A Review on Strategic Culture's Interconnection with National Foreign Strategies: The Case of China's Strategic Culture

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Abstract

With the deep integration of digital technology and education, OpenAI's ChatGPT has profoundly impacted the education field. Especially in international Chinese education, this large-scale language model brings challenges and opportunities to traditional teaching models. Starting from actual teaching experiments, this article uses human-computer collaborative learning theory and social construction theory to analyze the challenges and dilemmas of CHATGPT in the practical application of international Chinese teaching. It puts forward its technical, logical, and teaching limitations, using experimental methods and interviews researched international students in China, and based on the research results, he proposed a strategy for building a new model of collaborative teaching between artificial intelligence and Chinese teachers, providing specific path options for the sustainable development of Chinese education in the digital era.

Keywords: International Chinese Education, Chatgpt, Flipped Classroom, Improvement Strategy

1. Introduction

1.1 Background and Importance of the Problem

ChatGPT, whose full name is Chat Generative Pre-trained Transformer, is a large-scale language model developed by OpenAI, aiming to revolutionize natural language processing and intelligent dialogue. In the context of the deep integration of digital technology and education, ChatGPT has ushered in a revolutionary application in the education field for the first time due to its content generation characteristics, huge language model, and open-source customizability. Recently, international experts and scholars in the field of Chinese education have focused on ChatGPT. They deeply interpreted ChatGPT's profound impact on global Chinese education from multiple perspectives such as the development history, working principles, technical architecture, and wide range of application scenarios of artificial intelligence.

1.2 Research Question

As a front-line teacher, the use of ChatGPT not only affects the traditional teaching model of international Chinese education but also poses a great challenge to learners' previous learning experience. This article aims to explore the impact of ChatGPT in real international Chinese education from the perspective of front-line teachers through actual teaching experiments, while also examining existing problems and proposing practical solutions.

1.3 Research Objective

The research purpose of this teaching experiment is to explore the introduction of ChatGPT into the flipped classroom teaching model of comprehensive Chinese courses to improve students' active participation and in-depth learning. It aims to improve the effect of international Chinese education through the combination of the flipped classroom model and ChatGPT and help students achieve more efficient and in-depth learning in comprehensive Chinese courses.

2. Literature Review

2.1 Related Concepts and Theories

2.1.1 ChatGPT

Qian L's team (2023) conducted an in-depth analysis of the technical architecture of ChatGPT, highlighting its progress in corpora, pre-training, and fine-tuning algorithms and models. They emphasized that the success of ChatGPT stems not only from the gradual improvement of these components but also from the effective integration of different algorithms and models. Pu Q.P & X.X. (2023) further explored the strong potential of generative artificial intelligence, such as ChatGPT, in natural language processing, arguing that they may be a key factor in driving the fourth industrial revolution. Regarding the technical advantages of ChatGPT, Zhang X.H. (2023) put forward a cautious view, advocating that while accepting new technologies, the further development of these artificial intelligence technologies should be promoted through independent innovation. Zhu G.H & Wang X.W. (2023) analyzed the working mechanism of ChatGPT from different perspectives, covering front-end user experience and back-end technology implementation. By exploring the interaction of computing power, algorithms, and data, they analyzed the key technical logic of ChatGPT and pointed out that while it brings benefits to the social economy, it also has potential risks and challenges.

To sum up, China's research on ChatGPT is diversified and in-depth. The discussion at the technical level goes deep into the specific applications of algorithms and models, while at the application level, it involves education, information intelligence, ethics, and other fields, showing that research in this field is not only extensive but also profound. These research results show that the domestic academic community's attention to ChatGPT technology is not just superficial, but is an in-depth exploration of its potential applications and impacts in various fields.

Figure 1 ChatGPT High Frequency Keyword Cloud Chart

2.1.2 Flipped Classroom

The flipped classroom, also known as an inverted classroom and an upside-down classroom, was first defined as the use of a modern information environment to reverse the links of knowledge transfer and knowledge internalization, thereby realizing the transformation of the roles of teachers and students in traditional teaching. A teaching model that reorganizes the time and content of classroom teaching (Chen H.M, 2021). Its core is "learning to determine teaching" and taking students' "problems" as the starting point. The earliest practitioner is the Bangladeshi American Salman Khan. With the development and application of flipped classrooms, there is no clear view of the definition of flipped classrooms. Experts and scholars have different opinions. Domestic researcher Yang C.M. (2016) believes that a flipped classroom allows students to learn independently before class. During class, teachers pay attention to the key points and difficulties of student feedback and explain them, thereby deepening their understanding of knowledge; Yuqin (2017) believes that a flipped classroom is a flipping of the teaching process. Traditional teaching is characterized by teachers teaching, students learning, and consolidation after class, while the flipped classroom is characterized by students learning before class, teachers focusing on teaching during class, and consolidation after class. Foreign researchers Jonathan Cisco et al. of the University of Miami in the United States (2014) define a flipped classroom as a teaching method, that believes that teaching is transferred from the traditional classroom to outside the classroom. The American FLN website (Fezile Ozdamli et al.,2016)) pointed out that flipped learning transforms the teaching space from a group learning space to an individual learning space. In this environment, teachers guide students to apply concepts and creatively handle and solve related problems.

2.1.3 Human-Computer Collaborative Learning

The human-computer collaborative learning theory originates from Hermann Haken's (2013) synergetic theory. This theory emphasizes that structures are always in the process of forming, disappearing, competing, collaborating, or forming larger structures. The collaboration will experience iterations of disordered states, near equilibrium, far equilibrium, fluctuations, and ordered states. According to the theory of synergy, generative artificial intelligence needs to guide students' social relationships, cognitive content, and ideological perspectives to develop from a disordered state to an ordered state and promote students' cognition through collaborative mechanisms such as

near balance, far balance, and fluctuations. and capability development. This requires integrating human-machine collaboration with goals (Ai X. et al., 2020), collaborative cognitive human-machine collaboration (Hao X.J et al., 2022), intelligent generative human-machine collaboration (Wang Y.Y. et al., 2022), and systematic human-machine collaboration. (He W.T. et al., 2023a) as a guide to building corresponding human-machine collaboration functions and mechanisms.

2.1.4 Social Constructivism

The social constructivism theory proposed by Lev Vygotsky (2010) reveals that the development of language thinking is gradually formed in social activities and communication, and the development of social history and culture forms human thinking and consciousness. To promote the language and thinking development of learners, the intelligent agent should have the function of guiding active conversations, helping and promoting the development of learners' knowledge and abilities.

2.2 Literature Surveys

In terms of international Chinese education, the technology of CHATGPT provides new tools and methods for Chinese learning and teaching with its powerful language processing capabilities and diverse content generation functions, and its application has also brought significant impact. Feng Y.H (2023) emphasized the benefits of the deep integration of ChatGPT with education, pointing out that this not only enhances learners' cognitive initiative and creativity but also helps enhance their learning interest and reduce learning pressure. Lu Y. et al. (2023) discussed several capabilities demonstrated by ChatGPT in teaching, such as content generation, language understanding, task analysis, etc., and believed that these capabilities can promote educators' innovation in teaching form and content and improve the quality of teaching. Interactive and interesting, and provide teachers with more comprehensive teaching evaluation and feedback. Some scholars have also raised concerns about the technical limitations and potential risks of ChatGPT. Wang T.N. (2023) specifically pointed out that in the process of integrating ChatGPT with education, attention should be paid to its authenticity, accuracy, and ethical safety. In response to these technical shortcomings, Wang S. (2023) suggested an in-depth exploration of its underlying algorithm technology, so that participants in educational applications can shift from passive adaptation to active control. In addition, Wang Y.M. et al. (2023) used game theory to analyze the best way to interact between education and ChatGPT, discussed the risks that may arise in this integration process from a moral perspective, and put forward suggestions for promoting deep integration of artificial intelligence and education.

3. Research Methodology

This article explores the application of ChatGPT in flipped classroom teaching of comprehensive Chinese courses in international Chinese education. It mainly uses experimental methods and interview methods. These two methods together form the core framework of the research and ensure the comprehensiveness and depth of the research results.

3.1 Research Design

This experiment is divided into three stages, including pre-class preview, in-class interaction and discussion, and post-class reflection and application. At each stage, the application of ChatGPT is carefully integrated into teaching activities to assess its impact on student learning experiences and

outcomes. Through this approach, the study documented in detail the actual application of ChatGPT in flipped classrooms, thereby providing direct evidence for evaluating its teaching effectiveness.

Qualitative research methods enable researchers to gain an in-depth understanding of students' and teachers' subjective experiences and perceptions of ChatGPT teaching applications. Through these research methods, students', and teachers' feedback on flipped classrooms and ChatGPT integration can be captured, including their satisfaction, feelings, and suggestions. The application of this method increases the depth and dimension of the research results, making the research not only limited to quantitative data but also includes people's feelings and attitudes, thus providing a richer explanation for the experimental results.

3.2 Population and Sample

This article carried out an online teaching experiment in the comprehensive course of Chinese preparatory students at the Capital University of Economics and Business from March 2023 to August 2023.

3.3 Research Instruments

The research employs qualitative methods to explore students' and teachers' subjective experiences with ChatGPT in a flipped classroom context. Instruments include surveys and interviews to gather feedback across three stages: pre-class previews assess initial expectations, in-class interactions observe real-time use and student engagement, and post-class reflections capture satisfaction and suggestions for improvement. These methods aim to provide a comprehensive understanding beyond quantitative metrics, delving into perceptions and attitudes to evaluate ChatGPT's effectiveness in enhancing learning outcomes.

3.4 Data Collection

3.4.1 The Overall Design of the Comprehensive Chinese Course Teaching Experiment

Using structured and staged teaching methods, this experiment aims to comprehensively improve Chinese proficiency among language preparatory students during the second semester. The study spans 22 weeks with a total of 110 teaching hours, organized into four main stages. The first stage, the introduction stage (week 1), introduces course changes, helps students establish a learning framework and grasp basic concepts, laying the foundation for subsequent learning. The second stage, the inspiring and in-depth stage (weeks 2-8), provides practical experiences through real cases or projects, fostering a fundamental and practical understanding of course content. The third stage, the comprehensive implementation stage (weeks 9-20), delves deeply into design research theory and methods, engaging students in detailed project practices to enhance their design thinking and problem-solving abilities. The fourth stage, the examination evaluation stage (weeks 21-22), concludes with a comprehensive review of learning outcomes, offering feedback and guidance to students. Classes predominantly utilize the Tencent Classroom platform, with live sessions held every Tuesday and Friday from 8:00-11:00 am. Additional online MOOC resources support self-study, employing a learning spiral sequence that gradually increases the course's difficulty and complexity from shallow to deep levels.

3.4.2 Curriculum Framework for Specific Classroom Teaching Experiments

The approach is divided into three levels. The first is the pre-class stage, focused on building diverse learning resources. Teachers utilize various teaching materials to cater to different learning needs, encouraging students to independently engage in previews that stimulate their thinking and prepare them for active participation in class. ChatGPT is employed to generate clear teaching texts and Q&A content, offering personalized learning support. Teachers interact with students through online discussion forums and assignment systems to foster personalized learning experiences. The second level is the in-class stage, aiming to deepen students' Chinese learning experience. The goal here is to guide students through personalized learning, problem-solving, and communication applications to enhance their comprehension of the course material. ChatGPT plays a supportive role by generating problem analyses and promoting peer collaboration. The third level is the after-class stage, focusing on reflection and improvement of communication skills. ChatGPT assists in generating learning summaries and providing practical application support to help students apply Chinese in real-world scenarios and strengthen their language skills. This stage emphasizes students' reflection on and evaluation of their learning outcomes, thereby enhancing the quality and depth of their learning experiences.

3.5 Statistics Used for Data Analysis

Based on the detailed description provided, the descriptive statistics were used for data analysis. Analysis of Tencent Classroom data could involve descriptive statistics to track student attendance, participation rates in live sessions (Tuesdays and Fridays from 8:00-11:00 am), and engagement with MOOC resources. This helps understand overall student involvement and usage patterns throughout the course. Secondly, descriptive statistics of performance evaluation such as mean scores, standard deviations, and frequency distributions could be used to summarize student performance across different stages (introduction, inspiring and in-depth, comprehensive implementation, examination evaluation). This would help assess progress and identify areas needing improvement.

4. Data Analysis and Findings

4.1 Introduction

The basic composition of international students' academic performance in comprehensive Chinese courses. Student grades are mainly composed of daily grades (50%) and examination scores (50%), and daily grades include chapter tests (20%), class and homework performance (20%), and special research grades (10%).

Table 1 International Student Academic Performance

No.	Name	Gender	Country	Birthday	Score
1	Tan, Lincoln Lin Ken	Male	Papua New Guinea	2002/4/20	90
2	Fisechko, Al Eksandra	Female	Russia	2005/6/26	92
3	Su, Lucas David	Male	Guyana	2004/4/30	87
4	Ovia Ikupu Kupanarigo	Male	Papua New Guinea	2001/2/27	85
5	Wally, Stormry	Male	Papua New Guinea	1999/12/5	75
6	Mokel a, David	Male	Papua New Guinea	2000/8/10	82
7	Ishimwe, Panny Al, Da	Female	Burundi	2001/7/13	93
8	Kabini, Priscill a	Female	Solomon Islands	1998/6/8	98
9	Kiniburua, Priscill a	Female	Solomon Islands	1998/5/5	84
10	Rios Dubois, Andrea Marcel a	Female	Nicaragua	2004/4/14	67
11	Zakirova, Irina	Female	Russia	2003/7/31	75
12	Saparova Yazjahan	Female	Turkmenistan	2004/3/23	89
13	Mendoza Hernandez, Eli Josue	Male	Nicaragua	2001/5/15	83
14	Das, Joydeb	Male	Bengal	1999/8/12	81
15	Abualhaj, Awadal_l_ah	Male	Jordan	2003/6/14	88
16	Mohammad Awadall_ah	Female	Jordan	2000/5/31	94
17	Diab, Qasim Anwar Qassem	Male	Jordan	2000/11/18	86
18	Diab, Qasim Anwar Qassem	Male	Jordan	1999/7/20	74
19	Aljabali, Mohammad Izzeldeen Mahmoud	Male	Jordan	2002/8/28	67
20	Salameh, Yazan Maher a	Male	Jordan	1997/11/23	82
21	Homedan, Mohammad Issam Roshdi	Male	Niger	2000/1/16	97
22	Salouhou, Ismail	Female	Chad	2002/3/6	93

The average score of the 22 students was 84.64 points, with the lowest score being 67 points, the highest score being 98 points, and the median score being 85.5 points. The specific score classification statistics are as follows: Level A (90-100 points): 7 students. Level B (80-89 points): 10 students. Level C (70-79 points): 3 students. Level D (60- 69 points): 2 students.

The results show that most students' scores are distributed between B and A levels, with higher average scores, indicating that students perform well in the comprehensive Chinese course. The high distribution of grades also reflects that the flipped classroom teaching model may have a positive impact on improving learning effects. In addition, the range of score distribution (67 to 98 points) shows the difference in scores among students, which is related to their different learning abilities, participation levels, and backgrounds. It also reflects the gap in ChatGPT participation in

teaching and application capabilities.

4.2 Data Analysis of the Quantitative Data

Comprehensive language ability is one of the key indicators to measure the success or failure of this research. Among all aspects of comprehensive language ability, the five sub-items with the highest scores are language communication ability improvement, problem-solving ability improvement, language transfer ability improvement, language learning management ability, and cultural critical thinking improvement. We mainly conducted data analysis on the 5 sub-projects based on students' self-evaluation of pre-and post-test surveys and learning performance indicators.

Table 2 Pre-Test Form for Comprehensive Language Proficiency of International Students

No.	Name	Total Score of Pre-Test	Pre-Test of Chinese Communicative Ability	Problem-Solving Skills Pre-Test	Language Transfer Ability Pre-Test	Chinese Language Learning Management Ability Pre-Test	Cultural Critical Thinking Pre-Test
1	Tan, Lincoln Lin Ken	55.27	11.05	11.05	11.05	11.05	11.05
2	Fisechko, Al Eksandra	56.49	11.30	11.30	11.30	11.30	11.30
3	Su, Lucas David	53.42	10.68	10.68	10.68	10.68	10.68
4	Ovia Ikupu Kupanarigo	52.20	10.44	10.44	10.44	10.44	10.44
5	Wally, Stormry	46.06	9.21	9.21	9.21	9.21	9.21
6	Mokel A, David	50.35	10.07	10.07	10.07	10.07	10.07
7	Ishimwe, Panny Al, Da	57.11	11.42	11.42	11.42	11.42	11.42
8	Kabini, Priscill A	60.18	12.04	12.04	12.04	12.04	12.04
9	Kiniburua, Priscill A	51.58	10.32	10.32	10.32	10.32	10.32
10	Rios Dubois, Andrea Marcel A	41.14	8.23	8.23	8.23	8.23	8.23
11	Zakirova, Irina	46.06	9.21	9.21	9.21	9.21	9.21
12	Saparova Yazjahan	54.65	10.93	10.93	10.93	10.93	10.93
13	Mendoza Hernandez, Eli Josue	50.97	10.19	10.19	10.19	10.19	10.19
14	Das, Joydeb	49.74	9.95	9.95	9.95	9.95	9.95
15	Abualhaj,	54.04	10.81	10.81	10.81	10.81	10.81

	Awadal_L_Ah					
16	Mohammad Awadall_Ah	57.72	11.54	11.54	11.54	11.54	11.54
17	Diab, Qasim Anwar Qassem	52.81	10.56	10.56	10.56	10.56	10.56
18	Diab, Qasim Anwar Qassem	45.44	9.09	9.09	9.09	9.09	9.09
19	Aljabali, Mohammad Izzeldeen Mahmoud	41.14	8.23	8.23	8.23	8.23	8.23
20	Sal Ameh, Yazan Maher A	50.35	10.07	10.07	10.07	10.07	10.07
21	Homedan, Mohammad Issam Roshdi	59.57	11.91	11.91	11.91	11.91	11.91
22	Sal Ouhou, Ismail	57.11	11.42	11.42	11.42	11.42	11.42

Table 3 Comprehensive Language Proficiency Post-Test form for International Students

No.	Name	Language Communication Skills	Problem-Solving Skills	Language Migration Ability	Language Learning Management Ability	Cultural Critical Thinking
1	Tan, Lincoln Lin Ken	27	22.5	13.5	9	18
2	Fisechko, Al Eksandra	27.6	23	13.8	9.2	18.4
3	Su, Lucas David	26.1	21.75	13.05	8.7	17.4
4	Ovia Ikupu Kupanarigo	25.5	21.25	12.75	8.5	17
5	Wally, Stormry	22.5	18.75	11.25	7.5	15
6	Mokel A, David	24.6	20.5	12.3	8.2	16.4
7	Ishimwe, Panny Al, Da	27.9	23.25	13.95	9.3	18.6
8	Kabini, Priscill A	29.4	24.5	14.7	9.8	19.6
9	Kiniburua, Priscill A	25.2	21	12.6	8.4	16.8
10	Rios Dubois, Andrea Marcel A	20.1	16.75	10.05	6.7	13.4
11	Zakirova, Irina	22.5	18.75	11.25	7.5	15
12	Saparova Yazjahan	26.7	22.25	13.35	8.9	17.8
13	Mendoza Hernandez, Eli Josue	24.9	20.75	12.45	8.3	16.6
14	Das, Joydeb	24.3	20.25	12.15	8.1	16.2

15	Abualhaj, Awadal_L_Ah	26.4	22	13.2	8.8	17.6
16	Mohammad Awadall_Ah	28.2	23.5	14.1	9.4	18.8
17	Diab, Qasim Anwar Qassem	25.8	21.5	12.9	8.6	17.2
18	Diab, Qasim Anwar Qassem	22.2	18.5	11.1	7.4	14.8
19	Aljabali, Mohammad Izzeldeen Mahmoud	20.1	16.75	10.05	6.7	13.4
20	Sal Ameh, Yazan Maher A	24.6	20.5	12.3	8.2	16.4
21	Homedan, Mohammad Issam Roshdi	29.1	24.25	14.55	9.7	19.4
22	Sal Ouhou, Ismail	27.9	23.25	13.95	9.3	18.6

Analyzing the pre-and post-test scores, the comprehensive language ability of international students has been significantly improved after the intervention. This shows that the ChatGPT learning intervention method is effective. The results show that the scores in all dimensions have significantly improved, which is reflected in the results of the Wilcoxon signed-rank test. The P value of each dimension is far lower than the commonly used statistical significance level (such as $p<0.05$ or $p<0.01$). This is It shows that students' deep learning ability at the end of the semester is significantly improved compared to the beginning.

International students' abilities in various dimensions have improved: This shows that ChatGPT's participation in teaching methods is helpful to abilities in all aspects. This is an important finding for educators because it shows that incorporating artificial intelligence into teaching experiments can improve students' learning abilities in all aspects, not just in one aspect. Ranking of significance of dimensions: Among the five dimensions, language communication ability, problem-solving ability, and language learning management ability have improved most significantly. This suggests that these abilities can be most effectively improved. For educators, this means they should use ChatGPT more in their teaching.
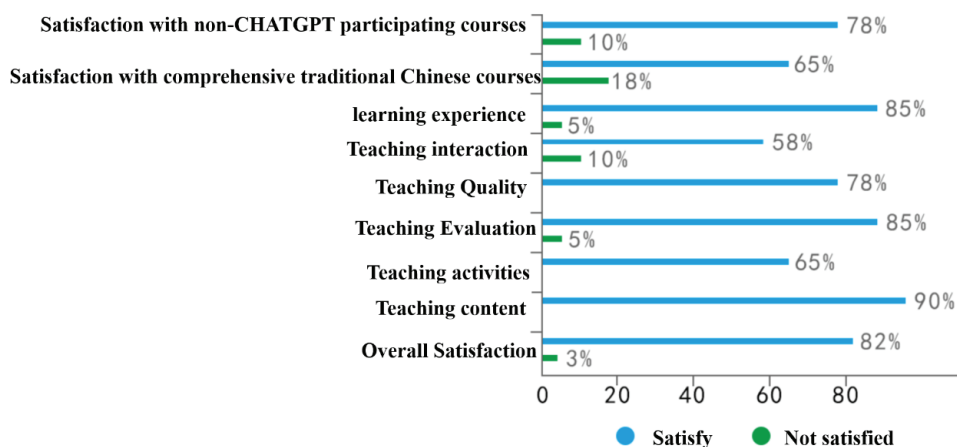

Figure 2 Student Course Satisfaction Analysis

From the table data, students have the highest satisfaction rate with classroom satisfaction (90%), and the lowest satisfaction rate with learning confidence (58%). Overall, most students are satisfied with the flipped classroom using ChatGPT, especially in improving learning attitudes, learning activities, and classroom experience. However, the satisfaction of improving learning interest and learning confidence is relatively low, which may be the focus of future improvements and research. Dissatisfaction is relatively low in all dimensions, showing the positive impact of introducing ChatGPT into the classroom. Some issues need attention when combined with students' in-depth interviews and analysis of satisfaction. First, the learning interest satisfaction is relatively low: 65% satisfaction means that some students may not feel that their learning interest is stimulated enough. This may indicate that the course content or activities may not be engaging enough or do not cover the broad range of student's interests. Course designers may need to explore more ways to stimulate learning interest, such as introducing more interactive elements or case studies that are close to students' real lives. Second, learning confidence has the lowest satisfaction level: only 58% satisfaction indicates that this is the area most in need of improvement among all dimensions. Low confidence may be related to course difficulty and the gap between students' expectations of their language abilities and their actual performance. Improving students' learning confidence may require more positive feedback, moderate challenges, and more successful experiences.

Although dissatisfaction is relatively low in all dimensions, its existence still suggests that some students may not have received the learning experience they expected. It is important to understand the specific reasons for dissatisfaction and further investigation and student feedback may be needed to identify and resolve specific issues. In terms of teaching methods, although overall satisfaction is high, different students may respond differently to the flipped classroom. For some students, it may take time to adjust to this new way of learning, especially if they are more accustomed to traditional teaching models. Using ChatGPT as a teaching tool may have technical integration issues, such as whether the software's user interface is friendly and whether students can easily access and use ChatGPT. Technical issues can negatively impact student learning experience and satisfaction.

4.3 Data Analysis of the Qualitative Data

When ChatGPT's new generation of artificial intelligence is introduced into the teaching of comprehensive Chinese courses in flipped classrooms of international Chinese education, international students report that there are at least three obvious dilemmas. The first is technical limitations and deficiencies: ChatGPT has shortcomings in listening and speaking technology. It mainly realizes human-computer interaction based on identifiable text and lacks necessary elements for Chinese learning such as voice communication and intonation correction. Insufficient logic and knowledge: Due to the limited Chinese corpus, ChatGPT's logical judgment ability is not yet mature, and problems such as misuse of concepts, false statements, and knowledge blind spots may occur, causing trouble for second language learners such as international students. Teaching difficulties and style issues: ChatGPT has relatively insufficient knowledge resources in the field of international Chinese education, making it difficult to grasp the teaching focus and difficulty standards. At the same time, its communication model may not meet the needs of situational and performance-based teaching, making it difficult to create a relaxed and interesting learning environment. May affect learners' concentration and interest. Teachers need to choose a variety of teaching resources before class, such as course texts, videos, audio, exercises, etc., to meet students' learning needs. These resources should cover course knowledge, background information, etc., and provide students with learning materials. The role of ChatGPT in teaching resource generation: ChatGPT can play a key role in teaching resource generation. Teachers can use ChatGPT to generate explanatory text,

examples, vocabulary explanations, and other content to provide students with richer learning materials. ChatGPT can automatically generate explanations of relevant knowledge points based on students' questions to further expand students' understanding.

ChatGPT participation courses require students to meet basic technical resources, including at least two aspects. The first is the design of personalized learning paths. Based on ChatGPT's intelligent recommendations, teachers can customize personalized learning paths based on students' learning conditions and interests. ChatGPT can analyze students' questions, answers, interests, etc., and recommend suitable learning resources to make students' learning more targeted and efficient. On the online platform, ChatGPT can provide students with feedback and coaching in real time. Students' questions can be answered instantly, helping them overcome learning difficulties. ChatGPT can also guide students to think and discuss and promote in-depth learning. Second, students can use online teaching platforms. The online teaching platform is the key to supporting flipped classroom teaching and ChatGPT participating teaching. Teachers mainly use Tencent meetings, e-mails, etc. to communicate with students. On these platforms, teachers can display teaching content, answer students' questions, and conduct group discussions.

4.4 Summary of the Results

The study on integrating ChatGPT into the flipped classroom model for online comprehensive Chinese courses demonstrates promising advancements in educational outcomes. It successfully enhances language learning by fostering independent study skills, stimulating critical thinking among students, and preparing them for advanced academic pursuits. However, the implementation revealed several challenges such as technological limitations in listening and speaking practices, constraints in delivering context-specific teaching, and issues related to educators' adaptation to new pedagogical tools. Addressing these challenges is crucial for optimizing ChatGPT's potential in enriching international Chinese education while ensuring ethical educational practices and maintaining academic integrity.

5. Conclusion, Discussion, and Recommendation

5.1 Conclusion

In conclusion, the integration of ChatGPT in the flipped classroom model for online comprehensive Chinese courses represents a significant stride towards enhancing language learning experiences. It has successfully supported the attainment of diverse educational goals, including fostering independent learning, stimulating critical thinking, and preparing students for advanced studies. Despite its transformative potential, our implementation revealed several challenges. Issues such as technological limitations in listening and speaking practice, the restricted corpus affecting logical judgment, and the inability to deliver context-specific teaching underscore the need for ongoing refinement. Moreover, educators face substantial hurdles in adapting to and maximizing the tool's capabilities, necessitating concerted efforts to enhance digital literacy and pedagogical adaptation. Addressing these challenges is crucial for realizing ChatGPT's full potential in enriching international Chinese education and ensuring its alignment with ethical educational practices.

5.2 Discussion

The discussion highlights the nuanced implications of ChatGPT's adoption in educational contexts, particularly in international Chinese education. While our study underscores its benefits in

promoting interactive learning and student engagement, critical considerations emerged regarding its technical constraints and impact on pedagogical practices. The observed tendency towards dependency on ChatGPT's responses poses risks to academic integrity and may inhibit the development of independent learning skills. Furthermore, the mechanistic nature of ChatGPT's interactions presents challenges in creating a dynamic and emotionally resonant classroom environment essential for effective language acquisition. Moving forward, strategies must prioritize enhancing technology infrastructure to support robust listening and speaking exercises, expanding ChatGPT's corpus for enhanced logical reasoning, and developing supplementary tools for situational and performance-based teaching. Concurrently, professional development initiatives for educators are pivotal in fostering proficiency in utilizing ChatGPT while nurturing students' ethical learning behaviors and innovative thinking in the realm of Chinese language education.

Overall, although the application of ChatGPT in international Chinese education faces challenges, its potential and value cannot be ignored, and its effective application in teaching practice should continue to be explored and optimized.

5.3 Recommendation

ChatGPT can play a crucial role before class by generating targeted questions to encourage deep thinking and preparedness among students. During class, it can be utilized for problem analysis to facilitate understanding of complex concepts. After class, ChatGPT can generate learning summaries and practical application tips to reinforce and consolidate language skills. Suggestions for improvement are as follows:

1) Assignment Design
Consider adjusting assignment designs to include more oral assignments. Utilize classifiers like OpenAI to elevate students' requirements for innovative thinking and personalized expression.

2) Assessment Strategies
Teachers should modify assessment methods by incorporating non-traditional questions that prompt innovative responses from students. This approach helps evaluate their language-related innovation abilities effectively.

3) Integration of Real-life Situations
Incorporate exercises that simulate actual social contexts into teaching. These activities enhance students' language communication skills in authentic situations, which are areas where artificial intelligence such as ChatGPT cannot fully substitute. Strengthening communicative abilities prepares students to tackle real-world language communication challenges more effectively.

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