

A SWOT analysis of AI-supported lesson planning for Chinese EFL teachers

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ABSTRACT

Artificial Intelligence now has gained its momentum in education and has sparked debates about its potential implications for Chinese EFL teachers. This study used the SWOT analysis framework to comprehensively explore the impact of AI-supported lesson planning on teachers. The strengths include improving time efficiency, enhancing teaching productivity, and providing abundant resources. It also presents opportunities for teachers' professional development and collaboration. However, it has notable drawbacks, such as cultural biases, content inaccuracy, and homogenization of lesson planning. Threats to Chinese EFL teachers like undermining teaching integrity, reducing teachers' critical thinking, and imposing Chinese EFL teachers' technological pressure. This study indicated that while it holds transformative potential, cautious application is essential. Teachers should use AI as a supplementary tool, leveraging its advantages and mitigating risks to promote the coordinated development of AI and their professional capabilities for better educational quality.

KEYWORDS

Artificial Intelligence; Chinese EFL teachers; AI-supported lesson planning; SWOT analysis

1 Introduction

With the rapid advancement of technology, artificial intelligence (AI), as a transformative technology, is gradually infiltrating all aspects of the education field. Educators have begun to apply AI technology to the development of teachers' lesson planning, making their application in education a new topic of academic research (Følstad & Brandtzæg, 2017).

Lesson planning is a critical yet demanding task for teachers. It directly affects the classroom teaching effect and students' learning experience. In course preparation, artificial intelligence can be a helpful assistant in developing materials, offering suggestions, and generating tailored educational content. Multitudes of previous studies have proved that artificial intelligence plays a vital role in preparing lesson content and improving instructional processes (Elsayary, 2023; Kehoe, 2023; Lo, 2023). AI, with its powerful data processing capabilities, intelligent analysis functions, and personalized environments, brings unprecedented pedagogical opportunities to foreign language teaching. It is expected to have the potential to revolutionize the traditional lesson planning process and enhance teaching effectiveness.

However, just like the application of any emerging technology in the education field, the use of AI has sparked the debate on the potential benefits and risks associated with AI technologies. On the one hand, the inherent deficiencies of the technology itself may affect teaching effectiveness. Mhlanga (2023) asserted that the application of AI tools in foreign language teaching reignited the concerns about ethical considerations. On the other hand, the acceptance and proficiency levels of AI technology among teachers vary significantly. Some teachers may struggle to effectively integrate AI tools into the teaching process due to a lack of relevant technical training. While some teachers may be eager to embrace new technologies and incorporate them successfully into their teaching. The present study aims to thoroughly analyzes the impact of AI-supported lesson planning on Chinese EFL teachers through a SWOT analysis framework, providing an effective guidance for Chinese EFL teachers to use AI more properly in their lesson planning.

2 SWOT analysis framework

A strengths, weaknesses, opportunities, and threats (SWOT) analysis has originally become a fundamental tool for organizations to evaluate their position in the market (Rozmi et al., 2018). This framework has now found extensive application in the educational domain. It serves as a valuable tool for Chinese EFL teachers to assess external and internal antecedents that affect teaching practicum (Zhu & Justice Mugenyi, 2015). Based on the SWOT analysis framework, this study will highlight how these various factors can be harnessed in preparing a successful lesson plan in the AI-driven context.

For AI-supported lesson planning, strengths are the attributes inherent to the technology, such as automated content generation etc. Conversely, weaknesses emerge from systemic limitations in current AI tools and human-machine interaction challenges, particularly regarding Chinese EFL teachers' technological proficiency. Opportunities and threats, on the other hand, are external factors. Opportunities refer to favorable external conditions that can be capitalized on,

including policy reforms advocating smart education initiatives and breakthroughs in adaptive learning technologies. Simultaneously, threats are external factors that could potentially jeopardize Chinese EFL teachers' teaching and learning integrity, like disputes over the legality and accuracy of AI-generated content. By categorizing and analyzing these four aspects, educators and stakeholders can gain a comprehensive understanding of the landscape of AI-supported lesson planning's influence on Chinese EFL teachers, which is conducive to better adapting to the changes in the education field and improving teaching effectiveness.

3 Strengths

The strengths provided by AI tools for Chinese EFL teachers are listed below.

3.1 Time efficiency

Writing a complete and detailed lesson plan, from sorting out teaching content, planning the teaching process to designing various teaching activities, usually consumes a great deal of teachers' energy and time. However, AI tools are capable of understanding complex inquiries and provide relevant answers in real-time (Deng & Lin, 2022). Whether it is a detailed explanation of basic concepts or an introduction to cutting-edge academic research, AI tools can readily summarize relevant information, facilitating the process of obtaining fine-grained information in a fast manner. In addition, AI tools can assist teachers in optimizing the teaching process itself. They are helpful assistants in assessing students' performance, such as previous assignments or quizzes, to identify problems where students are hard to grasp. This capability allows teachers to be freed from the cumbersome basic routine work, as users no longer have to manually search through multiple sources and search engines.

3.2 Productivity enhancement

Within the context of AI-supported teaching, productivity can be defined as the extent to which AI use enhances teachers' work performance and efficiency (Yin et al., 2024). Previously, multitudes of studies have demonstrated that AI tools play a pivotal role in enhancing Chinese EFL teachers' instructional processes (Elsayary, 2023; Kehoe, 2023). Evidences also indicate that AI tools have the remarkable ability to analyze teaching objectives in great detail and students' profiles, which includes their learning styles, academic strengths and weaknesses to suggest effective teaching strategies. For instance, if an EFL teacher aims to improve students' writing skills in a particular class, an AI-based system can analyze the common errors made by students in previous writing assignments. This data-driven guidance empowers teachers to create more targeted and efficient lesson plans, ultimately improving the teaching process and increasing the overall productivity of teachers. AI tools can automatically design multiple-choice and short-answer questions. This automation alleviates teachers from the arduous and time-consuming task of manually crafting these questions. Freed from this repetitive chore, teachers can redirect their focus towards offering in-depth, constructive feedback to students. This not only enhances the learning experience for students but also contributes to a more productive teaching environment, where teachers can make the most of their time and expertise to support student growth.

3.3 Abundant resources

AI tools can provide teachers with a wide variety of teaching resources, relying on its huge database and advanced algorithms. Through big data analysis, teachers can understand the effect of existing learning resources on students' learning and provide targeted learning resources for students to meet their diversified learning needs. For example, an English teacher planning a topic on Shakespearean literature can use AI tools to quickly gather different versions about character analyses and critical interpretations of the plays. From a pedagogical perspective, this significantly enriches the teaching content, broadens students' learning horizons, and provides strong support for creating a diversified classroom.

4 Opportunities

The application of AI into lesson planning brings Chinese EFL teachers a wealth of opportunities. Several important opportunities are described below.

4.1 Professional enrichment

AI-driven platforms act as comprehensive repositories of knowledge that systematically integrate diverse professional

development resources for teachers. For instance, they offer multiple online courses on emerging teaching methodologies, exemplified by gamification strategies that convert conventional lessons into interactive learning experiences. Teachers can also access e-books and research papers on the latest educational trends like immersive virtual reality applications in classroom settings, enabling them to stay at the forefront of educational innovation. These resources are often personalized, tailored to individual teachers' needs based on their teaching level, and subject areas for improvement. This personalized approach ensures that each teacher can efficiently upskill and maintain alignment with the evolving demands of teaching pedagogy.

4.2 Fostering teacher collaboration

AI tools have the potential to revolutionize the way that teachers collaborate. Teachers from different schools or even different countries can come together on related lesson planning smart platforms. For instance, teachers can showcase their comprehensive lesson plans for various topics, such as teaching English literature, writing skills, or oral communication. Fellow English teachers can study this plan, extract valuable elements, and integrate them into their own lesson plans. By sharing effective lesson plans, they can learn from each other's creativity and adapt these plans to their own classrooms. Moreover, these platforms serve as catalysts for collaborative problem-solving. Teachers who face similar challenges, such as managing large class sizes or dealing with students with learning difficulties, can pool their wisdom and resources. Through group discussions and collaborative projects, they can develop innovative solutions, thereby strengthening the entire teaching community and elevating the overall quality of education.

5 Weaknesses

The weaknesses associated with the integration of AI in lesson planning for Chinese EFL teachers are depicted below.

5.1 Cultural biases and discrimination

Some scholars have expressed ethical apprehensions regarding the application of AI in education, such as the potential for AI to perpetuate biases and exacerbate existing inequalities related to race, gender and socio-economic status (Wang & Wang, 2023).

The greater risk of generative AI lies in its tendency of cultural values and even cultural biases. Pretrained data inevitably has tendencies related to ethnicity, religion, gender, and culture, thus causing large language models to generate biased content, which in turn contaminates learners' study materials. Moreover, the default values presented by large language models based on massive amounts of English data are more in line with the cultural values of the United States (Cao et al., 2023). It can be seen that if foreign language teaching uses the content randomly generated by artificial intelligence without discrimination, there is a possibility of being subtly influenced by a certain cultural value orientation.

5.2 Hallucination problem

Although AI technology is constantly advancing, it is not absolutely reliable. One of the most significant risks in generative artificial intelligence today is the 'hallucination' problem, which refers to the phenomenon where large language models output false information. Generative artificial intelligence highly depends on corpora and lacks the ability for complex logical reasoning. It generates answers merely relying on association and inference. In the context of incorporating ideological and political education into teaching, AI-supported lesson planning may struggle to deeply understand the unique values of contemporary China. For instance, concepts such as the Chinese Dream, AI might fail to accurately interpret and integrate these values into lesson plans, leading to a superficial level or inaccurate representation. Without Chinese EFL teachers modified and in-depth exploration of Chinese ideological and political education, the teaching materials lack the uniqueness and locality required for effective ideological and political teaching.

5.3 Potential of homogenization

AI algorithms tend to follow certain patterns and paradigms in generating content. Consequently, if teachers rely solely on AI-generated content, the lesson plans are likely to be similar. However, students in each class have significant differences in learning ability, knowledge bases, interests, as well as learning styles. It is very difficult for AI-generated lesson plans to accurately consider the uniqueness of each class or even each student. Moreover, the homogenization of AI-generated lesson plans can limit the creativity and flexibility of teachers. Teachers may become overly dependent on the ready-made materials provided by AI, losing the opportunity to cultivate their own insights and teaching approaches customized to the unique requirements of their students. This over-dependence can result in a teaching approach that is

almost uniform and fails to account for individual differences. In the long run, it may hinder the development of personalized teaching, which is essential for optimizing students' learning experiences and outcomes.

6 Threats

The integration of AI in lesson planning presents significant threats to Chinese EFL teachers, as detailed below.

6.1 Threatening teaching integrity

One major concern is the accuracy of the information provided by AI. In some cases, AI tools may generate content with factual inaccuracies, which can lead teachers astray. Teachers may also misuse content from models such as ChatGPT by plagiarizing and ghostwriting without meticulous checking. To cite an example, an English teacher might ask an AI to generate a reading comprehension passage about a historical event for an English class. The AI, due to incorrect data or algorithmic glitches, creates a passage that contains false historical facts, like misdating a significant battle or misidentifying key figures. When such erroneous content enters classrooms, it not only misguides students but also undermines teachers' professional credibility. While, at the same time, copyright infringement poses another critical risk (Lo, 2023). Some AI-generated materials might be derived from copyrighted sources without proper authorization. Teachers who directly use such materials in their lesson plans may lead to unintentional plagiarism.

6.2 Declining in critical thinking

Most traditional foreign language teachers conduct teaching based on prior knowledge and teaching experience. However, the real-time exchange of big data placing higher demands on teachers' knowledge systems and teaching abilities. However, with the convenience of AI tools, some teachers may become overly reliant on the first-hand content and teaching strategies provided by AI. They might simply adopt the AI-generated lesson plans without critically evaluating and adapting them to their specific teaching practicum and students' needs. This phenomenon can gradually erode teachers' ability and create a vicious cycle of "cognitive complacency" in pedagogical practice. Consequently, this lack of deep thinking may lead to a decrease in the quality of teaching and transform teachers into mere executors of AI outputs, leaving them ill-equipped to handle unexpected classroom dynamics. This vicious cycle ultimately diminishes teachers' core competencies, limiting teachers' innovative creativity.

6.3 Technological pressure

AI technology is developing rapidly, and new algorithms and applications are constantly being launched. Chinese EFL teachers are expected to keep abreast of these technological advancements to fully leverage its potential in lesson planning. However, not all teachers find it easy to keep up with this rapid technological change. Older teachers, who may have spent decades honing their teaching skills in a more traditional educational manner, often feel at a loss when it comes to mastering new AI technologies. Similarly, Chinese EFL teachers with limited technical proficiency may struggle to understand and implement these complex new tools. For them, the process of learning how to use a new AI-driven learning platform can be overwhelming. This kind of technological pressure will first impact teachers' confidence. When faced with new AI-integrated teaching platforms or software, they may feel inadequate.

7 Conclusions

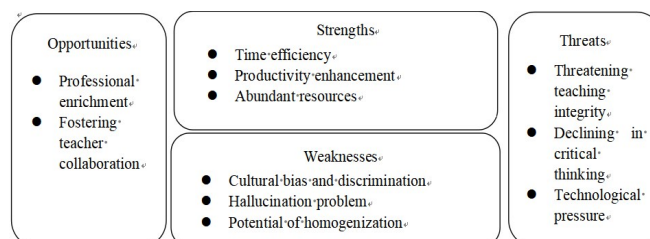


Figure 1 Overview of the SWOT analysis

As depicted in Figure 1, the SWOT framework reveals that AI-supported lesson planning holds transformative potential but requires cautious implementation. This framework comprehensively illustrates us the complex picture of AI's impact on Chinese EFL teachers. It not only conveys the distinct advantages that AI brings to the lesson planning but also

exposes the underlying challenges and potential threats that demand our immediate attention.

In conclusion, the application of AI in lesson planning brings about a mix of potentials and challenges. On the one hand, AI-supported lesson plans offer remarkable benefits. They significantly enhance Chinese EFL teachers' productivity by streamlining tasks such as designing different tasks, providing personalized learning resources, and automating assessment processes. AI can analyze vast amounts of students problems to offer customized learning paths, thereby promoting individualized instruction. On the other hand, there are substantial drawbacks. The accuracy of AI-generated information is sometimes questionable, and there are concerns regarding copyright and plagiarism issues. Additionally, over-reliance on AI may lead to a lack of deep thinking among Chinese EFL teachers, potentially reducing the quality of teaching and impeding their professional growth. To harness the full potential of AI in lesson planning, it is crucial to address these challenges.

Chinese EFL teachers play a crucial role in aspects such as lesson planning, emotional support, cultural understanding, and ethical guidance, which AI cannot fully replicate. Teachers need to be educated on how to use AI as a supplementary tool rather than a substitute for their expertise. A balanced approach of human-machine collaborative teaching, which should combine the merits of AI with teachers' professional skills and teaching experience. By doing so, teachers can strike a balance and make the most of AI to improve the overall educational experience.

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