraging the potential of AI chatbots intelligently within educational contexts. Furthermore, a framework predicated on these propositions will be introduced, while the conclusions will address the limitations of the study and propose essential avenues for future research.

METHOD

Research Design

This study employs an experimental method utilizing a One Group Pretest-Posttest design, a method situated within the quantitative paradigm. The research adopts a Pre-Experimental design, specifically the One Group Pretest-Posttest model. In this design, prior to administering any treatment, the procedure involves conducting a pretest with students, followed by the application of the treatment, and concluding with a posttest. The objective is to ascertain the impact of ChatGPT on learning both before and after treatment. Additionally, a quantitative approach is utilized in this research to examine the influence of using ChatGPTon student motivation in English language learning. This study is grounded on the subsequent hypotheses:

1. Null Hypothesis (H0): The level of student motivation in learning English does not exhibit a significant disparity before and after the utilization of ChatGPT.
2. Alternative Hypothesis (H1): A significant disparity exists in the level of student motivation in learning English before and after the utilization of ChatGPT.

Research Subject

This study was carried out at the Kamasan Biak Fisheries Academy that is located in Biak, Papua, Indonesia. The research was done in one month, from November 2023 to December 2023. The Kamasan Fisheries Academy accommodated a total of 62 students enrolled in the third semester. Within the academy, there are two distinct study programs available: Fishery Product Processing Technology (TPHP) and Aquatic Resources Capture (PSP). For the purpose of this research, the participants consisted of 40 students from the TPHP study program, as well as 25 and 15 students from the PSP study program, respectively. The selection of participants was based on their possession of technological devices (such as smartphones or laptops), proficiency in utilizing technology, and varying levels of proficiency in the English language, ranging from novice to advanced. The demographic profile of participants showed in table 1.

 DOI: http://dx.doi.org/10.30998/scope.v8i2.22375

Table 1. Demographic profile of participants (N=40)

Variable	N	Percentage
Gender		
Male	18	45%
Female	22	55%

Research Instruments

The data collection process for this research entails two primary components: an English language proficiency assessment and a survey. The English Language Proficiency Assessment aims to gauge students' proficiency levels in English before and after utilizing ChatGPT for learning. This assessment comprises two subtests: a Reading Skill Assessment and a Translation Task. The Reading Skill Assessment presents students with two texts related to fisheries. The texts have twenty multiple-choice questions, evaluating their ability to comprehend English text. Meanwhile, the Translation Task requires students to translate two English texts discussing processing and utilization in the fisheries field into their native language, assessing their translation skills and understanding of English terminology in the context of fisheries. Furthermore, the Comparison of Test Scores involves comparing the test scores obtained before and after the implementation of ChatGPT to ascertain any improvements in students' English language proficiency following the intervention. Overall, this data collection technique combines objective assessment measures, such as multiple-choice questions, with subjective evaluation through translation tasks, providing a comprehensive understanding of students' language proficiency and the effectiveness of ChatGPT in enhancing their English learning experience.

Additionally, a survey will be conducted to collect data regarding student motivation in English language learning. The survey questionnaire is inspired by studies on intrinsic motivation in work settings (Lai et al., 2023). It includes questions related to intrinsic motivation (IM), perceived usefulness (PU), and behavioral intention (BI), totaling 16 statements. Participants will provide their responses using a Likert scale or a similar rating system, ranging from strongly disagree to strongly agree. This questionnaire aims to assess the level of student satisfaction with the use of ChatGPT, particularly regarding its effectiveness and usefulness in learning English. The questionnaire items are outlined in Table 1.

Table 1. Detail of questionnaire adopted from Lai et al., (2023)

Latent Variable	Description
Intrinsic motivation (IM)	1. I find using ChatGPT enjoyable.
	2. The actual process of using ChatGPT was pleasant.
	3. I had fun using ChatGPT.
	4. Using ChatGPT to address my academic inquiries is interesting.
Perceived ease of use (PEOU)	5. Learning how to use ChatGPT is easy for me.
	6. I find ChatGPT easy to address academic inquiries.
	7. I find it easy for me to become skillful at asking ChatGPT to address my academic inquiries.
	8. My interaction with ChatGPT is clear and understandable when it addresses my academic inquiries.
Perceived usefulness (PU)	9. I find ChatGPT useful for answering academic inquiries.
	10. Using ChatGPT addresses my academic inquiries more quickly.
	11. Using ChatGPT to address my academic inquiries would increase my academic performance.
	12. Using ChatGPT to address my academic inquiries would enhance my effectiveness of learning
Behavioral intention (BI)	13. In the next weeks, I intend to use ChatGPT to address my academic inquiries.
	14. In the next weeks, I plan to use ChatGPT to address my academic inquiries.
	15. In the next weeks, I predict I will use ChatGPT to address my academic inquiries.
	16. I plan to continue to use ChatGPT to address my academic inquiries frequently

The Methods of Data Analysis

The analysis technique employed in this study comprises two primary components. Firstly, the analysis of English language proficiency data, derived from pre-test and post-test assessments, will be conducted using SPSS 25.0 statistical software. The initial step involves calculating descriptive statistics such as means, standard deviations, and frequency distributions to summarize the test scores obtained from both phases. Subsequently, a paired t-test or similar inferential statistics will be performed to ascertain whether a significant enhancement in English language

proficiency occurs from the pre-test phase to the post-test phase. Standard criteria for evaluating English language proficiency will be applied, with a minimum threshold of 65 set for each participant. Participants achieving scores exceeding this threshold in both pre-test and post-test phases will be deemed successful in enhancing their proficiency.

Secondly, the analysis will involve the examination of questionnaire data aimed at assessing student motivation levels. Questionnaire responses will be analyzed using SPSS 25.0 statistical software. Responses from Likert scales or analogous assessment tools will be numerically coded according to predetermined values. Descriptive statistics including means, standard deviations, and frequency distributions will be computed to summarize responses for each questionnaire item. Additionally, motivation interval scores delineated in Table 2 (Jayaputri, 2022) will serve as a benchmark for interpreting the questionnaire data. The obtained scores will be compared against these interval scores to evaluate the reported motivation levels of participants. Furthermore, inferential analyses such as correlation analyses may be conducted to explore potential relationships between motivation levels and improvements in English language skills observed in the test data.

Table 2. Interval Score of motivation

Total Score		Average Score	Classification	
Individu	Group			
81.4-100	1953-2403	3.26-4.00	Verry Agree	Very High Motivation
62.7-81.4	1502-1952	2.6-3.25	Agree	High Motivation
43.8-62.6	1051-1501	1.76-2.5	Disagree	Low Motivation
25-43.8	600-1050	1.00-1.75	Very Disagree	Very Low Motivation

RESULTS AND DISCUSSION

The research has two main objectives. Firstly, it aims to assess the statistical impact of ChatGPT on student motivation. Secondly, it seeks to conduct comparative analysis using descriptive data such as mean scores and standard deviations, alongside T-tests. Drawing from determination theory, which examines motivation in decision-making despite external influences, this study delves into the perspectives of ELT practitioners and experts regarding the influence of ChatGPT on English language learning methodologies. Overall, the findings of the research display a positive outlook towards the enhancement of motivation for further learning.

To evaluate the impact on motivation, the researchers administered an initial English proficiency test during the pre-test phase. Subsequently, participants underwent a treatment phase involving six sessions of learning to use ChatGPT. Following this, a proficiency test was conducted again to observe the final outcomes (post-test). The results of the English proficiency tests conducted during both the pre-test and post-test sessions are presented in Table 3.

Table 3. The result of English profiency test

	Pre test score	Post test score
Mean	46.75	77.25
Standard deviation	10.97	6.45
Sample Size (N)	40	40
T-value	-	29.90
Degree of freedom (df)	-	39
T-tabel	-	2.022

Based on the findings of the conducted research, a notable disparity was observed between the mean scores of the pre-test and post-test concerning student motivation in English language learning. In the pre-test phase, the mean score for student motivation was recorded at 46.75, accompanied by a standard deviation of 10.97. Conversely, during the post-test phase, a marked elevation was noted, with the mean score escalating to 77.25, while exhibiting a decreased standard deviation of 6.45. The statistical analysis conducted yielded a calculated t-value of 29.90, with degrees of freedom amounting to 39. Employing a significance level of $\alpha = 0.05$, the corresponding t-table value derived from the distribution with equivalent degrees of freedom is 2.022. By making this comparison, it can be deduced that the computed t-value (29.90) significantly surpasses the t-table value (2.022), thereby leading to the rejection of the null hypothesis (H0). These findings unequivocally suggest a noteworthy augmentation in student motivation subsequent to the implementation of specific learning methodologies, particularly the utilization of ChatGPT. Hence, these outcomes furnish compelling empirical substantiation for the efficacy of integrating ChatGPT in enhancing student motivation throughout the English learning journey.

 DOI: http://dx.doi.org/10.30998/scope.v8i2.22375

In addition to this, the questionnaire instrument is provided to bolster student motivation individually as well as in groups. The research utilized a questionnaire to gather data concerning students' motivation in English language learning. The questionnaire was tailored to acquire a thorough comprehension of the impact of ChatGPT usage on motivation in English language learning. The statistical outcomes derived from the questionnaire are juxtaposed with the questionnaire interval table (Jayaputri, 2022), as depicted in Table 2. Then, the questionnaire scores from the pre-test and post-test are delineated in Table 4.

Table 4. The result of student's questionare

Description	Individual Score	Group Score	Classification
Pre-Test	2.56	1272	Low motivation
Post-test	3.4	1553	High motivation

In Table 4, two primary variables are examined, namely "Individual Score" and "Group Score," which respectively denote the scores obtained in the pre-test and post-test phases. Additionally, the variable "Classification" offers an overview of student motivation. The significant increase observed between individual pre-test and post-test scores suggests improvement. Specifically, the post-test individual score (3.4) significantly exceeded the pre-test individual score (2.56), indicating the effectiveness of the intervention in enhancing individual proficiency in English language acquisition. Similarly, a notable increase is observed between pre-test and post-test group scores. The post-test group score (1553) surpasses the pre-test group score (1272), reflecting an overall enhancement in the student group's performance in the English language assessment following the intervention. Collectively, the data analysis underscores the success of the ChatGPT intervention in enhancing both individual competencies and group outcomes in English learning. Moreover, the intervention demonstrates a positive impact on elevating student motivation from low to high levels, offering robust evidence for the efficacy of employing ChatGPTin English language learning contexts.

In the context of this comprehensive investigation, the central objective was to thoroughly examine and assess the impact of integrating ChatGPT into English language learning on student motivation. The investigation delved into various aspects surrounding the utilization of ChatGPT in educational settings and its subsequent influence on student engagement and motivation. Through meticulous examination and rigorous analysis of data, our results revealed a significant and noteworthy increase in student motivation levels following the incorporation of ChatGPT into the educational framework. This observed rise in motivation levels serves as compelling evidence of the effectiveness of utilizing ChatGPT as an educational tool. The robustness of our findings was strengthened by thorough statistical scrutiny, which included a paired t-test analysis. This statistical approach demonstrated a substantial difference between the mean scores of pre-tests and post-tests, with a calculated t-value of 29.90 and degrees of freedom at 39. The definitive rejection of the null hypothesis unequivocally emphasizes the influential role of ChatGPT in enhancing student motivation levels in English proficiency attainment. Additionally, the noticeable improvement in average student academic scores following implementation further indicates heightened motivation among students. This observation aligns seamlessly with scholarly perspectives presented by Jayaputri (2022) and Zoltan Dornyei (2020), which assert that improved academic performance inherently fosters a positive impact on learner motivation. Moreover, our findings resonate with prior research that elucidates the intricate relationship between student achievement outcomes and various factors such as self-confidence and motivation. The scholarly discourse encapsulated in studies by Kriegbaum et al. (2015), Steinmayr et al. (2019), and Steinmayr & Spinath (2009) corroborates our findings, further emphasizing the profound implications of motivation on academic success within educational contexts.

The elevation observed in student motivation following the integration of ChatGPT into educational settings can be attributed to a multifaceted array of factors that intricately shape the dynamics of learning. At the outset, the introduction of personalized and instantaneous interactions with AI chatbots imbues the learning experience with a heightened sense of engagement and interactivity, thereby significantly augmenting the educational journey for students. This phenomenon resonates with the widely acknowledged concept that the prompt and pertinent responses provided by ChatGPT act as a potent catalyst, compelling students to immerse themselves more actively and enthusiastically in the intricacies of the learning process. This assertion finds support in the research conducted by Labadze et al. (2023b), which underscores the pivotal role played by ChatGPT in fostering a more dynamic and participatory educational environment.

Furthermore, the integration and utilization of cutting-edge AI technology within educational frameworks offer a diverse array of sophisticated learning strategies, thereby empowering students to engage in their educational pursuits with unprecedented adaptability and efficacy, finely tailored to their unique preferences, cognitive styles, and individual learning modalities. These multifaceted approaches not only enhance the overall learning experience but also foster a profoundly inclusive educational environment wherein students from various

backgrounds and with differing learning needs can thrive and excel. Central to this transformative paradigm is the remarkable capability of AI-powered chatbots to not only engage with students in real-time but also to provide comprehensive assessments of their academic endeavors. Through sophisticated algorithms and data analytics, these chatbots can meticulously evaluate student tasks, pinpointing specific areas requiring improvement while also offering tailored suggestions and personalized recommendations for further study and skill enhancement (Celik et al., 2022). A compelling example of the transformative potential of such AI-driven educational support systems is exemplified by ChatGPT, an advanced chatbot designed to function as a reliable and invaluable educational companion. ChatGPT seamlessly integrates into the learning environment, offering nuanced explanations and elucidations across a wide spectrum of academic subjects and disciplines. Whether elucidating complex concepts, providing clarifications on intricate theories, or offering guidance on challenging problems, ChatGPT stands as a beacon of educational support and mentorship for students navigating the complexities of their academic journey (Crawford et al., 2023; Fauzi et al., 2023; Qadir, 2023). These AI-driven educational companions represent a paradigm shift in educational assistance, capable of not only addressing immediate homework inquiries but also providing step-by-step solutions and personalized guidance through the intricacies of challenging academic tasks. By leveraging the power of AI technology in this manner, educators can effectively augment their instructional methodologies, fostering deeper engagement, enhancing student comprehension, and ultimately cultivating a more enriched and dynamic learning environment.

In addition to fostering technological advancements conducive to student learning, emerging tools like ChatGPT have become integral components in reshaping educational paradigms. As articulated by Annamalai et al. (2023), the multifaceted advantages of ChatGPT include its unparalleled flexibility in handling queries, a user interface optimized for seamless interaction, and its remarkable adaptability to various learning environments. Within this framework, students are empowered to pose a wide range of inquiries without facing limitations on the chatbot's repository of responses. The extensive study conducted reveals a predominant consensus among student participants, affirming the effectiveness and efficiency of ChatGPT in addressing diverse academic queries, corroborating the findings by Yilmaz et al. (2023) that emphasize its significant contribution to improving academic performance. Furthermore, the complex technological landscape influencing students' perceptions is influenced significantly by factors such as Perceived Experience (PE) and Ease of Use (EE), as evidenced in previous research (Raza et al., 2021; Šumak et al., 2010). This underscores the pivotal role of chatbots in promoting effective language practice and communication, as highlighted by Timpe-Laughlin et al. (2023) and Xu et al. (2021). Insights from the research conducted by Huang et al. (2023) suggest that technologies enabling synchronous discussions, exemplified by chatbots, have the potential to alleviate speaking anxiety and foster target language communication among learners. The experiential narratives of study participants also demonstrate a striking resemblance to human interaction dynamics, facilitated by the digital coach embedded within ChatGPT, offering unrestricted assistance without temporal or spatial constraints, as elucidated by Annamalai et al. (2023). This harmonious integration of technological innovation and pedagogical effectiveness signifies a transformative shift in the educational landscape, propelling students towards enriched learning experiences characterized by interactive engagement and personalized support, as echoed by Scarpellini & Lim (2020).

The findings of this study also offer significant practical implications for the field of education. Incorporating ChatGPT into educational curricula and instructional methodologies has the potential to enhance student motivation and involvement in the process of learning English. Teachers can leverage AI technology as a potent instrument to cultivate a more dynamic and captivating learning environment for their students. Furthermore, these results underscore the critical role of implementing AI technology to bolster innovative and adaptable technology-driven learning approaches.

Nonetheless, this investigation also entails several constraints that warrant consideration. Among these limitations is the narrow scope of the study, which primarily examines the impact of utilizing ChatGPT on students' motivation in English learning, focusing solely on reading and writing proficiencies. Consequently, future research endeavors may incorporate a broader and more varied participant pool to bolster these conclusions and investigate additional variables that might affect students' motivation in learning. Furthermore, further exploration could deepen comprehension regarding the efficacy of employing ChatGPT in enhancing students' comprehensive English aptitude.

CONCLUSION

The findings of this research indicate a significant enhancement in students' motivation to learn English through the utilization of ChatGPT. Through the analysis of data obtained from English language proficiency assessments and student motivation surveys, a notable rise in student enthusiasm became apparent subsequent to the implementation of ChatGPT. Statistical analyses revealed

 DOI: http://dx.doi.org/10.30998/scope.v8i2.22375

that the computed t-value surpassed the critical t-value, thereby leading to the rejection of the null hypothesis and bolstering the assertion that the adoption of ChatGPT effectively elevates student motivation. Several contributing factors underlie the augmentation of student enthusiasm in utilizing ChatGPT, including heightened levels of personalized and real-time interactions with AI chatbots, the availability of diverse learning strategies tailored to individual preferences and learning modalities, as well as the ease of accessibility and utilization of the technology facilitated by ChatGPT. Prompt and pertinent responses from ChatGPT serve to incentivize students towards increased engagement in the learning process.

The inference drawn from this study suggests that artificial intelligence (AI) technology, particularly Chat GPT, possesses the capacity to serve as a proficient instrument for augmenting students' motivation in learning and enhancing their academic performance in English. The incorporation of ChatGPTinto the curriculum has the potential to foster a learning atmosphere characterized by heightened engagement, interactivity, and customization tailored to individual students. Consequently, this research represents a significant contribution to the advancement of student-centered learning approaches, strategies, and methodologies through the adept utilization of AI technology within educational settings.

REFERENCE

Akgun, S., & Greenhow, C. (2021). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *Al Ethnics*, *2*, 431–440. https://doi.org/https://doi.org/10.1007/s43681-021-00096-7

Baker, R. S. (2016). Stupid tutoring systems, and intelligent humans. *International Journal of Artificial Intelligence in Education*, *26*(2), 600–614.

Biswas, S. (2023). *Role of ChatGPT in education*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4369981

Chamorro-Atalaya, O., Durán-Herrera, V., Suarez-Bazalar, R., Nieves-Barreto, C., Tarazona-Padilla, J., Rojas-Carbajal, M., Cruz-Telada, Y., Caller-Luna, J., Alarcón-Anco, R., & Arévalo-Tuesta, J. A. (2023). Inclusion of Metaverses in the Development of the Flipped Classroom in the University environment: Bibliometric Analysis of Indexed Scientific Production in SCOPUS. *International Journal of Learning, Teaching and Educational Research*, *22*(10). https://doi.org/https://doi.org/10.26803/ijlter.22.10.14

Chang, C., Hwang, G., & Gau, M. (2022). Promoting students' learning achievement and self-efficacy: A mobile chatbot approach for nursing training. *British Journal of Educational Technology*, *53*(1), 171–188. https://doi.org/https://doi.org/10.1111/bjet.13158

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, *22*(14), 1111–1132. https://doi.org/https://doi.org/10.1111/j.1559-1816.1992.tb00945.x

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/https://doi.org/10.1207/S15327965PLI1104_01

Donnermann, M., Lein, M., Messingschlager, T., Riedmann, A., Schaper, P., Steinhaeusser, S., & Lugrin, B. (2021). Social robots and gamification for technology supported learning: An empirical study on engagement and motivation. *Computers in Human Behavior*, *121*, 106792. https://doi.org/https://doi.org/10.1016/j.chb.2021.106792

Firat, M. (2023). *How ChatGPT Can Transform Autodidactic Experiences and Open Education?* https://doi.org/DOI:10.31219/osf.io/9ge8m

Ford, M. E. (1992). *Motivating humans: Goals, emotions, and personal agency beliefs. Newbury Park*. SAGE Publications.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Huang, A. Y. Q., Lu, O. H. T., & Yang, S. J. H. (2023). Effects of artificial Intelligence–Enabled personalized recommendations on learners' learning engagement, motivation, and outcomes in a flipped classroom. *Computers & Education*, *194*, 104684. https://doi.org/https://doi.org/10.1016/j.compedu.2022.104684

Jayaputri, H. E. (2022). *Applying the English Simple Code to Improve Indonesian Students ' Communicative Speaking Ability and Their Motivation*. *7*(1), 47–68.

Labadze, L., Grigolia, M., & Machaidze, L. (2023). No Title. *International Journal of Educational*

Technology in Higher Education, 20–56. https://doi.org/https://doi.org/10.1186/s41239-023-00426-1

Li, H., Gobert, J., & Dickler, R. (2019). Evaluating the Transfer of Scaffolded Inquiry: What Sticks and Does it last? *In International Conference on Artificial Intelligence in Education*, 163–168.

Linn, M. C., Gerard, L., Ryoo, K., McElhaney, K., Liu, O. L., & Rafferty, A. N. (2014). Computer-guided inquiry to improve science learning. *Science*, *344*(6180), 155–156.

Linn, M. C., Donnelly-Hermosillo, D., & Gerard, L. (2023). Synergies Between Learning Technologies and Learning Sciences: Promoting Equitable Secondary School Teaching. In *In Handbook of research on science education* (First Edit, pp. 447–498).

Meuter, M. L., Bitner, M. J., Ostrom, A. L., & Brown, S. W. (2005). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. *Journal of Marketing*, *69*(2), 61–83. https://doi.org/https://doi.org/10.1509/jmkg.69.2.61.60759

Pellegrino, J. W., & Quellmalz, A. . (2010). Perspectives on the integration of technology and assessment. *Journal of Research on Technology in Education*, *43*(2), 119–134.

Rai, A., Constatinides, P., & Sarker, S. (2019). Editor's comments: Next Generation Digital Platforms: Toward Human Al-Hybirds. *MIS Quartely*, *43*(1).

Subiyantoro, S., Degeng, I. N. S., Kuswandi, D., & Ulfa, S. (2023). Eksplorasi Dampak Chatbot Bertenaga AI (ChatGPT) Pada Pendidikan: Studi Kualitatif Tentang Manfaat dan Kerugian. *Jurnal Pekomnas*, *8*(2), 157–168. https://doi.org/doi: 10.56873/jpkm.v8i2.5205

Teo, T. S. H., Lim, V. K. G., & Lai, R. Y. C. (1999). Intrinsic and extrinsic motivation in Internet usage. *Omega*, *27*(1), 25–37. https://doi.org/https://doi.org/10.1016/S0305-0483(98)00028-0

Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, *10*(1), 15. https://doi.org/10.1186/s40561-023-00237-x

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A Measure of Intrinsic, Extrinsic, and Amotivation in Education. *Educational and Psychological Measurement*, *52*(4), 1003–1017. https://doi.org/10.1177/0013164492052004025

Van Lehn, K., Banerjee, C., Milner, F., & Wetzel, J. (2020). Teaching algebraic model construction: A tutoring system, lessons learned and an evaluation. *International Journal of Artificial Intelligence in Education*, *30*(3), 459–480. https://doi.org/https://doi.org/10.1007/s40593-020-00205-3

Wang, Y.-M., Wei, C.-L., Lin, H.-H., Wang, S.-C., & Wang, Y.-S. (2022). What drives students' AI learning behavior: a perspective of AI anxiety. *Interactive Learning Environments*, 1–17. https://doi.org/10.1080/10494820.2022.2153147

Wang, Y., Bundgaard-Nielsen, R. L., Baker, B. J., & Maxwell, O. (2023). Same Vowels but Different Contrasts: Mandarin Listeners' Perception of English /ei/-/iː/ in Unfamiliar Phonotactic Contexts. *Journal of Phonetics*, *97*(101221). https://doi.org/10.1016/j.wocn.2023.101221

Yilmaz, R., Yilmaz, K., & Gizem, F. (2023). The effect of generative artificial intelligence (AI)-based tool use on students' computational thinking skills, programming self-efficacy and motivation. *Computers and Education: Artificial Intelligence*, *4*, 100147. https://doi.org/https://doi.org/10.1016/j.caeai.2023.100147

Zhai, X. (2021). Advancing automatic guidance in virtual science inquiry: From ease of use to personalization. *Educational Technology Research and Development*, *69*(1255–258).

Zhai, X., Haudek, K. ., Shi, L., Nehm, R., & Urban-Lurain, M. (2020). From substitution to redefinition: A framework of machine learning-based science assessment. *Journal of Research in Science Teaching*, *57*(9), 1430–1459.

Zheng, L., Niu, J., Zhong, L., & Gyasi, J. F. (2023). The effectiveness of artificial intelligence on learning achievement and learning perception: A meta-analysis. *Interactive Learning Environments*, *31*(9), 5650–5664. https://doi.org/10.1080/10494820.2021.2015693

Zoltan Dornyei. (2020). *Innovations and Challenges in Language Learning Motivation*. Routledge.

 DOI: http://dx.doi.org/10.30998/scope.v8i2.22375