

Chat GPT a project based professional learning as an alternative learning to traditional writing : A quick response generator to improve writing skills

Shalini Sharma *

Vandana Sharma †

Department of English

Chandigarh University

Mohali 140413

Punjab

India

Sukhmani Kaur §

Department of Commerce

Chandigarh University

Mohali 140413

Punjab

India

Abstract

The paper is intended to study the efficiency of Project Based professional Learning in improving Writing Skills to the prevailing English Language development. This research is based on selected group of students enrolled in different programs at university level. The traditional mode of writing skills is compared with the modern version of techno- aided tool i.e. Chat GPT an open AI Tool (CHAT- OAI). The targeted group has been taught with the traditional way of teaching and has been appraised with the latest version of CHAT- OAI. The treatment group has been accessed through mixed method approach, it's a quasi-experimental design with pre-recorded test and post recorded test experimental set- up where the impact of techno tools on Professional writing topics is studied; especially in connection to Business correspondence needs as letter writing, email writing, report writing, notices, memorandums, office orders, circulars, agenda and minutes of meetings etc. The similar has been followed with open ended Questions to seek an over- view of student's perceptions and feedback on the blended teaching tactics introduced in the classrooms. The data analysis reveals that the techno- aided version of Chat- GPT would replace the conventional mode of learning language. Technology assists students to improve professional writing skills. The

* E-mail: shalinisharma.cgc@gmail.com (Corresponding Author)

† E-mail: vandana.e11470@cumail.in

§ E-mail: sukhakal313@gmail.com

study reveals that the students and teachers have keen interest in improving the current practice of developing their professional writing content as it seems to be more quality and time saving; further enhancing confidence of working professionals.

Subject Classification: 97B70, 97P60.

Keywords: ChatGPT (Chat- OAI), English language learning (ELL), Traditional pedagogy, Professional writing skills, WilCoxon (WcS).

1. Introduction

In today's digital era of Alpha Generation, who use digital resources and are well equipped with the media and world altogether on social networking platforms. The education system is also following the use of digitalized Technologies. Students of today's age develop their competencies with their own space through this flexible educational practice. Therefore, Artificial Intelligence (AI) has become one of the most mesmerizing innovations of humans. [5]. CHAT- OAI the AI tool has improved the human engagement with refined linguistic capabilities. CHAT- OAI helps in creating different responses, as per the input of the questions and the requirement of the individual [8], [17]. As CHAT- OAI is able to generate a wide range of creative material in every subject and course thus has gained such popularity as the responses generated are innovative with explicit Language. It is assumed that CHAT- OAI produce answers that are more likely to be considered as in Natural Language [10]. CHAT- OAI is although considered to be a threat by many of the educationists as they consider the assignments material to be copied version of AI [7]. Technology can be used to upgrade the level of learning or may minimize the learning capacity [15]. It is stated by the researchers that CHAT- OAI cannot provide a holistic overview and comprehensive feedback in a way it is provided by the instructors [16]. Non-native students while writing their thoughts in English face the challenge of choosing the right word to interpret themselves. Through CHAT- OAI students get autonomy in their writing skill which in turn is more emphatic [11]. There is a significant change in the style of writing when students use AI as a tool for their write up. The present study is intended to be done with the perspective to measure the difference between the traditional mode of developing language skills in connection to the modern blended way of improving and enriching the vocabulary with the technical applications. It has been observed that technology is adding a crucial change in the overall development of working professionals writing efficiency.

Study targets on the fact that –

- Investigate impact of CHAT- OAI on ELL
- CHAT- OAI a motivation to students learning perception in comparison to traditional mode of learning

In business concerns, the work is carried out in a proper manner where the day to day records are to be procured and thus the professionals are expected to document the same in a proper format with good writing skills as a Lingua Franca [1]. CHAT- OAI anticipates as a part of Intra and International Communication. It becomes easy to connect with the lingua-cultural communities [13]. In Business writings it is difficult to mark a good impression as its complex to deal with different people of discourse community. Iterative content is of high quality and can be generated as per the personalized requirements [12]. Therefore, the advancement of ELL is generated through the usage of CHAT- OAI, which attracts the attention of human responses according to the instructions provided to it [18]. The paper intends to delve on the advantages of the impending impression of CHAT- OAI on English Language in context to learning as compared to the traditional modes of teaching.

2. Literature Review

The paper explores the possessions of automated corrective feedback for written content (AWCF) on the writings of English as a Foreign Language (EFL). Students, specifically those in China. [3] The work "Exploring the Effects of AWCF on EFL Students' Writing Quality: A Mixed Methods" employs a mixed approach and a quasi-experimental design to compare the written content quality of sample treatment group that has received the feedback from Grammarly as well as from concerned teacher's side. The study highlights some potential merits and drawbacks of AWCF, such as its ability to provide immediate feedback, cultivate sovereignty in the practice of writing text material, assessing the written concepts, and then finally reviewing the same but its undue focus is on linguistic areas and concerns, formulaic or repetitive feedback, and neglect of deeper levels of writing, such as content or organization. Overall, the study emphasizes the importance of examining student's insight of AWCF and investigates its effectiveness.

The study "Reform of College English Teaching Model under the Background of AI" by Gao is the alteration of English language teaching

model of the college level with AI. The study discusses how the expansion and production of AI & technology has promoted the education information, specifically in the arena of (Artificial Intelligence Assisted Language Learning) AIALL. It reconnoiters the ways through which AI has changed the legislative form of teaching, and presentation, highlighting how technology has transformed the traditional teaching model and made learning more convenient and efficient.

Liu et al. [12] in his paper "Using AI-generated suggestions from CHAT- OAI to optimize clinical decision support" the study discusses the use of AI in optimizing the decisions on clinical support (CDS) through the generation of suggestions. Overall, the study climaxes the potential of AI in optimizing clinical decision support and advancing the improvement of learning health systems.

Ray [14] "ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope" inquiries into the applications and challenges and on the future directions of CHAT- OAI. The study highlights the challenges that are critical by approach with the faces of CHAT- OAI, comprising its Ethical concerns, data based biases, and its safety issues.

Hakiki et al. [6] in his paper "Exploring the impact of using Chat-GPT on student learning outcomes in technology learning: The comprehensive experiment" investigates Impact of CHAT- OAI on Students. The study has proved that the incorporation of CHAT- OAI has an optimistic impact on student learning outcomes. Students enhance their skills with technology aided process.

Table 1
Statistical Analysis

Statistics	Pre-recorded test	Post-recorded test
Me	3.7792	7.2273
Md	3	8
SD	2.5411	1.8997
Skewness	0.427	-2.425
Std. Error of Skewness	0.274	0.274
Kurtosis	-0.957	6.042
Std. Error of Kurtosis	0.541	0.541

Source: Author's Calculation

3. Data Interpretation and Analysis

Descriptive statistics is used as a brief informational coefficients which summarizes the collected set of data, which is the depiction of the entire collected population. Descriptive statistics are fragmented into agencies of central tendency and processes of variability (spread). Table 1 represents the agencies of central tendency which comprises of the mean (Me) and median (Md), while processes of variability include standard deviation (SD), kurtosis, and skewness (SKP) where the standard deviation (SD) shows the disparities in the dataset. The Positive and progressive values for skewness shows the data is completely positively skewed and kurtosis symbolizes the dispersion of data from its mean.

4. Normality of the data

An examination to check the normalcy of the dataset is primary task for the statistical tests because normality of data is principle underlying assumption while using parametric testing. Either the Graphical or numerical (including statistical tests) are used to check the normality of the collected data. Although, there are lot many approaches to test the ordinariness of the continuous data but within them the most popular methods used to calculate are Shapiro-Wilk test (SW), Kolmogorov-Smirnov test (KS).

Table 2
Normality test for Pre-recorded Test

KS test			SW test		
Statistic	df	Sig.	Statistic	df	Sig.
0.161	77	0.00	0.931	77	0.00

Source: Author's Calculation

Table 3
Normality test for PostTest

Kolmogorov- Smirnova (KS)			Shapiro-Wilk (SW)		
Statistic	Df	Sig.	Statistic	df	Sig.
0.297	77	0	0.668	77	0

Source: Author's Calculation

The Hypothesis for the normality test include, H₀= the data is not normal whereas H₁= the data is normal. The Table 2 represents the Normality test for Pre-recorded Test which is done before the use of Chatgpt. The result reveal by SW test, KS test shows the data is not normal as the p value is < 0.05. Further The Table 3 represents the Normality test for Post Test which is done after the use of Chatgpt. The result reveal by SW Test, KS test shows the data is not normal as the p value is < 0.05.

5. WILCOXON TEST (WcS)

To identify the significant change in the ELL of the students after using the chat-OAI , the WcS test has been used instead of Paired T test as the dataset of the variables employed reveals that the dataset is not normally distributed .

The Hypothesis for the evaluation of the test is as follows:
H₁: There is a noteworthy significant and constructive positive change in the ELL of the students after adoption of Chat-OAI.

H₀: There is no significant and positive change in the ELL of the students after adoption of Chat-OAI.

Table 4
WcS RANK TEST

	Ranks	N	Me Rank	Sum of Ranks
Post recorded test – pre-recorded test	Negative Ranks	8a	13.69	109.5
	Positive Ranks	65b	39.87	2591.5
	Ties	4c		
	Total	77		

Source: Author's Calculation

- a. Post recorded test < pre-recorded test
- b. Post recorded test > pre-recorded test
- c. Post recorded test = pre-recorded test

The above table 4 represents the positive and negative ranks of pre-recorded test and post recorded test. Here the negative rank means the post test is less than pre- test which means after using the CHAT- OAI the ELL of the students has been decreased for 8 students. Further the positive rank means the post test is more than pre- test which means after using the

Table 5
The WcS Rank Test at 5% level of significant

	Post recorded test – pre-recorded test	Decision	Interpretation
Z	-6.837b		
Asymp. Sig. (2-tailed)	0.00	Reject H0	Significant

Source: Author's Calculation

CHAT- OAI the ELL of the students has been increased for 65 students. At last the ties reveals no change in the ELL of the students.

At the stage where 5% level of significance is observed in Table 5, it is the adequate substantiation to claim that there is a significant noteworthy difference reflected between the Leanings of the students before and after using Chat-OAI. Since P- value = 0.00 is less than the level of significance (a) = 0.05 we therefore reject Ho and will accept the Alternative hypothesis (H1).

6. Effect Size

The test initially coined by Cohen (1988) to measure the level of effect. This test is used to measure the influence of CHAT- OAI on ELL of the students. The effect is measured in terms of high, medium and lower effect. The SPSS doesn't provide the effect size statistics but the value of z testified in the output (table) is used to calculate the effect size i.e. approximate value of r.

Which is:

$$r = Z/\sqrt{N}.$$

where:

$$r = \text{Effect size}$$

Z= z value from table i.e. 6.837. (For the calculation the negative sign of z has been ignored).

N= Number of observations over the two time points not the number of cases. i.e. N = 77 (N *2 = 154)

Therefore:

$$r = 6.837 / \sqrt{154}$$

$$r = 6.837 / 12.409$$

$$r = 0.55$$

$r = 0.55$, signifying large effect size with the use of Cohen (1988) criteria of 0.1 = small effect size, 0.3 indicating its medium effect size and 0.5 indicating its large effect size.

Thus we can summarize that WcS on signed rank test statistically positive significant in ELL of the students after using CHAT- OAI $t, z = 6.837, p= 0.00$ with the large effect size of $r = 0.55$

7. Discussions & Conclusions

It has been tested and proved from this study that CHAT- OAI can be used for project based Professional learning as it is a quick response generator to improve Writing Skills specially in connection to enriched vocabulary. It has that quality of response to build impression on the reader's mind. The different test have been implied to prove the above statements The recorded data as population sample has been collected from 77 students after having the pre-recorded test and post recorded test using CHAT- OAI technology by using SPSS 26. In order to check the variation and dispersion of the data the descriptive statistics has been applied. Further the normalcy of the data is examined through Shapiro-Wilk Test (SW) and Kolmogorov- Smirnov Test (KS). The analysis reveals the data of Pre- test and Post- test is not normal, hence there are outliers in the data. As targeted students for the data collection have different levels of intelligence as some are Brilliant, some are Average & some are in Weaker in learning. Further the WcS Test has been applied instead of Paired T- Test as the data is not normal.

The WcS rank test reveals Positive and negative ranks of pre-recorded test and post recorded test. Here the negative rank means post recorded test is less than pre-recorded test which means after using the CHAT- OAI the ELL of the students has been decreased within 8 students. Further the positive rank means the post- test is more than pre- test which means after using the CHAT- OAI the ELL of the students got increased within 65 students. At last the ties reveals no change in the ELL of the students as they seems to be less friendly with technology.

The WcS sign rank test divulges the significant and positive results as we reject the null hypothesis, which is enough evident to support the claim that there is a significant difference between the Leanings of the students before and after using CHAT- OAI.

The test initially coined by Cohen (1988) to measure the level of effect. Further Effect size test has been applied coined by Cohen (1988) to measure the level of effect of CHAT- OAI on ELL of the students. The effect is

measured in terms of high, medium and lower effect. The test reveals the high level of effect ($r = 0.55$) of CHAT- OAI on English language learning.

The study proves the potential writing outcome from the slow learner students and also indicates that the students who are fast learner can upgrade their level of writing with the assistance of CHAT- OAI. Although it's a matter of fact that after using Chat GT, the writings are of higher quality. Multiple studies as Das et al. [2]; Gilson et al.[4]; Kung et al. [9] studies reflects the similar outcomes where CHAT- OAI provides better answers and insights into the responses. It is imperative that the future generations need to be well equipped to use the AI applications optimally with proper reasoning.

Implications

The study clearly defines that Technology assists in the progression of ELL. It revolutionize the approach of learners and polish their experience with the professional presentations, enabling them with potential speaking and writing skills, empowering them with a confident exposure to second Language learning. With a balanced approach one can transform the learning skills outcomes.

References

- [1] M. Charles, "Language matters in global communication," *J. Bus. Commun.*, vol. 44, no. 3, pp. 260–282 (2007).
- [2] D. Das, N. Kumar, L. A. Longjam, R. Sinha, A. D. Roy, H. Mondal, and P. Gupta, "Assessing the capability of CHAT-OAI in answering first-and second-order knowledge questions on microbiology as per competency-based medical education curriculum," *Cureus*, vol. 15, no. 3 (2023).
- [3] N. Fan, "Exploring the effects of automated written corrective feedback on EFL students' writing quality: A mixed-methods study," *SAGE Open*, vol. 13, no. 2 (2023).
- [4] A. Gilson, C. W. Safranek, T. Huang, V. Socrates, L. Chi, R. A. Taylor, and D. Chartash, "How does ChatGPT perform on the United States medical licensing examination? The implications of large language

- models for medical education and knowledge assessment," *JMIR Med. Educ.*, vol. 9, no. 1, p. e45312 (2023).
- [5] A. Gocen and F. Aydemir, "Artificial intelligence in education and schools," *Res. Educ. Media*, vol. 12, no. 1, pp. 13–21 (2021).
 - [6] M. Hakiki, R. Fadli, A. D. Samala, A. Fricticarani, P. Dayurni, K. Rahmadani, and A. Sabir, "Exploring the impact of using Chat-GPT on student learning outcomes in technology learning: The comprehensive experiment," *Adv. Mobile Learn. Educ. Res.*, vol. 3, no. 2, pp. 859–872 (2023).
 - [7] J. Rudolph, S. Tan, and S. Tan, "ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?," *J. Appl. Learn. Teach.*, vol. 6, no. 1 (2023).
 - [8] M. R. King, "The future of AI in medicine: A perspective from a chatbot," *Ann. Biomed. Eng.*, vol. 51, pp. 291–295 (2023). doi: 10.1007/s10439-022-03121-w.
 - [9] T. H. Kung, J. T. Chang, A. D. G. Fong, L. Y. S. Chen, Y. C. Wu, and S. W. K. Ho, "Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models," *PLoS Digit. Health*, vol. 2, no. 2, p. e0000198 (2023).
 - [10] Y. LeCun, Y. Bengio, and G. Hinton, "Deep learning," *Nature*, vol. 521, no. 7553, pp. 436–444 (2015).
 - [11] J. Li, S. Link, and V. Hegelheimer, "Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction," *J. Second Lang. Writ.*, vol. 27, pp. 1–18 (2015).
 - [12] S. Liu, X. Zhang, Y. Wang, L. Chen, R. Li, M. Zhao, and J. Wang, "Using AI-generated suggestions from ChatGPT to optimize clinical decision support," *J. Am. Med. Inform. Assoc.*, vol. 30, no. 7, pp. 1237–1245 (2023).
 - [13] C. Nickerson, "English for specific purposes and English as a lingua franca," in *The Handbook of English for Specific Purposes*, B. Paltridge and S. Starfield, Eds. Chichester: Wiley-Blackwell, pp. 445–460 (2013).

- [14] P. P. Ray, "ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope," *Internet Things Cyber-Phys. Syst.* (2023).
- [15] J. Rudolph, S. Tan, and S. Tan, "ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?," *J. Appl. Learn. Teach.*, vol. 6 (2023). doi: 10.37074/jalt.2023.6.1.
- [16] M. Tashtoush, Y. Wardat, F. Aloufi, and O. Taani, "The effect of a training program based on (TIMSS) to developing the levels of habits of mind and mathematical reasoning skills among preservice mathematics teachers," *Eurasia J. Math. Sci. Technol. Educ.*, vol. 18, no. 11, p. em2182 (2022). doi: 10.29333/ejmste/12557.
- [17] J. Wilson, N. G. Olinghouse, and G. N. Andrada, "Does automated feedback improve writing quality?," *Learn. Disabil. Contemp. J.*, vol. 12, pp. 93–118 (2014).
- [18] Y. Liu, Y. Shi, F. Mu, J. Cheng, and X. Chen, "Glioma segmentation-oriented multi-modal MR image fusion with adversarial learning," *IEEE/CAA J. Autom. Sinica*, vol. 9, no. 8, pp. 1528–1531 (2022).

Received September, 2024