Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:.1196

doi: 10.56294/sctconf2024.1196

ORIGINAL





The introduction of the impact of motivation cultivation on English autonomous learning among university students-a mediating role of learning strategy

La introducción del impacto del cultivo de la motivación en el aprendizaje autónomo del inglés entre estudiantes universitarios-un papel mediador de la estrategia de aprendizaje

Zhou Li¹ , Hui Suan Wei²

¹Universidad Técnica de Ambato. Facultad de Ciencias de la Salud, Carrera de Licenciatura en Enfermería. Latacunga, Ecuador.

Cite as: Li Z, Wei HS. The introduction of the impact of motivation cultivation on English autonomous learning among university students-a mediating role of learning strategy. Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:.1196. https://doi.org/10.56294/sctconf2024.1196

Submitted: 13-03-2024 Revised: 07-06-2024 Accepted: 02-10-2024 Published: 03-10-2024

Editor: Dr. William Castillo-González

Corresponding author: Zhou Li

ABSTRACT

My PhD dissertation research topic is "The Impact of Motivation Cultivation on English Autonomous Learning among University Students in Hunan, China-A Mediating Role of Learning Strategy", as my topic introduces, Dependent Variable (D.V.) is "English Autonomous Learning", Independent Variable (I.V.) is "Motivation", Mediating Variable (M.V.) is "Learning Strategy". The method this paper has mainly adopted is quantitative methodology. The results have showed reviewing research background, identifying research gaps, proposing problem statement, exploring the conceptual and operational definitions of terminology, stating the research significance, this paper concluded such key constituents of the introduction of my PhD dissertation research as conceptual framework, research objectives, research questions, and hypothesis.

Keywords: English Autonomous Learning; Motivation; Learning Strategy; Problem Statement; Problem Gap.

RESUMEN

Mi tema de investigación de tesis doctoral es "el impacto del cultivo de la motivación en el aprendizaje autónomo del inglés entre estudiantes universitarios en Hunan, China — un papel mediador de la estrategia de aprendizaje", como mi tema introduce, la Variable dependiente (D.V.) es "aprendizaje autónomo del inglés", la Variable independiente (I.V.) es "motivación", la Variable mediadora (M.V.) es "estrategia de aprendizaje". El método que este artículo ha adoptado principalmente es la metodología cuantitativa. Los resultados han mostrado la revisión de los antecedentes de la investigación, la identificación de las lagunas de la investigación, la propuesta de la declaración del problema, la exploración de las definiciones conceptuy operativas de la terminología, afirmando la importancia de la investigación, este documento concluyó los componentes clave de la introducción de mi investigación de tesis de doctorado como marco conceptual, objetivos de investigación, preguntas de investigación, y hipótesis.

Palabras clave: Inglés Aprendizaje Autónomo; Motivación; Estrategia de Aprendizaje; Planteamiento del Problema; Problema.

^{© 2024;} Los autores. Este es un artículo en acceso abierto, distribuido bajo los términos de una licencia Creative Commons (https://creativecommons.org/licenses/by/4.0) que permite el uso, distribución y reproducción en cualquier medio siempre que la obra original sea correctamente citada

INTRODUCTION

In today's modern world, the importance of English language can't be ignored. Apart from being used in academic, English has emerged has the best language for international communication. Due to digital emergence and ongoing pandemic, its importance has increased further. Young graduates from all over the world now prefer adopting freelancing and digital marketing as career option. The ongoing pandemic has damaged the world-wide economy and lot of people have lost their jobs. Even those people who were used to be managers, have now started taking interest in online work. The best way to communicate with people all over the world is content marketing. No matter you're promoting your products via E-Commerce or publishing blog posts or doing social media marketing, you'll need some solid language that is understood globally. Although these fields are extremely beneficial in terms of monetary benefits but problems with your content can damage you a great deal.

In developing countries, English Language Teaching(ELT) has now started shifting trend towards skill-orientation. Different institutes have started short-courses and diploma certificates. Programs like English Access and English Works are being offered in different institutes from grooming students' skills in English language. Students having intention to improve their communication skills for migration to foreign countries are inclined towards programs like IELTS and TOFEL.

In China, English is taught as compulsory subject to undergraduate students in both private and public sector universities. English as subject is not limited to BS English programs. In fact, almost all educational institutes have included different flavors of English in their course curriculums. Basic English, Communication Skills and Technical Report Writing are offered to students in first three semesters of their undergraduate degree program.

English is used as common language for worldwide communication for sharing thoughts. Students all over developing countries are learning English as second language learners. However, students are unable to use it in their professional careers. To communicate with people on the internet, English is used in the form of text, videos, audio and infographics. In order to increase the professionalism, importance must be given to the overall fluency in writing, reading and listening of English. Additionally, proper focus on expressions and pronunciation can play a very vital role in successful communication.⁽¹⁾

In China, educational institutes are constantly making efforts for enhancing and improving language competences of second language learners. The core aim behind this is the professional growth of students. With improved communications skills, students are able to grab opportunities in a more effective way. In Pakistan, well-directed efforts are being made to align curriculums with the changing needs of the world. English courses are being offered in almost every undergraduate programs. Due to increased enrollments in different disciplines in universities, affiliated colleges and schools, more job opportunities are being created for teachers to managing the workload and teaching English as Foreign Language (EFL) especially in the last ten years. (2) Immense efforts are being made by the Higher Education Commission (HEC) and universities for the improvement of English Language Teaching. However, the overall outcome in communication fluency and capability in English language doesn't solely depend upon the teachers. Students' perception, motivation and mindset is a critical success factor for the improvement of English language communication skills. Students being the final output of any educational institute, have major contribution towards the overall perception of any institute. The professional growth of students as well as institute's perception among public heavily depend upon the language, behavior and academic excellence of the students.

In today's modern world, dynamics of business, industry and education have changed a lot especially during the past two years due to this ongoing pandemic. Previously, majority of university graduates opted for jobs within Pakistan. However, a huge number of populations have now shifted towards remote jobs online. Majority of university students are doing freelancing via different platforms like Upwork, Fiverr and Freelancer now a days. During the past few years, there is a dramatic increase in LinkedIn profiles signed up by Pakistani students and professionals. These factors are clearly suggestive of the fact that job paradigm has started to shift beyond our national boundaries.

Since last 7 to 8 years, digital marketing has attracted a huge number of undergraduate students to offer products or services to clients across the globe. Clear and understandable communication between seller and buyer is one of the key success factors in digital marketing. Freelance platforms like Fiverr offers a state-of-the-art built-in chat-based communication system to trading parties. Apart from this, both parties can also use social media, website forums, E-Mail and video conferencing for creating a conducive environment that ease out the communication process.⁽³⁾

Further, the prevailing condition of Covid-19 has forced students and professionals to search for new horizons like online jobs as well as abroad on-premise jobs. Regardless of job nature, high proficiency in English language is always necessary if a student wants to get success on off-country jobs. In Thailand, English proficiency of students was measured through various testing mechanisms, but the results were found to be unsatisfactory. Resulting progress in English speaking was hit badly which forced authorities to change course curriculums for the improvement of ELT.⁽⁴⁾

3 Li Z, et al

As discussed earlier, knowledge is not a process that can be handled single handedly. Both teachers and students are two vital entities in a quality education system. For the improvement of educational culture in any field including ELT, both these entities have to play their role. Hence, effectiveness of modern ELT methods and their outcomes can't be ignored at all.

Up to 2010, research contribution made by researches in the field of ELT was very less. However, during the past decade, educationists all over the world have started taking interest in this field, which is clearly reflected in the number of research publications produced every year. (5)

Students' mindset is indicative of two motivational paradigms for learning: instrumental and integrative. Students who are on correct motivational track are capable of learning the English language more effectively and efficiently. Learning and progressing with the correct mindset keep a student motivated and helps in developing interest in self-learning and self-improvement process.

With the rapid development of information technology, knowledge is updated with each passing day, and information is growing explosively. In order to adapt to the ever-changing world, "lifelong learning" and "learning to learn" have become the requirements of the times for individuals, especially for contemporary university students. As we all know, as an effective way of learning, autonomous learning is not only beneficial to students' academic performance, but also the foundation for individual lifelong learning and lifelong development. Autonomous learning has become one of the necessary ways to cultivate innovative and practical talents urgently needed in today's society by independently establishing learning goals, formulating learning plans, selecting learning strategies, and evaluating learning results. Autonomous learning has become the goal of modern education. Learner autonomy should be the goal of every learner and every teacher.

The effectiveness of autonomous learning has always been the most concerned issue for researchers of autonomous learning. Researchers on learning strategies at home and abroad propose to improve the effect of autonomous learning by researching, summarizing the learning strategies of successful autonomous learners, and carrying out strategy training for all autonomous learners on this basis. However, the effectiveness of learning strategies varies from task to task and from person to person. Strategies that work for one learning task do not necessarily work for others; Strategies that work for some autonomous learners may not work for all autonomous learners.

MFTHOD

The method this paper has mainly used is quantitative research methodology.

Research Background

Learning a new language can be challenging, especially when it not your native tongue. In China, English is taught as a foreign language, and many students struggle to grasp it effectively. One of the major hurdles faced by these students is a lack of motivation. Without proper motivation, it becomes difficult for students to engage actively in the learning process. Many students simply show up to class to mark attendance without actively participating in lessons.

The key to success in language learning lies in motivation. It determines how often and in what ways students will study and practice the language. For some students, shyness may prevent them from speaking English in class, leading to passive participation. However, those who are brave enough to communicate in English tend to make greater progress. Therefore, it is crucial to maximize motivation among students to ensure that they are willing to put in the effort required to succeed in learning a new language. Ultimately, without motivation, achieving proficiency in English or any other language will always be an uphill battle.

Motivation plays a crucial role in a student's journey learn the English language. Without motivation, can be challenging for students to stay focused and committed to their language learning goals. Motivation serves as the driving force that propels students forward, even when faced with obstacles or setbacks. When students are motivated to learn English, they are more likely to put in the necessary effort and dedication required to succeed.

There are various factors that can influence a student's motivation in English language learning. It is important for educators to recognize and nurture students' motivations, as this can lead to increased engagement and better outcomes in language acquisition. Ultimately, a student's motivation in English language learning can have a significant impact on their overall success and growth as a language learner. Hence, it is important to identify to what extent is the student's motivation in English language learning?

When it comes to motivation, there are two main types that drive individuals towards achieving their goals: integrative and instrumental motivation. Integrative motivation refers to the desire to learn a new language or skill in order to connect with others and immerse oneself in a different culture. On the other hand, instrumental motivation is driven by practical reasons such as career advancement or academic requirements.

Many scholars believed that both integrative and instrumental motivations can play a significant role in driving individuals towards success. While some scholars believed the instrumental motivation may lead to

more tangible outcomes such as job opportunities or academic achievements, other scholars believed that integrative motivation fosters a deeper connection with the subject matter and can lead to a richer overall experience. Ultimately, the dominant motivation will vary from person to person based on their individual goals and values. It is important to recognize which types of motivation is dominant in Chinese university students in order to maximize their potential for growth and success in their endeavor. Hence, this research will focus on the university students in China to examine both motivation types on them.

With the implementation and expansion of the Ministry of Education's university English teaching reform project, the cultivation of comprehensive application, especially listening and speaking ability, has achieved certain results. The improvement of English in university depends on the active and independent accumulation of language knowledge and skills. Autonomous learning is the main way for university students to improve their English skills. However, many front-line teachers are still complaining about low attendance in English classes and students' lack of active participation in class. Problems such as lack of learning motivation and students' reluctance to participate in the English classes are more prominent that teachers need to solve urgently in teaching. In addition, due to the excessive obsession of society and teachers and students with focuses on the test points and test-taking skills, the cultivation of English language ability is obviously neglected.

Problem Statement

Lack of motivation has become a bottleneck in English autonomous learning. To solve this problem, it is necessary to carry out a series of learning strategies to stimulate, strengthen, and maintain learners' motivation and prevent them from being weakened. Therefore, learning strategies is undoubtedly the key to improving the autonomous learning effect of university English.

Research Gap

Learning a new language can be challenging, especially when it not your native tongue. In China, English is taught as a foreign language, and many students struggle to grasp it effectively. One of the major hurdles faced by these students is a lack of motivation. Without proper motivation, it becomes difficult for students to engage actively in the learning process. Many students simply show up to class to mark attendance without actively participating in lessons.

The key to success in language learning lies in motivation. It determines how often and in what ways students will study and practice the language. For some students, shyness may prevent them from speaking English in class, leading to passive participation. However, those who are brave enough to communicate in English tend to make greater progress. Therefore, it is crucial to maximize motivation among students to ensure that they are willing to put in the effort required to succeed in learning a new language. Ultimately, without motivation, achieving proficiency in English or any other language will always be an uphill battle.

Motivation plays a crucial role in a student's journey learn the English language. Without motivation, can be challenging for students to stay focused and committed to their language learning goals. Motivation serves as the driving force that propels students forward, even when faced with obstacles or setbacks. When students are motivated to learn English, they are more likely to put in the necessary effort and dedication required to succeed.

There are various factors that can influence a student's motivation in English language learning. It is important for educators to recognize and nurture students' motivations, as this can lead to increased engagement and better outcomes in language acquisition. Ultimately, a student's motivation in English language learning can have a significant impact on their overall success and growth as a language learner. Hence, it is important to identify to what extent is the student's motivation in English language learning?

When it comes to motivation, there are two main types that drive individuals towards achieving their goals: integrative and instrumental motivation. Integrative motivation refers to the desire to learn a new language or skill in order to connect with others and immerse oneself in a different culture. On the other hand, instrumental motivation is driven by practical reasons such as career advancement or academic requirements.

Many scholars believed that both integrative and instrumental motivations can play a significant role in driving individuals towards success. While some scholars believed the instrumental motivation may lead to more tangible outcomes such as job opportunities or academic achievements, other scholars believed that integrative motivation fosters a deeper connection with the subject matter and can lead to a richer overall experience. Ultimately, the dominant motivation will vary from person to person based on their individual goals and values. It is important to recognize which types of motivation is dominant in Chinese university students in order to maximize their potential for growth and success in their endeavor. Hence, this research will focus on the university students in China to examine both motivation types on them.

This paper fully searched, researched and reviewed the relevant literature on autonomous learning at home and abroad in recent years, including the research on autonomous learning of foreign languages assisted by computers and mobile apps, the research on how to improve the effectiveness of autonomous learning, the

5 Li Z, et al

further research on the connotation of autonomous learning, the research on how to practice the concept of learners' autonomy in policies, courses and classrooms, and the research on the motivation of autonomous learning, which laid a solid research starting point for this research.

RESULTS

Conceptual Framework

In this study, motivation cultivation is independent variable (i.v.), we here mainly explore both types of motivation, that is, integrative motivation and instrumental motivation. Respectively, integrative motivation means interest, enjoyment, and satisfaction in learning English. While, instrumental motivation implies external rewards, grades, recognition, and future career opportunities in studying English.

Learning strategies is chosen as mediating variable (m.v.) of this research. It includes such cognitive strategies as techniques of summarization, questioning, and elaboration; It also contains metacognitive strategies, for example, planning, monitoring, and evaluating one's own learning process. Besides the above two, it includes resource management strategies, for example, time management, study environment control, and seeking help.

English autonomous learning is the dependent variable (d.v.) of this dissertation. It shows autonomy in learning of self-directed learning, taking initiative, and personal responsibility. It also includes learning outcomes of academic performance, proficiency, and improvement in English skills. Moreover, it encompasses engagement of active participation, perseverance, and effort in learning tasks.

The diagram of the conceptual framework is as follows:

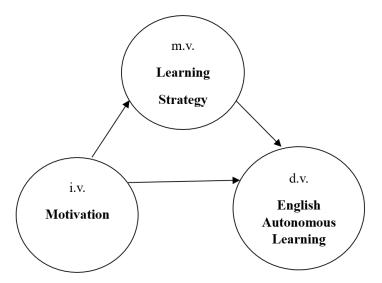


Figure 1. Conceptual framework

Through detailed analysis, we can give an explanation of the above framework. In this study, motivation represents both types of integrative and instrumental motivation that drive students to learn English. Learning strategies mediates the effect of motivation on autonomous learning by providing tools and techniques for effective learning. English autonomous learning is the ultimate goal which is influenced by both motivation and the use of learning strategies, leading to better learning outcomes, increased autonomy, and higher engagement.

Therefore, we get the hypothesized relationships as follows:

 $\hbox{Motivation} \to \hbox{English Autonomous Learning}$

Higher levels of motivation (both integrative and instrumental) are expected to positively impact students' autonomy in learning English.

Motivation → Learning Strategy

Motivated students are more likely to adopt effective learning strategies, both cognitive and metacognitive. Learning Strategy → English Autonomous Learning

The use of effective learning strategies is expected to enhance autonomous learning and lead to better learning outcomes.

Motivation → Learning Strategy → English Autonomous Learning

Learning strategies mediate the relationship between motivation cultivation and English autonomous learning. Motivation cultivation influences the adoption of learning strategies, which in turn affects autonomous learning and learning outcomes.

Research Objectives

This research aimed to find out the following:

RO1: To identify the relationship between motivation and learning strategy on motivation to English autonomous learning among Chinese university students.

RO2: To identify the impact of motivation to English autonomous learning among Chinese university students.

RO3: To identify the mediating effect of learning strategy on motivation to English autonomous learning among Chinese university students.

Research Questions

RQ1a: What's the relationship between motivation and English autonomous learning among university students in China?

RQ1b: What's the relationship between learning strategy and English autonomous learning among university students in China?

RQ1c: What's the relationship between learning strategy on motivation and English autonomous learning among university students in China?

RQ2: What's the impact of motivation to English autonomous learning among Chinese university students?

RQ3: What's the mediating effect of learning strategy on motivation to English autonomous learning among Chinese university students?

Hypothesis

H1: There's a significant relationship between motivation and English autonomous learning among Chinese university students.

H2: There's a significant relationship between learning strategy and English autonomous learning among Chinese university students.

H3: There's a significant relationship between learning strategy on motivation and English autonomous learning among Chinese university students.

H4: There's a positive impact of motivation to English autonomous learning among Chinese university students?

H5: There's a positive mediating effect of learning strategy on motivation to English autonomous learning among Chinese university students?

DISCUSSION

Research Significance

1. It is conducive to mobilizing students' enthusiasm for independent learning of English.

The practical significance of this study is to stimulate students' learning motivation and mobilize students' enthusiasm for oral self-learning, so as to improve and ensure the effect of autonomous learning of university oral English, and then enhance students' self-confidence in autonomous learning of oral English.

The Curriculum Requirements advocate a new model for teaching English at the university level to "help mobilize the enthusiasm of both teachers and students". University English teaching in China is facing a shift from "how to teach" to "how to motivate". Motivation is closely related to autonomous learning. Students with a high level of motivation generally have a high level of autonomous learning. Motivation research begins with a common second language acquisition question: Studying the motivation cultivation of autonomous learning of spoken English in university will undoubtedly help to mobilize students' enthusiasm for autonomous learning of spoken English and answer the question of "how to motivate" university English. It is impossible to cultivate students' "strong comprehensive English application ability, especially oral ability".

2. It is conducive to enhancing students' self-confidence in independent learning of English.

University students have a weak foundation in English, limited vocabulary and grammar knowledge, lack confidence and interest in independent learning of university English speaking, or even if they have a certain interest, they are difficult because of their weak foundation, so that they cannot persist and maintain enthusiasm. Through the study of the cultivation of motivation for autonomous learning of spoken English in university, students are guided to establish the goal of oral English learning, formulate learning plans, monitor and motivate students to carry out independent learning of oral English, improve the learning effect of oral English, and enhance students' motivation, interest, self-confidence and enthusiasm for independent learning of spoken English. Only on the basis of students' motivation, self-confidence, interest and enthusiasm for learning can we successfully carry out oral English teaching in university and achieve the teaching goal of "cultivating comprehensive English application ability, especially oral ability".

3. It is conducive to the smooth development of autonomous learning.

In the autonomous learning and evaluation of spoken English, attention is often paid to grammar, vocabulary and oral skills, and little is integrated into the cultivation of motivation. The organic integration of motivation cultivation and oral English autonomous learning can make the learning of language knowledge and skills more sustainable because of the guidance and motivation of motivation, and the sense of achievement and fulfillment of autonomous learning can further stimulate the intrinsic motivation of autonomous learning.

Motivation cultivation can make students clear about the meaning of learning, enhance students' courage to overcome learning difficulties, and ensure the continuous and smooth progress of independent learning.

4. It is conducive to improving the English ability of university students.

Motivation has a decisive impact on the success or failure of second language learning. Language learning is a long and arduous journey, and without sufficient motivation, it is impossible to persevere and eventually reach the other side of success. In view of its importance to second language learning, motivation has been widely concerned and a research hotspot in the field of second language acquisition in the decades since the late fifties of the twentieth century.

The English proficiency of university students is uneven overall, with some good and some bad. The main reason for the difference is not the difference in IQ, but the difference in non-intellectual factors such as motivation. Studies have shown that learners' intellectual factors do not differ much, while motivational non-intellectual factors vary widely. It is often not intellectual factors that determine learning outcomes, but motivational non-intellectual factors.

Conceptual and Operational Definitions of Terminology

English Autonomous Learning

Conceptual Definition

English autonomous learning refers to the process in which learners take control of their own English language learning journey. This involves setting their own learning goals, choosing learning strategies, monitoring their progress, and evaluating the outcomes. Autonomous learners are self-motivated, independent, and proactive in seeking opportunities to practice and improve their English skills outside the formal classroom setting.

Key aspects include: (1) Self-Direction: The ability to plan, initiate, and manage one's learning activities without reliance on external instruction. (2) Responsibility: Taking ownership of one's learning outcomes and being accountable for the efforts put into learning. (3) Independence: Engaging in learning activities independently of teachers or structured classroom environments.

Operational Definition

To measure English autonomous learning among university students, the following indicators can be used:

1. Learning Autonomy Scale: A questionnaire designed to assess the degree of autonomy in learning English. Items may include: (1) "I set my own goals for learning English." (2) "I choose the materials and resources I use to learn English." (3) "I evaluate my own progress in learning English." 2. Frequency of Autonomous Learning Activities: Self-reported frequency of engaging in activities such as: (1) Studying English independently outside of class. (2) Using online resources, apps, or language learning software. (3) Practicing English with native speakers or peers through language exchange programs. (4) Reading English books, watching English movies, or listening to English podcasts. 3. Self-Assessment of Learning Outcomes: A self-report measure where students rate their perceived improvement in various English skills (e.g., speaking, listening, reading, writing) as a result of their autonomous learning efforts. 4. Academic Performance in English: Objective measures such as grades in English courses, scores on standardized English proficiency tests (e.g., TOEFL, IELTS), and teacher assessments of student performance. 5. Learning Journals or Portfolios: Qualitative data from students' reflective journals or portfolios documenting their learning goals, strategies used, progress made, and self-evaluation of their learning journey.

By combining these measures, researchers can obtain a comprehensive assessment of English autonomous learning, encompassing both subjective self-reports and objective performance indicators.

Motivation

Conceptual Definition

Motivation in the context of English autonomous learning refers to the internal and external forces that drive students to engage in and sustain their efforts toward learning English. It encompasses a range of factors that influence their enthusiasm, persistence, and commitment to mastering the language. Motivation can be broadly categorized into intrinsic and extrinsic motivation, as well as self-efficacy. Key aspects include: (1) Integrative Motivation: The inherent desire to learn English for personal satisfaction, interest, and enjoyment. (2) Instrumental Motivation: The drive to learn English due to external rewards, such as grades, recognition,

or future career opportunities. (3) Self-Efficacy: The belief in one's own ability to successfully learn and use English.

Operational Definition

To measure motivation among university students in the context of English autonomous learning, the following indicators can be used: 1. Motivation Questionnaire: A standardized instrument to assess different dimensions of motivation. Example items include: (1) Integrative Motivation: "I enjoy learning English because it is interesting."; "I feel a sense of satisfaction when I make progress in learning English." (2) Instrumental Motivation: "I learn English to get good grades."; "Knowing English will help me get a good job in the future." (3) Self-Efficacy: "I believe I can achieve my goals in learning English."; "I am confident in my ability to understand and use English effectively." 2. Self-Reported Learning Behaviors: Frequency and types of learning activities that reflect motivation, such as: (1) Time spent on independent English study outside of class. (2) Participation in extracurricular activities related to English (e.g., language clubs, online forums). (3) Efforts to seek additional learning resources (e.g., online courses, language apps). 3. Behavioral Indicators: Observable behaviors that demonstrate motivation, such as: (1) Attendance and participation in English classes. (2) Completion of optional or extra credit assignments related to English. (3) Engagement in English language practice opportunities (e.g., speaking with native speakers, participating in language exchange programs). 4. Performance Metrics: Academic performance indicators that may reflect underlying motivation, such as: (1) Grades in English courses. (2) Scores on standardized English proficiency tests (e.g., TOEFL, IELTS). (3) Progress in personalized learning plans or targets set by students. 5. Qualitative Data: Insights from interviews or openended survey questions about students' reasons for learning English, their goals, and what drives them to continue their efforts. Example questions include: (1) "What motivates you to learn English?" (2) "How do you stay motivated to improve your English skills?"

By combining these measures, researchers can capture a comprehensive picture of motivation, encompassing both quantitative and qualitative aspects, as well as intrinsic, extrinsic, and self-efficacy dimensions.

Integrative Motivation

Conceptual Definition

Integrative motivation refers to the desire to learn a language in order to integrate oneself into the culture of the language-speaking community. It encompasses an interest in and positive attitudes toward the people, culture, and values associated with the language. In the context of learning English, integrative motivation involves a genuine interest in understanding and connecting with English-speaking cultures, as well as using the language to communicate with native speakers. Key aspects include: (1) Cultural Interest: Curiosity and appreciation for the culture and traditions of English-speaking countries. (2) Interpersonal Motivation: The desire to interact and communicate effectively with native English speakers. (3) Identity Formation: A sense of identification with the English-speaking community and a desire to become a part of it.

Operational Definition

To measure integrative motivation among university students in the context of English autonomous learning, the following indicators can be used: 1. Integrative Motivation Scale: A questionnaire designed to assess the level of integrative motivation. Items may include: (1) "I want to learn English to understand the culture and lifestyle of English-speaking countries." (2) "I am interested in making friends with people who speak English." (3) "Learning English is important to me because I want to become more like the people who speak it." 2. Self-Reported Attitudes and Behaviors: Items reflecting attitudes toward English-speaking cultures and behaviors that indicate integrative motivation, such as: (1) Interest in cultural activities related to English-speaking countries (e.g., watching English movies, reading English literature). (2) Participation in cultural exchange programs or international student events. (3) Efforts to learn about the history, customs, and traditions of English-speaking countries. 3. Qualitative Data: Insights from interviews or open-ended survey questions about students' motivations for learning English, focusing on integrative aspects. Example questions include: (1) "Why do you want to learn English?" (2) "How important is it for you to understand and connect with English-speaking cultures?" 4. Language Use in Social Contexts: Observations or self-reports on the use of English in social interactions with native speakers or in culturally immersive contexts, such as: (1) Engaging in conversations with native English speakers. (2) Participating in English-speaking community events or online forums. (3) Traveling to English-speaking countries and using the language in real-life situations. 5. Engagement with English Media: Frequency and types of engagement with English-language media that reflect an interest in the culture, such as: (1) Watching English-language films, TV shows, or YouTube channels. (2) Reading English books, newspapers, or magazines. (3) Listening to English music, podcasts, or radio stations.

By combining these measures, researchers can obtain a comprehensive assessment of integrative motivation, encompassing both quantitative and qualitative data, and reflecting students' interest in and attitudes toward

English-speaking cultures.

Instrumental motivation Conceptual Definition

Instrumental motivation refers to the desire to learn a language for practical, goal-oriented reasons. It involves learning English as a means to an end, such as achieving academic success, securing better job opportunities, earning higher income, or fulfilling educational requirements. This type of motivation is driven by external rewards and tangible benefits that come from acquiring proficiency in English. Key aspects include: (1) Career Advancement: Learning English to enhance job prospects and career opportunities. (2) Academic Achievement: Acquiring English proficiency to perform well in exams, complete degree requirements, or gain admission to higher education institutions. (3) Economic Benefits: Learning English for financial gains, such as higher salaries or better job positions. (4) Functional Use: The practical use of English in everyday tasks, such as traveling, accessing information, or communicating in a globalized world.

Operational Definition

To measure instrumental motivation among university students in the context of English autonomous learning, the following indicators can be used: 1. Instrumental Motivation Scale: A questionnaire designed to assess the level of instrumental motivation. Items may include: (1) "I want to learn English because it will help me get a good job." (2) "Learning English is important for my academic success." (3) "I study English to earn a higher salary in the future." 2. Self-Reported Goals and Expectations: Items reflecting students' goals and expectations related to learning English, such as: (1) Specific career goals that require English proficiency. (2) Academic milestones or degrees that necessitate strong English skills. (3) Financial aspirations linked to English language proficiency. 3. Behavioral Indicators: Observations or self-reports on behaviors that indicate instrumental motivation, such as: (1) Enrolling in English courses or training programs to improve job qualifications. (2) Participating in test preparation courses for exams like TOEFL, IELTS, or other standardized English tests. (3) Seeking certifications in English proficiency to enhance resumes or job applications. 4. Performance Metrics: Academic and professional achievements that reflect instrumental motivation, such as: (1) Grades and test scores in English courses or exams. (2) Obtaining internships, job offers, or promotions that require English proficiency. (3) Successful completion of academic programs or degrees where English is a prerequisite. 5. Qualitative Data: Insights from interviews or open-ended survey questions about students' motivations for learning English, focusing on instrumental aspects. Example questions include: (1) "How do you think learning English will benefit your career?" (2) "What are your main reasons for wanting to improve your English skills?" 6. Engagement with English for Specific Purposes: Frequency and types of engagement with English related to practical uses, such as: (1) Using English to access academic or professional resources. (2) Attending workshops, seminars, or conferences conducted in English. (3) Applying for jobs or academic programs that require English proficiency.

By combining these measures, researchers can obtain a comprehensive assessment of instrumental motivation, encompassing both quantitative and qualitative data, and reflecting students' practical, goaloriented reasons for learning English.

The Correlation of Integrative and Instrumental Motivation

While intrinsic motivation (i.e. integrative motivation) has been widely accepted as having strong positive effects on academic achievement, we are less certain about the importance of instrumental motivation on academic achievement. (6,7,8,9,10) The latter, instrumental motivation refers to the motive for future goals and activities that derive utility value related to students' career, financial gains, academic achievement, job promotion, and so on. (11,12) Despite instrumental motivation is regarded as a kind of extrinsic motivation, it can be internalised into one's self-regulation and can facilitate academic achievement, performance, achievement goals and even well-being. (14) What complicates the situation and makes it cross-culturally more significant is that in the Chinese culture, the highly competitive learning environment and the importance of examination may increase the instrumental value and may, therefore, raise the importance of such a type of motivation in learning. This might make the motivational patterns in Chinese cultures different from that in the West. (15) Given the possible variations on the emphasis of these motivations in different cultures, we examined in our study how instrumental motivation might help students from the Western and the Chinese cultures with very different contextual learning environments in two large international survey studies.

According to the self-determination theory, human beings have the inherent propensity to be intrinsically motivated, to assimilate their social and physical world, and to integrate external regulations so that they become parts of themselves. (16) Intrinsically motivated factors are from personal causation—intrinsic motivation represents an engagement in an activity for one's own sake. In contrast, extrinsic motivation (i.e. instrumental motivation) is defined as influences that exist outside of the activity in order to attain a desired outcome. (17,18) However, among the many kinds of extrinsic motivation, some of them are internalised into one's self-regulation, such as the instrumental motivation which places a utilitarian value on learning for the advancement of an individual's future career (Organisation for Economic Co-operation and Development (OECD). (19) Instrumental motivation is often discussed as the link between the present behavior and the future goals. (20,21) It is characterised by an instrumental purpose for some separable consequences, but it orients towards the future that is related to individuals' life and activities. (22,23)

As compared to the intrinsic motivation which is usually a facilitating factor to performance, instrumental motivation could also be a strong positive predictive indicator of academic achievement, sometimes even more so than that of intrinsic motivation (e.g. Burton, Lydon, D'Alessandro, & Koestner, 2006). Despite this possiblity, instrumental motivation could also be a weak predictor of student self-determination. (24) Specifically, instrumental motivation might be seen as a type of extrinsic motivation because the utilities of completing the task are all coming from outside of the activity. Instrumental motivation, however, is also well internalised into one's own regulations. Thus, on one hand, values on achieving the outcomes can lead to informational mastery and thus help strengthen one's feeling of competence. (25) On the other hand, however, values outside of the activity undermine intrinsic motivation and is detrimental to individual autonomy. This means that instrumental motivation can be a positive factor that strengthens one's performance, despite it can also be a controlling factor which undermines one's performance. (27,28) It would be important to see which of the above directions has been supported in the research literature. (29,30)

In summary, the present research has provided several important and useful findings and implications. (a) For Chinese students with low intrinsic motivation, instrumental motivation will bring additional benefits to academic performance. Instrumental motivation, however, is less helpful to academic performance for students with high intrinsic motivation. Chinese students may be benefitted from the instrumental values at the beginning of learning, but such benefits may disappear when students have developed great interest in their academic activities. (b) Western students, irrespective of having high or low intrinsic motivation, are generally found not to be differently benefitted from instrumental motivation. (c) Most importantly, intrinsic motivation is still a strong and positive factor for academic performance across both Western and Chinese cultures.

In educational settings, typically for Chinese learners, a proper instrumental value may be helpful for the beginners to study and achieve high performance. This might explain why the Chinese exceed the western students in a lot of the international assessment. Putting emphases on instrumental uses, such as future goals, utility values of the subjects, is practical in schools. These instrumental values may help Chinese students adapt to the society, cope with the environment, motivate their learning behaviour, and thus internalise the instrumental values into their own regulations. However, this is not the final solution once students have developed their own interest in different academic subjects. Note that while the instrumental motivation may be helpful for students with little interest in learning, cultivate intrinsic motivation is still useful and long-term effective.

Learning Strategies Conceptual Definition

A learning strategy is a systematic plan or method employed by learners to enhance their understanding, retention, and application of knowledge. It involves the conscious use of techniques and approaches to facilitate the learning process, improve academic performance, and achieve learning goals. Learning strategies can be broadly categorized into cognitive strategies, metacognitive strategies, and resource management strategies. Key aspects include: (1) Cognitive Strategies: Techniques that involve direct interaction with the learning material, such as summarization, elaboration, and organization. (2) Metacognitive Strategies: Approaches that involve planning, monitoring, and evaluating one's own learning process, such as setting goals, self-monitoring, and self-assessment. (3) Resource Management Strategies: Methods to manage time, effort, and resources effectively, such as time management, seeking help, and creating conducive learning environments.

Operational Definition

To measure the use and effectiveness of learning strategies among university students, the following indicators can be used: 1. Learning Strategies Questionnaire: A standardized instrument to assess the frequency and types of learning strategies used by students. Items may include: (1) Cognitive Strategies: "I summarize what I have learned after each study session."; "I create mind maps or outlines to organize information." (2) Metacognitive Strategies: "I set specific goals for my study sessions."; "I regularly check my understanding of the material." (3) Resource Management Strategies: "I manage my study time effectively."; "I seek help from peers or instructors when needed." 2. Self-Reported Learning Behaviors: Items reflecting how often students engage in various learning strategies, such as: (1) Using flashcards or mnemonic devices to memorize information. (2) Keeping a study schedule or planner to organize study time. (3) Participating in study groups or peer discussions. 3. Behavioral Indicators: Observations or self-reports on behaviors that indicate the use of

11 Li Z, *et al*

learning strategies, such as: (1) Frequency of review sessions or self-quizzing. (2) Use of study aids and resources (e.g., textbooks, online tools, library resources). (3) Engagement in self-assessment practices, such as practice tests or reflective journaling. 4. Performance Metrics: Academic performance indicators that may reflect the effective use of learning strategies, such as: (1) Grades and test scores in courses. (2) Improvement in academic performance over time. (3) Completion of assignments and projects with high quality. 5. Qualitative Data: Insights from interviews or open-ended survey questions about students' learning strategies and their perceived effectiveness. Example questions include: (1) "What techniques do you use to study and learn new material?" (2) "How do you plan and organize your study sessions?" (3) "What strategies do you find most effective for managing your study time?" 6. Engagement with Learning Resources: Frequency and types of engagement with various learning resources, such as: (1) Attendance at tutoring sessions or academic workshops. (2) Use of online learning platforms and educational apps. (3) Accessing and utilizing library resources and study guides.

By combining these measures, researchers can obtain a comprehensive assessment of the learning strategies used by students, encompassing both quantitative and qualitative data, and reflecting various cognitive, metacognitive, and resource management techniques.

Cognitive Strategies

Conceptual Definition

Cognitive strategies are mental processes or tactics that individuals use to acquire, process, and understand information. These strategies are essential in learning as they help learners to organize, retain, and retrieve information more effectively. Cognitive strategies involve a range of activities such as summarizing, elaborating, organizing, and mental imagery, which facilitate deeper understanding and memory retention of the subject matter.

Operational Definition

In the context of your research on the impact of motivation cultivation on English autonomous learning among university students in Hunan, China, cognitive strategies can be operationally defined as the specific, measurable behaviors or actions that students use to enhance their English language learning. This includes the use of techniques such as summarizing texts, creating mental or written outlines, employing mnemonic devices, practicing through repetition, and paraphrasing material in their own words. These strategies can be assessed through self-reported questionnaires, observations, or tests designed to measure the frequency and effectiveness of these tactics in language learning tasks.

Metacognitive Strategies

Conceptual Definition

Metacognitive strategies refer to higher-order thinking skills that involve self-regulation, planning, monitoring, and evaluating one's own learning processes. These strategies enable learners to think about their thinking, make informed decisions about how to approach learning tasks, and adjust their approaches as needed. Metacognitive strategies include activities such as goal setting, self-questioning, self-monitoring, and reflecting on the effectiveness of learning strategies and outcomes.

Operational Definition

In the context of your research on the impact of motivation cultivation on English autonomous learning among university students in Hunan, China, metacognitive strategies can be operationally defined as the specific, measurable actions or behaviors that students use to plan, monitor, and evaluate their learning of English. This may include setting clear learning goals, selecting appropriate strategies for language tasks, monitoring comprehension during reading or listening, and reflecting on the success of the strategies used. These strategies can be assessed through self-report questionnaires, think-aloud protocols during learning tasks, or performance-based assessments where students demonstrate their ability to plan, monitor, and evaluate their learning processes.

Resource Management Strategies

Conceptual Definition

Resource management strategies refer to the methods and practices that learners use to effectively manage their time, environment, and other resources to optimize their learning outcomes. These strategies involve the efficient allocation and use of both internal resources (like effort and attention) and external resources (like study materials, technology, and seeking help from others). Resource management is crucial for ensuring that learners can sustain their efforts and access the necessary support and tools to achieve their learning objectives.

Operational Definition

In the context of your research on the impact of motivation cultivation on English autonomous learning among university students in Hunan, China, resource management strategies can be operationally defined as the specific, measurable behaviors or actions that students use to manage their learning environment and resources. This includes time management practices (e.g., scheduling study sessions), the use of study aids (e.g., dictionaries, language learning apps), seeking help from peers or teachers when needed, and organizing a conducive study environment (e.g., finding a quiet place to study). These strategies can be assessed through self-report questionnaires, time logs, observations, or performance-based tasks that measure how effectively students manage their resources to support their English language learning.

CONCLUSIONS

Based on the researcher's practice of teaching English in university, this study proposes to "discuss the value of English in the context of internationalization and stimulate the motivation of independent learning of English; Use failure cases to warn students and avoid fear of self; Successful cases to inspire the construction of an ideal self in English; Carry out learning strategy guidance for the learning objectives and content of English in Swan university of Central South University of Forestry and Technology; Set up scholarships to affirm progress; guide students to make reasonable attributions, build confidence, and maintain motivation" and other autonomous learning motivation measures for university English. Although the motivation cultivation measures proposed and verified in this study are very limited, the research results have important practical significance for how to improve the effect of English teaching in universities, and also have certain reference value for how to carry out research on the cultivation of motivation for English learning. In this study, the cultivation of autonomous learning motivation is taken as the breakthrough point of the "incapable English" dilemma of "high-grade-yet-low-ability" phenomenon in university English teaching, and the cultivation measures of autonomous learning motivation in university English are studied. The research results are of great practical significance for improving the effectiveness of English teaching in universities.

REFERENCES

- 1. Agustin, W., Yudi Wahyudin, A., & Isnaini, S. (2020). LANGUAGE LEARNING STRATEGIES AND ACADEMIC ACHIEVEMENT OF ENGLISH DEPARTMENT STUDENTS. JOURNAL OF ARTS AND EDUCATION, 1(1), 19-29. http://doi.org/jim.teknokrat.ac.id/index.php/english-language-teaching/index
- 2. Yu, R. (2020). On Fostering Learner Autonomy in Learning English. Theory and Practice in Language Studies, 10(11), 1414-1419. https://doi.org/10.17507/tpls.1011.09
- 3. Saeed, F. (2024). GENERAL PERCEPTIONS OF ENGLISH LANGUAGE LEARNERS ABOUT INTEGRATIVE OR INSTRUMENTAL MOTIVATION: A STUDY OF UNIVERSITY STUDENTS IN FAISALABAD PAKISTAN. Remittances Review, 9(1), 1983-2018. https://doi.org/10.33282/rr.vx9il.87
- 4. Filgona, J., Sakiyo, J., Gwany, D. M., & Okoronka, A. U. (2020). Motivation in Learning. Asian Journal of Education and Social Studies, 10(4), 16-37. https://doi.org/10.9734/ajess/2020/v10i430273
- 5. Lestari, M., & Wahyudin, A. Y. (2020). Language Learning Strategies of Undergraduate EFL Students. Journal of English Language Teaching and Learning (JELTL), 1(1), 25-30. http://jim.teknokrat.ac.id/index.php/english-language-teaching/index
- 6. Amoah, S., & Yeboah, J. (2021). The speaking difficulties of Chinese EFL learners and their motivation towards speaking the English language. Journal of Language and Linguistic Studies, 17(1), 56-69. https://doi.org/10.52462/jlls.4
- 7. Anggarista, S., & Wahyudin, A. Y. (2022). A CORRELATIONAL STUDY OF LANGUAGE LEARNING STRATEGIES AND ENGLISH PROFICIENCY OF UNIVERSITY STUDENTS AT EFL CONTEXT. JOURNAL OF ARTS AND EDUCATION, 2(1), 26-35. DOI: https://doi.org/10.33365/jae.v2i1.68
- 8. Azar, A. S., & Tanggaraju, D. (2020). Motivation in Second Language Acquisition among Learners in Malaysia. Studies in English Language and Education, 7(2), 323-333. https://doi.org/10.24815/siele.v7i2.16506
- 9. Bureau, J. S., Howard, J. L., Chong, J. X. Y., & Guay, F. (2022). Pathways to Student Motivation: A Meta-Analysis of Antecedents of Autonomous and Controlled Motivations. Review of Educational Research, 92(1), 46-72. https://doi.org/10.3102/00346543211042426

- 10. Darvin, R., & Norton, B. (2023). Investment and motivation in language learning: What's the difference? Language Teaching, 56(1), 29-40. Cambridge University Press. https://doi.org/10.1017/S0261444821000057
- 11. Fishbach, A., & Woolley, K. (2022). The Structure of Intrinsic Motivation. Annu. Rev. Organ. Psychol. Organ. Behav., 9, 339-63. https://doi.org/10.1146/annurev-orgpsych-012420-091122
- 12. Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student Motivation and Associated Outcomes: A Meta-Analysis From Self-Determination Theory. Perspectives on Psychological Science, 16(6), 1300-1323. https://doi.org/10.1177/1745691620966789
- 13. Jamila, M., & Zubairi, A. M. (2022). A Systematic Review of Autonomous Learning in ESL/EFL in Bangladesh: A Road to Discovery Era (2009-2022). English Language Teaching, 15(4), 47. https://doi.org/10.5539/elt.v15n4p47
- 14. Morris, L. S., Grehl, M. M., Rutter, S. B., Mehta, M., & Westwater, M. L. (2022). On what motivates us: A detailed review of intrinsic v. extrinsic motivation. Psychological Medicine, 52(10), 1801-1816. Cambridge University Press. https://doi.org/10.1017/S0033291722001611
- 15. Papi, M., & Hiver, P. (2020). Language Learning Motivation as a Complex Dynamic System: A Global Perspective of Truth, Control, and Value. The Modern Language Journal, 104(1), 209-232. https://doi.org/10.1111/modl.12624
- 16. Peng, R., & Fu, R. (2021). The effect of Chinese EFL students' learning motivation on learning outcomes within a blended learning environment. Australasian Journal of Educational Technology, 37(6), 61-74. https://doi.org/10.14742/ajet.6235
- 17. Rahardjo, Agus, & Pertiwi, S. (2020). Learning Motivation and Students' Achievement in Learning English: A Case Study at Secondary School Students in the Covid-19 Pandemic Situation. Journal of English Language Teaching and Literature, 1(2), 56-64. https://doi.org/www.jurnal.stkipmb.ac.id/index.php/jelita/article/view/65
- 18. Putri, R. R., Khairil, K., & Safrida, S. (2022). The Application of the Flipped Classroom Model Integrated with Google Classroom to the Student's Learning Motivation. Jurnal Penelitian Pendidikan IPA, 8(1), 263-268. https://doi.org/10.29303/jppipa.v8i1.1157
- 19. Zabidin, N., Mohamad, N. A., Razali, N. A., Ramlan A. N. M., & Rahmat, N. H. (2023). How Does Motivation Affect Communication Apprehension, Fear of Negative Evaluation and Test Anxiety among ESL Learners. International Journal of Academic Research in Accounting, Finance and Management Sciences, 13(2), 205-220. https://doi.org/10.6007/IJARAFMS/v13-i2/17036
- 20. Sadeghi, K., Ballıdag, A., & Mede, E. (2021). The Washback Effect of TOEFL iBT and A Local English Proficiency Exam On Students' Motivation, Autonomy and Language Learning Strategies. Heliyon, 7, 1-9. https://doi.org/10.1016/j.heliyon.2021.e08135
- 21. Safdari, S. (2021). Operationalizing L2 motivational self system: Improving EFL learners' motivation through a vision enhancement program. Language Teaching Research, 25(2), 282-305. https://doi.org/10.1177/1362168819846597
- 22. Seven, M. A. (2020). Motivation in language learning and teaching. African Educational Research Journal, 8(2), 62-71. https://doi.org/10.30918/AERJ.8S2.20.033
- 23. Tria Agustina, E., Yudi Wahyudin, A., & Adelia Pratiwi, A. (2021). The Students' Motivation and Academic Achievement at Tertiary Level: A Correlational Study. JOURNAL OF ARTS AND EDUCATION, 1(1), 29-38. DOI: https://doi.org/10.33365/jae.v1i1.33
- 24. Van den Broeck, A., Howard, J. L., Van Vaerenbergh, Y., Leroy, H., & Gagné, M. (2021). Beyond Intrinsic and Extrinsic Motivation: A Meta-Analysis on Self-Determination Theory's Multidimensional Conceptualization of Work Motivation. Organizational Psychology Review. Advance online publication. MULTIDIMENSIONAL VIEW ON MOTIVATION, 1-79. https://doi.org/10.1177/20413866211006173

- 25. Wigfield, A., Muenks, K., & Eccles, J. S. (2021). Achievement Motivation: What We Know and Where We Are Going. Annual Review of Developmental Psychology, 3, 87-111. https://doi.org/10.1146/annurev-devpsych-050720
- 26. Wisnuwardhani, S. I. (2022). Influence of Instrumental Motivation and Integrative Motivation on English Learning Outcomes. International Journal of Ethno-Sciences and Education Research, 2(1), 19-24. https://doi.org/journal.rescollacomm.com/index.php/ijeer/index
- 27. Zhang, H., Dai, Y., & Wang, Y. (2020). Motivation and Second Foreign Language Proficiency: The Mediating Role of Foreign Language Enjoyment. Sustainability (Switzerland), 12(4), 1-13. https://doi.org/10.3390/su12041302
- 28. ZHENG Yong- yan & LIU Weijia (2021). Chinese Learners' Multilingual Motivation and Cross-linguistic Variations. FOREIGN LANGUAGES AND THEIR TEACHING, 6, 45-57. https://doi.org/10.13458/j.cnki.flatt.004817
- 29. ZHOU Xue-ting & NING Min (2020). University Students' Motivation and Guidance Measures for English Learning. Journal of Lyliang Education Institute, 37(3), 105-106. http://doi.org/www.cnki.net
- 30. Tey Sin Wei (2022). Motivation of Chinese Language Lessons in Peninsula International School Australia (Malaysia) Master's thesis, Central China Normal University.. Google Scholar. https://doi.org/educationdestinationasia.com/schools/malaysia

FINANCING

This work was supported by Swan College of Central South University of Forestry and Technology Teaching Reform Research Project under title The Impact of Teachers' Task-Based Teaching Method on English Interpreting Learning among University Students in Hunan, China (grant no. SWXYJGPJ27), and China Ministry of Education Humanities and Social Sciences Research Youth Fund Project under title The Impact of Motivation Cultivation on English Autonomous Learning among University Students in Hunan, China-A Mediating Role of Learning Strategy (grant no. 24C12656002).

CONFLICT OF INTEREST

None.

AUTHORSHIP CONTRIBUTION:

Drafting - original draft: Zhou Li, Hui Suan Wei.

Writing - proofreading and editing: Zhou Li, Hui Suan Wei.