Exploring ChatGPT in Language Teaching for Higher Education in China

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Abstract: Nowadays, the application of ChatGPT is of great importance for the improvement and convenience of students' learning. Nevertheless, ChatGPT has raised significant concerns about language learning in higher education, which challenges teachers. ChatGPT features high productivity and is a model that serves students to learn conversationally. They can search for information, ask follow-up questions, and even test the premise through utterances. However, with the integration of artificial intelligence and language learning, the challenges of language learning are becoming more serious; particularly in the homogenization of education, there are many views on the limitations and weaknesses of AI (Artificial Intelligence) tools that affect student learning. Despite this well-known study, there isn't much scholarly research on ChatGPT's detrimental effects on teaching and learning languages. Therefore, this paper will contribute to providing the relevance between ChatGPT and language teaching that are interdependent in higher education for Chinese universities through case analysis. The present study utilizes a questionnaire to collect Chinese college students' English learning data to explore whether ChatGPT is helpful and valuable in language learning. The main findings of this research are:1) ChatGPT can help students in their language learning. 2) ChatGPT can play a role as a tutorTherefore, this paper will contribute to providing the relevance between ChatGPT and language teaching that are interdependent in higher education for Chinese universities.

Keywords: ChatGPT, higher education, language education, learning strategy

1.   Introduction

Artificial intelligence is exerting an increasing amount of influence in various fields, including analytics, commercial applications, software development, and data storage. AI is used in multiple ways in education and preparation for educators, including for learning and assessment analytics across an extensive spectrum of knowledge areas [1]. Highlighted among them, the integration with language education is attached to vital prominence increasingly. It is prone to be more intelligentized, student-oriented, and precise to the demand for language teaching and learning. Take the Dall E 2 and many Chatbots as examples, AI is not only displaying the affordance of using AI within teaching and learning modalities but also showing that affordances have implications for teacher education,

such as language processing and search algorithms, might have been around for a while, but more substantive uses of AI that are designed for learning environments is an area of evolving thought, research, and practice.

Among AI, ChatGPT is a conversational language model developed by OpenAI. Technological change is taking place in the AI applications' innovation. In particular, ChatGPT, as a power AI, has been expected to be a key milestone in the AI sector and as an experimental object in pedagogical practice. Thus, the urgency and the necessity to urge teacher education will need to wrestle with how to prepare educators for these technological challenges. Still, several factors need to be examined.

2. The Application of ChatGPT in Education

2.1. The Advantages of the ChatGPT

2.1.1. Applied in Language Academic Writing

Assisting with academic writing via ChatGPT is one of the extraordinary achievements in the technological transformation of students and educators. It can generate summaries of papers, extract key points, and even provide citations. This can save researchers significant time and effort, allowing them to focus on more critical tasks such as analysis and interpretation [2].

2.1.2. Applied in Language Corpus

ChatGPT also could be served as a search engine. Mass data collection and corpus construction can provide as much as more information in the database. For instance, it can help students acquire more information at a more extensive scope. Learners can develop more words and glossaries in ChatGPT. Benefiting from the ultimate change of ChatGPT, including the EFL students, students in Chinese higher education can also collect authentic language use in various aspects. It provides the feasibility for students in intimating authentic conversations with ChatGPT. Above all, ChatGPT has the function of summarising thoughts, asking follow-up questions, clarifying, offering information, etc.

2.2. The Downsides of the ChatGPT

In the fast-paced world of technology, it is rare for a new development to make waves as quickly as ChatGPT has. So far, as a heated discussion among scholars, there have been various ideas and research on teaching and learning strategies via Chat GPT. In conclusion, there are mainly three aspects: (1) predictions and tendency of the ChatGPT applied in education; (2) the applications of Chat GPT in medicine and commerce. (3) the advantages and dominances of Chat GPT. However, there is little research on the language learning strategy integrated with ChatGPT, and discussion that excessively relying on ChatGPT may not only lead to education homogenization but also deprive the inspiration and individuality of students.

3. Theoretical Framework

3.1. Skinner Behaviourism

Skinner extended animal learning behavior to human learning behavior, arguing that although the nature of human learning behavior is much more complex than that of animals, it also requires operant conditioning. The research aims at figuring out how ChatGPT works as a medium of operant training, which means figuring out how ChatGPT facilitates students to obtain a language and learn proper and correct communication with the guidance of Skinner's behaviorism.

3.2.   Language Stratigies

Learning strategies are students' intentional, goal- and problem-oriented efforts to attain desired learning efficiency, and motivation is crucial in their use. Those are usually considered among the various types of learning strategies. The language-using strategies are divided into four subsets: retrieval, rehearsal, cover, and communication. Language learning strategies include identifying the material to be learned, differentiating it from other materials, grouping it for more accessible learning, committing it to memory, etc [3,4].

It has been notoriously difficult for researchers to reach a consensus on the role of these strategies. It has been established thus far that effective learners typically employ more methods, which they also use more carefully and flexibly. For instance, they employ various strategies depending on their learning level, and they are skilled at managing their knowledge by utilizing metacognitive techniques. Using this theory, the research will determine the various students' learning methods and how ChatGPT works to enable students to put their strategies into practice and enhance them.

3.3.   Motivation

Motivation, also known as the learner's attitudes and affective state or learning drive, significantly impacts his efforts in learning a second language. Language aptitude affects the learner's cognitive mechanism. This section of the questionnaire is about determining the motivation of various learners and how ChatGPT will help them achieve their goals. There are four main motivations for learning a language: instrumental, integrative, resultative, and intrinsic.

4.   Methodology

4.1.   Research Objectives

This research aims to fill in the research gap of ChatGPT usage to help Chinese college students learn about foreign languages such as English. It is widely concerned that misusing ChatGPT will cause issues in ethics and honesty [5,6]. However, the latest research has only made some general introductions to correctly applying ChatGPT in teaching. This research aims at figuring out the proper and correct manner of using ChatGPT as a tool for language study with the following methodologies.

4.2.   Materials

In both domestic and international social surveys, the questionnaire is a procedure that is overused. A questionnaire is a form that asks specific questions and is used for statistics and surveys. The questionnaire method is a technique used by researchers to measure the issue under investigation and get reliable data. Most surveys are sent either individually, collectively, or via mail. The respondent completes the responses to the form's questions. Questionnaires are generally easier to manage, more thorough, and more extensive than interview forms. The questionnaire method's standardization and affordability are its key benefits.

This research collects data by spreading out more than 300 particular, closed questionnaires and analyzing the data.

4.3.   Data Analysis

To maximize the development of the function of data and perform the role of data, data analysis refers to the study of a significant amount of acquired data using proper statistical analysis methods and the summarization, comprehension, and digestion of those results. Data analysis is carefully examining and condensing data to draw conclusions and extract usable information. This research aims to find

out the connection between ChatGPT and the language learning condition of students. At first, it needs to analyze the test of independence through Social Package for the Social Sciences, a software program for analyzing the collected data for further research, to ensure language learning and ChatGPT are related.

We analyzed 510 samples from students of different universities in China with SPSS software helping. By analyzing the correlation coefficient between other variables, we can find out whether there is a connection between various features of learners.

This is the result of analyzing 520 samples. In this stage, to gain a more accurate result, this research has adopted several methods below: We regard the individual background-related question as the argument variable(X), and the inquiries related to whether you will use ChatGPT to enhance your English skills as the dependent variable(Y) to set up the function model. In analyzing the data related to "What English learning assistance would you like to use Chat GPT for?" We used the cumulative score method, which means choosing an option to score 1 point, and the mark can be cultivated; the more chances are determined, the higher score the respondents gain.

We have optimized the data structure, which means we have not taken the data from the respondents who have never learned English and know little or have not ever heard of ChatGPT when analyzing the data of the questions like "Will you use ChatGPT."

Table 1: The relative degree.

Value range of |r|	Meaning of |r|
0.00-0.19	Extremely low related
0.20-0.39	Low related
0.40-0.69	Medium related
0.70-0.89	Highly related
0.90-1	Extremely high related

5.   Results

Then, it is necessary to explore the result of linear regression analysis in Table 2. Through analyzing 510 samples, this research found that The regression coefficient value of whether or not you have learned English is 1.402 (t=2.408, p=0.016<0.05), which means that whether you have learned English has a significant positive impact on the overall score of using Chat got to learn English. Also, the regression coefficient value of gender was 0.534 (t=2.605, p=0.009<0.01), which meant that gender had a significant positive impact on the overall score of using Chat GPT to learn English. The regression coefficient value of English proficiency is 0.000 (t=1.550, p=0.112>0.05), which means that English proficiency does not affect the overall score of using Chat GPT to learn English. The regression coefficient value of learning tool diversity is 0.280 (t=10.325, p=0.000<0.01), which means that learning tool diversity will significantly impact the total score of learning English using Chat pt.

Whether the purpose of learning English is to take the test or go abroad, the regression coefficient value is 0.098 (t=-0.498, p=0.453>0.05), which means that whether the purpose of learning English is to take the test or go abroad will not affect the overall score of using Chat GPT to learn English. The regression coefficient value of whether or not you have received systematic teaching is 0.146 (t=0.733, p=0.464>0.05), which means that whether you have received systematic teaching will not affect the total score of using Chat GPT to learn English.

Table 2: The result of Linear regression analysis.

	Non-normalized coefficients		Normalized factor	t	p	VIF
	B	Standard deviation	Beta			
constant	2.085	1.051	-	2.669	0.008	-
Have you learned English or not	1.402	0.582	0.097	2.408	0.016**	1.070
gender	0.534	0.205	0.103	2.605	0.009***	1.029
Years of being educated	-0.119	0.068	-0.070	-1.749	0.081*	1.057
English level	0.007	0.005	0.062	1.550	0.112	1.066
The variety of instrument	0.280	0.027	0.427	10.325	0.000***	1.130
Whether the purpose of learning is text or to go aboard	0.098	0.216	0.019	0.453	0.651	1.115
Received systematic training or not	0.146	0.199	0.029	0.733	0.464	1.035
Have you used electrical resources to learn English or not	0.243	0.205	0.048	1.187	0.236	1.086
R 2	0.243					
Adjusted R 2	0.231					
F	F (8,509) =20.074, p=0.000					
D-W degree	2.010					

Dependent variable: Comprehensive score of using Chat got to learn English
* p<0.1 ** p<0.05 *** p<0.01

Whether you have used electronic resources to learn English has a regression coefficient value of 0.243 (t=1.187, p=0.236>0.05), which means that whether you have used electronic resources to learn English does not affect the overall score of using Chat got to learn English?

However, The regression coefficient value of the years of education was -0.119 (t=-1.749, p=0.081<0.1), meaning that edu years of education significantly negatively impacted the total score of using Chat GPT to learn English.

In summary analysis, it can be seen that whether or not you have learned English and the diversity of learning tools will significantly impact the total score of using Chat GPT to learn English. Gender had a significant negative impact on the overall score of using Chat GPT to learn English, years of

education, English level, whether the purpose of learning English is to take exams or go abroad, whether he has received systematic teaching, and whether he has used electronic resources to learn English will not affect the overall score of learning English using Chatgpt.

6.   Discussion

6.1.   ChatGPT's Positive Effect and Limitations

According to the data analysis, this research considers that ChatGPT can motivate the language learning process. By playing the role of a private tutor, a reference book with massive content, etc., which enhanced students` learning efficiency because ChatGPT can help students master the knowledge of grammar by offering the sufficient learning method to students and Simulate conversations in different scenarios for students to enhance their speaking skills. However, according to the result of data analysis, students` year of education, learning purpose, and experience of using electronic tools of learning does not affect their will to use ChatGPT to learn English, which means students preparing for texts or students do not know using software or electronic devices may not gain sufficient guide from ChatGPT.

6.2.   Challenges Brought by ChatGPT

ChatGPT brings significant challenges to the current education environment. For example, ChatGPT quickly causes academic integrity-related problems like cheating because it is more challenging to distinguish papers from students or ChatGPT with present Methods for determining academic misconduct like simply checking the paper's repetition rate only. ChatGPT also threats the position of teachers to a certain degree. For example, students use ChatGPT to do pre-learning and revise to master the knowledge more completely. However, some students will not listen to explanations from a teacher in the class after studying from ChatGPT; this will seriously affect the teacher`s judgment of different students regarding the mastery of knowledge, the absorption of knowledge, etc. More seriously, the place of the teacher would probably be replaced by ChatGPT. Moreover, due to immature technology, ChatGPT still risks providing incorrect information to its current users. As a result, ChatGPT use is restricted in 352 educational facilities. The 353 texts from LLMs like ChatGPT can be recognized using various techniques that some academics have proposed. These include ambiguity, poor context awareness, factual inaccuracies, a lack of proper citations, and inconsistent language usage [7].

6.3.   Suggestions to the People Applying ChatGPT

Firstly, for those program developers of ChatGPT, it is necessary to develop some anti-AI cheat programmers to prevent academic misconduct behaviors [8]. Because with the present technology, it is difficult to figure out academic misconduct behavior caused by ChatGPT, like forming essays and papers. Additionally, programmers are advised to develop functions like preparing exams, revising, and pre-studying [9]. Moreover, teachers must tell students how to use ChatGPT correctly and think individually [10].

7.   Conclusions

This research has discovered the relationship between ChatGPT and enhancing college students at different English levels by analyzing data from 150 individuals. It suggests that ChatGPT have the potential to help students of different genders improve their English approving ability in various aspect. However, this research has several limitations. Firstly, the amount of sample is insufficient to support this research well. Additionally, more data analysis methods can be applied in this research.

Moreover, it is better to do some experiments, such as comparing the text score between students studying with ChatGPT and students studying in traditional classes; such methods can expand this research further.

Acknowledgement

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