

# The Impact of ChatGPT on Undergraduate Student's English Learning Motivation

Wenyuan Zhou\*

School of Software, Chongqing Institute of Engineering, Chongqing, China

\* Corresponding Author Email: zhouwenyuan@stu.cqie.edu.cn

**Abstract.** In the digital era, with the increasing development of technology, many undergraduate students use artificial intelligence as an auxiliary learning tool for learning English, such as improving spoken English, deepening their understanding of English grammar, etc. This study aims to discuss the impact of using ChatGPT on the four learning motivations of undergraduate students: extrinsic, intrinsic, achievement and social motivations. This study adopted a qualitative research approach, using interviews. Through thematic and content analyses, it examined college students' attitudes and opinions on using ChatGPT to learn English and explored the application and development of ChatGPT for future English learning. Previous research has shown that ChatGPT can promote autonomy in language learning. However, more research is needed on specific issues. The study will contribute to the possible factors that influenced by ChatGPT on English learning motivation, and it also provides the advantages and potential limitations of using ChatGPT by college students to improve English learning motivation, which can help college students better improve their English learning strategies.

**Keywords:** ChatGPT, AI-facilitated English learning, undergraduate students, motivation, English learning strategies.

## 1. Introduction

Developed by OpenAI, ChatGPT (Conditional Generative Pre-trained Transformer) is an artificial intelligence technology that is fine-tuned using supervised machine learning and reinforcement learning techniques, allowing a computer to generate natural language conversation fully autonomously [1]. It is supported by a large number of pre-trained information libraries. These information libraries cover a lot of information on online books, articles and websites. After the training is completed, the model can generate natural and coherent texts, including meaningful text dialogue with people. Regarding English learning, ChatGPT has triggered a widespread discussion of the advantages and disadvantages of students' learning English independently. As a novel way of technology-facilitated learning, ChatGPT provides an innovative, barrier-free English learning method. Teachers can interact with AI to improve their language skills, and at the same time, they can learn new vocabulary and grammar rules in real-time dialogue. Meanwhile, ChatGPT-facilitated English learning has another advantage, which is that it can be used at any time for learners. Whether it is reminding words or real-time dialogue, it is possible to enhance the learning motivation and self-efficacy of learners. In general, ChatGPT, as an AI tool, has changed undergraduate students' English learning methods and provides new possibilities for personalized teaching and independent learning. This study mainly aims at discovering the impact of ChatGPT on English motivation for college students. Through this study, it has learned about the advantages of improving English learning motivation and potential restrictions of using ChatGPT to help college students better improve their English learning strategies.

## **2. Literature review**

### **2.1. Gardner's Motivation Theory**

Gardner's second language (L2) motivation theory has had a profound impact on the field of language learning in the past few decades. Gardner believes that motivation is composed of three elements: effort (hard work), desire (desire to achieve learning goals), and positive emotions (the process of enjoying the language of learning) [2]. He proposed two directions of language learning motivation: integration orientation and instrumental orientation. His social education model proposes a close connection with motivation and ability, including intelligence and language ability to consider intelligence and language ability.

### **2.2. The Significance of Learning Motivation**

Motivation is a key factor affecting the success of language learning. It stimulates learners to pay time and energy to achieve their goals. In language learning and research, motivation is closely related to positive attitudes and learning results. Brown defines the motivation as an internal power, driving an impulse, emotion or desire to start specific behaviors. Brown emphasized that everyone has a demand and driving force, which is affected by environmental factors [3]. Accordingly, Ausubel lists the elements of six demands and desires, including the needs for exploration, manipulation, activity, stimulation, knowledge and self-enhancement [4]. During the language learning process, internal and external motivations can come from personal desire or external influence, learners with strong motivation can set and firmly pursue long-term goals. These students are usually easier to receive teaching, and the task of teachers is to maintain and enhance their enthusiasm. Although the motivation factors are complicated, they play a vital role in language acquisition, so discussing the impact of students' different motivations on their learning would help them understand their motivations. It is also conducive to students to better plan their long-term goals and strengthen their motivation to achieve their goals.

### **2.3. ChatGPT's Application in English Learning**

With the advancement of artificial intelligence and natural language processing technology, grammatical chefs have become useful tools for language learner writing exercises. They provide instant correction feedback to help students improve their grammar skills. Tschichold pointed out in the second language acquisition study that formal feedback is essential for the progress of students' independent output and learning [5]. In view of this, English teachers who teach the curriculum often need to provide students with a lot of feedback, which is quite time-consuming and laborious. In order to reduce the burden of writing teachers and provide students with more timely feedback, a variety of English grammar checkers have been developed. These tools have begun to be widely used, thereby changing the teaching and learning of writing. This shows that in language learning, the auxiliary role of technology cannot be ignored, which will help optimize teaching efficiency and improve learning effectiveness.

### **2.4. ChatGPT's Debate in Education**

With the emergence of large-scale language models, Bahrini, A., Khamoshifar, M., Abbasimehr, H., Riggs, R. J., Esmaeili, M., Majdabadkohne, R. M., & Pasehvar, M. pointed there is a major problem in education: Are these models an opportunity or challenge to today's teaching and learning systems [6]? More and more students use ChatGPT as a tool to assist them in learning, and many students show great interest in ChatGPT. In this case, students are core participants. Understanding their views is essential for solving this problem. ChatGPT seems to be a very attractive platform for students. Education workers should study how to use this interest to the greatest extent. They should explore the abilities and deficiencies of ChatGPT in their respective fields and teach students how to use it beneficially.

### **3. Research method**

#### **3.1. Research Methodology: Interview**

The study adopts the research method of interview to investigate the impact of ChatGPT on the English learning motivation of undergraduate students. The study divided the interviewees into two groups, one of which was to learn English using ChatGPT, and the other did not use ChatGPT to learn English. The interview sets about 7 questions, and it adopts semi-structured interviewing method, with a structural framework for a basic interview, then flexible questions based on interviewees' answers. After familiarizing with the data of this study, the data of the research is initially encoded. Next, the study looks for the theme of interview materials. Then, this study defined and named themes of interview materials, which are Extrinsic, Intrinsic, Achievement, and Social Motivations. Finally, this study organizes the theme and analyzes the views and attitudes of undergraduate students on learning English with ChatGPT and the impact of exploring ChatGPT on the English learning motivation of undergraduate students. In addition, this study also uses the thematic and content analysis methods, quoting the transcript of the interviewees for specific analysis, in order to explore the application and development of ChatGPT for undergraduate students' future English learning and to help undergraduate students improve their English learning strategies and better realize the expectations for future English learning.

#### **3.2. Hypothesis**

This study predicts that the undergraduates use ChatGPT to effectively assist them in practicing English speaking. Based on other empirical studies, chatbots have proven to have some positive effects on students' communication skills largely by their effect on expanding the quantity of their interactions, meaning negotiation, increasing their motivation, and raising their interest in learning [7]. It can improve the autonomy and self-efficacy of undergraduate students to a certain extent, thereby improving their motivation for learning. ChatGPT can answer all questions on various topics such as English essays [8]. On one hand, they can improve their self-efficacy when they complete an essay. On the other hand, it can help college students actively explore knowledge and skills by themselves. This phenomenon may improve their motivation and autonomy in English learning.

### **4. Findings and Discussion**

#### **4.1. Qualitative Data**

This study interviewed a total of 16 undergraduate students' views on learning English using ChatGPT. Interviewees include 10 females and 6 males. The reason for the selection of these members is that they are very willing to participate in the interviews of this study and are still studying the discipline of English. When describing participants in an educational research, it is necessary to include relevant population statistical information, such as age, gender, educational background, and any other characteristics related to the research [9]. For example, in this study, the age range of participants, gender distribution, majors in universities, and other factors that affect their language learning. This experiment set up a control group. One group is the undergraduate students who use ChatGPT to learn English. The control group is the undergraduate students who do not use ChatGPT to learn English. Among the participants in this study, 9 undergraduate students have used ChatGPT to learn English, while the control group has 7 undergraduate students who did not use ChatGPT for English learning. These two groups explain their views and attitudes toward learning English using ChatGPT. Using this method can better explore the impact of ChatGPT on the English learning motivation of undergraduate students.

**Table 1.** Nine undergraduate students who learned English with ChatGPT

ID	Age	Gender	Grade	Major	Feedback	Attitude
001	20	Female	Junior	Digital Media Technology	Very useful	Positive
002	21	Female	Junior	Financial Engineering	Very useful	Positive
004	21	Female	Junior	Communication Engineering	Very useful	Negative
005	21	Female	Junior	Financial Management	Very useful	Negative
006	21	Female	Junior	Digital Media Art	Very useful	Positive
007	21	Female	Senior	Business Management	Very useful	Positive
012	20	Male	Junior	Software Engineering	Very useful	Positive
013	20	Male	Junior	Business Management	Very useful	Positive
016	20	Male	Junior	Digital Media Technology	Very useful	Positive

**Table 2.** Seven undergraduate students who did not learn English with ChatGPT

ID	Age	Gender	Grade	Major	Reasons	Attitude
003	22	Female	Senior	Law	Inconvenient	Positive
008	21	Female	Junior	Network Engineering	Not necessary	Negative
009	22	Female	Senior	Broadcasting and Hosting Arts	Inconvenient	Neutral
010	21	Male	Senior	Electronic Information engineering	Not necessary	Neutral
011	20	Female	Junior	Journalism	Inconvenient	Neutral
014	20	Male	Junior	Electronic Information engineering	Not necessary	Positive
015	20	Male	Junior	Intelligent Science and Technology	Not necessary	Neutral

**Table 3.** The table for analyzing the data from semi-structured interviews

The impact of motivation variables	Examples of interview questions	Data analysis methods
Attribution	What are the reasons to use ChatGPT?	Thematic analysis, content analysis
Motivation	What impact has ChatGPT had on your English learning motivation?	Thematic analysis, content analysis
Interest	Do you feel that using ChatGPT has increased your interest and motivation in learning English? Why?	Thematic analysis, content analysis
Process difference	How is your learning process different when using ChatGPT for English learning? Please describe in detail.	Thematic analysis, content analysis
Advantages	What advantages do you think ChatGPT has in improving college students' English learning motivation? Please elaborate.	Thematic analysis, content analysis
Limitations	Are there any potential limitations? Please elaborate.	Thematic analysis, content analysis
Expectations	What are your expectations for the application and development of ChatGPT in future English learning?	Thematic analysis, content analysis
Suggestions	What are your suggestions for the application and development of ChatGPT in future English learning?	Thematic analysis, content analysis
Goals/ Self-determination	Have you ever experienced a situation where your English learning goals or academic direction changed due to using ChatGPT? If so, please share your experiences and feelings.	Thematic analysis, content analysis

When analyzing data, appropriate data analysis methods that match the research questions and the nature of the data must be used [10]. Thematic analysis and content analysis are two common methods used in qualitative research to analyze interview data and identify themes or patterns in the data.

**Table 4.** Thematic analysis

Theme	Example Quote
Extrinsic	"Simple and convenient, basically use ChatGPT to get the job done."
Intrinsic	"ChatGPT can provide real contextual learning opportunities and help me improve my oral and written expression skills. These factors stimulated my interest and motivation in English learning, making me love English learning even more and make continuous efforts to improve."
Achievement	"I have used ChatGPT to help me memorize words and listen. It gave me a certain confidence in passing cet4."
Social	"The motivation for learning English is to facilitate communication with people in English-speaking countries and to facilitate living, studying and traveling in English-speaking countries."

**Table 5.** Content analysis

Code	Example Quote
Value	"ChatGPT can help me translate the original meaning of sentences accurately and authentically, making my English learning better."
Self-Efficacy	"I am more interested in learning English, and I feel a sense of accomplishment especially when my needs are solved in English."
Mindset	"Using ChatGPT allows me to think more broadly and helps me consider areas I have overlooked in the past."
Feedback	"When talking to ChatGPT, I can get feedback and responses immediately, instead of waiting for teacher correction or participating in class discussions like traditional learning methods."
Autonomy	"ChatGPT can also provide timely encouragement and feedback based on my learning situation and feedback, making me feel more autonomous to continue learning."

These tables show the data results, with the themes, codes and quotes used varying depending on the research questions and data analyzed. Additional boxes can be added for each participant, and additional topics or codes can be added as needed.

#### 4.2. Interpretation of the Findings

In this experiment, a total of 9 people used ChatGPT to learn English, and 7 of them expressed a positive attitude towards using ChatGPT to improve undergraduate students' English learning motivation. The data shows that using ChatGPT has a certain positive impact on college students' English homework in school, their initiative in self-learning English, their self-efficacy in completing an English writing project, and their socialization with foreign friends. These are all part of the motivation to learn. Therefore, the impact of ChatGPT on English learning motivation is positive.

There were seven people in the control group, most of whom expressed a neutral attitude, but the overall attitude was still positive. Many interviewees with a neutral attitude believe that using ChatGPT is unnecessary because existing equipment can already meet their needs, and these interviewees believe that they are more suitable for the traditional teaching model. The interviewees believe that ChatGPT can improve the efficiency of completing English writing to a certain extent, but at the same time, it will also result in losing to think independently. This was a concern for the interviewees in the control group. However, most of the interviewees expressed that if the dependence on ChatGPT was eliminated, they would be very willing to use ChatGPT for English learning. Because this is an area that the interviewee has never been exposed to, he is full of curiosity and interest. Moreover, the interviewees believed that this method could enhance their interest in English.

### 4.3. Limitations of the Study

The use of interview as research method is very useful in obtaining qualitative data. It can reveal the participants' views, experiences, attitudes and feelings. However, there are some limitations and deficiencies in this method. First of all, the interview data is very subjective. Interviews usually depend on the personal memory of the participants and the subjective interpretation of the event, which may lead to prejudice and inaccurate information. Secondly, researchers in the data analysis process are also a problem. Researchers may intentionally or unintentionally affect the direction of the interview, and the issues raised may lead to the participants' answers to some extent. In the subsequent data interpretation stage, researchers may also analyze the content of the interview based on their own understanding and bias, rather than completely based on the intention of the participants. Third, the interview method may be very time-consuming and laborious to implement. This may limit the sample size of research because it is difficult to interview a large number of participants under limited time and resources. Researchers must recognize these restrictions and take measures during design and implementation to reduce these potential deficiencies.

### 4.4. Suggestions for Future Research

The sample collection for this experiment only included information from 16 interviewees, and there may be individual differences. The accuracy of an experiment requires a large amount of data support, which is what this study lacks. It is hoped that in future experiments on the impact of ChatGPT on undergraduate students' English learning motivation, questionnaire surveys can be used. This may make the results of the experiment more accurate.

In addition, in this trial, many undergraduate students expressed their fear of becoming dependent on using ChatGPT to learn languages. How to ensure that using ChatGPT to learn English does not restrict personal thinking and avoid a decrease in independent thinking ability. Then, ChatGPT may lead to human unintelligence and unlearning if unethically used by students [11]. This is a part worth thinking about in future educational work, and relevant research can be conducted. Besides, ChatGPT and other AI tools have the potential can be supporting tools for educational and research work [12]. There are future scientists' upgrades to the intelligence and humanization of ChatGPT, which is also what undergraduate students are concerned about.

## 5. Conclusion

This study shows that using ChatGPT to learn English has a positive impact on undergraduate students' motivation. Most undergraduate students expressed that ChatGPT can provide timely encouragement and feedback based on their learning situation. This makes undergraduate students aware of their shortcomings in English learning and can better formulate future learning strategies. As a result, ChatGPT makes undergraduate students more interested in learning English and more proactive in understanding the subject of English. This method greatly enhances undergraduate students' initiative and self-efficacy in learning English. It can be seen that using ChatGPT is conducive to improving undergraduate students' English learning motivation and helping them learn English. This research can also make a certain contribution to future educators in improving classroom situation feedback and helping students use ChatGPT to improve learning efficiency.

## Reference

- [1] Shoufan, A. Exploring students' perceptions of ChatGPT: thematic analysis and follow-up survey. IEEE Access, 2023.
- [2] Noels, K. A. New orientations in language learning motivation: towards a model of intrinsic, extrinsic, and integrative orientations and motivation. In Z. Dörnyei, & R. Schmidt (Eds.), *Motivation and Second Language Acquisition*. Hawaii: University of Hawaii Press, 2001.

- [3] Brown, H. D. Principles of language learning and teaching. Englewood Cliffs, New Jersey: Prentice Hall, 1987.
- [4] Ausubel, D. A. Educational psychology: a cognitive view. New York: Holt, Rinehart & Winston, 1968.
- [5] Tschichold, C. Lexically driven error detection and correction. *Calico Journal*, 2003.
- [6] Bahrini, A., Khamoshifar, M., Abbasimehr, H., Riggs, R. J., Esmaeili, M., Majdabadkohne, R. M., & Pasehvar, M. ChatGPT: Applications, opportunities, and threats. In 2023 Systems and Information Engineering Design Symposium (SIEDS). IEEZ, 2023.
- [7] Kim, N. Y., Cha, Y., & Kim, H. S. (2019). Future English learning: chatbots and artificial intelligence. *Multimedia-Assisted Language Learning*, 22(3).
- [8] Fitria, T. N. Artificial intelligence (AI) technology in OpenAI ChatGPT application: a review of ChatGPT in writing English essay. In *ELT Forum: Journal of English Language Teaching*, 2023, 12(1): 44-58.
- [9] High, V., Zurqoni, S., Retnawati, H., Arlinwibowo, J., & Apino, E. Strategy and implementation of character education in senior high schools and vocational high schools. *Journal of Social Studies Education Research*, 2018, 9(3), 370-397.
- [10] Clarke Virginia, & Braun Victoria. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 2006, 3(2): 77-101.
- [11] AlAfnan, M. A., Dishari, S., Jovic, M., & Lomidze, K. Chatgpt as an educational tool: opportunities, challenges, and recommendations for communication, business writing, and composition courses. *Journal of Artificial Intelligence and Technology*, 2023, 3(2): 60-68.
- [12] Rahman, M. M., & Watanobe, Y. ChatGPT for education and research: opportunities, threats, and strategies. *Applied Sciences*, 2023, 13(9): 57-83.