

Application of " SPOC + Flipped Classroom " in Chinese Classroom of Foreign College Students

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ABSTRACT

Objective: The study explores the integration of the Small Private Online Course (SPOC) and flipped classroom model in Chinese language teaching for international students in China, focusing on learner engagement and feedback. **Method:** Utilizing literature analysis, questionnaires, and interviews, data were collected from five universities in Yunnan Province. The study also employed experimental design to compare the outcomes of an experimental group and a control group. The data were analyzed using SPSS, Mplus, and NVivo. **Results:** The findings reveal significant insights into the current state of international students' learning effectiveness, attitudes, and satisfaction with the "SPOC + flipped classroom" model. The analysis highlights key challenges and opportunities for improving teaching practices. **Novelty:** This research contributes to the localized implementation of blended learning in Chinese language classrooms, offering innovative approaches to enhance teaching outcomes and student engagement, while addressing the specific needs of international students in a rapidly evolving educational landscape.

INTRODUCTION

In the digital age, educational reform in higher institutions has been increasingly shaped by technological innovation. Among these innovations, the integration of blended learning models such as SPOC (Small Private Online Course) and the flipped classroom has transformed traditional language education. This study investigates how such a model can be applied effectively in teaching Chinese to international students in China, aiming to enhance their learning engagement and outcomes. As the global demand for Chinese language learning continues to grow, it is critical to explore instructional strategies that not only promote autonomous learning but also improve classroom participation and learner satisfaction. This research provides a comprehensive analysis of the "SPOC + flipped classroom" approach in the context of Chinese as a second language (CSL), combining theoretical insights with empirical data to evaluate its effectiveness and pedagogical value.

Background of the Research

In recent years, with the rapid development of digital technology worldwide, governments have actively promoted digital learning to improve the quality of education. For example, the U.S. government has promoted future education from five aspects: learning, teaching, leadership, assessment, and infrastructure since 2016, hoping

that digital learning can be fully integrated into the education system (National Educational Technology Plan; OET, 2016). From 2014, South Korea hopes to integrate information technology into education to cultivate creative students (Korea Education and Research Information Service; KERIS, 2014). Japan proposed the "Future School Plan" in 2010 and planned to complete the digitization of textbooks by 2020 [1]. In the promotion of digital learning, China has successively proposed "improving campus wireless network quality," "integrating cloud learning resources," "developing digital reading."

"Massive Online Open Courses (MOOC)" and other plans to cope with the era of digital learning. Among them, "Massive Online Open Courses (MOOCs)" have attracted the public's attention. Massive online open courses (MOOC) is a large-scale open online course. Anyone can register and apply for free participation in the course. Short videos are used as teaching materials, and online tests or assignments are used as evaluation forms. MOOC began in 2012 and quickly swept dozens of countries around the world in more than a year. There are more than 6 million learners in more than 220 countries. The New York Times describes 2012 as the first year of MOOC [2]. Subsequently, the world's top universities successively launched MOOC platforms, including Udacity, Coursera, EDX, future learn. MOOC has a large scale and openness characteristics, which gives many people the same learning opportunities, but the problem of low course completion rate and low students' enthusiasm for online learning has gradually become prominent. Jordan surveyed MOOC completion rates in 2013 and 2015, 5% and 12.5%, respectively [3]. Singh pointed out that to reduce the MOOC dropout rate, teachers must participate on-site [4]. Badali et al. pointed out that the factors contributing to the low completion rate of MOOC are: lack of time, learner motivation, feeling lonely and lack of interaction in MOOC, insufficient background knowledge and skills, and hidden costs [5]. MOOC was applied to artificial intelligence early, but later courses of various disciplines were launched one after another, including language courses. The MOOC of language learning is called LMOOC (language MOOC) [6], [7].

However, in November 2013, Udacity and the University of San Jose announced stopping relevant cooperation with the MOOC platform, which seriously impacted the development of the MOOC platform. Subsequently, many universities also questioned the learning effectiveness of MOOCs. Water and Siemens believe that 2013 is the year of the anti-MOOC. SPOC courses rise at this time. Professor Robert Lue of Harvard University believes that MOOC only shows what the first generation of online teaching can do. Now is the time to surpass the first generation [8]. So Small Private Online Course (SPOC) appeared. Professor Armando Fox of the University of California put forward the concept of SPOC in 2013, pointing out that it is a course form derived from MOOC. Its small means the number of students is limited to hundreds, and private means that the participants are on-campus students of the opening school. SPOC aims to specifically improve learning participation and course completion rate [9]. Even students of the same course in several schools can join together to use SPOC for teaching [10]. Moreover, it can

also combine video conferencing with students scattered around the world to discuss relevant topics [11].

Before MOOC swept the world, in 2007, two chemistry teachers in Colorado, Bergmann, and Sams, two chemistry teachers in Colorado, recorded videos for those students who were unable to come to school. Students could study at home and interactively finish their homework after returning to school. Because students and teachers love this way of teaching, Bergmann and Sams published their teaching results in educational seminars in various places, held "flipped classroom seminars." Trained teachers to record videos [12]. Flipped classroom occurs before the implementation of teaching, and the focus in class is on activities such as joint discussion, individual counseling, and thinking [13].

Due to the rise of SPOC and the prevalence of flipped classrooms, some scholars began to explore "SPOC + flipped classroom". Its advantage is to use the SPOC open education platform plus the theories and principles of flipped classrooms to provide students with high-quality online learning resources and various teaching activity designs in the classroom [14]. Therefore, this research focuses on the impact of "SPOC + flipped classroom" on foreign college students' Chinese learning effectiveness, learning attitude and learning satisfaction. Firstly, this research investigates foreign college students' learning effectiveness, learning attitude, and learning satisfaction in a Chinese classroom and analyzes the existing problems and causes. Secondly, starting from the teaching ideas of "SPOC + flipped classroom," this paper puts forward improvement suggestions and constructs the teaching mode of "SPOC + flipped classroom." Finally, this research verifies the effectiveness of the "SPOC + flipped classroom" teaching model in improving foreign students' learning effectiveness, learning attitude, and learning satisfaction.

Research Questions

1. What is the current situation of foreign college students' learning achievement, learning attitude, and learning satisfaction in Chinese classrooms? What are the problems? What are the reasons for these problems?
2. Starting from the teaching ideas of "SPOC + flipped classroom," how should the Chinese classroom of foreign college students be improved?
3. "SPOC + flipped classroom" compared with traditional Chinese teaching, whether there are significant differences in students' learning effectiveness, learning attitude, and learning satisfaction?
4. After the learners participate in "SPOC + flipped classroom," what are their views on this teaching method?

Literature Review

Digital Learning and the Rise of SPOC and Flipped Classrooms

In recent years, digital learning has gained momentum globally as an innovative response to the growing demands for flexible, scalable, and learner-centered education. Governments and institutions have adopted various strategies to integrate technology into higher education, including the promotion of MOOCs (Massive Open Online Courses), SPOCs (Small Private Online Courses), and flipped classroom models [14], [15].

While MOOCs were initially hailed for their accessibility and large-scale reach, challenges such as high dropout rates, low student engagement, and limited interactivity soon emerged [16], [17].

To address these limitations, the SPOC model was introduced by Fox [18] as a more structured and semi-private adaptation of MOOC. SPOCs typically target smaller student cohorts within institutions, offering curated content and real-time interactions to foster engagement. When combined with the flipped classroom model – where students engage with instructional content outside of class and participate in collaborative tasks during class – this blended approach has shown promising outcomes in both theoretical and applied research [19], [20].

SPOC and Flipped Classroom in Language Learning

The integration of SPOC and flipped classroom models in second language acquisition (SLA) has been a growing area of interest. Language MOOCs (LMOOCs) have enabled autonomous learning, multimedia-rich content delivery, and personalized pacing [6], [21]. However, studies indicate that learning outcomes improve significantly when LMOOCs are paired with structured classroom interactions, as found in SPOC-based flipped models [22].

Empirical research has shown that flipped classrooms improve learner motivation and participation in language classes by providing more time for active learning, such as peer discussion and instructor feedback [12], [23]. By adopting the SPOC platform, educators can further streamline the delivery of content, monitor progress, and tailor support to individual learner needs, enhancing the overall effectiveness of language instruction [24], [25].

Chinese Language Learning for International Students

In the context of Chinese as a second language (CSL), international students often face challenges related to vocabulary acquisition, cultural understanding, and learning motivation [26], [27]. Several studies have highlighted the need for differentiated and culturally sensitive instructional strategies to support international learners in Chinese classrooms.

Blended learning environments have been identified as effective in accommodating diverse learning styles and needs. By incorporating pre-class SPOC modules and in-class interactive activities, instructors can address the cognitive and affective barriers faced by international students [28]. Moreover, learner autonomy – often emphasized in SPOC and flipped models – aligns with the growing emphasis on personalized and student-driven language learning in CSL research [29].

Student Engagement, Satisfaction, and Learning Outcomes

Student engagement and satisfaction are critical mediators in the learning process, especially in technology-enhanced environments [30], [31]. According to self-determination theory and attitude-behavior models, learners are more likely to persist and succeed when they perceive the learning environment as supportive, purposeful, and interactive [29], [32].

Numerous studies have linked flipped classroom and SPOC-based designs with improved learning outcomes due to increased learner control, frequent feedback, and higher levels of classroom participation [19], [33]. Satisfaction not only influences students' willingness to continue learning but also serves as an indicator of teaching effectiveness and instructional quality [14], [34].

Theoretical Framework "SPOC + flipped classroom" teaching model

This study adopts a multi-theoretical approach to explain the pedagogical underpinnings and learning mechanisms involved in the "SPOC + flipped classroom" teaching model.

Firstly, constructivist learning theory (Piaget, Vygotsky) provides the foundational perspective that knowledge is actively constructed by learners through engagement and interaction. In flipped classrooms, students are encouraged to pre-learn through SPOC videos and actively apply knowledge during class through collaborative tasks, aligning with the social constructivist paradigm.

Secondly, Self-Determination Theory (SDT) by Deci and Ryan emphasizes the importance of learner autonomy, competence, and relatedness in fostering intrinsic motivation [35]. The SPOC platform allows self-paced learning (autonomy), while classroom discussions and teacher feedback enhance students' sense of competence and connection with peers.

Thirdly, Technology Acceptance Model (TAM) is employed to understand students' attitudes toward digital learning environments [36]. The model explains how perceived usefulness and perceived ease of use influence students' acceptance of the SPOC platform and flipped learning formats.

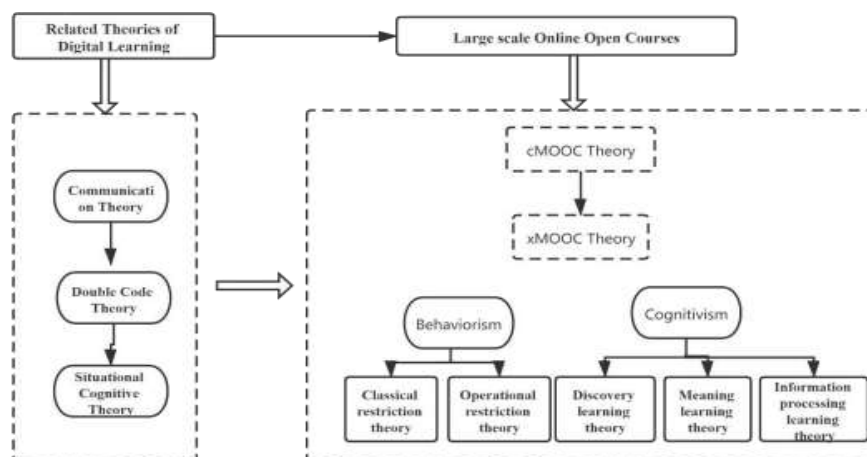


Figure 1. "SPOC + flipped classroom" teaching model

The conceptual framework thus connects instructional design (flipped + SPOC), psychological engagement (motivation and satisfaction), and learning outcomes, offering a comprehensive analytical lens for evaluating the effectiveness of the teaching intervention.

RESEARCH METHOD

In order to achieve the research purposes of this study, literature research, questionnaire, and interviews, Experimental research method will be used as research methods in this research study.

- 1) Literature research: Literature analysis will analyze the existing research on foreign college students' Chinese learning. By collecting and analyzing relevant literature at home and abroad, this research defines the key points, difficulties, and development trends of foreign college students' Chinese learning, ensuring the research value of this study. At the same time, the theoretical framework of this study can also be determined by literature analysis.
- 2) Questionnaire and interviews : Questionnaires and interviews are mainly used to collect data on the current situation of Chinese learning of foreign college students. This study takes foreign college students in Colleges and universities in Yunnan Province as the research object. Firstly, five universities are selected by random sampling, and then the relevant data on the current situation are collected using questionnaires and interviews. Secondly, SPSS, Mplus, nvivo, and other analysis software are used to analyze the data, and the existing problems and reasons are summarized. Finally, from the perspective of "SPOC + flipped classroom," this study puts forward the improvement strategies of Chinese classrooms and constructs the teaching mode of "SPOC + flipped classroom."
- 3) Experimental research method: The experimental research method is mainly used to verify whether the proposed "SPOC + flipped classroom" teaching model can improve students' learning effectiveness, learning attitude, and learning satisfaction. Two classes in a school were randomly selected as experimental subjects. "SPOC + flipped classroom" Chinese teaching is the experimental group. Traditional classroom Chinese teaching is the control group. Firstly, the two groups were tested for learning effectiveness and learning attitude before the experiment. After one semester of experimental teaching, the two groups were measured for learning effectiveness attitude, and satisfaction.

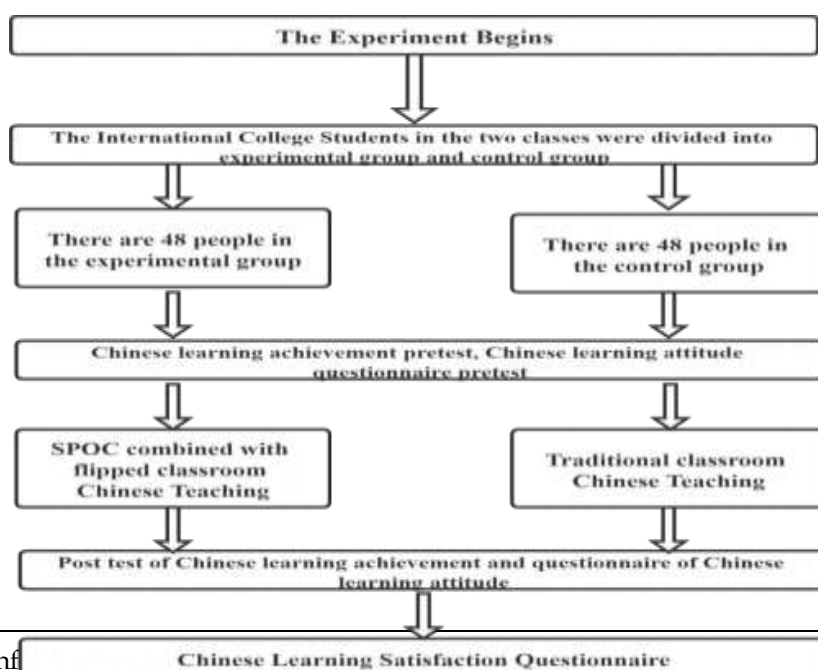


Figure 2. Experimental research stages

RESULTS AND DISCUSSION

Results

1. Literature Review Findings

The literature review revealed critical gaps and challenges faced by international students learning Chinese as a second language (CSL), which informed the rationale for adopting the "SPOC + flipped classroom" model. Key issues identified include:

- 1) Limited cultural integration: Language instruction often lacked integration of cultural nuances, making comprehension and context difficult [37], [38].
- 2) Low learner autonomy: Traditional classrooms rarely encouraged self-directed learning, leading to dependency on the instructor [28].
- 3) Poor engagement and low MOOC completion: MOOCs offered flexibility but suffered from lack of interaction and low completion rates, typically between 5%–12.5% [3].
- 4) High dropout rates in pure online formats: Lack of motivation, insufficient feedback, and feelings of isolation contributed to disengagement [17], [39].

These findings underscore the necessity for a blended model that balances the flexibility of digital access with the interactivity of classroom collaboration—a combination embodied in the SPOC + flipped classroom model.

2. Questionnaire and Interview Findings

Surveys distributed to international students from five universities in Yunnan Province yielded the following patterns: 1) Learning Achievement: 64% of students indicated they were "not confident" in their Chinese proficiency despite months of formal instruction. Many cited difficulties in oral communication and listening comprehension. 2) Learning Attitude: 72% felt unmotivated in lecture-based classrooms, reporting that lessons were "teacher-centered" and lacked real-life applications. 3) Learning Satisfaction: Only 46% expressed satisfaction with their learning experiences. Key dissatisfiers included limited opportunities for participation, slow feedback from teachers, and monotonous materials.

To deepen the understanding of student perceptions, 20 students from different institutions were interviewed. These qualitative insights helped explain the quantitative trends. Thematic coding with NVivo revealed three dominant themes: autonomy, interaction, and practicality. Below are selected excerpts from student interviews (translated from Chinese and anonymized):

- 1) On autonomy and flexibility:

"I liked that I could watch the SPOC videos many times before class. If I didn't understand something, I paused and rewound. This helped me feel more prepared." — Student A, Myanmar

- 2) On classroom interaction:

"In the flipped classroom, we did more speaking and group work. Before, we just listened to the teacher and memorized. Now I feel more confident to talk in Chinese." – Student B, Thailand

3) On practical application:

"The teacher used real-life examples, and we practiced dialogues. I could immediately use what I learned when I went shopping or talked to friends." – Student C, Iran

4) On motivation and engagement:

"When I studied alone online, I felt bored. But when I knew we would discuss the topic in class, I studied harder before class." – Student D, Philippine

These responses suggest that students highly valued the SPOC + flipped classroom model due to its flexibility, interactivity, and practical benefits, confirming the model's potential for improving both affective and cognitive learning domains.

3. Experimental Design Findings

An experimental study was conducted with two comparable classes: the experimental group (SPOC + flipped classroom) and the control group (traditional classroom instruction). The main results are summarized in table 1.

Table 1. Experimental study results

Variable	Pre-Test Mean (Exp.)	Post-Test Mean (Exp.)	Post-Test Mean (Control)	Improvement (%)
Learning Achievement	64.5	82.3	70.1	+27.5%
Learning Attitude (scale)	3.2 / 5	4.5 / 5	3.6 / 5	+40.6%
Learning Satisfaction	58.7%	87.9%	65.4%	+29.2%

Statistical analysis confirmed that these differences were statistically significant ($p < 0.01$), supporting all three research hypotheses (H1–H3). The SPOC + flipped classroom group outperformed the control group in academic outcomes, motivation, and satisfaction, validating the blended learning model's pedagogical value.

Discussion

The results of this study confirm that the integration of the "SPOC + flipped classroom" model significantly enhances the quality of Mandarin language instruction for international students in China. Students in the experimental group demonstrated substantial improvements in academic performance, learning attitudes, and overall satisfaction compared to those in the traditional control group. These findings are consistent with previous studies indicating that blended learning environments improve student performance and engagement, particularly in the context of second language acquisition [19], [40].

The literature review provides foundational support for these results by highlighting the limitations of both traditional and fully online models such as MOOCs. Although MOOCs offer broad access to learning materials, high dropout rates and limited interactivity make them less effective for sustainable language learning (Jordan, 2013; Khalil & Ebner, 2014). The SPOC model, as a more structured and selective adaptation of MOOCs, addresses these limitations by combining curated online content with institutional support [10], [20]. When integrated with flipped classroom strategies, this model aligns with Vygotsky's social constructivist theory by promoting collaborative and learner-centered engagement in the classroom [41].

Survey findings revealed that many students felt disengaged in conventional classroom settings, which often lack interactivity, personalized feedback, and relevant learning materials. This is supported by previous research that found passive learning formats decrease learners' motivation and hinder the development of communicative competence [14], [28]. In contrast, the flipped classroom format provides students with more opportunities to interact with peers and instructors, thereby fostering a more dynamic and supportive learning environment.

Qualitative interview data further deepens the understanding of the model's impact, particularly in terms of classroom flexibility and interactivity. Many students reported feeling more confident and motivated due to the flexibility offered by the SPOC platform and the interactive in-class activities. These observations are consistent with Self-Determination Theory (SDT), which suggests that learners are more persistent when they experience autonomy, competence, and relatedness [42]. Students appreciated the ability to study at their own pace before class and apply that knowledge actively during classroom sessions, enhancing both understanding and retention.

Student satisfaction can also be explained through the Technology Acceptance Model (TAM), which posits that learners' perceptions of ease of use and perceived usefulness influence their willingness to adopt digital learning platforms [25], [36]. The SPOC platform is not only user-friendly but also clearly supports pedagogical goals, helping students prepare for in-class activities and assessments. By combining flexibility with meaningful engagement, this blended model addresses many of the frustrations commonly associated with traditional and fully online approaches.

In conclusion, the "SPOC + flipped classroom" model presents a promising solution for improving Mandarin language education for international students in China. This model fosters deeper engagement, supports differentiated instruction, and enhances student autonomy and motivation. Future research should explore the long-term effects of this model across various disciplines and student populations, as well as investigate how AI-based tools can further personalize the learning process in SPOC environments.

CONCLUSION

Fundamental Finding : This study demonstrates that the integration of the "SPOC + flipped classroom" model significantly enhances international students' engagement, academic performance, and satisfaction in Chinese language learning. **Implication :** The

findings suggest that this blended teaching approach offers a practical and effective framework for optimizing Chinese language instruction, particularly for foreign learners in the digital age, and can be adapted to other language learning contexts. **Limitation** : The study's sample size and duration were limited, which may impact the generalizability of the results. **Future Research** : Future studies should focus on conducting longitudinal research with a larger, more diverse sample, and explore the integration of AI-based learning analytics within the SPOC model to further personalize and improve language learning experiences.

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