



Volume 7  
Issue **02**

October 2023

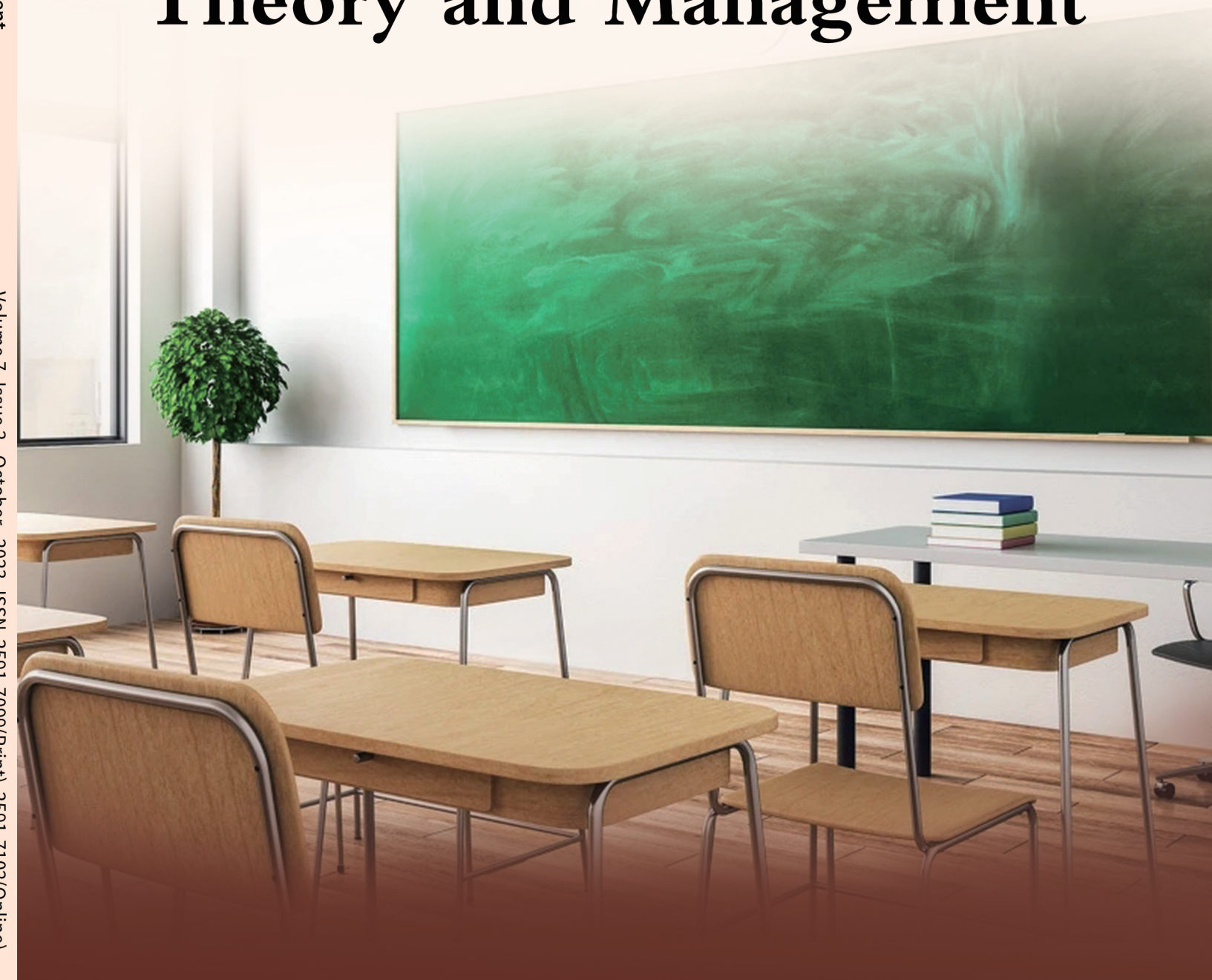
ISSN 2591-7099(Print) 2591-7102(Online)

# Journal of Educational Theory and Management



Journal of Educational Theory and Management

Volume 7 · Issue 2 · October 2023 · ISSN 2591-7099(Print) 2591-7102(Online)



SYNERGY  
PUBLISHING PTE. LTD.  
Tel: +65 65881289  
E-mail: [contact@s-p.sg](mailto:contact@s-p.sg)  
Website: [ojs.s-p.sg](http://ojs.s-p.sg)



**Journal of Educational Theory and Management**

**Volume 7 Issue 2 • October 2023 ISSN 2591-7099 (Print) ISSN 2591-7102(Online)**

<b>Editor-in-Chief</b>	Huimin Feng, Wuhan University
<b>Associate Editor</b>	Shuzhu Gao, Capital Normal University Yongfang Zheng, Aoji International School Deming Li, Jilin International Studies University
<b>Editorial Board Members</b>	Belkis Rojas Hernandez, University of Pinar del Río Yanjun Liu, Huanghuai University Chong Li, Dalian University of Technology Zhong Li, Tianjin University Min Yao, Hunan Agricultural University Zhimin Luo, Yunnan University Wei Xiao, Hunan Normal University Alean Al-Krenawi, Ben-Gurion University of the Negev Curriculum Rubens Antonio Gurgel Vieira, The University of Campinas Mamello Evodia Moeti, Central University of Technology Alexandra J. Holter, Brooklyn Center Community Schools Eddie G. Walker II, University of Minnesota Crookston Denise Uehara, Punahou School Julita Sansoni, Sapienza University of Rome Laia Lluch Molins, University of Barcelona Patient Rambe, Central University of Technology Ajeet Kumar Rai, Banaras Hindu University Changhong Shao, School of Foreign Languages, Shandong University of Finance and Economics Xianzhi Tu, South China Agricultural University Hai Tang, Wuxi Taihu University Feifei Ren, Shandong University of Technology Xuening Hu, Shanghai University of Finance and Economics Qingdao Wealth Management Institute Jingshuo Zhao, Shaanxi Forestry Group

**Copyright**

*Journal of Educational Theory and Management* is licensed under a Creative Commons-Non-Commercial 4.0 International Copyright (CC BY-NC4.0). Readers shall have the right to copy and distribute articles in this journal in any form in any medium, and may also modify, convert or create on the basis of articles. In sharing and using articles in this journal, the user must indicate the author and source, and mark the changes made in articles. Copyright © SYNERGY PUBLISHING PTE. LTD. All Rights Reserved.

Volume 7 Issue 2 • October 2023 • ISSN 2591-7099(Print) 2591-7102(Online)

# Journal of Educational Theory and Management

**Editor-in-Chief**

Huimin Feng, Wuhan University

# CONTENTS

- 1      **Exploring the Impact of Translanguaging on Chinese-speaking Students’ Academic English Writing: Taking CET-4 as an Example**  
Ruobing Han
- 9      **Research on Coupling Chinese Excellent Traditional Culture and Ideological and Political Course to Educate People**  
Jia Duan
- 14     **On Promoting Listening Comprehension of English Majors through Original English Movies**  
Jun Tan
- 19     **The Role of Mathematics in STEAM Education under the “Double Reduction” Policy**  
Wei Wang   Qi Li
- 25     **Research on the Impact of Core Strength Training on the Motor Skills of Tennis Beginners**  
Honglian Qin

# Exploring the Impact of Translanguaging on Chinese-speaking Students' Academic English Writing: Taking CET-4 as an Example

Ruobing Han\*

Graduate School, Nueva Ecija University of Science and Technology, Cabanatuan City, 8016, Philippines

## ARTICLE INFO

### Article history

Received: 28 May 2023

Revised: 6 July 2023

Accepted: 10 July 2023

Published Online: 30 October 2023

### Keywords:

Academic English writing

CET-4

Critical period hypothesis

Translanguaging

## ABSTRACT

This qualitative research study attempts to discover the real thinking process of learners who are native Chinese speakers in Academic English Writing (AEW) through interviews. Introspecting an EFL learner's thinking process in English writing is based on two theories: critical period hypothesis and translanguaging. The results of the study indicate that translanguaging has a positive impact on the English CET-4 writing of learners who lack proficiency in English. For those learners who lack proficiency in the second language, translanguaging is an effective auxiliary tool for them to complete AEW.

## 1. Introduction

This research will focus on the teaching of Academic English Writing (AEW), especially for bilingual students (Chinese-speaking). At present, there are many teaching methods in English, such as the communicative approach. According to the Critical Period Hypothesis (CPH), these English teaching methods are effective for non-native English primary school students. However, these teaching methods created by monolingual educators and researchers tend to ignore the thinking process of adult English as a Foreign Language (EFL) learners in the production of English language chunks and are blindly obsessed with teaching adult EFL learners to think in English. Some researchers advocate that second language classes should be fully immersed in a second language environment to

demonstrate the naturalness of language acquisition<sup>[1]</sup>. The influence of this claim continues to this day and is taken for granted in the second language teacher's consciousness<sup>[1]</sup>. Due to most English teachers advocating English thinking in English teaching and learning, almost all EFL learners avoid talking about translanguaging. In fact, most of the EFL learners and teachers (non-native English speakers) cannot think in English directly in AEW. As Sasaki said, when I do academic writing in English, I have to think in Japanese and translate it into English<sup>[2]</sup>. Because of this, the influence of translanguaging on learners' learning of AEW cannot be ignored. Additionally, every Chinese university student must take College English Test Band 4 (CET-4). Thus, CET-4 is a foreign language proficiency test that is highly concerned

\*Corresponding Author:

Ruobing Han,

Graduate School, Nueva Ecija University of Science and Technology, Cabanatuan City, 8016, Philippines;

Email: [hanruobing17@sina.com](mailto:hanruobing17@sina.com)

by Chinese college students. The findings of the study, which takes CET-4 writing as an example, will help the innovation of CET-4 teaching and learning to avoid formalism in instruction. Exploring this research problem based on CET-4 writing not only provides a specific reference for the whole research, but also narrows the scope of the research.

The aim of this study is to discover the real thinking process of learners who are native Chinese speakers in AEW through interviews. Introspecting an EFL learner's thinking process in English writing is based on two theories: critical period hypothesis and translanguaging. In addition, some pedagogical implications in Teaching English to Speakers of Other Languages (TESOL) environments will be discussed so that monolingual English teachers to have a more comprehensive understanding of EFL learners.

## 2. Literature Review

The field of this research belongs to the teaching of AEW in TESOL. The keywords entered in the search for literature include CET-4, translanguaging, AEW, EFL teaching, CPH, and second language acquisition (SLA). Through the literature retrieval of these six keywords, the main findings are as follows.

### 2.1 CET-4 and AEW

CET-4 consists of writing, Chinese-English translation, listening, and reading<sup>[3]</sup>. The weight of writing accounts for 15% of the total score of the examination<sup>[4]</sup>. CET-4 writing requires candidates to write at least 120 words<sup>[5]</sup>. Hence, because of the lightweight of writing, some teachers do not teach students relevant writing skills<sup>[4]</sup>. More specifically, the mistakes in the pedagogical concept of college English writing make it difficult for teachers to effectively guide students' academic writing and students also show a lack of confidence in English writing<sup>[6]</sup>. CET-4 writing provides a positive washback for English courses in universities<sup>[4]</sup>. Zheng and Cheng stated that CET is a language test with Chinese characteristics<sup>[5]</sup>.

### 2.2 Translanguaging and EFL Teaching

The purpose of translanguaging is to use students' existing language resources to improve their understanding of the second language and achieve satisfactory performance in the EFL classroom<sup>[7]</sup>. Currently, Nagy stated that translanguaging is used to describe the alternation between two different languages and the linguistic process that appears in this alternation<sup>[8]</sup>. Additionally, Baker<sup>[9]</sup>

points out four advantages of translanguaging: 1) It is helpful for EFL learners to better understand the theme they are facing. 2) It is beneficial to improve the parts of the language where EFL learners are at a disadvantage, such as the academic language. 3) It is helpful for EFL learners to report guidance from school to parents and strengthen home-school cooperation. 4) It is conducive to the integration of EFL learners with native speakers in order to develop their English skills while learning content. Yilmaz<sup>[10]</sup>, Wang<sup>[11]</sup> and Hungwe<sup>[12]</sup>, in their respective studies, point out that translanguaging is a scaffolding for EFL/ESL learners to learn a second language to help them understand the meaning of the content.

### 2.3 CPH and SLA

According to the SLA theory, the performance of foreign language (or L2) learning is affected by the age factor<sup>[13]</sup>. CPH is a hypothesis based on age factors<sup>[14]</sup>. The theoretical evidence for the view that children are more likely to succeed in learning a second language than adults comes from the CPH<sup>[15]</sup>. Similarly, Birdsong pointed out that the decline in the learning ability of languages is related to the increase in age<sup>[16]</sup>. Specifically, CPH believes that language acquisition exists in a limited developmental period, after which the window closes and it is difficult for both native and second languages to reach normal levels<sup>[16]</sup>.

### 2.4 The Gap in Literature

These studies provide references on the general level of English teaching and learning, linking some theories with teaching practice. However, this connection lacks universality and specificity. For example, some researchers' study on CET-4 is only related to AEW but ignores its connection with pedagogical theories (CPH, SLA) and EFL/ESL teaching methods (translanguaging). Some literature on pedagogical theories and EFL/ESL teaching methods do not focus on specific English teaching practice and learning in the Chinese context, such as CET-4. To conclude, at present, the research on the teaching and learning of AEW for Chinese-speaking learners lacks the relationship with pedagogical theories and linguistic teaching methods.

## 3. Research Questions

Based on the above, this research will explore how translanguaging affects EFL students' performance in AEW. Specifically, the specific research questions set in this study are as follows:

1) How does translanguaging enable EFL learners to

organize language to express their ideas in CET-4 writing?

2) What kind of thinking process does an EFL learner's brain experience in CET-4 writing?

## 4. Methodology

### 4.1 Research Design

The design of this study belongs to qualitative research. This study attempts to understand the thinking process of Chinese students in CET-4 writing by interviewing selected participants to determine the impact of translanguaging on their AEW. Qualitative research often analyzes textual data from interviews<sup>[17]</sup>. Furthermore, McKay stated that understanding the experience of a particular language learner group has become the general goal of qualitative research in the context of language education<sup>[18]</sup>. Generally speaking, the method of qualitative research is related to phenomenology and its goal is to understand the complexity of our world<sup>[17]</sup>. Therefore, this study was general qualitative research based on interviews. Participants interviewed in this research can also show the characteristics of qualitative research.

Kervin et al. pointed out that purposive sampling is usually used for the selection of participants in qualitative research and the sample is small; the participants selected from the use of the purposive sampling are representative in this group<sup>[17]</sup>. Hence, the six participants selected in this research were all Chinese-speaking students. They were my classmates. Three participants are currently studying for a master's degree at UOW, two of whom have studied English for Tertiary Studies (ETS) course at UOW College. The other three participants are currently studying for master's degrees at universities in mainland China. All six participants passed CET-4 during their undergraduate course in China. Passers of CET-4 generally have the necessary English academic writing skills. This provides a convenient condition for writing practice (see Appendix 2) and reading assessment (see Appendix 3) in the questionnaire.

### 4.2 Data Collection Methods

Data collection for this study was based on records of semi-structured interviews with participants. The semi-structured interview can not only limit the topic range of the interviewees, but also help to develop more specific questions, so that more information can be obtained according to the content of the interviewees<sup>[19]</sup>. In addition, based on ethical data collection considerations, data should be collected in a way that both interviewers

and interviewees feel convenient<sup>[17]</sup>. Because of this, I chose to interview participants using WeChat video calls. Moreover, the questionnaire (see Appendix 1) for the interview was sent to the interviewee's email one week before the video interview. Interviewees are required to complete writing practice (see Appendixes 2 & 4) and reading assessment (see Appendix 3) before the formal interview. This order of data collection effectively reduced the adverse effects of incomplete data collection from interviewees on research projects. Semi-structured interviews vary the duration of interviews for each interviewee, with a maximum of about 55 minutes and a minimum of about 35 minutes. The content (see Appendix 1) of the interview closely revolves around the interviewee's experience in learning and using English. The contents of the text are selected from the CET-4 test paper, which ensures the application of the grade. It is worth mentioning that interviewees can choose to be interviewed in English or Chinese. Two interviewees in China chose to use Mandarin for interviews. This made the interview more efficient and beneficial to the trustworthiness of this research be mentioned below.

To ensure the trustworthiness of this qualitative research, I have sent the recording to interviewees for double-checking. As Kervin et al. said, as the member-checking is similar to triangulation, the participants review their answers as to whether they have clearly expressed their thoughts and clarify them, so sharing the interview records with the participants is helpful for the accuracy of the record<sup>[17]</sup>. This double-checking of sharing interview records with interviewees is of the same meaning as the member-checking. Ensuring the accuracy of the data from interviews, that is, to a certain extent, ensures the trustworthiness of qualitative research.

### 4.3 Ethical Considerations

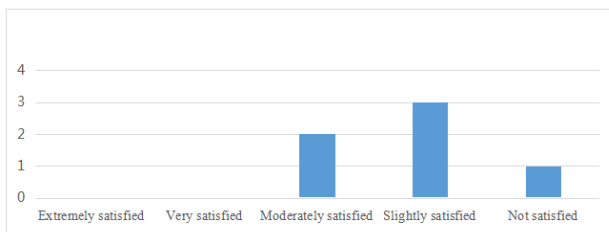
After seeking the consent of the participant, an electronic version of the informed consent was sent to the participant. The purpose of this approach is to inform participants of the real purpose of the study and the protection of their privacy. Researchers should send informed consent to invited participants to ensure that they participate voluntarily and without harm<sup>[17]</sup>. Additionally, Kervin et al. pointed out that participants' names should be hidden or pseudonyms should be used in the findings of the research<sup>[17]</sup>. Because of this, in the informed consent form, the investigator (author) promised that the participants' names would be replaced by letters and numbers in the research report and that the audio or video recordings of the interview would not be shown to any third party.

## 5. Findings and Discussion

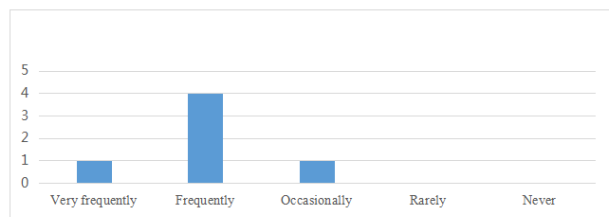
Through interviews with six interviewees, analyzing their writing practice and reading evaluation, it was found that they used the first language more or less to brainstorm before writing in English and be accompanied by translanguageing in writing. The role of translanguageing in the CET-4 writing of these interviewees has both positive and negative aspects. Although the interviewees are accompanied by translanguageing in English writing, there are obvious differences in their attitudes towards translanguageing.

### 5.1 Participants' Attitude towards Translanguageing

An interesting result of interviews with participants was that they tended to be hostile to translanguageing (see Figure 1). Although their English writing is inseparable from translanguageing (see Figure 2).



**Figure 1.** Are you satisfied with your behavior of brainstorming in your first language when writing in English?



**Figure 2.** How often do you use Chinese during the brainstorm of academic English writing?

Participants' attitude towards translanguageing is mainly influenced by external influences such as teachers' speech and common concepts of English teaching and learning. Some researchers claim that the first language of bilinguals harms the ability of second language writing<sup>[20]</sup>. Additionally, the use of target language in the second language classroom has become the mainstream concept and language policy in different countries<sup>[11]</sup>. This evidence establishes that translanguageing is not advocated or even resisted in second language teaching and learning. Because of the influence of external public opinion, L2 learners have formed a concept in their consciousness that learning a second language should be taught in the context

of the target language. Therefore, the participants' attitude towards the relative resistance to brainstorming in English writing is logical. Although translanguageing is resisted by the attitude of participants, it is not possible to abandon translanguageing based on attitude factors in their English writing practice.

### 5.2 The Influence of Translanguageing on AEW

#### 5.2.1 Causes of Translanguageing

The language environment and the way of English teaching in primary and secondary schools in China are the main reasons why the participants form translanguageing. In Chinese middle and primary school English classes, teachers almost use Chinese to teach English, especially in English grammar. Participants described their own experiences in learning English as follows:

From the third grade of primary school to the university, teachers have been using Chinese to teach English. (Fan)

You know, we learned English from the beginning by contrasting Chinese with English. Those greetings in class are just forms such as "Good morning everyone" and "The class is over". Most of the key knowledge, such as grammar, is explained by the teachers in Chinese. (Wang)

The first "hello" is explained in Chinese. We are not learning English but Chinese-English or English-Chinese translation. (Liu)

There are translation questions on the English exam in China. The translation question of CET-4 has always been very distressing to me. (Cao)

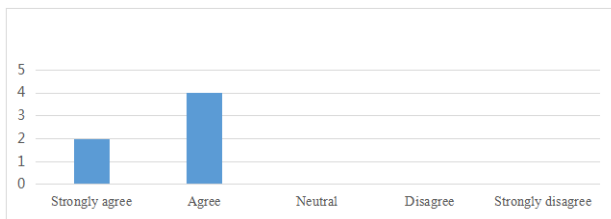
The above selected representative responses are from four of the six interviewees. Obviously, the formation of translanguageing is influenced by the teaching language environment, the types of test questions and the teaching methods. As a Chinese high school English teacher said, I often use Chinese to explain new knowledge and compare Chinese with English; most of the class time is spent explaining key grammar knowledge and English-Chinese or Chinese-English translation; grammatical rules and sentence patterns are practiced through translation and substitution exercises<sup>[21]</sup>. This evidence shows that in Chinese public schools, English is taught in a bilingual way, and the usage of Chinese is far more than that of English. Of course, the age of learning a second language is also one of the reasons for translanguageing. As the participant (Fan) said, English courses of the national curriculum standard started in the third grade of primary school. If children do not begin to learn languages other than their mother tongue before the age of nine, they usually need to



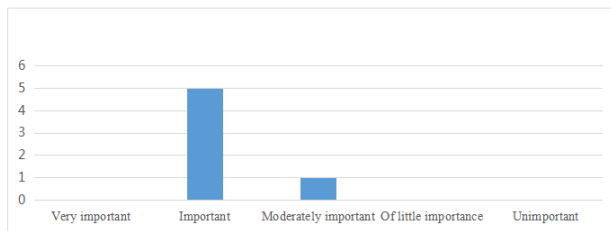
think in their mother tongue or translate it into their mother tongue to understand it when they learn a foreign language in the future<sup>[22]</sup>. Hence, students in the third grade of primary school in China are usually between the ages of eight and ten, which has theoretically (CPH) missed the best age for second language acquisition. In addition, it is worth mentioning that Chinese school education is examination-oriented, if the examination paper has the translation part, the translation practice in the daily course will naturally become the teacher's and the student's attention. Because of this, if students are only learning English in English class rather than learning translation, perhaps their translanguaging will not be so ingrained.

### 5.2.2 Positive Influence—Assisting Understanding and Brainstorming

Through the interview and participants' writing practice and reading evaluation, some findings of the positive effect of translanguaging on their English CET-4 writing were obtained. The following is the data obtained by using Likert scales (see Figures 3 and 4).



**Figure 3.** Does translanguaging contribute to your academic writing in English?.



**Figure 4.** At present, is translanguaging important to your CET-4 writing?.

From the data collected by Likert scales in the interview, it can be seen that participants cannot do without translanguaging in English writing and it plays an important role in CET-4 writing. As the interviewees said:

I usually think in Chinese about the idea of writing. I leave my Chinese thinking only when I consider the sentence pattern. (Huang)

Chinese helps me understand the content of the reading assessment. If you don't let me understand the meaning of

the text in Chinese, I really can't understand the meaning of the text. (Wang)

I don't think it's bad for English writing to brainstorm and translate in Chinese, which helps me finish my writing task faster. The writing assessment rated what I ended up writing on paper rather than checking what language I'm thinking in when I'm writing. (Fan)

I can brainstorm before writing in English, but that will make my final writing worse than thinking in Chinese. Because I can create more ideas in Chinese and delete ideas that I can't translate into English, which is still more than I can think directly in English. (Pan)

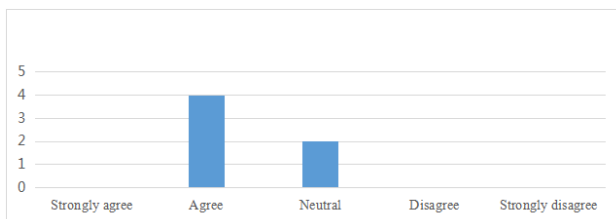
The responses of four of the participants showed that translanguaging played the role of scaffolding in their AEW. The responses of the other two participants were similar to the four participants, both expressed that translanguaging helps them effectively organize language in AEW. Although this is a one-way language conversion, L2 learners are able to construct their ideas through their familiar language as a scaffold<sup>[8]</sup>. More specifically, L2 learners convert knowledge from their mother tongue into a second language through translation, which allows them to gain a broader perspective to fully discuss a topic<sup>[20]</sup>. This evidence establishes that making full use of the resources from the first language in the brainstorming of L2 writing has a positive effect on improving the quality of writing. This phenomenon is also reflected in participants' writing practice and reading assessment in this research. Because the essay plan sheet (see Appendix 4) is provided in the writing practice, their mental process in writing is all shown on the sheet. In the brainstorming of ideas on the sheet, it was not surprising that four of the six participants were written in Chinese. Two other participants said in interviews that they had become accustomed to writing down their ideas in English because they had used the sheet in UOW College (language schools). However, the two participants (Pan & Fan) said that writing in English was only intended to be more convenient when writing a paper, and that thinking in the brain was still dependent on Chinese. Obviously, they simply advanced the steps of translanguaging so that the process of thinking was hidden deeper. After evaluating the participants' writing practice, it was found that anyone with clear thinking and comprehensive perspective in the essay plan sheet had a relatively excellent performance in this writing practice. Although translanguaging is often accompanied by a small number of grammatical errors in L2 writing, it is strong support for L2 students to translate a large amount of knowledge they have learned in their mother tongue into L2 writing. As Cook said, L2 learners are the social life and psychol-

ogy cultivated in their mother tongue environment <sup>[1]</sup>. It is helpful for adult L2 learners to make full use of the knowledge they have acquired in their first language.

The positive impact of translanguaging is particularly true in the reading assessment. The quality of the summary written by the three interviewees (Wang, Cao & Liu) after reading the Chinese translation of the reading materials was significantly improved compared with that written directly from the original English text. These improvements are mainly reflected in the supplement of missing important information points. Aside from the fact that one participant (Huang) did not make any progress due to lack of academic ability, the other two participants (Pan & Fan) did well when they wrote the summary based on the original English text. However, it is worth noting that the two participants still rely on Chinese to understand the meaning of the text although they do not read Chinese translation, which proves that all participants are at the level of emergent bilinguals. Emergent bilinguals are more dependent on the first language when they use L2 because of their low proficiency in the second language <sup>[8]</sup>. Thus, although this one-way translanguaging at this level has played an active role in the participants' CET-4 writing, it will be an obstacle for them to develop their AEW skills to a higher level.

### 5.2.3 Negative Influence—Hindering the Further Development of AEW Skills

Most participants believe that translation thinking hinders the development of their AEW skills (see Figure 5).



**Figure 5.** Does translanguaging hinder your development of English writing skills to another level?.

The Likert scale showed participants' concerns about whether translanguaging could continue to develop their AEW skills. As two of the participants said:

I can write an essay with more than two thousand words in English, but most of the grammatical errors in the paper are caused by the Chinese thinking in writing, which affects the quality of my English writing. (Fan)

Brainstorming in the first language allows me to quickly build the framework of the article. But mistakes in writing details are hard to avoid. Whether to use attributive

clauses or to divide them into two separate sentences is a question. (Wang)

According to the answers of these two interviewees, although they can express themselves relatively effectively in academic English writing, they have shortcomings in English grammar. Grammatical errors are reflected in the participants' writing practice, which is mainly reflected in the use of articles, singular and plural. These English grammatical points are ignored in Chinese. Grammatical and lexical errors in L2 writing usually result from the literal translation of the first language <sup>[20]</sup>. If it is only a literal translation of ideas, it will bring great risks to English writing. Therefore, one-way translanguaging is an obstacle for L2 learners to develop their AEW skills to another level.

## 6. Limitation and Further Research

There are two limitations to this research. Firstly, the use of interviews to collect data brings limitations to this research. According to Kervin et al. research, the limitations of interviews are mainly reflected in the bias of researchers and participants in asking and answering questions <sup>[17]</sup>. Qualitative research usually uses interviews to collect data. Qualitative researchers focus on individual subjective feelings and use smaller sample sizes and non-standardized measurements in the data collection process <sup>[17]</sup>. As a result, this is a natural flaw in qualitative research in terms of data collection. Secondly, the researcher (author) is limited by the current environment in this study. The sample size can only be kept at a small level, and the academic background of the participants is postgraduate students, which may lead to a lack of representation of undergraduates.

Further research will develop the current general qualitative research into action research to expand the sample size and add to the teaching process. The participants in the action study are generally selected by purposeful sampling, and the advantage of this sampling method is that it selects the special group that needs to be improved <sup>[23]</sup>. Action research with teaching practices may be more effective in evaluating the impact of translanguaging on Chinese students' AEW.

## 7. Conclusions

In conclusion, translanguaging has a positive impact on the English CET-4 writing of learners who lack proficiency in English. Nevertheless, for learners who want to further improve their academic English skills, one-way translanguaging has become an obstacle to their progress. For the answers to two research questions, firstly, translan-

guaging helps EFL learners to quickly construct the structure of writing using the knowledge have acquired from their mother tongue. Secondly, EFL learners use Chinese for brainstorming and then translate ideas into English according to the grammatical rules. Therefore, the argument is clear that for those learners who lack proficiency in the second language, translanguaging is an effective auxiliary tool for them to complete AEW.

## 8. Critical Reflection

Through this research project, I got some pedagogical implications. Firstly, a teacher's review of his problems in learning English may help to identify some problems for learners who are in the same group with him. Translanguaging, a unique way of thinking for EFL/ESL learners, can only be understood by the EFL/ESL teacher with the same mother tongue. English teachers who are non-native English speakers should face up to their difficulties in English learning so as to effectively solve the practical difficulties of L2 learners.

Secondly, language teaching should choose the appropriate teaching method according to the actual situation of learners. Adult L2 learners already have learned a lot of knowledge in their mother tongue, and they may lack only proficiency in the second language. Cummins's interdependence theory points out that the proficiency of the first language is positive for the development of the second language<sup>[20]</sup>. Use translanguaging to give full play to the skills they have learned in their mother tongue to apply to second language learning such as writing reports and summaries. In second language writing, the use of the first language does not produce a large number of negative effects, only a few grammatical errors<sup>[20]</sup>. Hence, Choosing appropriate teaching methods in teaching is essential to improve learners' second language ability in a short time.

To sum up, the implication of this research project is that both teaching and research should proceed from reality, so as to effectively discover and solve the problems in teaching.

## References

- [1] Cook, V., 2013. *Second language learning and language teaching*. Routledge: Milton Park.
- [2] Sasaki, M., 2001. An introspective account of L2 writing acquisition. *Bilingual Education and Bilingualism*. 110-120.
- [3] Xu, J., Liu, Y., 2019. CET-4 score analysis based on data mining technology. *Cluster Computing*. 22, 3583-3593.
- [4] Li, H., 2009. Are teachers teaching to the test? A case study of the College English Test (CET) in China. *International Journal of Pedagogies and Learning*. 5, 25-36.
- [5] Zheng, Y., Cheng, L., 2008. Test review: College English Test (CET) in China. *Language Testing*. 25, 408-417.
- [6] Ying, Z., 2018. Exploring construction of college English writing course from the perspective of output-driven hypothesis. *English Language Teaching*. 11, 188-192.
- [7] Lewis, G., Jones, B.L., Baker, C.F., 2012. Translanguaging: Developing its conceptualisation and contextualisation. *Educational Research and Evaluation*. 18, 655-670.
- [8] Nagy, T., 2018. On translanguaging and its role in foreign language teaching. *Acta Universitatis Sapientiae, Philologica*. 10, 41-53.
- [9] Baker, C., 2011. *Foundations of bilingual education and bilingualism*. Multilingual Matters: Bristol.
- [10] Yilmaz, T., 2021. Translanguaging as a pedagogy for equity of language minoritized students. *International Journal of Multilingualism*. 18, 435-454.
- [11] Wang, D., 2019. Translanguaging in Chinese foreign language classrooms: Students and teachers' attitudes and practices. *International Journal of Bilingual Education and Bilingualism*. 22, 138-149.
- [12] Hungwe, V., 2019. Using a translanguaging approach in teaching paraphrasing to enhance reading comprehension in first-year students. *Reading & Writing-Journal of the Reading Association of South Africa*. 10(1), 1-9.
- [13] Abello-Contesse, C., 2008. Age and the critical period hypothesis. *Elt Journal*. 63, 170-172.
- [14] Lianrui, Y., 2012. The critical period hypothesis in second language acquisition. *Foreign Language Learning Theory and Practice*.
- [15] Hakuta, K., Bialystok, E., Wiley, E., 2003. Critical evidence: A test of the critical-period hypothesis for second-language acquisition. *Psychological Science*. 14(1), 31-38.
- [16] Birdsong, D., 1999. *Second language acquisition and the critical period hypothesis*. Routledge: Milton Park.
- [17] Kervin, L., Vialle, W., Herrington, J., et al., 2006. *Research for educators*. Social Science Press: Delhi.
- [18] McKay, S.L., 2006. *Researching second language classrooms*. Routledge: Milton Park.
- [19] Rabionet, S.E., 2011. How I learned to design and conduct semi-structured interviews: An ongoing and continuous journey. *The Qualitative Report*. 16, 563-

- 566.
- [20] Alzahrani, T., 2019. Investigating translanguaging practices and attitudes of international students in higher education at an American university. *Arab World English Journal: Special Issue: Application of Global ELT Practices in Saudi Arabia* September.
- [21] Xinmin, Z., Adamson, B., 2003. The pedagogy of a secondary school teacher of English in the People's Republic of China: Challenging the stereotypes. *RELC Journal*. 34, 323-337.
- [22] Jiang, C., 2021. Critical period hypothesis in language acquisition. *Lecture Notes in Education Psychology and Public Media*. 1-5.
- [23] Tomal, D.R., 2010. *Action research for educators*. Rowman & Littlefield Publishers: Lanham.

# Research on Coupling Chinese Excellent Traditional Culture and Ideological and Political Course to Educate People

Jia Duan\*

Xi'an Technological University, Xi'an, Shaanxi, 710021, China

## ARTICLE INFO

### Article history

Received: 10 July 2023

Revised: 15 July 2023

Accepted: 19 July 2023

Published Online: 30 October 2023

### Keywords:

Ideological and political course

Chinese excellent traditional culture

Education

College

## ABSTRACT

As a great country with a long civilization of more than 5,000 years, China has developed both inheritance and innovation during its long history. In the changing times, the Chinese nation, with its indestructible stance, has continuously condensed its fine traditional culture and formed the spirit of our nation through the wash of time. The article discusses the importance of combining the excellent Chinese traditional culture with ideological and political course, the dilemmas faced and the countermeasures to cope with them, in order to promote the inheritance and development of China's excellent traditional culture and make suggestions for students to better learn and carry forward the excellent traditional culture.

## 1. Introduction

A significant component of the ideological and political curriculum at colleges and universities is the promotion of outstanding Chinese traditional culture, which is also a powerful means of preserving and passing on excellent Chinese traditional culture. China's colleges and universities hold a unique position in the promotion and transmission of the excellent traditional culture of that country, and the educational material they offer incorporates a wide range of cultural plates, serving as both the theoretical foundation for the ideological and political curriculum and the conduit for outreach efforts in moral education. Long in existence, China's superb traditional culture is

renowned for the breadth and depth of its growth. In the course of ideological and political education, Chinese fine traditional culture is reflected and typical, but many students don't attach sufficient importance to it, and they are not very enthusiastic about learning the ideological and political courses, meanwhile, some teachers have problems with the implementation of ideology and politics, and these situations greatly reduce the teaching quality of the whole teaching. Therefore, it is necessary to avoid formalized teaching in the ideological and political course, to make it clear that it is important for us to incorporate the fine tradition of China into our ideology and politics, and to continuously enrich the teaching methods of the ideological and political course<sup>[1]</sup>.

\*Corresponding Author:

Jia Duan,

Xi'an Technological University, Xi'an, Shaanxi, 710021, China;

Email: 568002929@qq.com

## **2. The Significance of Coupling Education between Chinese Excellent Traditional Culture and Ideological and Political Courses**

### **2.1 It Helps to Enrich the Teaching Content and Theme of Ideological and Political Courses**

Colleges and universities are the most crucial gateway to provide excellent talents to the society, and the ideological education students receive in school will have a direct impact on the way they deal with people after they enter society and work. Therefore, institutions of higher learning are entrusted with the task of ideological and political education of university students. Ideological and political education in China involves not only the development of modern culture but also the development of it. And more from the excellent Chinese traditional culture. Under the continuous borrowing and innovation of generations of Chinese people, Chinese excellent traditional culture has become a major feature of modern society with its unique charm and cultural connotation. Since the Spring and Autumn period, many different cultures such as Confucianism, Mohism and Legalism with their different ideas as the core have built a unique national culture together, and have continuously enriched our traditional culture over the long years. Nowadays, the teaching content of the ideological and political courses of higher learning is focused on current affairs, while ignoring the importance of traditional culture. This has lost many excellent educational resources and failed to combine China's excellent traditional culture with ideological and political courses.

Therefore, colleges and universities should increase the education and training of students' ideological and political culture, and at the same time pay attention to combining the excellent traditional culture with it, so as to improve students' understanding and grasp of the ideological and political course, at the same time, it has enriched the ideological and political education in higher education, making it a compulsory course for the schools, teachers and students, thus allowing students to know and learn more about the excellent Chinese traditional culture.

### **2.2 It Helps to Inherit and Carry Forward the Fine Traditional Chinese Culture**

The combination of Chinese fine traditional culture and the thought politics course can promote the development of the thought politics education, and promote the fine traditional culture of China. There are a lot of traditional cultures in the course of college ideology and politics, such as moral etiquette education, values education and so on. Our country is a country that pays attention to etiquette and advocates peace, which is inextricably linked to the

humanistic spirit contained in our traditional culture. Throughout history, we have accumulated a rich traditional cultural connotation, forming a unique moral system, from individual behavior to family ethics, and even in the national civilization our traditional cultural forms are very different from foreign cultures, we advocate unity, focus on fairness and honesty, rather than just going after profit. Western contemporary civilization has had some influence on our civilization, leading the students of colleges and universities to ignore traditional culture more and more. To change the status quo, we must carry out personalized construction through Chinese humanistic spirit, and colleges and universities should be based on traditional humanistic spirit and the main concept of ideological and political courses, based on traditional culture, and thicken the theme idea of ideological and political course.

### **2.3 It Helps to Cultivate Students' Sense of Responsibility to the Nation and the Country**

The prosperity and development of a country require the common struggle of all its people, and it is the great spiritual belief of a country that holds people together. China is an ancient and great nation, and although she has experienced numerous ups and downs in the passage of time, she still stands in this prosperous and diversified world, and the spiritual culture she inherited has been tested over time. In times of war, the Chinese people won the honor of national victory by the national spirit, and in today's peaceful times the Chinese people still have to uphold a strong patriotic heart for the country and the nation. College students are the backbone of the young generation in the new era, so colleges should put the education of national emotions and patriotic emotions for them in the teaching content of ideological and political courses, and the cultivation of these national emotions and patriotic emotions is through the understanding and inheritance of Chinese traditional culture, and only by deeply understanding and grasping these emotions can we love our nation and country more, so that in the students' Only by deeply understanding and grasping these emotions can we love our nation and country more, thus planting a seed of struggle for the great rejuvenation of the nation deep inside students' hearts <sup>[2]</sup>.

## **3. The Practical Dilemma of the Coupling between Chinese Excellent Traditional Culture and Ideological and Political Courses**

### **3.1 Students' Lack of Awareness of Traditional Culture**

As the process of globalization continues to accelerate, western ideas and ideologies are gradually spreading to

society through the Internet, which in a sense causes students' lack of knowledge about traditional Chinese culture. For example, most of the students are familiar with some foreign festivals, such as Halloween and April Fool's Day, but they don't know much about traditional Chinese festivals like Qingming Festival and Dragon Boat Festival. Some students are keen on watching European and American movies, but they don't care about traditional films from their country. At present, our society is in a process of rapid development, and more emphasis is placed on the individual work ability of university students, which causes them to attach great importance to their individual application ability and neglect the improvement of their cultural awareness and quality. In addition, there are some students who do not fully realize the contemporary value that traditional culture has, and they feel that traditional culture is out of touch with the contemporary way of life, and has no practical significance either for individuals or for the development of the whole society. From this point, we can see that some college students still lack consciousness about the inheritance and development of traditional Chinese culture, which is why when the teachers bring in the elements of traditional Chinese culture, it often happens that some students cannot fully understand and absorb them.

### **3.2 Poor Connection between Traditional Culture and Ideological and Political Education**

In recent years, as the Party Central Committee and the state have conducted in-depth traditional cultural study and college ideological and political course, the organic integration and in-depth practice of them have achieved remarkable results. For example, the focus on character cultivation and cultivation of the national spirit of the country is incorporated into the textbook of "Ideological and Moral Foundations and Legal Cultivation" in universities. However, on the whole, integrating ideological and political education with Chinese traditional culture in higher education has not been fully integrated. In the teaching of ideological and political courses, it is mainly manifested in the lack of creativity in the teaching methods of applying traditional culture in the classroom. For example, some traditional cultural ideas are not deeply analyzed and creatively transformed, and they cannot be integrated with the content of the ideological and political course with the times. In addition, when some teachers use traditional culture to teach ideology and politics, it is difficult to understand and understand its meaning in depth, and they cannot test it, and they can only use some sentences mechanically without conducting a comprehensive study. Such a mechanical combination will not be

able to fully release the positive influence of traditional culture in college ideology and politics.

### **3.3 The Cultural Quality of the Teachers Needs to be Improved**

In the unfolding of educational activities, teachers have the identity of guide and conductor, so the state and society should have stricter requirements on the level of teachers' cultural literacy. However, in the current situation, some college teachers of ideological and political courses lack interdisciplinary theoretical and disciplinary knowledge and cannot effectively adapt to the high requirements and standards of the current ideological and political course teaching work. Some teachers' cultural literacy is not high, so it is difficult to play a role in promoting the integration of traditional culture and ideological and political courses, which makes it difficult to make the traditional cultural factors in ideological and political courses live and thorough, thus affecting ideological and political courses to play its role in educating people. In the teaching methods of ideological and political courses, most teachers adopt mechanical, monotonous and uncreative teaching methods. In addition, in the selection of teaching contents, teachers focus on theoretical knowledge of subjects, meanwhile, the training of students' comprehensive ability and humane spirit is neglected. Teachers don't attach sufficient importance to traditional culture or do not know enough about it, so it is difficult to integrate it deeply with what they have learned. The main factor that causes the above problems is that teachers' cultural literacy and teaching ability need to be improved, while the student body has an increasing need to learn traditional cultural knowledge, so a group of high quality and high level teachers is the key to promoting the deep integration of ideological and political course and traditional culture <sup>[3]</sup>.

## **4. Chinese Excellent Traditional Culture and Ideological and Political Courses**

### **4.1 Increase the Practical Activities of Ideological and Political Courses to Enhance Students' Psychological Identification of Excellent Traditional Culture**

Colleges should make full use of the advantages of off-campus cultural education activities and carry out various forms of social practice, such as visiting school history halls, cultural halls, red sites, martyrs' cemeteries, etc., so that students can experience the unique connotations of traditional Chinese culture during field visits and personal experiences, thus creating an emotional resonance and achieving consciousness to maintain national culture and

promote the traditional cultural spirit. In addition, students can also participate in some social research activities, through which they can have a better understanding of traditional virtues and folk customs, so that their comprehensive quality can be improved.

To promote the integration of traditional Chinese culture and university ideology, teachers should pay more attention to the traditional culture, so as to make the students change from the previous passive acceptance to active inheritance and promotion, thus strengthening their spiritual recognition. Using the empirical case study method, teachers should guide students to have an accurate understanding of the characteristics and merits of traditions, using content such as Marxian theory and practical guidance, to make them see the importance of traditional culture in national development. In order to enhance students' sense of identity and cultivate their cultural confidence, teachers should introduce traditional cultural factors appropriately in ideological and political education. At the same time, they can also call on students to actively participate in some cultural activities with positive themes, so that the excellent traditional culture can take root in their hearts and eventually externalize into their practical actions. Course in colleges is a systematic and long-term work, and strengthening students' awareness of traditional culture cannot be accomplished overnight. Therefore, according to the learning needs and thinking characteristics of contemporary college students, traditional culture education should be taken as the guide and the political course and political science theory class as the standard, so as to help students build up their confidence in culture and to understand traditional culture correctly.

#### **4.2 Innovation of Ideological and Political Curriculum Teaching Methods to Integrate Fine Traditional Culture and Politics Curriculum**

The process of integrating the traditional culture into the ideological and political curriculum of university students, as we call it at present, does not mean adding a teaching block to the school's ideological and political curriculum, because students cannot understand the intrinsic connection between the political course and traditional culture, and simply adding a traditional culture block does not allow students to gain an in-depth understanding and appreciation of the role of traditional culture in solving the challenges of answering the development of today's times.

To integrate the traditional Chinese culture into the course of ideology politics, we must reform the thought politics curriculum and improve its way of penetrating traditional culture. First, a course on traditional culture

can be set up in colleges and universities, using the ideological and political course as its theoretical basis, and adding traditional Chinese culture content continuously in the teaching process, so that the political course can be closely connected with real life and the teaching can be made more interesting through the rich traditional culture content. Secondly, knowledge competitions about traditional culture can be conducted in classes so that students can understand and learn its traditional cultural content through competitions and broaden the channels of its promotion. Third, give full play to the role of college clubs, which are a major way for college students to carry out collective activities and learn knowledge. Teachers can guide students to establish some clubs with Chinese cultural characteristics, such as calligraphy club, ink painting club, classical literature club, opera club and so on, which can enrich students' spare time and broaden their channels to pass on their culture. Fourthly, traditional Chinese culture can be promoted by using the Internet, such as opening a column of "Chinese tradition" on WeChat public number of colleges and universities, and publishing some knowledge about excellent traditional Chinese culture on the new media such as ShakeYin and Xiaohongshu, so that students can get in touch with the traditional Chinese culture in their own life. Colleges and universities can offer professional courses with national culture characteristics based on the actual situation of the teaching of ideology and politics in order to make the students understand the multi-dimensional and multi-level charm of national traditional culture and thus stimulate students' learning enthusiasm. Teaching materials as the necessary prerequisite for teachers to implement the activities of ideological and political course, and the quality of teaching contents is directly related to the quality of traditional culture learning of college students. Political course teachers should integrate traditional cultural elements with educational programs and collect and integrate relevant educational materials according to students' acceptance in order to enrich the content of political courses and improve the classroom teaching system.

#### **4.3 Improve the Basic Quality of Teachers and Improve Their Ability to Apply Traditional Culture**

In the current teaching of Chinese traditional culture, teachers need to change their educational philosophy, broaden their understanding of the educational connotation, and improve their educational level. For example, when teaching the ideological and political course content of "patriotism", teachers can integrate it with traditional culture. The famous writer and militarist of the Northern



Song Dynasty once said, “First the world worries, then the world is happy”, which is enough to show his patriotic feelings for the motherland and the interests of the people as the first priority. Students will understand that in order to ensure their own development, they must rely on the motherland, and that only by developing and progressing together with the motherland can they meet the requirements of modern development. Also, when teachers teach the spirit of “hard work”, they should consider the background of their lives and understand that their mental capacity is weak, so that when they encounter setbacks, they will become negative if they cannot overcome their difficulties in time. Teachers should extract the spirit of hard struggle from traditional Chinese culture, such as “perseverance and perseverance do not break the wood, perseverance and perseverance can be cut” and other fine traditions to train the students’ hardworking spirit.

Teachers are of great importance in the political course of higher learning. They should be consciously and deliberately introduced into politics teaching, which requires teachers to have high humanistic quality and teaching skills. On the one hand, higher education institutions should enhance teachers’ training and enhance their personal traditional cultural reserves. Political course teachers should take the initiative to deepen their own study of traditional culture in their own spare time. In addition, schools should provide more support, such as increasing the training for teachers, holding frequent lectures on traditional culture topics, etc., so that teachers’ cultural literacy can be improved and the use of traditional culture elements in teaching ideological and political course can be included in the assessment system. Schools should vigorously promote demonstration courses on the successful application of traditional culture in ideological and political course education, making full use of its leading effect, so that teachers can improve their cultural awareness and cultural application ability in a subtle process. In addition, it is also possible to improve the teaching ability of the teachers in ideological and political courses. Political class teachers should conduct in-depth research on ideological and political course curriculum and textbooks, determine the focus and objectives of political course education, search for a way to integrate Chinese traditional culture with ideology and political education, process the teaching materials in depth, expand the scope of teaching,

actively introduce traditional cultural genes to improve the effect of political courses <sup>[4]</sup>.

## 5. Conclusions

To sum up, it is impossible to develop ideological education in higher education without integrating traditional culture, and to combine them organically, it is necessary to start from several aspects, to build the ideological class understand traditional culture, and make students aware of the impact of traditional culture.

Nowadays, China’s international status has improved significantly, and Chinese excellent traditional culture has been recognized more and more. Contemporary college students should have firm cultural self-confidence and realize that China’s traditional culture accumulated over thousands of years will not be defeated by the cultural forms that appear briefly, and that if they want to realize the Chinese nation’s rejuvenation, it is necessary for them to inherit and develop the fine traditional culture of China <sup>[5]</sup>.

## References

- [1] Zhang, D.Zh., 2015. Carrying forward the excellent Chinese traditional culture and drawing on the spiritual power of the Chinese nation. *Journal of the National Museum of China*. (12). (in Chinese)
- [2] Hong, Ch.Sh., 2020. The integration of excellent Chinese traditional culture into ideological and political education in colleges and universities. *School Party Building and Ideological Education in Schools*. (22). (in Chinese)
- [3] Chen, Q.Q., Li, Z.Ch., 2020. The innovation of the path of integrating the excellent Chinese traditional culture into the ideological and political education of college students. *Ideological and Political Education Research*. 36(04). (in Chinese)
- [4] Zhang, R., 2019. Research on the method of integrating traditional ritual culture into the ideological and political education of college students. *School Party Construction and Thought Education*. (20). (in Chinese)
- [5] An, L.M., 2020. Exploring the logic of using Chinese excellent traditional cultural resources in ideological and political theory courses. *Journal of Ideological Theory Education*. (02), 97-101. (in Chinese)

# On Promoting Listening Comprehension of English Majors through Original English Movies

Jun Tan\*

Jiangxi Business School, Nanchang, Jiangxi, 330100, China

## ARTICLE INFO

### Article history

Received: 15 August 2023

Revised: 20 August 2023

Accepted: 4 September 2023

Published Online: 30 October 2023

### Keywords:

English original movies

Listening comprehension

English major

## ABSTRACT

In recent years, with the reform of College English Teaching in China, listening has occupied a great proportion of both the examination content and classroom teaching. When everyone is seeking a high-efficiency, fast teaching method, the use of English original film teaching methods arises spontaneously. Its authentic speaking style, real language environment and rich cultural connotation not only improve the listening comprehension ability of English majors, but also enable students to intuitively understand the culture of Western countries. In this study, by referring to a large number of books and documents, this paper puts forward corresponding strategies for various problems arising from the use of English original film teaching in colleges and universities. English original film teaching can not only create a better learning environment, and stimulate students' interest in learning, but also enable students to actively participate in class discussions.

## 1. Introduction

### 1.1 Background of the Research

As our country accelerates the development of foreign language teaching reform, the original English movie has been accepted by more and more people. All the colleges and universities adopt English original movies in listening teaching, which not only can improve the listening comprehension ability of English majors, but also allows them to learn more about Western history and culture, social customs and life background. Many scholars and experts do a lot of research on the application of English original films in college listening teaching.

According to the research done by overseas scholars or

domestic scholars on the application of English original movies in English listening and speaking teaching, research abroad mainly concentrates on the significance and application of original movies in teaching, including how to use real materials, especially audiovisual combined materials in listening teaching and how to combine film and language teaching. The study of foreign listening teaching materials started earlier and accumulated a wealth of theoretical experience and practical experience, which has laid a solid foundation for domestic research in relative field. Domestic research mainly emphasizes the advantages of English original film teaching or some strategies in teaching. However, there isn't much research combining both detailed functions of applying original movies in improving English majors' listening comprehension in English.

\*Corresponding Author:

Jun Tan,

Jiangxi Business School, Nanchang, Jiangxi, 330100, China;

Email: 1009374479@qq.com

Besides, some strategies put forward before are not practical for current teaching conditions. Generally, domestic research on how to improve the listening comprehension of English majors through English original film lacks enough theoretical guidance and empirical research is still needed.

## 1.2 Significance of the Study

In the 21st century, as an international language, English is accepted by all countries. Its important role can not be replaced by any other language for a long time. In July 2007, the Ministry of Education of China officially printed and issued *College English Curriculum Requirements* to describe the teaching nature and purpose of college English as “The college English is an integrated teaching system with various kinds of teaching patterns and methods, which is guided by the theory about foreign language teaching and involves the such main contents as the knowledge of English language, applied technique, cross-cultural communication as well as learning strategies”<sup>[1]</sup>. Then new teaching modes and methods are introduced into college English teaching and welcomed by both teachers and college students. Nowadays, English original films have become a very popular teaching material English teaching, which is particularly applied in many different courses for English majors. Students are willing to receive image information and enjoy jumping vivid picture. It’s based on students’ interest in learning, life experience and cognitive level, making the process of language learning filled with improving students’ English listening comprehension and forming a positive emotional attitude as well. Therefore, aimed at the research significance, this study is to explore the problems that exist when playing English original sound-cinema in English listening course of English majors, and try to analyze the reasons and propose corresponding strategies so as to make further reference for the research in this field.

## 2. Advantages of Using Original English Movies to Improve English Major’s Listening Comprehension

### 2.1 Helping Stimulate Interest in English Learning

As we all know, interest is the best teacher and stimulates the biggest motivation for learning. The film can give students a sense of stimuli in all directions and from multiple angles. The vivid storyline in the English original soundtrack and the close dialogue with life are also very easy to attract students’ attention. The famous language pedagogy experts Stempleski and Tomalin believe that

the teaching method of sound combination can display language information more comprehensively and truly than any kind of media. It can fully mobilize the visual and auditory organs of students to actively capture Understanding language information has greatly stimulated their job-hunting and learning interest and enhanced their understanding and memory<sup>[2]</sup>. The movie can integrate the three media of light, shadow and sound. It has a better sense of presence and more realistic content. Judging from the original English film’s performance techniques, it will present a different storyline. In the ups and downs of the story, it can provide a more relaxed language environment for English majors to learn English. Combining English with stories can also enable them to feel the ease of English, so that interest in listening to English can be effectively stimulated. The key to English learning lies in the cultivation of interest and motivation<sup>[3]</sup>.

### 2.2 Improving Listening Competence in English

Because of the great influence of English in the world, there are many kinds of English films and videos, and the subjects are also extensive. By watching Original English movies with rich content and different expressive techniques, English majors can come into contact with the language characteristics of different fields, so that the age of language and identity can be unified. The characters in the film come from different ages, cultural backgrounds, and social strata. People in all fields have their own language expressions. English majors can understand the language characteristics of different people by watching original English movies, and can further grasp the characteristics of some words in different language contexts, which will be better for listening comprehension<sup>[4]</sup>.

What’s more, standard pronunciation in original English movies enables English majors to continuously improve their listening skills. Different from Chinese movies, the original English movie has clear and accurate pronunciation in English, and the language is pure and authentic. Moreover, the actors’ body language, facial expressions, and the development of specific scenarios and story plots are very helpful to students’ understanding. As English majors, they need more chances to practice listening and speaking in daily life. The original English movies enable them to listen to English conveniently in a relaxed audio-visual environment and practice normal speed of English speaking and listening in real context.

## 3. Problems Existing in the Application of Original English Movies in English Listening Teaching

Traditional English listening teaching is always based

on simple listening materials. Teachers play a recording on the textbook, students listen to the recording several times to complete the exercises set on the textbook. In recent years, as multimedia is widely used in listening teaching, basically every semester teachers will select one or two English original films for screening. However, since teachers do not do too much research on English movie teaching, they also do not know much about their teaching methods and do not explain the cinema anymore. As a result, students eventually saw a movie from start to finish without knowing its essence. Therefore, the writer summarizes some of the common problems in teaching, which will give a reference for more teaching strategies.

### 3.1 Using Movies with Improper Subject in Class

At present, there are a wide variety of foreign films, and it is particularly important to choose the appropriate subject. The film called "The Seventh Art" is about the concentration and sublimation of real life. It is a bridge of cultural communication and the most intuitive and vivid synthesis of the social culture, lifestyles, customs and modes of thinking of a country and a nation reflect. In terms of genre, the film has legend-based films, musical films, scientific films, action films, thrills films, western films, road films, etc. In the classroom, the teacher will, under the intense request of students, play thrilling and unpredictable Hollywood blockbusters, such as *2012* and *The Day After Tomorrow*<sup>[5]</sup>. However, during the viewing, students are easily attracted by the exciting scenes and ignore the excellent dialogue in the film. After class, in retrospect, they are still the wonderful shots that people can not forget. As for the classic and philosophical dialogue, they forget about it. Therefore, it is impossible to achieve the teaching goal of improving listening comprehension. With the popularization of the Internet, various English films can be obtained through the Internet. The theme of these films is all-encompassing, such as the *Titanic* which reflects pure love. The *On Golden Pond* reflects the family and the generation gap. The *Brave Heart* reflects the rich cultural history. Teachers can choose English movies related to the unit theme to allow students to learn, appreciate and discuss instead of simply choosing movies to suit the students' tastes<sup>[6]</sup>.

### 3.2 Having Unclear Objective in Movie Choosing

The teaching objective is one of the basic elements in the teaching plan, which guides the process and method of teaching. Clear and meaningful objective is essential. However, sometimes, some teachers regard English movies as a way of pastime, having no relation with the teach-

ing objectives. In order to satisfy the students' desires and interests, some dramatic and heroic films were chosen. Such as *True Lies*, *The Rock*, *Mission Impossible 3* and so on. At the beginning of class, the teacher will turn on the computer, lower the screen and start playing the movie. The students watch the movie with relish, while the teacher routinely waits or even gets out of class. When the bell rings, the students pour out of the classroom with the rest of their passion after watching the film, and the teacher packs everything to get home from work. Before the viewing, the relevant knowledge and cultural background were not explained before. After watching, no effective evaluation method was adopted. As a result, without clear objectives for teaching, watching the movie is only a form and doesn't achieve the desired effect<sup>[7]</sup>.

## 4. Strategies on Applying Original English Movies in English Majors' Listening Teaching

According to the existing problems discussed in the former chapter, teachers should focus on the selection of teaching materials, the design of teaching methods, and the training of learning strategies to strengthen the effectiveness of listening teaching in the application of original movies to improve English majors' listening comprehension. It is necessary to comprehensively consider the current level, learning interests and needs of English majors. Try to choose moderate difficulty and familiar subjects as listening materials. At the same time, teachers must pay attention to breaking the tradition in teaching methods, avoiding singleness, using various methods flexibly, carrying out a variety of activities and encouraging students to participate in, increasing their confidence, and ultimately achieving the purpose of improving students' listening comprehension. In addition, in the usual teaching, it is also necessary to strengthen the training of listening strategies, and to strengthen the training of listening strategies can effectively improve the quality of listening teaching<sup>[8]</sup>.

### 4.1 Knowing the Criteria of Choosing Movies

#### 4.1.1 Positive Movie Content

First, Teachers should ensure that the teaching content is positive and healthy to help students to establish the correct outlook on life, values, and worldview. Second, the movies selected should meet the level of physical and mental development of students. The university stage is the key period for the formation and establishment of students' ideology. Undergraduates face pressure from all sides in their study and life. If students' thoughts are correctly guided during this period, they will help them

face difficulties with the correct mentality challenge. For example, *The Pursuit of Happiness*, it tells of a father who persisted in overcoming difficulties with his son and never giving up in the absence of a broken marriage or unemployed job. Through this movie, students can realize that life cannot always go smoothly, and the courage is always needed to challenge and encounter difficulties. Only in this way, the ultimate success can be achieved.

#### **4.1.2 Language Appropriateness**

The appropriateness of the language means that the teacher should take into account the actual English level of the student. The actor's pronunciation in the movie should be clear and the speed should be moderate. If students are interested in American pronunciation. Tom Hanks's work can be recommended since his pronunciation is very pure, clear and the speed is also very suitable for English majors to imitate and learn. His masterpieces are very classic, there are *Cast Away*, *Forrest Gump*, *Sleepless in Seattle*, *Fallen Angels* and so on. If students are interested in British pronunciation, Hugh Grant's work can be recommended, because he said the standard London tone, the sound is very magnetic. His representatives are *Notting Hill*, *Sense and Sensibility*, *Four Weddings and A Funeral*. Whether American or British pronunciation, the film's unique pronunciation is worth learning and reference.

#### **4.2 Having Clear Teaching Goal and Evaluation Mechanism**

English films selected in the listening class should be as close as possible to the major social topics in the listening class and should greatly enhance English majors' understanding of the topics in each unit. Therefore, before screening should consider the purpose to be achieved by the teaching plan, whether the social issues discussed are beneficial to students' improvement of English listening ability; meanwhile, it should also pay attention to the improvement of learning interest and the construction of learning environment. As for the after-school teaching evaluation form can be written. oral. Picture, it can be body. Written words can be blank, choice, short answer, or opinion. The oral expression can be oral question-answering, storyline narrative, character analysis, etc., and dynamic type can be a role-playing manner.

#### **4.3 Strengthening Listening Strategy Training**

##### **4.3.1 The Combination of Listening and Speaking**

The combination of listening and speaking refers to the

ability to train students who majored in English to read in the listening process. When listening to articles with slower speed and simple content, students majored in English can be encouraged to listen and read. This method can effectively enhance English majors' understanding of listening materials. Listening and reading while listening help English Majors correct their pronunciation. Imitation of authentic spoken language. After long-term training, English majors can read it even when they are listening to materials that are slightly faster.

##### **4.3.2 The Combination of Listening and Dictation**

The combination of listening and dictation is one of the commonly used means of comprehensive testing. It can effectively detect the English majors' overall ability to grasp the materials they listen to, including the mastery of the pronunciation, spelling, phrase and sentence structure of the word, and the overall understanding of the material. Common methods of dictation: The entire dictation requires that the original text be correctly written after sentence by sentence. The partial dictation exercises should be done at the same time as listening, and the missing parts of the original material should be filled in. The compound dictation is a side-listening material. Write down words, phrases, or sentences that are missing from the material, and extract related information based on what you have heard, organize yourself, and complete sentences. In addition, students who majored in English can be arranged to write a post-view to examine their comprehensive understanding of materials. In ordinary hearing training, the above methods of dictation can be comprehensively used as needed to fully improve students' dictation skills.

#### **5. Conclusions**

In summary, the writer finds that direct contact with the communication background in the film will greatly increase English majors' interest in language learning and improve their listening comprehension. The movie provides students with a stimulus to use the target language for language output, so it is an interesting and effective way of teaching. More importantly, students can experience real situations and understand the cultural background, language use and behavior of people in daily life. Teacher's guidance is also an essential part of teaching. Different themes of movie require different teaching methods based on ESA teaching methods. The recommendations and theories in this study are based on research conducted by college English majors, so these conclusions may not be universal for other Chinese students who study languages or non-English majors. The writer lacks teach-

ing experience, so some teaching suggestions need more practice and modification in the future.

## References

- [1] Tomalin, B., Stempleski, S., 1993. Cultural awareness. Oxford University Press: London. pp. 84.
- [2] An, Sh.H., 2011. An empirical study on the application of the original film in senior teacher English listening teaching—Yunhe Higher Normal School as an example. *East China Normal University*. (10), 41.
- [3] Cheng, J.F., Ren, J.X., 2010. The application of original English films in listening teaching and the corresponding countermeasures. (2), 190.
- [4] Lai, Y., Zhu, A.H., 2017. On the application of English film in English listening and speaking teaching. *Examination Weekly*. (87), 130.
- [5] Li, Sh.Ch., 2010. Brief on the application of original English films in college English teaching. *Film Review*. (13), 68.
- [6] Lin, Y., 2016. On the significance of watching the original film for college students' English learning. *Campus English*. (23), 2.
- [7] Ma, Zh., 2007. Discussion of English film and television Appreciation and improving cross-cultural communication ability. *Journal of Yuncheng College*. (5), 104-105.
- [8] Tao, L.Y., 2011. Watching original English movies and the improvement of English listening and speaking ability. *Journal of Lanzhou Institute of Education*. (1), 90.

# The Role of Mathematics in STEAM Education under the “Double Reduction” Policy

Wei Wang Qi Li\*

Capital Normal University, Beijing, 100000, China

## ARTICLE INFO

### Article history

Received: 1 August 2023

Revised: 10 August 2023

Accepted: 18 August 2023

Published Online: 30 October 2023

### Keywords:

Mathematics

STEAM education

“Double Reduction” policy

Interdisciplinary collaboration

Creativity

Innovation

Holistic learning

Technology integration

## ABSTRACT

This essay delves into the pivotal role of mathematics within the context of STEAM (science, technology, engineering, arts, and mathematics) education under China’s “Double Reduction” policy. Amidst a shifting global education landscape that emphasizes holistic growth, policies such as the “Double Reduction” strategy underscore the significance of well-rounded development alongside academic excellence. By advocating for a balanced approach to education, the policy resonates with the principles of STEAM education, which seeks to cultivate versatile and innovative individuals. Mathematics, acting as a unifying force, connects disparate STEAM disciplines, fostering interdisciplinary collaboration and preparing students to thrive in a rapidly evolving, technology-driven world. This essay provides an in-depth exploration of the multifaceted role of mathematics in STEAM education, drawing on specific cases and scholarly references to highlight its contributions to creativity, critical thinking, and holistic development.

## 1. Introduction

### 1.1 The Changing Landscape of Education

In an increasingly interconnected world, education faces new challenges and opportunities stemming from technological advancements and globalization. The rapid exchange of information, ideas, and goods across borders highlights the need for educational systems to adapt and evolve. Simultaneously, economic shifts and societal demands underscore the importance of nurturing a well-rounded citizenry capable of contributing both to the workforce and to society at large. The “Double Reduction” policy in China exemplifies this paradigm shift,

emphasizing holistic growth that combines academic excellence with character development, creativity, and soft skills.

### 1.2 STEAM Education: A Holistic Approach

STEAM education represents a pedagogical philosophy that seamlessly integrates Science, Technology, Engineering, Arts, and Mathematics into a cohesive educational framework. This holistic approach recognizes the interconnectedness of these disciplines and aims to cultivate students who possess not only technical skills but also creativity, critical thinking, and adaptability. By encouraging students to explore complex challenges through multi-disciplinary lenses, STEAM education prepares them for a

\*Corresponding Author:

Qi Li,

Capital Normal University, Beijing, 100000, China;

Email: 13753960860@163.com

future where innovation and collaboration are paramount <sup>[1]</sup>.

### 1.3 Mathematics within the STEAM Paradigm

At the core of the STEAM paradigm lies mathematics, a discipline that transcends traditional boundaries and serves as a universal language across various fields. Mathematics provides a structured framework for understanding and quantifying natural phenomena, making it an essential tool for scientific inquiry, technological innovation, engineering design, artistic expression, and more. In the context of STEAM education, mathematics acts as a unifying thread that weaves through and connects the other disciplines. By integrating mathematical thinking and problem-solving into the STEAM curriculum, educators establish a bridge that enhances students' capacity to approach multifaceted challenges from multiple perspectives.

### 1.4 Objectives and Scope of the Essay

The overarching objective of this essay is to explore the intricate and multifaceted role of mathematics within the realm of STEAM education, particularly within the context of China's "Double Reduction" policy. By investigating the ways in which mathematics contributes to creativity, interdisciplinary collaboration, and holistic development, we aim to shed light on its profound impact on student preparedness for an increasingly interconnected and rapidly evolving world. Throughout this essay, we will delve into specific cases, provide illustrative examples, and reference scholarly works to offer a comprehensive understanding of the various dimensions in which mathematics enriches the landscape of STEAM education.

## 2. Mathematics as the Foundation of STEAM

### 2.1 Mathematics as a Universal Language

Mathematics serves as a universal language that transcends cultural and linguistic barriers, enabling individuals from diverse backgrounds to communicate intricate ideas with precision and clarity. The use of mathematical notation, symbols, and equations provides a standardized means of representing abstract concepts, facilitating effective communication and collaboration among experts from different fields. Whether conveying scientific principles, engineering designs, or artistic forms, mathematics ensures that information is conveyed accurately, promoting interdisciplinary understanding and cooperation <sup>[2]</sup>.

### 2.2 Art and Mathematics: A Fusion of Creativity

The intersection of art and mathematics exemplifies the

harmonious fusion of creativity and analytical thinking. Mathematical concepts such as symmetry, proportion, and geometry have long influenced artistic expression, resulting in works of enduring beauty and significance. From the intricate patterns of Islamic mosaics to the precision of Renaissance paintings, art often draws upon mathematical principles to achieve aesthetic harmony. Conversely, artists have also employed mathematical techniques, such as perspective and fractals, to create visually engaging and thought-provoking pieces. This integration of art and mathematics not only enriches both disciplines but also encourages students to explore the interplay between logic and creativity.

### 2.3 Technology and Mathematical Algorithms

In the modern era, technology has become inseparable from virtually every aspect of human life. Mathematics underpins the development and application of technological innovations, ranging from the algorithms that power search engines and recommendation systems to the mathematical models used in weather prediction and medical imaging. Machine learning, a subset of artificial intelligence, heavily relies on mathematical algorithms to extract patterns and insights from vast datasets. Mathematics facilitates efficient data processing, optimization, and predictive modeling, propelling advancements that drive economic growth and societal progress.

### 2.4 Mathematics as Catalyst for Innovation

#### 2.4.1 Advancing Scientific Frontiers

Mathematics plays a pivotal role in advancing the frontiers of scientific knowledge. Fundamental mathematical concepts, such as calculus, differential equations, and linear algebra, provide the tools necessary for modeling natural phenomena and formulating scientific theories. For instance, mathematics provides the language through which scientists express and communicate their ideas. The rigorous mathematical framework enables precise articulation of hypotheses, models, and theories, facilitating clear communication among researchers across different disciplines. From particle physics to cosmology, mathematics enables scientists to explore the fundamental laws that govern the universe. Breakthroughs in mathematics often lead to novel insights into the nature of reality, opening doors to new avenues of scientific inquiry and expanding our understanding of the cosmos <sup>[3]</sup>.

#### 2.4.2 Driving Technological Advancements

Technological progress is inextricably linked to math-



ematical innovation. Mathematical algorithms underpin a wide array of technologies that shape modern life. Cryptography relies on number theory and abstract algebra to secure online transactions and protect sensitive information. GPS navigation systems rely on sophisticated mathematical models of space-time to provide accurate and reliable positioning data <sup>[4]</sup>. Robotics and automation utilize mathematical principles to control and coordinate complex mechanical systems. The symbiotic relationship between mathematics and technology fuels innovation and drives the development of tools and systems that enhance various facets of human existence.

### **2.4.3 Mathematics in Industrial Applications**

Industries spanning manufacturing, finance, healthcare, and beyond leverage mathematics to optimize processes, enhance efficiency, and solve complex challenges. Mathematical modeling plays a critical role in quality control, supply chain management, and production scheduling in manufacturing. Financial institutions rely on mathematical algorithms for risk assessment, portfolio optimization, and algorithmic trading. Healthcare professionals use mathematical models for medical imaging, drug development, and treatment planning. By harnessing the power of mathematics, industries unlock innovative solutions, streamline operations, and gain a competitive edge in a dynamic global landscape.

## **3. Nurturing Creativity through Mathematical Problem-solving**

### **3.1 Cultivating Creativity in Mathematics Education**

#### **3.1.1 Rethinking Conventional Approaches**

Shifting the landscape of mathematics education entails reevaluating conventional pedagogical approaches. Departing from the traditional emphasis on rote memorization and algorithmic problem-solving, educators must foster an environment conducive to creativity. Encouraging students to approach mathematical challenges with curiosity, inquiry, and an open-minded attitude creates a foundation for unleashing their creative potential.

#### **3.1.2 Playful Exploration and Open-Endedness**

Infusing playfulness into mathematics education sparks creativity and stimulates intellectual curiosity. Engaging students with puzzles, games, and interactive activities transforms the learning experience into an adventure of discovery. By presenting mathematical concepts in novel

and intriguing ways, educators inspire students to embrace challenges with enthusiasm and a willingness to explore unconventional avenues.

### **3.1.3 Cultivating a Growth Mindset through Creativity**

Cultivating a growth mindset is pivotal for nurturing creativity in mathematics education. Encouraging students to perceive challenges as opportunities for growth and learning fosters a positive attitude towards problem-solving. By framing mistakes as stepping stones towards improvement, educators empower students to overcome obstacles with resilience, adaptability, and an unwavering commitment to their creative journey.

## **3.2 The Story of Yitang Zhang: A Tale of Innovation**

### **3.2.1 Journey from Obscurity to Breakthrough**

The story of mathematician Yitang Zhang serves as an inspirational testament to the transformative power of innovation. Zhang's journey from relative obscurity to making a profound contribution to number theory underscores the pivotal role of perseverance and unconventional thinking in mathematical problem-solving. His groundbreaking work on the "Twin Prime Conjecture" demonstrates how a single individual, armed with determination and creative insight, can make an indelible mark on the mathematical community and beyond.

### **3.2.2 Embracing Unconventional Approaches**

Zhang's breakthrough underscores the value of embracing unconventional approaches to problem-solving. Innovation often arises from thinking outside the established norms and exploring uncharted territories. Encouraging students to challenge conventional wisdom, question assumptions, and experiment with alternative methods fosters a culture of curiosity and ingenuity, empowering them to forge new paths and develop innovative solutions to complex mathematical problems.

## **3.3 Mathematics-Inspired Creative Projects**

### **3.3.1 Integration of Creative Expression and Mathematics**

Integrating creative projects into mathematics education bridges the gap between abstract mathematical concepts and artistic expression. Projects that intertwine mathematics and creative expression, such as designing mathematical art installations, composing mathematical music, or creating geometric sculptures, provide students with opportunities to explore the aesthetic dimensions of

mathematics. Through these projects, students not only deepen their comprehension of mathematical principles but also cultivate their creative sensibilities.

### **3.3.2 Mathematical Art Installations and Exhibitions**

Mathematical art installations and exhibitions serve as tangible manifestations of the synergy between mathematics and creativity. These visual displays transform abstract mathematical ideas into tangible, aesthetically pleasing forms that engage and inspire a diverse audience. By translating intricate mathematical concepts into accessible and visually captivating exhibits, students convey the elegance and aesthetic beauty inherent in mathematics, inviting viewers to appreciate the intricate relationships and harmonies within the mathematical realm.

## **3.4 Mathematics and Art: A Harmonious Fusion**

### **3.4.1 Collaboration of Mathematicians and Artists**

Collaborations between mathematicians and artists exemplify the harmonious fusion of analytical and creative thinking. The partnership between these seemingly disparate disciplines fosters a dynamic exchange of ideas that transcends disciplinary boundaries. Mathematicians and artists collaborate to visualize complex mathematical concepts, resulting in artworks that seamlessly integrate aesthetic appeal and mathematical precision. These collaborations not only enhance the public's appreciation of mathematics but also exemplify how interdisciplinary partnerships can enrich both fields, fueling innovation and inspiring new modes of creative expression.

### **3.4.2 Visualizing Abstract Concepts through Art**

Art serves as a powerful medium for visualizing abstract mathematical concepts that may be challenging to comprehend through traditional means. Geometric shapes, fractals, and mathematical patterns come to life through artistic interpretations, enabling students to engage with complex ideas on a tangible and intuitive level. Visual representations provide a bridge between the abstract world of mathematics and the concrete world of sensory perception, facilitating deeper understanding and fostering a sense of wonderment about the intricacies and relationships within the mathematical landscape.

### **3.4.3 Aesthetic Beauty as a Tool for Mathematical Engagement**

Leveraging the aesthetic beauty inherent in mathematical concepts can serve as a compelling tool for engaging

students in creative problem-solving. Educators can harness the allure of mathematical elegance to captivate students' interest and ignite their curiosity. By highlighting the aesthetic dimensions of mathematics, educators inspire students to approach mathematical challenges with enthusiasm, appreciating the inherent elegance and harmonious structures that underpin the mathematical universe.

## **3.5 Fostering a Culture of Mathematical Curiosity**

### **3.5.1 Cultivating Curiosity through Inquiry-Based Learning**

Inquiry-based learning represents a pedagogical approach that prioritizes student curiosity and active exploration. By encouraging students to formulate their questions, investigate real-world problems, and devise strategies for problem-solving, educators nurture a culture of mathematical curiosity. This approach empowers students to take ownership of their learning, fostering a deep sense of engagement and motivation.

## **4. Computational Thinking and Technological Integration**

### **4.1 Computational Thinking: A Framework for Problem-Solving**

#### **4.1.1 Defining Computational Thinking**

Computational thinking involves a structured approach to problem-solving that draws inspiration from principles inherent in computer science. It emphasizes breaking down complex challenges into manageable components, devising algorithms to address each component, and systematically evaluating and refining solutions. Computational thinking equips students with a structured methodology for approaching problems across various domains, fostering analytical skills that are essential for navigating the challenges of the digital age<sup>[5]</sup>.

#### **4.1.2 Algorithmic Thinking and Abstraction**

Algorithmic thinking is a foundational aspect of computational thinking, emphasizing the design and analysis of step-by-step procedures to solve problems. By abstracting real-world scenarios into algorithmic sequences, students develop the ability to identify patterns, generalize solutions, and apply algorithmic principles to diverse contexts. This process encourages students to think critically and systematically, honing their ability to tackle complex problems through structured and logical approaches.

## **4.2 Integrating Computational Thinking in Mathematics Education**

### **4.2.1 Problem-Solving through Coding**

Coding serves as a tangible manifestation of computational thinking, enabling students to implement algorithms and solve problems through programming languages. Integrating coding into mathematics education offers students a practical outlet for applying mathematical concepts to real-world challenges. Platforms and tools that combine coding with mathematics, such as educational programming languages and interactive coding environments, empower students to explore mathematical concepts through hands-on experimentation.

### **4.2.2 Algorithmic Mindset: A Pathway to Innovation**

Nurturing an algorithmic mindset equips students with a strategic approach to problem-solving that extends beyond coding. It encourages students to view complex challenges as opportunities to design and refine systematic solutions. By fostering an algorithmic mindset, educators empower students to approach problems with creativity and analytical rigor, cultivating a skill set that is not only valuable in mathematics but also applicable across STEAM disciplines.

## **4.3 Computational Thinking in Practice: Case Studies**

### **4.3.1 Exploring Patterns and Fractals**

Computational thinking lends itself naturally to exploring mathematical patterns and fractals. Students can use programming to generate intricate fractal designs, gaining insights into recursive processes, self-similarity, and the interplay between mathematics and visual aesthetics. This hands-on exploration deepens students' understanding of mathematical concepts while honing their computational skills.

### **4.3.2 Simulating Scientific Phenomena**

Computational simulations offer a powerful tool for investigating scientific phenomena that may be challenging to study through traditional methods. Students can develop simulations that model physical systems, biological processes, and social dynamics, among other topics. By applying mathematical concepts to create accurate and dynamic simulations, students engage in authentic scientific inquiry and develop a holistic understanding of complex phenomena <sup>[6]</sup>.

## **4.4 Expanding Boundaries with Virtual Laboratories**

### **4.4.1 Overcoming Constraints with Virtual Experimentation**

Virtual laboratories offer an innovative solution to practical limitations in traditional laboratory settings. In disciplines such as physics and chemistry, virtual laboratories allow students to conduct experiments that may be otherwise challenging or inaccessible. By manipulating virtual variables, observing simulated outcomes, and analyzing data, students engage in authentic scientific inquiry while honing their data analysis and critical thinking skills.

### **4.4.2 Enabling Accessible Learning for Complex Concepts**

Virtual laboratories democratize access to advanced experimental techniques and complex scientific phenomena. Students can interact with simulations that emulate intricate processes, ranging from molecular interactions to celestial phenomena. This accessibility empowers students to explore and understand complex concepts that may have been previously out of reach, fostering a deeper appreciation for the interconnectedness of mathematics and the natural world.

## **5. Promoting Interdisciplinary Integration**

### **5.1 Interdisciplinary Projects: A Holistic Approach**

Interdisciplinary projects represent an essential component of STEAM education, encouraging students to explore the convergence of different disciplines to solve complex problems. Mathematics serves as a unifying thread that weaves through these projects, providing a framework for analysis, synthesis, and communication. Collaborative projects that combine mathematics with science, technology, engineering, and the arts foster holistic learning experiences that prepare students for a diverse range of challenges <sup>[7]</sup>.

### **5.2 Design Thinking and Innovation**

Design thinking is a human-centered problem-solving approach that emphasizes empathy, collaboration, and iterative prototyping. By integrating design thinking principles into interdisciplinary projects, educators enable students to tackle real-world challenges through a holistic lens. Mathematics plays a pivotal role in design thinking by providing quantitative analysis, modeling, and optimization tools that guide the ideation and refinement of

innovative solutions.

## 6. Conclusions

The intertwining of mathematics and STEAM education within the context of China's "Double Reduction" policy presents a synergistic approach to nurturing well-rounded, innovative, and adaptable individuals. Mathematics acts as a catalyst, connecting diverse disciplines and promoting interdisciplinary collaboration. It fosters creativity, critical thinking, and problem-solving skills, empowering students to approach complex challenges with confidence and ingenuity.

Through the exploration of mathematical concepts in art, technology, and interdisciplinary projects, students gain a multifaceted understanding of mathematics' far-reaching implications. This holistic perspective equips them to thrive in an ever-evolving landscape that demands cross-disciplinary thinking, adaptability, and a deep appreciation for the interconnectedness of knowledge.

As China and the world continue to navigate a future shaped by rapid technological advancements and changing societal needs, the role of mathematics in STEAM education remains pivotal. By embracing mathematics as an essential pillar of holistic education, educators and policymakers lay the foundation for a generation of creative problem-solvers who can drive innovation, shape societal progress, and contribute to the advancement of human

knowledge.

## References

- [1] National Academies of Sciences, Engineering, and Medicine, 2018. *How people learn II: Learners, contexts, and cultures*. National Academies Press: New York.
- [2] Resnick, M., 2017. *Lifelong kindergarten: Cultivating creativity through projects, passion, peers, and play*. MIT Press: Cambridge.
- [3] Shen, W., Norqvist, M., 2020. Creativity and its roles in education—A literature review. *Creativity Research Journal*. 32(2), 103-115.
- [4] National Academies of Sciences, Engineering, and Medicine, 2016. *Science literacy: Concepts, contexts, and consequences*. National Academies Press: New York.
- [5] UNESCO, 2015. *Quality Physical Education (QPE) Guidelines for Policy-Makers*.
- [6] Grover, S., Pea, R., 2013. Computational thinking in K-12: A review of the state of the field. *Educational Researcher*. 42(1), 38-43.
- [7] Voogt, J., Fisser, P., Pareja Roblin, N., et al., 2013. Technological pedagogical content knowledge—a review of the literature. *Journal of Computer Assisted Learning*. 29(2), 109-121.

# Research on the Impact of Core Strength Training on the Motor Skills of Tennis Beginners

Honglian Qin\*

Department of Physical Education, Shanghai Maritime University, Shanghai, 201306, China

## ARTICLE INFO

### Article history

Received: 18 September 2023

Revised: 20 September 2023

Accepted: 25 September 2023

Published Online: 30 October 2023

### Keywords:

Core strength

Tennis beginners

Motor skills

## ABSTRACT

With the popularity of tennis in the sports world, more and more beginners are joining this sport. However, for beginners, how to improve motor skills and game performance is still an important issue. Core strength training has potential as a potential adjunct to improve overall fitness and skill in athletes. Therefore, this research aimed to explore the potential impact of core strength training on the motor skills of tennis beginners to provide better training strategies and guidance for coaches and athletes.

## 1. The Importance of Core Strength Training

Core strength training is widely recognized as a vital element in athletics. It emphasizes strengthening the body's core muscles, including abdominal, waist, hip and back muscles, which work together to maintain body stability and balance. Here are some key points about the importance of core strength training for the development of motor skills for beginner tennis athletes.

Core strength is the foundation of all motor skills. In a sport like tennis, core stability is required for nearly every movement, whether it's serving, receiving, movement, or flexibility. A strong core improves body control and coordination, allowing athletes to better perform a variety of skill movements. Second, core strength helps reduce the risk of sports injuries. By exercising core muscles, an

athlete can increase joint stability and reduce the burden on joints and muscles, thereby reducing the possibility of injuries during exercise. This is especially important for beginners, who may not be as familiar with proper technique and how to perform the moves. Additionally, core strength training can help improve physical performance. A strong core improves explosiveness and endurance, which are critical for running, kicking, and turning on the tennis court. This not only enables beginners to perform better in competitions, but also helps develop athletes' confidence and perseverance. Finally, core strength training has benefits for overall health. It improves body posture and posture, relieves back pain, and promotes normal posture, thus improving quality of life. For toddlers and teens, developing healthy lifestyles and exercise habits is

\*Corresponding Author:

Honglian Qin,

Department of Physical Education, Shanghai Maritime University, Shanghai, 201306, China;

Email: [hlqin@shmtu.edu.cn](mailto:hlqin@shmtu.edu.cn)

critical, and core strength training can provide them with a healthy physical foundation.

In summary, core strength training is of great importance to the development of motor skills for tennis beginners. Not only does it enhance motor skills, it also improves stability, reduces the risk of injury, and benefits overall health. In this study, we will take an in-depth look at how core strength training affects beginners' tennis motor skills in order to provide more helpful information and advice to coaches and athletes.

## **2. The Impact of Core Strength Training on the Motor Skills of Tennis Beginners**

### **2.1 Impact on Movement Speed and Flexibility**

Core strength training has always been considered one of the important factors in improving athlete performance in sports. For tennis, a highly technical and physically demanding sport, core strength is even more crucial. This section will delve into the impact of core strength training on tennis beginners' motor skills, especially movement speed and flexibility.

In tennis, quick movement is one of the keys to victory. Whether it's quickly switching positions to respond to an opponent's shot, or running across the tennis court to pick up the ball, speed is one of the factors that determines victory or defeat. Core strength training can significantly improve beginners' movement speed.

Core strength training helps strengthen leg and hip muscles. These muscles are key to explosive power and propulsion in tennis. By exercising their core muscles, beginners can better utilize these muscles to run faster and change direction quickly. This allows them to get to the ball faster, catch the ball better, and return it at a higher rate. Improved core strength can help improve balance and coordination for beginners. On the tennis court, an athlete needs to move quickly while still maintaining balance in order to make an accurate swing. Strengthening the core muscles allows beginners to better control their body posture, reducing the chance of falls and mistakes. Core strength training can also improve explosive power for beginners. In situations where they need to sprint quickly or bend down to squat, the explosive strength of their core muscles allows them to perform these actions more quickly, thus improving their reaction speed. This is especially important when picking up low fly balls or dealing with fast, low strikes. Not only that, but core strength training can also help improve flexibility for beginners. In a tennis match, a variety of movements are required, including bending,

squatting, jumping, etc. By strengthening the core muscles, beginners are able to perform these movements with greater flexibility, reducing the risk of sports injuries caused by stiffness or inflexibility.

In summary, core strength training has a positive impact on the speed and flexibility of tennis beginners. This not only helps them better grasp the rhythm of the game and control the court, but also improves their batting efficiency and physical adaptability. Beginners can move to the ball faster and better respond to their opponent's shots, while also reducing the risk of sports injuries. Therefore, core strength training should become one of the essential training for tennis beginners.

### **2.2 Impact on Tennis Tactics**

In tennis matches, in addition to physical fitness and technical level, tactical intelligence is also one of the keys to victory or defeat. Core strength training has a significant impact on the tactical level of tennis beginners, which is reflected in the following aspects. Core strength training can help improve endurance for beginners. In an intense tennis match, each set can be a tug-of-war that requires stamina and staying power to hold on for every moment of the match. By strengthening their core muscles, beginners can better control their breathing and reduce fatigue, allowing them to better handle long games. They are able to maintain a high level of physical fitness, execute tactics better, and develop and stick to their game plans. Core strength training can improve a beginner's speed and explosiveness, which is crucial for getting to the ball quickly or countering an opponent's attack during a game. By improving speed and explosive power, beginners can better execute various tactics, such as net volleying, counterattacks, chasing the ball, etc. They can respond to their opponents' tactical changes faster and better grasp the rhythm of the game. In addition, core strength training can help improve beginners' concentration and decision-making skills. In tennis, quick decisions need to be made, such as choosing a shot direction, a volley, or a return shot. Strengthening the core muscles can help beginners stay focused better, reduce distractions, and improve decision-making quality. They are better able to analyze their opponents' tactics, formulate response strategies, and make correct decisions at critical moments. In addition, core strength training can also help beginners better cope with various competition situations. Whether they're ahead or behind, core strength helps them stay confident and motivated. They are able to better control their emotions and are not distracted by the pressure of the game, allowing them to better execute their tactical plans.

Core strength training has a positive impact on the

tactical level of tennis beginners. It improves endurance, speed, explosive power, concentration and decision-making, allowing beginners to execute various tactics and better adapt to game situations. Therefore, core strength training not only helps to improve physical fitness, but is also of great significance to the cultivation of tactical intelligence and should become an important part of the training plan for tennis beginners.

### **2.3 Enhancement of Fatigue Resistance**

Fatigue is one of the inevitable challenges in tennis, especially for beginners. However, through core strength training, beginners' fatigue resistance can be significantly enhanced, which is crucial for their performance in competitions.

A significant benefit of core strength training is increased body stability. A stable core not only helps improve the body's motor skills, but also reduces muscle pain and fatigue caused by improper posture during exercise. By continuously strengthening the core muscles during training, beginners improve their postural control capabilities and reduce unnecessary physical exertion, so that they can last longer in the competition. In addition, core strength training can reduce muscle fatigue during tennis matches. During the game, various hitting movements and running will put a certain amount of pressure on the muscles, which can easily lead to muscle soreness and fatigue. However, after core strength training, beginners' muscle stability and endurance are improved, which means they can maintain high-intensity competition for longer and reduce the occurrence of fatigue. Core strength training can also help improve breathing control for beginners. In fierce competitions, breathing control is crucial, not only related to physical consumption, but also directly affecting performance in the competition. Through core strength training, beginners can improve the endurance of their respiratory muscles, allowing them to better control their breathing and reduce asthma and fatigue. This allows them to better maintain their physical condition during the game and reduce mistakes caused by breathing difficulties. Most importantly, core strength training helps improve the physical adaptability of beginners. This means they are better able to handle a variety of game situations, including long duels, high-intensity matches and changing playing conditions. They can better adapt to the rhythm of the game and reduce the fatigue caused by not adapting<sup>[1]</sup>.

Overall, core strength training produced significant enhancements in fatigue resistance among tennis beginners. It enables beginners to better cope with fatigue challenges during competition by improving body stability, reducing muscle fatigue, improving breath control and enhancing

body adaptability. Therefore, core strength training is an essential training component for beginners looking to improve their tennis performance.

### **2.4 Improvement of Self-confidence and Psychological Quality**

In tennis, self-confidence and mental quality are one of the key factors for success. Core strength training also has a positive impact on these aspects for beginners.

Through core strength training, beginners' physical condition has been significantly improved. Their postures are more upright and their body lines are smoother, which helps to increase their self-confidence. When a person feels their body is strong and powerful, they will be more confident during competition and more willing to try various techniques and tactics. This increase in self-confidence can enable beginners to face competitive pressure more actively, not easily affected by being ahead or behind in the score, and more easily remain calm and focused. Core strength training can also help improve beginners' psychological quality, especially their ability to cope with setbacks and failures. In tennis, every athlete experiences failures and setbacks, especially beginners. However, with core strength training, they are not only physically stronger but also mentally tougher. They learn to accept failure, learn from it, and get back to normal more quickly<sup>[2]</sup>. This improvement in psychological quality makes them more patient, more perseverant, and more able to pursue progress relentlessly. In addition, core strength training can also help improve beginners' concentration and decision-making skills. In a tennis match, an athlete needs to make a variety of decisions quickly, including choosing hitting style, mastering the rhythm of the game, and responding to the opponent's tactical changes. By strengthening core strength, beginners' physical coordination and reaction speed are improved, and they are able to better respond to various situations in the game and make correct decisions more quickly. Core strength training can also reduce anxiety and tension. Beginners often perform poorly due to intense competition, but by experiencing core strength training, they can gradually become accustomed to facing competitive pressure during training and reduce their anxiety. This emotional improvement helps them enjoy the game better and realize their potential better<sup>[3]</sup>.

In summary, core strength training has a positive impact on the self-confidence and psychological quality of tennis beginners. By improving physical condition, increasing self-confidence, improving mental quality and improving decision-making skills, beginners are better able to face the challenges of competition and better cope

with the pressure of competition, thus improving their athletic skill level. Therefore, core strength training is not only beneficial on a physical level, but also has a positive impact on the development of tennis beginners on a psychological level.

### **3. Core Strength Training Strategies for Tennis Beginners**

#### **3.1 Formulation of Training Plans**

Designing a suitable training program is crucial for core strength training for tennis beginners. This plan should fully consider their starting level, physical condition and training goals. Here are some key factors to help create an effective core strength training program<sup>[4]</sup>.

**Starting point assessment:** Before formulating a training plan, a starting point assessment is needed to be conducted first. This includes measuring beginners' core strength levels, flexibility and body balance, which can be done with a simple core strength test and physical exam. The results of the assessment will help the coach or trainer understand the student's starting point in order to develop a personalized training plan. **Goal setting:** The development of training plans requires clear goals. In tennis, goals might include improving swing power, strengthening lower back and abdominal muscles, increasing explosiveness, and more. A clear definition of goals helps ensure that training programs are targeted.

**Training frequency and duration:** Tennis beginners usually need to gradually increase the frequency and duration of core strength training. The recommended training frequency is usually 2-3 times per week for 30-45 minutes each time. Over time, the difficulty and intensity of training can be gradually increased.

**Comprehensive training:** Core strength training should not only focus on the abdominal muscles, but also include other core-related muscle groups such as the back, glutes, and hips. Comprehensive training can help improve overall core stability and reduce the risk of injury. **Rest and recovery:** Rest and recovery are equally important for beginners. The training plan should include rest days so that muscles have enough time to recover. Additionally, stretching and relaxation exercises can also help relieve muscle tension. **Gradually increase difficulty:** Training plans should be progressive, gradually increasing difficulty. This can be accomplished by increasing the weight, changing the types of exercises, or increasing the number of reps performed. **Progressive training helps prevent overtraining and injury.** **Monitoring and adjustment:** Finally, training programs need to be monitored and adjusted

regularly. Beginners' progress may vary based on individual differences, so plans should be adjusted based on actual circumstances. Monitoring can be achieved through regular starting point assessments and recording of training progress.

#### **3.2 Integration with Tennis Training**

The organic integration of core strength training and tennis training is the key to improving beginners' motor skills. More comprehensive improvements can be achieved by combining core strength training with tennis skill training. Here are some integration strategies: Core strength exercises can be combined with tennis movement simulations. For example, core strength training can include exercises that simulate the motion of a racket swing to strengthen core stability during the swing, which can help translate core strength directly into actual motor skills. Elements of core stability can be added to tennis training. For example, when performing tennis swing and movement drills, there is a deliberate focus on maintaining core stability, which can be achieved through specialized exercises such as standing balance drills. Core strength can be used to improve tennis tactics. Core stability can help beginners control their bodies better and adjust positions more quickly to execute tactics more effectively, which means they can better respond to their opponents' serves, returns and movements, improving their game performance. Finally, it is critical to regularly monitor and evaluate the effectiveness of integrated training. By observing beginners' tennis skill progress and core strength improvements, the training plan can be adjusted in time to ensure the best results.

Taken together, combining core strength training with tennis skills training is an effective strategy for improving beginners' sports skills. Not only does this integration enhance core stability and strength, it directly translates into better tennis performance. Through a carefully designed integrated training program, beginners will be able to improve their tennis level faster and enjoy more sports fun<sup>[5]</sup>.

### **4. Conclusions**

The research in this article provides a valuable reference for tennis coaches and beginners, highlighting the critical role of core strength in improving athletic skills. By developing a scientific training plan, beginners can improve their tennis level faster and achieve better competition performance, which not only helps with personal growth but also increases love and commitment to the game of tennis.



## References

- [1] Xing, K.Q., 2023. Analysis of core strength training for tennis players. *Tennis World*. (06), 72-74.
- [2] Tian, G.H., 2023. Research on the impact of strength training on the forehand and backhand hitting performance of college tennis students. Hubei Normal University: Huangshi.
- [3] Huang, Zh.Q., 2023. Modular training design of core strength in college tennis courses. *Tennis World*. (04), 81-83.
- [4] Sang, Y., 2022. Application of core strength training in college tennis training. *Tennis World*. (12), 76-78.
- [5] Zhao, Y.L., 2022. Research on the application of core strength training in the physical training of amateur tennis enthusiasts. *Physical Training Branch of the Chinese Society of Sports Science*. p. 223-224.