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The relationship between intrinsic motivation, knowledge, intrinsic motivation, accomplishment, and IELTS speaking scores among undergraduates in anhui province

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Abstract

This study is based on Self-Determination Theory (SDT) and explores the relationship between Chinese undergraduates' Intrinsic motivation-knowledge, Intrinsic motivation-accomplishment and IELTS speaking scores. In recent years, although there has been an increase in research on language learning motivation and test scores, there is no research on Chinese undergraduates' intrinsic motivation and IELTS speaking scores. Empirical research on how intrinsic motivation affects IELTS speaking performance in undergraduate groups is still scarce, so this study fills this theoretical gap. The study conducted a questionnaire survey on 100 undergraduates in Anhui Province. Data analysis showed that intrinsic motivation-knowledge and motivation-accomplishment significantly and positively correlated with IELTS speaking scores. This study is about language teaching design, motivation stimulation, and examination. This article provides a new theoretical basis and has important practical significance for improving the IELTS speaking scores of Chinese students.

Keywords: Intrinsic motivation, IELTS speaking scores, self-determination theory (SDT), language learning motivation

Introduction

Motivation is essential in determining student success in language learning, especially in high-stakes exams such as the International English Language Testing System (IELTS) (Liu & Yu, 2021) [8]. The IELTS exam tests candidates' language proficiency and examines their ability to communicate effectively under pressure (Read, 2022) [13]. As one of the global standards for measuring English proficiency, the oral section of the IELTS exam is particularly challenging for many Chinese students because it requires high language proficiency and candidates to organize their language and express their ideas clearly within a limited time. In this context, research shows that intrinsic motivation, the drive to learn for intrinsic satisfaction rather than extrinsic rewards, is closely related to academic success (Ryan & Deci, 2020) [14]. According to the Self-Determination Theory (SDT), the two key dimensions of intrinsic motivation, intrinsic motivation-knowledge and intrinsic motivation-achievement, are critical in educational settings. Intrinsic motivation-knowledge reflects students' desire to learn new knowledge, while intrinsic motivation-achievement refers to the satisfaction students get after completing learning tasks. These motivational dimensions affect the learning process and largely determine exam performance.

Although there has been an increasing number of studies on the impact of motivation on language learning in recent years, there is still a significant theoretical gap in the research on the relationship between Chinese undergraduates' intrinsic motivation and IELTS test scores, especially the IELTS speaking section (Vu *et al.*, 2022) [17]. Most existing research has focused on the relationship between motivation and general academic performance, but few have delved into how specific dimensions of intrinsic motivation (such as intellectual pursuits and a sense of achievement) have specific effects on language test performance. In addition, many related studies focus on Western students. However, Chinese students' learning environment, cultural background, and education system differ significantly from the West's (Li & Xie, 2020) [7].

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Therefore, they face different challenges in the language acquisition process, such as the pressure of the exam-oriented education system, Differences in classroom participation, etc., which may lead to their performance in speaking tests being different from students from other cultural backgrounds.

Based on the above background, this study aims to fill this theoretical gap and explore the relationship between intrinsic motivation-knowledge, intrinsic motivation-sense of achievement, and IELTS speaking scores among Chinese undergraduates in Anhui Province. This study not only focuses on how subtle dimensions of motivation affect language test performance but also attempts to reveal the crucial role of intrinsic motivation in improving language learning outcomes in the Chinese cultural context. Through empirical research, this article provides a new perspective on pedagogy and psychology theory and practical application value for language teaching design, motivation stimulation, and test preparation. In particular, the findings help educators understand how to improve students' language performance by stimulating their intrinsic motivation, thereby providing effective teaching strategies and support systems for Chinese undergraduate students to succeed in high-stakes language tests. This not only contributes to theoretical development in the field of language education but also provides an essential basis for designing more targeted teaching interventions in the future.

Hypotheses

1. There is a positive Relationship between Intrinsic motivation and IELTS Speaking Scores among Chinese Undergraduates
2. There is a positive Relationship between Intrinsic motivation-accomplishment and IELTS Speaking Scores among Chinese Undergraduates

Literature review

Researchers have extensively researched motivation in language learning in the past few decades. Motivation is essential to language learning success (Seven, 2020) ^[15]. Motivation drives learners to invest more time and energy and determines their persistence and resilience in the face of learning challenges. The role of motivation is particularly prominent, especially in high-stakes exams such as the International English Language Testing System (IELTS). However, there are relatively few literatures on the relationship between intrinsic motivation and IELTS test scores, especially the impact of Chinese undergraduates' intrinsic motivation on IELTS speaking scores. This literature review will review and analyze existing relevant research, focusing on the impact of different dimensions of intrinsic motivation on language learning performance, especially IELTS speaking scores, under the framework of Self-Determination Theory (SDT).

Theory

The importance of motivation in language learning was first proposed by Gardner and Lambert, who believed that motivation can be divided into two categories: instrumental and integrative. Instrumental motivation refers to learners learning a language to achieve a specific goal (such as getting a better job or passing an exam), while integrative motivation refers to learners learning the language spontaneously because they want to integrate into the culture of the target language (Doğan¹ & Tuncer, 2020) ^[5].

Although both types of motivation play a positive role in language learning, research shows integrative motivation is more related to long-term success (Zhang *et al.*, 2020) ^[19]. However, with the deepening of motivation research, researchers have gradually realized that motivation is not just composed of the two dimensions of instrumentality and imperativeness. The introduction of self-determination theory (SDT) provides a more sophisticated framework for motivation research.

The self-determination theory (SDT) proposed by Deci and Ryan divides motivation into intrinsic and extrinsic motivation. Intrinsic motivation refers to learners learning spontaneously because of their interest or enjoyment in the learning content, while extrinsic motivation is to obtain external rewards or avoid punishment (Malone & Lepper, 2021) ^[9]. SDT believes that intrinsic motivation is the most ideal form of motivation in learning. It can not only promote learners' long-term learning interest, but also improve their learning performance. Especially for language learning, a long-term process that requires continuous investment, intrinsic motivation is considered a key factor in promoting success (Bai & Wang, 2023) ^[2].

Intrinsic Motivation-Knowledge and Language Learning

Intrinsic motivation-knowledge is an important dimension under self-determination theory, which refers to learners' motivation to learn in order to acquire new knowledge and expand their cognitive fields (Mercader-Rubio *et al.*, 2023) ^[10]. This motivation is often closely related to the learner's curiosity and desire for knowledge about the learning process itself. Research shows that intrinsic motivation knowledge has a significant role in promoting academic achievement. Intrinsically motivated-knowledgeable learners were likelier to exhibit active learning strategies such as planning, organizing, and self-monitoring in educational tasks, thereby improving academic performance.

In the field of language learning, intrinsic motivation-knowledge is also considered to be an important factor affecting the success of language learning. Ushioda (2019) ^[16] studied the impact of motivation on the language learning process and found that learners with strong intrinsic motivation are more likely to regard language learning as a process of exploration and discovery (Ushioda, 2019) ^[16]. This positive attitude not only improves their learning efficiency but also enhances their resilience and perseverance in the face of learning difficulties. Especially in oral language learning, learners often need a lot of interaction and practice, and intrinsically motivated-knowledge-driven learners are more willing to actively participate in these activities because they enjoy the process of acquiring new knowledge and skills. This phenomenon also exists among English learners in China. Li and Pan (2022) ^[12] studied the English learning motivation of Chinese college students and found that students with strong intrinsic motivation performed better on language tests than those who relied mainly on extrinsic motivation. (Pan, 2022) ^[12].

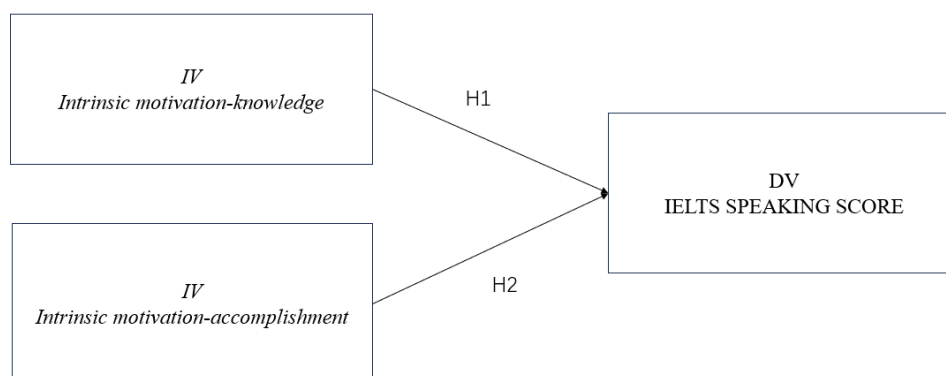
However, despite the widespread recognition of the role of intrinsic motivation-knowledge in language learning, few existing studies have specifically explored its relationship with IELTS test scores, especially speaking scores. The IELTS speaking test requires candidates to express their opinions clearly and coherently within a limited time, which requires a good language foundation and certain critical thinking and organizational skills. Intrinsic motivation-Knowledge can help learners gain a deeper understanding of the complexity of language and better apply what they have learned in actual communication. Therefore, exploring the

relationship between intrinsic motivation-knowledge and IELTS speaking scores has important theoretical and practical significance.

Intrinsic motivation-achievement and language learning

Another key dimension of intrinsic motivation is intrinsic motivation-achievement, which refers to the sense of satisfaction a learner receives after completing a task or achieving a goal (Messerer *et al.*, 2023) ^[11]. This motivation is closely related to an individual's self-efficacy and achievement needs. Intrinsic motivation-achievement usually prompts learners to set higher learning goals and continuously pursue progress and breakthroughs in the learning process. The self-efficacy theory proposed by Bandura states that when individuals are confident in their ability to complete tasks, they are more likely to exhibit positive attitudes and behaviors during the learning process. In the field of language learning, intrinsic motivation of achievement is also considered to be an important factor affecting learning outcomes. Tremblay and Gardner found through empirical research that there is a significant positive relationship between intrinsic motivation-achievement and language learners' learning persistence and test scores. Especially in oral language learning, learners often need to improve their oral expression skills through continuous practice and repeated failures, and learners with strong intrinsic motivation sense of achievement are more likely to stay motivated in the process because they feel a greater sense of accomplishment and satisfaction as you make progress.

This phenomenon has also been verified among Chinese English learners. Wang and Wang (2022) ^[18] studied the relationship between English learning motivation and test scores among Chinese college students. (Wang, 2022) ^[18]. They found that students with strong intrinsic motivation and a sense of achievement performed exceptionally well in oral exams. Research shows that these students are more willing to actively seek opportunities for English communication in their daily lives to improve their language skills continuously. Therefore, intrinsic motivation for achievement affects not only learners' learning strategies but also their learning attitudes and long-term performance. However, like intrinsic motivation-knowledge, there are few studies on the direct relationship between intrinsic motivation-achievement and IELTS speaking scores in the existing literature, which provides a significant research opportunity for this study.



This framework diagram shows the hypothesized model of the study, which explains how the two dimensions of intrinsic motivation affect IELTS speaking scores. There are two independent variables (IV) in the figure: Intrinsic motivation-knowledge and Intrinsic motivation-accomplishment, and one dependent variable (DV): IELTS speaking score. The research hypothesis H1 is that there is a

Motivation and IELTS test scores

As an internationally recognized language test, the IELTS test scores are often directly related to learners' language proficiency. However, improving language proficiency relies not only on external teaching methods and learning resources but also on motivation factors, which play an essential role in this process. There is a complex interaction between motivation and test scores. Learners with strong motivation are more likely to invest more time and energy in the test preparation stage, thus achieving better test scores (Benden & Lauermaun, 2022) ^[3].

With the increasing demand for studying abroad in China, more and more students use the IELTS test as an essential criterion for measuring their language proficiency. Although there are relatively many studies on the relationship between motivation and IELTS test scores, most of the studies focus on the relationship between extrinsic motivation and scores. For example, many students prepare for the IELTS mainly to meet the language requirements for studying abroad (Dang & Dang, 2023) ^[4]. Although this instrumental motivation can improve scores in the short term, it has limited effect on improving long-term language proficiency. In contrast, the impact of intrinsic motivation on IELTS scores, especially oral scores, has been less studied. The IELTS speaking test not only examines the language accuracy of candidates but also focuses on the fluency and coherence of their expression. Therefore, motivated learners are often able to improve their speaking skills through more language practice and communication opportunities. This phenomenon has been mentioned in Western studies, but there is still a lack of systematic research on its specific manifestations and mechanisms among Chinese students.

Literature Analysis and Research Gaps

A review of existing literature shows that the importance of motivation, especially intrinsic motivation, in language learning has been widely recognized. However, despite this, there is still a lack of systematic research on the relationship between different dimensions of intrinsic motivation, such as intrinsic motivation-knowledge and intrinsic motivation-achievement, and language test scores, especially IELTS speaking scores. Most existing studies focus on the impact of extrinsic motivation.

Conceptual framework

positive relationship between intrinsic motivation-knowledge and IELTS speaking scores, and H2 is that there is a positive relationship between intrinsic motivation-accomplishment and IELTS speaking scores. This framework diagram aims to explore the impact of these two dimensions of intrinsic motivation on IELTS speaking performance.

Methodology

Research Design

This study adopted a quantitative research method to explore the relationship between intrinsic motivation-knowledge, intrinsic motivation-achievement and IELTS speaking scores of Chinese undergraduates. Based on the Self-Determination Theory (SDT), this study adopted a structured questionnaire to measure students' intrinsic motivation level and IELTS speaking scores. Correlation analysis methods were used in the research design, specifically Pearson correlation analysis, to explore the relationship between each dimension of intrinsic motivation and IELTS speaking scores. This study aims to test two hypotheses:

There is a positive correlation between intrinsic motivation-knowledge and IELTS speaking scores.

There is a positive correlation between intrinsic motivation-achievement and IELTS speaking scores.

To ensure the validity of the data, the study also conducted reliability and validity analysis of the data and analyzed and processed the data through statistical tools such as SPSS.

Research Sample

The research sample consisted of 120 undergraduate students from different universities in Anhui Province. Finally, 100 usable questionnaires were collected. The students were between 18 and 25 years old, and all participants were undergraduates of non-English majors to ensure that their language learning background was representative. The reason for choosing non-English majors was that the motivations and challenges faced by this group in English learning were different from those of English majors, and studying this group could better understand the role of intrinsic motivation in English learning. All students had taken the IELTS test before the start of the study and obtained the scores of the oral part, which provided a reliable data basis for this study.

The sample selection adopted a random sampling method to ensure the diversity and representativeness of the sample.

Participants voluntarily participated in this study and were informed of the purpose of the study and the content of their participation before the survey. All data were collected anonymously to protect the privacy of the participants.

Research Location

This study was conducted in several universities in Anhui Province, China. These universities include several comprehensive universities and local colleges in Hefei, the provincial capital, to ensure the diversity and breadth of the sample. Anhui Province is a major educational province in China, and the student population's English learning motivation and test demand are relatively high. In particular, with the increasing demand for studying abroad, more and more students regard the IELTS test as an important indicator for future academic and career development. Therefore, choosing undergraduate students in Anhui Province as the research subjects can represent the English learning situation in the central region and provide reference for language learning research in other regions.

In the specific operation process, the research team contacted students through many universities in Anhui Province and invited students to participate in the research through online questionnaires and campus publicity. All data collection processes were carried out in students' spare time to ensure that they would not interfere with their normal academic activities.

Data Collection

Data collection was mainly conducted through a structured questionnaire, which consisted of two parts: one was a motivation measurement scale and the other was a Survey of students' IELTS speaking scores. The questionnaire used a Likert five-point scale (1 = totally disagree, 5 = totally agree) to assess students' levels in the two dimensions of intrinsic motivation-knowledge and intrinsic motivation-achievement.

Findings

Table 1: Demographic profile

Item	Options	Frequency	Percentage
What is your gender	Male	45	45%
	Female	55	55%
Your current grade	Freshman	17	17.0%
	Sophomore	35	35.0%
	Junior	27	27.0%
	Senior	21	21.0%
What is your age	16-18 years old	15	15.0%
	19-21 years old	64	64.0%
	22 years old or above	21	21.0%
What is your major	Liberal arts	55	55.0%
	STEM	45	45.0%
How many times have you taken the IELTS exam	Once	40	40.0%
	Twice or three times	48	48.0%
	Four times or above	12	12.0%
What is the percentage of your time spent preparing for IELTS speaking section	<20%	6	6.0%
	≤20%-<40%	20	20.0%
	≤40%-<60%	39	39.0%
	≤60%-<80%	22	22.0%
What is your IELTS score	≤80%-≤100%	13	13.0%
	<5.5	16	16.0%
	5.5-6.0	42	42.0%
	6.5-7.0	33	33.0%
What is your IELTS speaking score	≥7.5	9	9.0%
	<5.5	12	12.0%
	5.5-6.0	40	40.0%
	6.5-7.0	33	33.0%
	≥7.5	15	15.0%

This demographic table shows the basic characteristics of 100 IELTS candidates. In terms of gender, males account

for 45% and females account for 55%. In terms of grade distribution, freshmen account for 17%, sophomores

account for 35%, juniors account for 27%, and seniors account for 21%. In terms of age distribution, 15% of students are between 16 and 18 years old, 64% are between 19 and 21 years old, and 21% are 22 years old or above. In terms of majors, liberal arts students account for 55%, and science and engineering students account for 45%. In terms of the number of IELTS exams, 40% of students have only taken the exam once, 48% of students have taken the exam two to three times, and 12% of students have taken the exam four times or more. The time allocation for preparing for the oral part shows that 6% of students invested less than 20% of their time, 39% of students invested 40%-60% of their time, and 22% of students invested 60%-80% of their time. In terms of IELTS total scores, 16% of students scored below 5.5, 42% scored between 5.5-6.0, 33% scored between 6.5-7.0, and 9% scored 7.5 or above. In terms of IELTS speaking scores, 12% of students scored below 5.5, 40% scored between 5.5-6.0, 33% scored between 6.5-7.0, and 15% scored 7.5 or above.

H1: There is a positive Relationship between Intrinsic motivation-knowledge and IELTS Speaking Scores among Chinese Undergraduates

Table 2: Pearson of IMK and ISS

ISS		
IMK	Correlation Coefficient	0.421**
	<i>p</i> value	0.000
	Sample	100
* <i>p</i> <0.05 ** <i>p</i> <0.01		

This table shows the positive correlation between intrinsic motivation-knowledge (IMK) and IELTS speaking score (ISS) among Chinese undergraduate students. The Pearson correlation coefficient in the table is 0.421, indicating that there is a moderately strong positive correlation between the two. The *p*-value of this correlation coefficient is 0.000, which means that the result is highly statistically significant (*p* < 0.01), that is, the positive relationship between intrinsic motivation-knowledge and IELTS speaking score is extremely unlikely to be a coincidence. The sample size is 100, indicating that the data for this study came from 100 students.

H2: There is a positive Relationship between Intrinsic motivation-accomplishment and IELTS Speaking Scores among Chinese Undergraduates

Table 3: Pearson of IMA and ISS

ISS		
IMA	Correlation Coefficient	0.511**
	<i>p</i> value	0.000
	Sample	100
* <i>p</i> <0.05 ** <i>p</i> <0.01		

This table shows the positive correlation between intrinsic motivation-sense of achievement (IMA) and IELTS speaking score (ISS) among Chinese undergraduate students. The Pearson correlation coefficient in the table is 0.511, indicating that there is a strong positive correlation between the two. The *p* value is 0.000, indicating that this result is highly statistically significant (*p* < 0.01), that is, the positive correlation between intrinsic motivation-sense of achievement and IELTS speaking scores is extremely

unlikely to be accidental. The sample size is 100, indicating that the research data comes from 100 students.

Discussion

Based on self-determination theory (SDT), this study explores the relationship between intrinsic motivation-knowledge, intrinsic motivation-sense of achievement and IELTS speaking scores among Chinese undergraduates. By analyzing data from 100 undergraduate students in Anhui Province, the study found that two key dimensions of intrinsic motivation significantly impact IELTS speaking scores. First, students with intrinsic motivation-knowledge, those who are eager to acquire new knowledge and expand cognitive abilities through language learning, perform better in IELTS speaking. This finding is consistent with the research of Wang *et al.* (2021) [1], who pointed out that students with high intrinsic motivation tend to learn independently and use effective learning strategies. These behaviors significantly improve the effect of language learning (Bai & Wang, 2021) [1].

Secondly, the strong correlation between intrinsic motivation-sense of achievement and IELTS speaking scores has also been verified. Students with a strong sense of achievement are more willing to constantly challenge themselves, make progress, and improve their performance through practice during the language learning process. Zhang (2024) [20] found that students with high achievement motivation were more actively involved in oral practice, which helped improve their actual language abilities, especially in oral expression. (Zhang, 2024) [20].

Additionally, the study found a significant correlation between the time students invested in the speaking section of their IELTS preparation and their speaking scores. Students who devoted more time to speaking preparation performed significantly better than those who committed less time, indicating that time management and effective preparation strategies are crucial to success in speaking exams. Li *et al.* (2024) [6] pointed out that motivationally driven students tend to manage their study time well during exam preparation and focus on key language skills, thereby performing better in exams. (Li *et al.*, 2024) [6]

However, this study also has some limitations. First, the sample was limited to undergraduate students in Anhui Province, which may have limited external validity nationwide. Future research should consider expanding the sample to include student groups from different regions to verify the generalizability of these findings. Secondly, although this study revealed a significant relationship between intrinsic motivation and IELTS speaking scores, it has not yet deeply explored the formation mechanism of intrinsic motivation and how sociocultural factors affect motivation in language learning. These issues can be further explored in future research.

Conclusion

This study provides new empirical evidence for the relationship between intrinsic motivation and IELTS speaking performance. The research results show that intrinsic motivation-knowledge and intrinsic motivation-sense of achievement are important factors affecting students' IELTS speaking scores. Students with strong intrinsic motivation are more likely to adopt independent learning and effective time management strategies, thereby performing better in the IELTS speaking test. This finding

provides implications for educators when designing language courses, emphasizing the importance of stimulating students' intrinsic motivation, especially in improving language expression skills.

Future research can further explore the formation mechanism of intrinsic motivation, especially how cultural and social factors influence the development of motivation. In addition, research should also expand the sample scope and explore the relationship between intrinsic motivation and language learning performance in other regions or cultural backgrounds. This will provide us with a more comprehensive perspective on the role of motivation in language learning.

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Conflict of Interest Statement

The authors declare no conflicts of interest regarding the publication of this manuscript.

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