Addressing ChatGPT Localization and Instructional Separation Challenges in Chinese Higher Education

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Abstract. ChatGPT exhibits both advantages and disadvantages in the field of education. To a certain extent, its application necessitates a shift in the evaluation system and a reformulation of teaching methods. ChatGPT can serve as an educational support tool, enhancing classroom teaching efficiency for both educators and students. It also facilitates personalized and customized education, thereby stimulating students' innovative capabilities. On the other hand, it presents several challenges, including ethical concerns, issues related to fragmented teaching, and the risk of eroding traditional evaluation systems. This study discusses the phenomenon of a division between teaching and learning caused by the application of ChatGPT, as well as the challenges of localization. Drawing from policy cases in foreign universities and the policies of the University of Hong Kong, Chinese universities should ensure widespread access to ChatGPT, improve curriculum structures, and train teaching staff. Furthermore, collaboration among universities is vital to collectively cultivate AI tailored for education.

Keywords: ChatGPT; education policy; localization; division between teaching and learning.

1. Introduction

ChatGPT has emerged as a prominent topic in 2023, representing a burgeoning field of artificial intelligence. Its presence has stirred significant interest, particularly in the education sector. With the release of ChatGPT3, there was a notable trend in which individuals from European and American countries started using ChatGPT to write papers. The quality of content generated by ChatGPT was often indistinguishable from human-authored content. The innovation of ChatGPT3 garnered considerable attention, and its successor, ChatGPT4, aspires to further innovation, precision, and balance.

From a human perspective, the advent of ChatGPT has raised fundamental questions about what it means to be human and has prompted a reevaluation of human essence [1]. Current trends in artificial intelligence extend beyond merely creating human-like machines; brain-computer interface technologies suggest that the human brain can merge with machines, potentially leading to the emergence of a new form of humanity. Artificial intelligence, first and foremost, provokes questions about human intelligence. For individuals with well-developed cognitive abilities, ChatGPT can serve as an aid, but for those in the process of cognitive development, it represents an intrusion into the thought process. Excessive reliance on such technology could erode individual cognitive development and foster significant dependence on machines. Additionally, while ChatGPT offers shortcuts that save cognitive effort, it primarily handles tasks with a certain degree of complexity, not just rudimentary activities. Overreliance on generative AI for seemingly simple cognitive tasks might deprive the human brain of necessary exercise.

On the positive side, ChatGPT can serve as an educational support tool, enhancing classroom teaching efficiency for both educators and students. It enables personalized and customized educational experiences while fostering student innovation. However, it also presents several challenges, including ethical concerns, fragmented teaching, and the risk of undermining traditional evaluation systems [2]. Hence, the question of whether ChatGPT should be introduced into the education sector remains contentious. Educational institutions tend to adopt a somewhat passive and pessimistic stance toward technological innovations, often taking a "wait and see" approach [3]. Nevertheless, artificial intelligence has become an irreversible trend, with ChatGPT clearly
demonstrating both advantages and disadvantages in the field of education. The best approach is to
focus on preventive measures, maximizing the benefits of ChatGPT as an educational support tool
while minimizing potential risks.

This study employs a literature analysis approach, addressing the issue of teaching and learning
division due to ChatGPT and the challenges of localizing ChatGPT. It references policies and
guidelines issued by foreign universities regarding the use of generative AI and offers corresponding
policy recommendations.

2. Literature Review: The Challenges and Opportunities Brought to Education by ChatGPT

The algorithm behind ChatGPT is based on the Large Language Models (LLM) model, which
primarily utilizes deep learning to simulate the human language system. It uses human annotations to
determine preferred answers in human society, ultimately generating "human-like" responses [4]. The
OpenAI ChatGPT series progressively generates human-like language text and language capabilities.

Scholar Yuval Noah Harari once stated that language is the operating system of human civilization.
Artificial intelligence interprets and masters language, enabling it to imitate human activities,
including cognitive and even innovative tasks. ChatGPT3.5 has demonstrated remarkable content
generation capabilities, capable of producing news articles, research reports, and even academic
papers.

ChatGPT's presence in the field of education presents a complex situation. Existing research
suggests that ChatGPT not only assists students in better learning but also supports teachers in their
instructional work. Artificial intelligence can help students understand teaching materials more
effectively, provide personalized feedback and evaluations tailored to individual students, and
identify learning bottlenecks, offering precise guidance and suggestions [5]. Additionally, it can assist
second-language learners in understanding and learning. Research by Johnson and colleagues
demonstrates ChatGPT's ability to accurately translate between languages [6]. The inclusion of
artificial intelligence allows teachers to design more engaging classroom activities, understand
student needs, enhance lesson plans, and innovate teaching methods [7]. ChatGPT has the potential
to address educational inequalities resulting from unequal resource distribution among urban and
rural areas [2].

However, the emergence of ChatGPT in education also poses challenges. Teaching practices face
several challenges, including ethical concerns related to teacher-student relationships, academic
fairness, algorithmic biases, and data privacy [8]. ChatGPT may exacerbate the division between
teaching and learning, leading to increased student dependence on technology and the risk of
fragmentation within the educational community. The establishment of bonds between teachers and
students in the teaching domain becomes more challenging, posing potential challenges to
interpersonal relationships [9]. Moreover, extensive and frequent interactions with ChatGPT might
lead to student addiction and excessive dependence [3]. ChatGPT may also generate incorrect
answers and fabricate non-existent information [6].

ChatGPT carries a certain ideological stance, which presents a challenge to education. It exhibits
two states: one in which it conceals a particular ideology and another in which it deliberately
maintains a neutral position. Studies indicate that ChatGPT's language output tends to favor
environmentalism and left-wing social liberalism [10]. Simultaneously, Chomsky points out that
ChatGPT's language displays a form of "mediocre evil" [11]. In other words, its language conveys a
certain form, but it refrains from offering any specific judgments. In conversations with users, it
exhibits a deliberate flattery. For example, it does not pass value judgments on user actions, nor does
it correct user mistakes [9].

Historically, education has maintained a certain distance from technology [12]. However,
ChatGPT's emergence is powerful and it primarily infiltrates from the "user-end", rejecting outdated
and irrational conservatism. Some scholars predict the future will witness a dual teaching paradigm,
where both human teachers ("person-teacher") and AI teachers ("machine-teacher") coexist [13]. Shortly after the release of ChatGPT, the University of Hong Kong issued a policy prohibiting its use. However, the university later announced the withdrawal of the ChatGPT ban, around September 2023, and emphasized the need to train students in using ChatGPT. Several countries, including Germany, France, and Italy, have already begun imposing restrictions and regulations on ChatGPT usage. Faced with the powerful force of new technologies, initial fear and hesitation are understandable, but after the birth of new technology, society must establish appropriate rules to prevent a situation of "social anomie," where existing social rules cannot adapt to new societal changes, leading to chaos and disorder. Foreign universities have already issued usage guidelines and policies, such as Harvard's generative AI usage guidelines and Boston University's GAIA policy.

Ethical issues have been widely discussed but remain in a somewhat suspended position, making it challenging to identify specific policy anchor points. Furthermore, ChatGPT's use within China is subject to policy restrictions and is affected by cultural differences, potentially leading to issues of cultural mismatch. However, scholars have addressed these issues to a lesser extent. This paper aims to discuss the challenges posed by ChatGPT in practical applications, including the "teaching and learning" division dilemma, and the less-discussed issue of ChatGPT localization. It analyzes existing policies in foreign universities and offers policy recommendations tailored to the Chinese context.

3. Issue Analysis

3.1. The Separation Dilemma of "Teaching and Learning"

The primary goal of education is to educate individuals, and the separation of teaching and learning implies a disconnect between the educational process and the primary subject, the student. This not only signifies a weakening of the connection between individuals and specific physical spaces but also poses challenges to the achievement of educational objectives. The first problem arising from this separation is the difficulty in establishing a strong interactive relationship between teachers and students. With the availability of ChatGPT for answering questions, the communication between students and professors may decrease. Even before the era of ChatGPT, the prevalence of online resources had reduced the necessity of in-person interactions with teachers. As online courses and educational resources became more prevalent, students began to rely less on direct communication with teachers, feeling that online materials provided sufficient guidance. This separation has led to a common situation where students and teachers hardly know each other, limiting the social interactions among university students. A lack of interaction can even lead to psychological issues among students, especially if they face difficulties in their living arrangements with roommates. Furthermore, students may not proactively utilize the resources available on campus, often focusing solely on academic studies without fully exploiting the broader educational environment.

The second problem associated with the separation of teaching and learning is the contraction of personal relationships due to the reduced desire for communication. As individualization continues to increase, social connections and interactions with peer groups have weakened, resulting in a growing sense of loneliness and not having completed the process of socialization among university students [14]. This trend is further exacerbated by the introduction of ChatGPT, which may replace the bonds between students and teachers with a different type of relationship that lacks the depth and authenticity of human connections.

One of the existing challenges in Chinese universities is the trend towards a more standardized and high school-like curriculum structure. This is evident in the uniform organization of evening self-study sessions and the limitation of student life to classroom settings. Additionally, classroom participation is often insufficient, causing students to perceive their university experience through the lens of a high school model. To address these issues, changes in the curriculum structure and teaching methods are needed.

The third issue stemming from the separation of teaching and learning is the widening gap among students. Differences in students' individual characteristics, planning skills, and levels of initiative
become crucial factors. Moreover, according to Pierre Bourdieu's perspective, students from higher socioeconomic backgrounds often possess internalized cultural capital, called habitus, allowing them to appear more "relaxed" and outperform their peers [15]. The separation of teaching and learning may exacerbate these existing inequalities. In China, a clear division may emerge between students who have access to ChatGPT and those who do not due to various limitations, creating disparities in educational opportunities. On a global scale, differences may emerge between students who can afford the premium version of ChatGPT and those who rely on free alternatives. In such cases, students who cannot afford premium services or who adapt to new technologies more slowly may face relative disadvantages, leading to educational inequalities.

So far, although several research papers suggest that ChatGPT could play the role of a "robotic teacher," its limitations indicate that it cannot entirely replace human teachers. To address the challenges of teaching and learning separation, it is essential to make effective and rational use of ChatGPT while recognizing the continued importance of human teachers in the educational process.

3.2. Localization

Localization of ChatGPT presents two main challenges. The first pertains to the localization of ChatGPT in China, which involves feeding it with substantial Chinese language data and addressing the issue of internet restrictions within China. The second challenge relates to the localization of ChatGPT in the field of education, focusing on individual values and the need for information exchange among higher education institutions.

ChatGPT, as a foreign technology, faces various challenges in adapting to the Chinese context. Firstly, its training data primarily consists of content from Western countries, and the Chinese language corpus is not as extensive as its English counterpart. This language limitation becomes evident when addressing questions related to Chinese traditional culture, and the performance in responding to English prompts is notably better than Chinese prompts. ChatGPT's grasp of Chinese grammar is also not flawless, occasionally struggling to recognize Chinese conjunctions. Secondly, there's the cultural disconnect, where Chinese and foreign cultures, previously somewhat shielded from direct confrontation, now directly clash. China's unique political landscape and information control practices contribute to this challenge. Moreover, there is a noticeable disparity between domestic and international value systems.

The issue of localizing ChatGPT in education is compounded by the role of language as a carrier of ideology. ChatGPT inherently carries certain ideologies, and the implications for higher education institutions need to be carefully considered. Research has pointed out that selective biases are often replicated and amplified by artificial intelligence [16]. In the educational context, there is a need for mechanisms to filter out low-quality or false information.

As training ChatGPT in the Chinese language comes with significant costs, Chinese higher education institutions can collaborate to establish a decentralized, unstructured ChatGPT platform. It is essential to build a Chinese university alliance that avoids ChatGPT becoming more influential than universities themselves, preventing alienation where humans lose their agency, potentially undermining the education system. Furthermore, it is crucial to find a balance between using high-quality data from universities and ensuring ChatGPT does not become overly proficient and capable of replacing human educators. The goal should be to train ChatGPT to guide students rather than providing direct answers. This approach should be considered during the development of AI in higher education alliances.

4. Policy Analysis and Recommendations

4.1. Introducing ChatGPT and Adjusting the Education Model

Chinese higher education institutions should embrace ChatGPT to ensure educational equity. Forbes data indicate that 89% of American university students use ChatGPT for their assignments [17]. Therefore, even if universities issue bans, it is challenging to prevent students from using
ChatGPT. Many foreign universities have already released policies or guidance documents to direct students in the compliant use of ChatGPT. Harvard University published guidelines for ChatGPT use, rather than introducing new policies. Boston University collaborated with professors and students to design an AI-assistance policy (GAIA). The University of Toronto offers comprehensive guidance for ChatGPT use. Hong Kong University has undergone a significant shift in attitude, representing how Chinese universities are reacting to artificial intelligence. When ChatGPT was initially released in February, Hong Kong University explicitly prohibited its use. However, by September, they issued a statement allowing its use. Ian Holliday, Vice President of Hong Kong University, mentioned that they have not fundamentally changed their stance on GenAI. Their initial refusal was due to the lack of policies to ensure fair usage among students. Hong Kong University has now purchased a license for ChatGPT4, permitting its use among faculty [18].

Chinese University of Hong Kong has implemented restrictions, limiting students to asking ChatGPT a maximum of twenty questions per month. The aim of restricting the number of student queries is to enhance the quality of inquiries. However, this practice is unreasonable. If ChatGPT4 is to be accepted, its full potential should be harnessed without imposing arbitrary restrictions. ChatGPT's capabilities are not yet advanced enough for a minimal number of prompts to suffice in addressing all questions. To some extent, increased data input allows for better interaction, thus enhancing problem-solving capabilities. Harvard suggests that ChatGPT's performance can gradually improve through question progression, enabling context understanding and providing more complex responses. Therefore, ChatGPT's capabilities are enhanced with increased data input. Limiting student queries could hinder students from receiving satisfactory answers. Besides, students who require unrestricted ChatGPT access can simply purchase ChatGPT4 themselves, bypassing the school's rules.

It is essential to recognize that technology backed by capital is not entirely closed off. Therefore, the imposed question limits may not apply to some students. This discrepancy exacerbates educational inequality, even when the university's intention is to enhance the quality of student inquiries. To ensure fairness, universities should guarantee that all students have access to ChatGPT4.

The separation of teaching and learning arises from two key aspects: the first involves students' dependence on ChatGPT, and the second pertains to the diminishing need for the physical presence of teachers due to high substitutability. The separation of teaching and learning leads to a decline in education quality, the misallocation of educational resources, and further exacerbates inequalities in resource distribution. Teaching separation also results in diminished individual social interaction, weakening the links between individuals and groups, and reducing individual levels of socialization. This has contributed to a growing number of psychological issues among college students. The increasing dependency of students on electronic devices is a significant factor in this trend.

Universities should adjust their curriculum structures, provide teacher training, innovate teaching methods, and adapt teaching content. Emphasizing the role of teachers, they should enhance classroom engagement, increase student participation, and facilitate communication between students and teachers. With ChatGPT's integration into education, universities should rethink curriculum composition, changes in the university evaluation system, and the potential reduction of some courses in favor of practical alternatives.

The University of Toronto has released guidelines on the use of generative AI in classrooms. It also supports teachers in innovating classroom formats, educating them on how to prevent students from directly submitting ChatGPT's prepared answers. Teachers can adopt methods like flipped classrooms and introduce more discussion activities into the curriculum, making the learning process more dynamic and promoting original content in teaching. Harvard University's ChatGPT usage guide also acknowledges that ChatGPT is currently unable to address highly original and context-specific questions, emphasizing the need to innovate classroom formats and enhance the originality and appeal of course content. This will help stimulate student motivation, adjust curriculum structures, incorporate practical courses, and increase interaction between teachers and students.
To guide students in the correct use of ChatGPT, schools can provide relevant videos and usage tips on their websites. Harvard University's official website offers techniques for obtaining better answers, and the University of Toronto has published comprehensive guidance and frequently asked questions regarding ChatGPT use [19]. Teachers should guide students in using ChatGPT, help them understand ChatGPT's limitations, and dispel ChatGPT myths. Additionally, teachers should keep pace with advancements, acquire relevant knowledge, and utilize ChatGPT to access more information, stimulating their innovative capabilities and designing better teaching methods. This will increase interaction between teachers and students.

4.2. Localization Recommendations

Localization can be categorized into two aspects: domestic localization for China and educational sector localization.

Feeding Chinese Text Data: ChatGPT's dataset is predominantly based on distorted perceptions of the world, heavily skewed towards Western countries, especially those with English content. The Chinese language corpus is significantly underrepresented in comparison. This results in ChatGPT's limitations when handling Chinese-related issues. To effectively leverage ChatGPT, it is essential to feed it with more Chinese text data to improve its performance.

Filtering Websites: Another consideration is that ChatGPT serves as a gateway to the external internet. ChatGPT can provide web page links to students. For students, this directly leads to accessing the external internet. Due to legal restrictions, accessing foreign websites from within China is constrained. ChatGPT generally does not provide links to foreign websites in Chinese mode, but it does so in English mode.

Educational Localization involves making appropriate adjustments to ChatGPT for the educational domain. Education is about nurturing individuals, and considering that ChatGPT does not provide guidance on values, students must be guided to form the right set of values and judgment. This means creating a specialized version of ChatGPT with professional guidance. This can follow a model similar to Harvard University's Sandbox mechanism.

In September 2023, Harvard University initiated a sandbox pilot program for generative AI. The sandbox aims to provide students with a closed, secure access environment that protects students' privacy to some extent and minimizes the risk of data being used to train public models. A sandbox effectively protects the school's confidential information. A "closed" environment can mitigate the impact of ChatGPT on education. Firstly, ChatGPT-generated text might confuse students, making it difficult for them to distinguish between verified and unverified information [20]. Such sandbox systems can also filter out low-quality information to some extent. Secondly, the sandbox represents a relatively secure domain where information is less likely to leak.

If each school can only train its own generative AI, the question arises of whether information should be exchanged between schools. Each university possesses different resources and areas of expertise. Over time, the advantages and disadvantages of individual universities become very apparent. If there is no exchange of information between universities, it can lead to information blockages between schools, hindering the transfer and iteration of technology and knowledge. Thus, forming a larger alliance comprising multiple schools that grants teachers and students access to ChatGPT from various universities is a feasible solution.

5. Conclusion

At the present stage, ChatGPT is not a mythical entity, nor does it possess destructive potential. However, it holds significant promise as an effective educational assistant. To prevent and address the issue of the "teaching and learning" divide, schools should proactively embrace ChatGPT to prevent the unfair allocation of educational resources. They should adjust curriculum structures, provide training for teachers and students, and innovate teaching methods and content. Emphasizing
the role of teachers is crucial, and increasing classroom engagement, student participation, and communication between teachers and students are key aspects to consider.

In the context of ChatGPT’s localization, higher education institutions should proactively feed it with Chinese text data. Implementing mechanisms similar to sandboxes for accessing ChatGPT can provide a degree of information filtering. To prevent the isolation of academic exchange, Chinese universities should also form alliances, granting teachers and students access to generative AI systems from various universities.

This research has analyzed potential issues of the "teaching and learning" division and localization in the practical application of ChatGPT, providing relevant recommendations. It offers guidance for the use of ChatGPT in Chinese higher education institutions. However, given the uncertainties surrounding the future development of ChatGPT and ongoing debates regarding ethical and copyright issues, most foreign universities have only proposed usage guidelines and few offering corresponding policies. Some of ChatGPT’s impacts may not be measurable in the short term, indicating the need for comprehensive policy adjustments as further practical experience is gained.

References


[17] Educators Battle Plagiarism As 89% Of Students Admit to Using OpenAI’s ChatGPT for Homework

