AIED in English Preparatory Courses: A Comparative Study of UK and North American Universities and Its Impact on Chinese International Student Mobility

Chenxi Zhang[1,a], Yating Qi[2,b,*]

[1]*Sol Price School of Public Policy, University of Southern California, 3551 Trousdale Pkwy, Los Angeles, the United States*
[2]*Graduate School of Education and Information, University of California, Los Angeles, 405 Hilgard Avenue, Los Angeles, the United States*
a. czhang00@usc.edu, b. qiyating@g.ucla.edu
*corresponding author

Abstract: With the development of AI and other computer technologies, AIED has begun to cause new reforms in the international education. At present, most Higher education institutions in European and American countries adopt AIED to varying degrees to assist and improve the teaching environment and teaching experience of international students. This article will mainly compare the application of AIED in universities in the United States, the United Kingdom, and Canada, interview Chinese students and faculty at each university through questionnaires, and analyze the interviewers' attitudes towards AIED. This article will also collect reviews from international students and international education practitioners on some commonly used learning assistance platforms based on AI technology, such as MOOCS and Grammarly. This article decoded the collected interview comments and coded and integrated similar information as well. The final conclusion of this article is that the vast majority of educational professionals and international students believe that the benefits of AIED's application outweigh the disadvantages, but ethical consideration could be drastically significant.

Keywords: AIED, Chinese International Students, Ethical Consideration, Plagiarism, Student Mobility

1.   Introduction

In recent years, with the continuous development of globalization, high-quality higher education in North America and UK has attracted more and more overseas students. According to the official data provided by the U.S. government, there are 948519 international students enrolled at U.S. higher education institutions and were on Optional Practical Training (OPT) in the 2021/2022 academic year, and the leading place of origin of international students are China (31%), India (21%), South Korea (4%), Canada (3%), Taiwan (2%), Vietnam (2%), Nigeria (2%), Saudi Arabia (2%), Brazil (2%), and Mexico (2%). [1]. China, is the largest place of origin of international students in the United States. In Canada, 100010 Chinese international students received Canadian study permit in 2022, which makes China the second largest origin countries of international students to Canada after India. [2].

The UK, as one of the largest destinations for Chinese international students in this world besides the United States, Canada, and Australia, is facing the same situation as well. In 2021-2022 academic year, there were 151690 total enrolments figures from China to the UK, which makes China become the top one international students sending country. [3]. Chinese international students, as one of the largest group international students in the world, are playing a vital role in changing the higher education system in English-speaking countries.

With the influx of Chinese international students into the university systems of the USA, Canada, and the UK, how to improve student's educational experience has become an important topic. With the continuous updating and iteration of new technologies, Artificial intelligence in education (AIED) has begun to become an option. This paper will focus on the comparative study about the application of AIED in universities' English preparatory courses and writing centers between UK and North America. Moreover, this research will also explore the impact of AIED adoption as a factor on Chinese international student mobility.

Why is studying international student mobility so important? Because it is related to the national economy of destination country for studying abroad, and student mobility can reflect soft power of various countries. Higher education is becoming a pillar industry in some developed countries, and the student mobility of Chinese international students is a crucial part of the higher education industry in these countries, due to the huge population of Chinese international students. For instance, in UK, according to analysts London Economics, the economic benefit brought by international students to the UK rose from £31.3bn in 2018-19 to £41.9bn in 2021-22 as growing numbers of international students choose UK as their stud abroad destination. [4]. And a partner at London Economics, Gavan Conlon said that international students put approximately 10 times more into the UK economy than they take out, boosting both local and national economic wellbeing of UK. [4]. In Canada, the total annual expenditure of international students, including their visiting families and friends, contributed $18.4 billion to Canadian economic activities in 2017, and $22.3 billion in 2018. [5]. By the way, the value of international education services amounted to 15% of Canada's total service exports to the world, and 17.4% in 2018. [5].

Beyond education and the national economy, student mobility has taken on additional meanings. Both British Council and the German Academic Exchange Service (DAAD), valued international student mobility as the "crucial aspect of internationalization of higher education." [6]. Most recently, Cull argued that student mobility can be the "soul" of public diplomacy. [6]. Some scholars mentioned that now the research of international relation, lacking a better critical understanding of the theoretical underpinnings of student mobility in a body politic examination of the student on the move. [6]. In fact, International Student Mobility (ISM) is a merging of the global knowledge economy with the concomitant creative cosmopolitans and international political economy benefits. [6]. Therefore, when focusing on student mobility, researchers should not just limit themselves to educational theory, but must combine international relations, economics, foreign affair and other fields for cross-field study. Certainly, Nancy Snow said "student mobility is a mainstay of the pursuit of national interest (in French *raison d'État*) that is a foundation of the realist school [7], along with the neorealist pursuit of power in international relations." [8]. Educational exchanges can be regarded as concrete and specific diplomatic events, with an essence of a cultural exchange between different countries. Snow argued that student choice of one study destination over other countries is greatly influenced by a nation's culture and the potential to experience living and studying within this destination. [6]. Additionally, based on the report provided by the British Council, study abroad is regarded as a global public good that positively influences one's perceptions and attitudes towards a host national culture. [9]. To be honest, student exchanges has been seen as a tool of public diplomacy in the West for a long history, which brought many positive-sum outcomes like pluralist values, and cosmopolitanism (citizen of the world). [10] [11]. However, international educational policymakers should follow the

nine rules identified by Morgenthau, including 4 fundamentals (The first fundamental: diplomacy must not carry the spirit of the crusader; The second: foreign policy must always be defined based on the national interest; The third: diplomacy is to examine the political scene from the point of view of other nations (their interests and security). [7].

Overall, international student mobility can be extremely significant for the United States, the United Kingdom, and Canada because international students can contribute lots of economic benefits and provide lots of employment opportunities. Student mobility can also reflect a country's cultural heritage and soft power, which plays a vital role in the country's public diplomacy. With the continuous development of new technologies, the intervention of AIED may become an important factor affecting international students' study abroad destination choice. As for the hypothesis, this article assumes that the degree of application of AIED is positively related to international student mobility, and verifies the correlation between them.

2. Literature Review

This study primarily focuses on the current application status of AIED in universities in UK, and North America to improve the English academic writing proficiency of Chinese ESL (English as a second language) students and explores how to combine traditional pedagogy with AIED to better improve teaching efficiency and effect of English preparatory courses. Additionally, by conducting a comparative study of the status of the application of AIED in the United States, UK, and Canada, we can understand the attitudes of these three countries' governments and university systems towards AI and AIED. The attitudes of these countries' governments will be reflected in education policy and immigration policy, thus affecting Chinese international students' choice of study abroad destinations.

As mentioned above, Chinese students, are the largest group of international students from non-English speaking countries in North America, as well as in Britain. And because of linguistic and cultural differences, most Chinese students will face more or less obstacles in English, especially academic writing, when they first enter North American campuses. According to the statistics of test-taker provided by IELTS official website, in 2022, the average score of the four IELTS sub-bands of Chinese native speakers is: Listening 6.6, Reading 6.5, Speaking 6.1, and Writing 6.1. [12]. Comparing with other sub-bands of IELTS, Chinese native speakers has a relative lower writing scores. English academic writing is an obvious weakness of Chinese international students, and how to improve their academic writing proficiency is dramatically related to their future development both professionally and academically.

In recent years, AI, especially AIED, has been booming, which makes it possible to integrate AIED into the pedagogy of English academic writing. AIED is being integrated into the teaching of English academic writing in multiple aspects. For example, essay grading software is on the rise because artificial intelligence has shown some promising results in the area of text analysis. [13]. AI robotic tutor, can provide tailored and valuable feedback to students and teachers based on their behaviors. [13]. In addition, in the current education of North American universities, some AI based educational auxiliary websites or software have been widely promoted and recognized by the universities officially, such as *Grammarly*. *Grammarly* is a machine learning-driven app combined with various NLP technologies for improving writing, which can provide personalized suggestions based on users' writing sample. [14]. In these years, the most topical and eye-catching educational auxiliary software could be ChatGPT. ChatGPT, as a cutting-edge language model that is a modification of OpenAI's Generative Pretrained Transformer (GPT) language model, can generate text that is indistinguishable from content that was authored by human, in other words, ChatGPT as a Chabot which can comprehend and react to human language has made it become an quite useful educational tool for teachers, especially for the teaching of academic writing. [15]. For instance, ChatGPT can be used in

analyzing students' writing samples, provide accurate grammar or vocabulary suggestions based on their personal writing habits.

In fact, many writing centers in North American universities have already started utilizing AIED to assist ESL students improve their writing skills. Writing centers in American universities offer one-on-one tutoring services for ESL students to revise their works and improve their academic writing. [16]. Recently, more and more writing centers in American universities have begun to encourage ESL students to use apps or software developed based on artificial intelligence frameworks to improve their writing skills, such as *Grammarly*, which is recommended by many writing centers. For example, the writing center of the University of Arizona Global Campus praised, "*Grammarly* is the best support for grammatical errors." [17]. And Dorothy Mayne, a faculty associate in the Writing Center at the University of Wisconsin-Madison, has shared an interesting phenomenon observed by herself. She mentioned that she noticed a new and overwhelming number of flyers and posters for *Grammarly*, the automated written corrective feedback (AWCF) software, when she firstly enter the undergraduate library at the University Illinois at Urbana-Champaign in 2015. [18]. As a tutor at the writing center, Dorothy suggested students follow the following writing process: making an appointment with the writing center, revising, and finally using *Grammarly* to do a final proofreading check. [18].

This notwithstanding, at present, there is still a lack of systematic and comprehensive research in the academia on relying on AI software to assist Chinese international students in second language acquisition. There is still high research potential in this field.

In fact, many writing centers in universities advocate the use of *Grammarly* or similar AI cloud language support software, but due to space limitation, it will not be elaborated here.

3. Significance

The main audience for this study is universities in the United States, Britain and Canada, as well as current and potential international students receiving higher education in these countries.

Through this research, universities can increase the adoption rate of AIED in a targeted manner based on the results, thereby improving the quality of teaching and students' educational experience. The application rate of AIED can affect the school's equipment level and students' educational experience. It has a strong correlation with the ranking of universities in many university world rankings whatever QS or USNEWS. Therefore, improving these indicators will also be of great benefit to improving school rankings, thereby attracting more students.

For students, the biggest benefit is that the learning experience is improved and they have more ways to improve English and other academic skills, thereby helping them better integrate into higher education in English-speaking countries. It has potential benefits for their career development after graduation and their integration into European and American cultural circles.

4. Methodology

This project will apply mainly qualitative methods approach to conduct research. For the part of qualitative research, this research will primarily use ethnography and case studies. The vital reason why ethnography is used as one of the main qualitative research methods is that, Chenxi Zhang, as the conductor of this research, and meanwhile as an international student from China who is a non-native English speaker, his personal social identity and cultural background are dramatically closely related to this project. To ensure the objectivity and neutrality of the information, the participant observation method should be utilized. In addition, this research will apply extensive use of case study as to confirm the specific language barriers in academic writing currently faced by non-native English-speaking international students in North America and the UK. The data collection method

will use questionnaires and interviews, and the target group will mainly be Chinese non-English-native international students at the undergraduate, master, and doctoral levels in the United States and Canada. Random sampling will be adopted.

This research will use quasi-experiments with a non-randomized design as well. I anticipate conducting a quasi-experiment at a university in the United States, a university in Canada, and a university in the UK, all of which should have a large population of Chinese students (more than 300) taking college-preparatory courses or bridge courses. And I choose these three universities (Canada: University of British Columbia (UBC), USA: University of Southern California (USC), UK: King's College London (KCL)) as the main field work places. The important reason for choosing these three schools is that all these three universities have a high reputation in both China and the countries where they are located. At the same time, they both have a large population of Chinese international students and offer English preparatory courses as well. According to the official report provided by the university separately, in 2022-23 academic year, UBC had 6133 students with Chinese citizenship [19], USC had 6513 Chinese international students [20], and over 7000 in KCL. [21].

As for English preparatory courses, for example, UBC has three English-language pathways to help international students meet the admission requirements, CAP (the Conditional Admission Program), Vantage One programs, and EFP (The English Foundation Program). [22]. USC and KCL also provide English preparatory courses for Chinese international students.

Additionally, from the personal perspective of this research's conductors, the reason why choosing these three universities is because conductors are relatively familiar with many professors and students in these universities, which could be beneficial for data collection. The main conductor, Chenxi Zhang, studied at UBC for his undergraduate degree, and pursued his master's degree in USC.

A non-equivalent groups design should be implemented, two groups of Chinese international students with the same IELTS or TOEFL writing scores (IELTS writing score of 5 or TOEFL writing score of 14-17) who are about to start preparatory courses will be selected and randomly divided into two classes. These two classes are quite similar, one is the treatment group and another one is the control group. For the treatment group, a combination of AIED and traditional classroom methods will be applied in the pedagogy for English academic writing. In contrast, for the control group, only traditional teaching provided by human teachers will be implemented.

All data related to this quasi-experiment will come from the experiment itself, and all collected data will be analyzed by the SPSS v27 version.

5. Result

Since the data collection of this research was conducted by questionnaires and interviews, in order to better compile and comprehend the collected information, a series of codes were encoded.

By decoding the collected text, some important data were presented in two pie charts (Frequency of adopting AIED/Participants' attitude toward AIED).

However, some codes or texts appeared with high frequency in the feedback collected from faculties and international students. For instance, **Ethical Consideration** came up quite frequently, especially in the questionnaires filled out by some faculty. On the one hand, this reflects the professionalism of the faculty and their cautious attitude towards education. It also reflects that AIED does have more ethical obstacles than traditional education, such as more easily being used for academic misconduct.

Additionally, Teachers in different professional fields also have different priorities in evaluating AIED. For example, the linguistics lecturers interviewed focused more on emphasizing the help of AIED in teaching, while downplaying the academic problems that may arise such as plagiarism. In contrast, some professors related to social sciences pay more attention to academic ethics issues and critically examine some of the advantages of AIED. Professors of some specific subjects also have

distinctive specific emphasis. For example, professors of statistics particularly emphasize the improvement of learning efficiency through AIED. Professors related to media studies focus more on the role of AIED in the promotion of higher education.

As for the advantages of AIED, The vast majority of participants mentioned **Saving Time** and pointed to popular AIED software or teaching platforms such as MOOCS, Grammarly and ChatGPT. Another high-frequency word is **Accessibility**, the application of AIED preliminary requires technical and equipment support, and secondly requires teachers to accept systematic AIED pedagogy training. In contemporary world, especially in some third world countries, the development of AIED still lacks the necessary soil. In the future, the mainstream of AIED should be cost markdown, and making AIED more accessible.
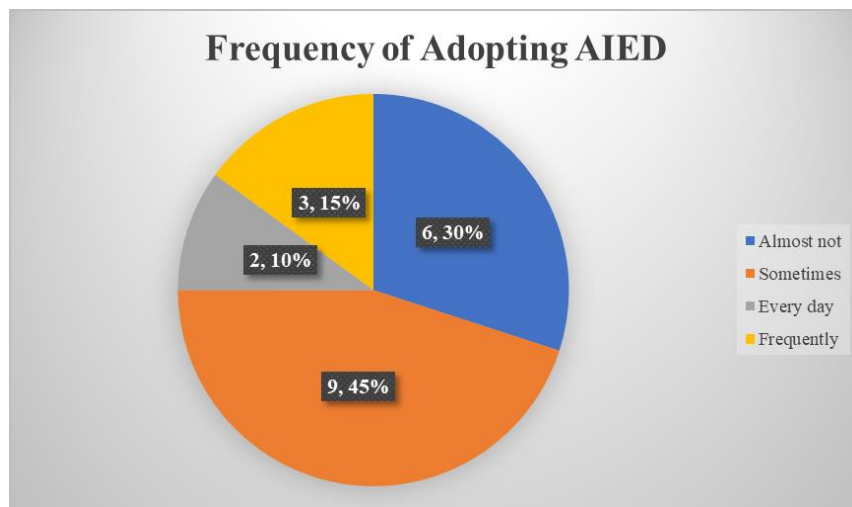
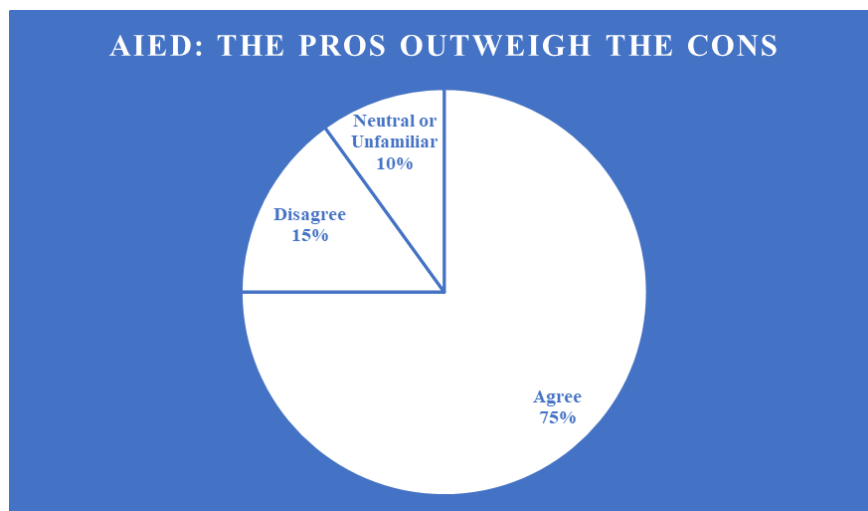

Figure 1: Frequency of Adopting AIED

Figure 2: AIED: The pros outweigh the cons

According to the collected data, most participants adopt in a relatively low frequency. However, most of them believe that AIED could be a catalyst to propel the development of international education. Although most people do not use AIEDs very much, the vast majority of respondents still firmly believe that AIEDs have broad development prospects.

6. Conclusion

Overall, at this stage, the application of AIED is still in its early stages, but many educators and international students firmly believe that the use of AIED has more benefits than disadvantages for international education and has broad development prospects. However, many people have questioned ethical consideration, which is something that AIED workers need to deal with.

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