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The learning factors, shadowing exercises through MALL, and listening ability among Chinese EFL learners

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Abstract: This comprehensive study delves into the multifaceted relationships between various learning factors, the implementation of shadowing exercises through mobile-assisted language learning (MALL), and the enhancement of listening ability among Chinese learners of English as a Foreign Language (EFL). The research was conducted at ten vocational colleges in Wuxi City, China, involving 499 participants who were surveyed. Of these, 406 completed valid questionnaires, providing rich data for analysis. The findings underscore the pivotal roles of school support, the influence of English teachers, the availability and quality of learning facilities, and the intrinsic motivation of learners in shaping listening proficiency. Notably, the integration of shadowing exercises via MALL emerged as a significant mediator, amplifying the positive impacts of these factors on listening ability. This study not only reaffirms the importance of a supportive and resource-rich educational environment but also highlights the transformative potential of technology in language education. The results prompt a reevaluation of current pedagogical strategies and advocate for a more integrated approach to EFL instruction, leveraging both traditional and innovative methods to foster learner success. With implications for educational policy, teacher training, and curriculum development, this research contributes to the ongoing dialogue on optimizing language learning outcomes in a digital age.

Keywords: *English as a Foreign Language (EFL), Learning factors, Listening ability, Mobile-Assisted language learning (MALL), Shadowing exercises.*

1. Introduction

In the dynamic landscape of global communication, English as a foreign language (EFL) proficiency has become a pivotal skill for individuals in non-English-speaking countries, including China. The ability to effectively understand spoken English is essential for mastering the language, significantly impacting academic achievement, job prospects, and intercultural communication [1]. This study aims to explore the complex interactions among various learning factors, the innovative use of shadowing exercises through mobile-assisted language learning (MALL), and the improvement of listening skills among Chinese EFL learners.

The educational background in China presents a unique context for EFL learning, characterized by large classroom sizes, diverse learner backgrounds, and a traditional emphasis on rote learning [2]. Within this framework, several pivotal factors have been recognized as having a profound impact on the language learning process. School support, exemplified by the allocation of resources, the establishment of infrastructure, and the creation of a conducive learning environment Grissom, et al. [3] serves as the cornerstone for effective language acquisition. The function of English teachers transcends mere

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content delivery; their instructional methodologies, interactive teaching strategies, and their ability to inspire and motivate students are crucial in shaping learners' attitudes and achievements [4]. These human elements are complemented by learning facilities, such as well-equipped language laboratories, access to digital resources, and advanced technological tools, which are instrumental in facilitating practice and exposure to authentic language usage [5]. Ultimately, the learners' intrinsic motivation, encompassing their interests, goals, and perseverance, constitutes a potent determinant of their engagement and success in language learning endeavors [6].

In addition to these traditional factors, technology has introduced innovative paradigms in language instruction. Mobile-assisted language learning (MALL) leverages mobile devices' widespread availability and versatility to provide personalized, adaptable, and interactive learning experiences [7]. The traditional shadowing exercise, in which learners imitate native speakers' speech and pronunciation Hamada and Suzuki [8] has been revived through MALL, allowing learners to engage in the immersive and self-paced practice of listening and speaking skills [9]. This study posits that the incorporation of shadowing exercises within a MALL framework not only directly augments listening comprehension but also moderates the influence of other learning variables, thereby magnifying their combined effect on language learning outcomes.

The primary objectives of this research are to empirically investigate the relationships between school support, English teachers' influence, learning facilities, learners' motivation, the implementation of shadowing exercises through MALL, and the listening ability of Chinese EFL learners. By employing a quantitative methodology and analyzing data from a sample of vocational college students in Wuxi City, China, this study aims to contribute valuable insights to the field of EFL education, inform pedagogical practices, and guide the development of language learning policies and strategies.

2. Literature Review

2.1. Theoretical Foundation in Language Acquisition

2.1.1. The Input Hypothesis

The Input Hypothesis, formulated by Krashen and Krashen [10] posits that language acquisition is largely dependent on the learner's exposure to comprehensible input, or language that is slightly beyond the learner's current level of proficiency. This theory highlights the concept of "i + 1," which refers to input that is slightly beyond the learner's current level of proficiencyMason [11]. Krashen [12] posits that learners make progress when they encounter language input that challenges them just enough to facilitate acquisition without overwhelming them with linguistic complexity [13].

In the context of this study, the Input Hypothesis provides a theoretical framework for understanding the effectiveness of shadowing exercises using Mobile-assisted Language Learning (MALL) in improving the listening ability of Chinese EFL learners.

According to Krashen [12], building language proficiency requires exposure to meaningful and comprehensible input [14]. In the case of shadowing exercises using MALL, learners listen to and imitate native speakers' pronunciation, intonation, and rhythm, thereby receiving comprehensible input that aligns with Krashen's Input Hypothesis. This exposure to target language patterns beyond their current proficiency level allows learners to gradually internalize and develop their listening skills.

2.1.2. Mobile Learning Theory

Mobile devices, being portable and widely accessible, have gained immense popularity worldwide [15]. In some regions, mobile devices are more prevalent than computers [7]. This ubiquity has sparked interest in leveraging mobile technologies to enhance learning experiences. The origins of M-Learning can be traced back to the early 2000s when mobile devices started gaining popularity and became more accessible to a wider audience. As technology advanced, mobile devices evolved from basic communication tools to powerful multimedia devices capable of supporting various educational applications [16].

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M-learning provides opportunities for language learning to occur outside fixed locations and facilitates personalized learning experiences [16]. By utilizing mobile devices, Chinese EFL learners can engage in listening exercises anytime and anywhere, enabling them to practice and improve their listening skills flexibly [17].

2.1.3. Socio-Cultural Theory (SCT)

Socio-cultural theory (SCT) was developed by the renowned psychologist Vygotsky [18] in the early 20th century. SCT focuses on children's cognitive development and emphasizes the integration of social, cultural, and biological elements [19]. It believes that socio-cultural circumstances play a central role in human cognitive development and that the development of higher mental functioning is a process in which individuals internalize or regulate what they learn from social activities through the mediation of symbolic tools and by going through the zone of proximal development[20]. Proposed that individuals acquire knowledge and skills through interactions with more knowledgeable others, such as parents, teachers, and peers. He emphasized the role of language as a tool for thinking and communication, suggesting that language and social interaction are intricately connected and promote cognitive development [20].

2.2. Theoretical Review of Learning Factors

2.2.1. School Support

School support is a critical factor in the success of any educational initiative, including MALL-based shadowing exercises. This support can manifest in various forms, such as the provision of necessary technological resources, the creation of a conducive learning environment, and the encouragement of innovative teaching methods by school administrators. The role of school support is to ensure that both teachers and students have the tools and environment needed to effectively engage in language learning activities [21].

2.2.2. English Teachers' Influence

The influence of English teachers is another independent variable that significantly affects the outcomes of MALL-based shadowing exercises on listening ability. English teachers play a central role in the EFL classroom. Their teaching methodologies, classroom management skills, and ability to motivate students are critical factors in the learning process [22]. Effective teachers can create a positive learning atmosphere, encourage student participation, and provide timely feedback [23]. Studies have demonstrated that teacher-student interaction, particularly in the form of one-on-one tutoring and small group discussions, can significantly improve students' listening and speaking skills [24]. Moreover, teachers who are trained in the latest pedagogical techniques and adept at using technology can enhance the learning experience and outcomes for their students [4].

2.2.3. Learning Facilities

Learning facilities refer to the physical and digital resources available to students for language practice. This includes language laboratories, access to online learning platforms, and the availability of authentic listening materials. Well-equipped learning facilities can provide students with the opportunity to practice listening skills in a controlled environment, allowing them to focus on specific areas of improvement [25]. For example, language laboratories equipped with headphones and recording devices can help students practice shadowing exercises, which involve mimicking native speakers' speech and pronunciation. Additionally, access to a wide range of digital resources, such as podcasts, videos, and interactive language learning apps, can enhance students' exposure to authentic English usage and improve their listening comprehension [5].

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2.2.4. Learners' Motivation

Learners' motivation is a complex and multifaceted construct that plays a pivotal role in language learning. Motivation can be intrinsic, such as the desire to learn for personal satisfaction, or extrinsic, driven by external rewards or pressures [6]. Understanding the motivational factors that influence students' engagement in MALL-based shadowing exercises is essential for developing strategies to increase their participation and improve their listening skills [26].

2.3. Theoretical Foundation of Shadowing Exercises, MALL, and English Listening

2.3.1. Shadowing Exercises

Shadowing exercises involve learners listening to a native speaker and then immediately repeating what they hear, focusing on pronunciation, intonation, and rhythm [27]. This technique has been shown to improve listening and speaking skills by enhancing auditory processing and muscle memory [28]. Shadowing exercises can be particularly effective for EFL learners as they provide a structured and repetitive practice that helps learners internalize the sounds and patterns of the language [29]. The immediate feedback learners receive from their own pronunciation can also help them identify and correct errors, leading to improved accuracy and fluency [30].

According to a study by Hamada and Suzuki [31] there are sixteen different techniques of shadowing. These techniques are divided into two categories: phonological processing and intake processing. The first ten techniques fall under phonological processing, which is not meaning-focused. They are further divided into phoneme perception and pronunciation. The last six techniques fall under intake processing, which focuses on meaning and helps in noticing and processing linguistic aspects in auditory input. The sixteen techniques of shadowing include Standard shadowing, Mumbling, Text-presented shadowing, Pre-shadowing, Post-shadowing, Self-monitoring shadowing, Pair shadowing, Prosody shadowing, Gesture shadowing, International Phonetic Alphabet shadowing, Content shadowing, Conversational shadowing, Selective shadowing, Interactive shadowing, Phrase shadowing, and Shadow reading.

Overall, these different types of shadowing provide learners with diverse approaches to practicing and improving their language skills. The variations in timing, focus, extent of repetition, and interactivity allow learners to target specific aspects of speech, such as phonetics, prosody, content comprehension, and semantic reasoning [31].

2.3.2. Mobile-Assisted Language Learning (MALL)

Mobile-assisted Language Learning (MALL) has emerged as a result of the rapid development and widespread use of mobile technology. It allows language learners to utilize their smartphones and tablets to enhance their language learning experience [32]. MALL provides learners with convenient access to a wide range of language learning resources, including language-learning applications, online courses, multimedia content, and language exchange platforms [33]. These resources enable learners to engage in self-directed and personalized learning, practice language skills anytime and anywhere, and interact with native speakers for cultural exchange [34]. MALL has revolutionized language learning by making it more accessible, flexible, and engaging for learners around the world.

2.3.3. English Listening

The challenges of teaching and learning English listening skills have been acknowledged by language teachers, students, and researchers working in contexts of English as a Second Language (ESL) or English as a Foreign Language (EFL). In fact, until recently, listening was the least researched of the four language skills in second language acquisition studies [35].

However, listening comprehension is a complex and active process that requires conscious effort and attention from the listener. It involves constructing meaning by using contextual information and existing knowledge, decoding linguistic forms, understanding speaker intention, coping with listening in an interaction, and recognizing different genres [36]. Therefore, it is essential to understand the

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factors that influence English listening proficiency and current research on enhancing various aspects of English listening skills to effectively teach and develop learners' listening abilities.

The dependent variable, the English listening skills of Vocational College EFL students in Wuxi City, Jiangsu Province, China, is the primary outcome of interest in this empirical review. Listening skills are a critical component of overall language proficiency and are often a challenging area for EFL learners to master [37]. By examining the impact of MALL-based shadowing exercises on these skills, this review aims to contribute to the body of knowledge on effective language learning strategies for non-native speakers.

2.4. Empirical Review

2.4.1. Shadowing Exercises

Hamada and Suzuki [31] conducted an experimental study to examine the relationship between shadowing exercises and perception abilities in English as a foreign language. The researchers compared two conditions: shadowing alone and shadowing with a script. The study included two experimental groups and a control group, with pre- and post-tests measuring the effects on learners' perceptual adaptation to different English accents. Learners engaged in shadowing, mimicking spoken language input, which aligns with the Input Hypothesis by providing comprehensible input and enhancing listening skills. The findings supported the hypothesis that script-assisted shadowing improves non-native learners' perception abilities. However, the study had limitations: the control group had lower proficiency, especially for Chinese and Italian accents, and the effectiveness of using multiple English varieties versus a single variety was unclear. Future research could address these limitations by using a more proficient control group and focusing on one accent in a laboratory setting.

Junipisa and Aristana [38] conducted a Classroom Action Research (CAR) study to enhance students' listening skills using the Shadowing technique. The study involved four stages: planning, action, observation, and reflection. During the action phase, students listened to audiovisual lectures and completed related worksheets, designed to challenge them slightly beyond their current proficiency. This method aimed to improve listening skills by focusing on pronunciation and meaning. The study confirmed the effectiveness of shadowing in enhancing listening proficiency, offering a practical teaching strategy for educators. However, limitations included a small sample size of 17 students, which may affect the generalizability of the results. The lack of a control group makes it difficult to attribute improvements solely to the shadowing technique. Additionally, the study's reliance on limited data collection methods (observation and testing) and its short duration of two cycles may not fully capture long-term learning effects.

You [39] proposed that learners should shadow audio content without a written script, aligning with Krashen's Input Hypothesis, which emphasizes comprehension, interest, relevance, and sufficient input quantity. The study found that shadowing effectively enhances English listening and speaking skills among Chinese college students by improving pronunciation perception and listening proficiency through repetition. However, the study lacked quantitative data and experimental measures to assess the impact of shadowing on listening skills. It also did not explore other influencing factors such as cultural differences or learning environments, nor did it analyze learners of different proficiency levels, potentially overlooking individual differences.

2.4.2. Mobile-assisted Language Learning (MALL)

Azli, et al. [40] conducted a quantitative study to explore vocational school students' perceptions of mobile-assisted language learning (MALL). The study involved 100 students from KRU Academy, selected for similar English proficiency, and used a 26-item questionnaire to assess their views on MALL's usefulness and ease of use. The results, analyzed with SPSS 20, showed that students believed MALL improved task quality, control, and completion speed, and enhanced note-taking skills. While the study innovatively used a survey to gauge MALL perceptions, its small sample size limits broader

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applicability. Future research could expand the sample and explore MALL across different learning environments to fully realize its potential in language learning.

Sepyanda, et al. [41] conducted a quantitative study to assess the impact of Mobile Assisted Language Learning (MALL) on students' listening activities. The study involved 33 participants from the English education department at Universitas Mahaputra Yamin, et al. [42] during the 2021/2022 academic year. The findings showed that 73% of students strongly agreed that MALL enhanced their listening activities, with 15% agreeing, 6% neutral, and 3% each disagreeing and strongly disagreeing. Students also found MALL more flexible than non-mobile devices and motivating for their listening subject, and believed it improved their study habits. However, the study's small sample size and focus on a single institution limit the generalizability of the results. Additionally, the reliance on questionnaires may introduce recall bias and subjectivity in participant evaluations.

Athoillah [7] conducted a quantitative experimental study to assess the impact of mobile-assisted language learning (MALL) using the Talk English application on students' listening and speaking abilities. The study involved an experimental group using the app and a control group using traditional e-modules. Over four sessions, the experimental group engaged in listening comprehension, dialogue practice, and performances via the app, while the control group received standard instruction. Results showed a significant improvement in the experimental group's listening and speaking skills, with average scores of 73.167 and 72.93, respectively, compared to the control group's 61.750 and 62.13. The experimental group also showed stronger mastery in grammar, vocabulary, comprehension, fluency, and pronunciation. However, the study's reliance on pre- and post-tests and comparison with only one traditional method limit the findings' comprehensiveness. Future research could address these limitations by incorporating diverse evaluation methods and comparing MALL with other learning approaches.

Li [32] conducted a meta-analysis to assess the impact of Mobile-Assisted Language Learning (MALL) on the listening skills of English as a Foreign Language (EFL) learners. The study included two main components: a meta-analysis of data from 20 original studies to determine the overall effect of MALL on listening skill development, and an analysis of moderator variables such as educational level, software type, control conditions, intervention settings, duration, and measurement types. The meta-analysis revealed a moderate to large positive effect of MALL on listening skills ($g = 0.792$, CI [0.536, 1.047], $p < .001$), indicating its superiority over traditional methods. University students showed the highest improvement ($g = 0.974$), with no significant differences found between computer-based and pen-and-paper methods, or between classroom and outdoor settings. Educational software had a slightly higher effect ($g = 0.843$) compared to general software ($g = 0.666$), and short-term interventions were most effective ($g = 1.017$). The study confirms that MALL positively affects EFL listening skills, with various factors influencing the magnitude of this effect.

While Li [32] meta-analysis provides valuable insights into the effectiveness of Mobile-Assisted Language Learning (MALL) on EFL listening skills, it is limited by the relatively small number of studies included and the specific databases used for study selection, which may affect the generalizability of the findings. Additionally, the analysis did not account for individual differences in learning styles or prior technology experience, which could influence the outcomes, and the reliance on pre-existing studies means that the quality and methodology of the primary research can impact the meta-analysis results.

In conclusion, these empirical reviews offer insights into how Shadowing exercises through MALL can be optimized to support language learning. The findings are valuable for educators, curriculum developers, and educational policymakers, offering evidence-based strategies for enhancing language learning outcomes through technology-assisted approaches.

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3. Methodology

3.1. Research Design

This study employed a quantitative research design to investigate the relationships among various learning factors, shadowing exercises through mobile-assisted language learning (MALL), and listening ability among Chinese EFL learners.

3.2. Population and Sampling

The focus of this study was on vocational college students in Wuxi City, China, who are studying English as a foreign language (EFL). The sampling frame encompassed all students enrolled in EFL courses across ten vocational colleges within the city, estimated to total approximately 100,000 individuals.

To ensure that the sample accurately reflected the diverse student population, a proportionate random sampling technique was utilized. The sample size was calculated using the formula suggested by Morgan [43] which recommended a minimum of 384 participants for a population of this size. To prepare for potential non-response or attrition, an additional 30% was added to the sample size, resulting in a total of 499 distributions.

Of the 499 questionnaires distributed, 428 were successfully retrieved, yielding a response rate of 85%. After eliminating questionnaires with missing values and identical answers, a final count of 406 valid questionnaires was obtained.

3.3. Data Collection Instruments

The questionnaire, comprising a total of 35 questions across six constructs, is designed to measure various aspects of students' English learning environment. Specifically, it assesses the availability and quality of school support in terms of resources, infrastructure, and services (SS). Additionally, it evaluates the influence of English teachers on students' learning, including their teaching methods, motivation, and feedback (ETI). The questionnaire also explores the accessibility and usability of both physical and digital learning facilities (LF). Furthermore, it measures students' intrinsic and extrinsic motivation to learn English (LM). Another significant aspect it addresses is the frequency and perceived effectiveness of shadowing exercises conducted through mobile devices (S). Lastly, it assesses students' self-reported listening proficiency and performance in listening tasks (LA).

The questionnaire used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to capture respondents' perceptions and experiences.

3.4. Pilot Testing

In the pilot-test stage, a total of 50 questionnaires were distributed to participants within a specified timeframe. These completed questionnaires were then collected for analysis. To assess the reliability and validity of the questionnaire, statistical software SPSS 23.0 was employed. The inter-item consistency reliability was assessed using Cronbach's coefficient α.

Table 1.
Reliability Statistics for the Pilot Study.

Variable	Cronbach's Alpha	N of Items
School Support	0.952	6
Teacher's Influence	0.958	5
School Facilities	0.932	5
Students' Motivation	0.958	8
Shadowing Exercises Using MALL	0.984	11

3.5. Data Analysis Methods

In the data analysis phase, Descriptive Statistics were utilized to summarize the demographic characteristics and response distributions of the sample. Confirmatory Factor Analysis (CFA) was

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conducted to validate the measurement models, assessing model fit using indices such as the Chi-square/df ratio, Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Structural Equation Modeling (SEM) was employed to examine the hypothesized relationships among the constructs, with path coefficients estimating the strength and direction of these relationships. Additionally, mediation analysis using the Bootstrapping method tested the mediating effect of shadowing exercises through MALL on the relationships between learning factors and listening ability, determining significance based on bias-corrected confidence intervals. These methods will be elaborated upon in the subsequent chapter on results.

4. Results

4.1. Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) helps identify underlying factors in a set of variables. It empirically examines variable correlations. In this study, EFA was used to uncover fundamental dimensions related to School Support, English Teachers' Influence, Learning Facilities, Learners' Motivation, Shadowing Exercises using MALL, and Listening Ability.

Table 2.
KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.956
Bartlett's Test of Sphericity	Approx. Chi-Square	9272.654
	df	595
	Sig.	0.000

Based on the table provided, the KMO value is 0.956, which is greater than 0.7, and the Bartlett's Test of Sphericity is significant($\chi^2 = 9272.654$, $p = .000$). These results indicate that the questionnaire data meet the prerequisites for factor analysis.

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4.2. Reliability Analysis

Table 3.
Reliability Statistics.

Variable	Item	CITC	Cronbach's Alpha after Deleting the Item	Cronbach's Alpha
SS	SS1	0.818	0.875	0.904
	SS2	0.775	0.882	
	SS3	0.669	0.897	
	SS4	0.723	0.889	
	SS5	0.702	0.893	
	SS6	0.747	0.887	
ETI	ETI1	0.772	0.854	0.886
	ETI2	0.741	0.857	
	ETI3	0.687	0.87	
	ETI4	0.719	0.863	
	ETI5	0.717	0.863	
LF	LF1	0.726	0.807	0.853
	LF2	0.666	0.822	
	LF3	0.593	0.841	
	LF4	0.661	0.823	
	LF5	0.683	0.818	
LM	LM1	0.788	0.911	0.924
	LM2	0.767	0.912	
	LM3	0.732	0.915	
	LM4	0.72	0.916	
	LM5	0.711	0.917	
	LM6	0.777	0.911	
	LM7	0.739	0.914	
	LM8	0.714	0.916	
S	S1	0.761	0.939	0.945
	S2	0.796	0.938	
	S3	0.721	0.941	
	S4	0.695	0.942	
	S8	0.726	0.941	
	S5	0.746	0.94	
	S6	0.693	0.942	
	S7	0.769	0.939	
	S9	0.799	0.938	
	S10	0.887	0.934	
	S11	0.727	0.941	

The results from the table indicate that all variables exhibit Cronbach's Alpha values above the acceptable threshold, with SS at 0.904, ETI at 0.886, LF at 0.853, LM at 0.924, and S at 0.945. These values suggest that the items within each variable are interrelated and collectively measure the intended construct with a high degree of consistency.

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4.3. Confirmatory Factor Analysis (CFA)

Table 4.
Discriminant validity.

	SS	ETI	LF	LM	S	LA
SS	0.786					
ETI	0.394**	0.784				
LF	0.374**	0.320**	0.736			
LM	0.432**	0.363**	0.371**	0.778		
S	0.581**	0.417**	0.470**	0.468**	0.782	
LA	0.531**	0.499**	0.530**	0.549**	0.624**	--

Table 5.
CFA results reporting for overall measurement model.

Construct	Item	Factor Loading	Cronbach's Alpha	CR	AVE
		>0.5	>0.7	>0.6	>0.5
School Support (SS)	SS1	0.867	0.917	0.906	0.618
	SS2	0.817			
	SS3	0.708			
	SS4	0.783			
	SS5	0.74			
	SS6	0.793			
English Teachers' Influence (ETI)	ETI1	0.831	0.886	0.889	0.615
	ETI2	0.798			
	ETI3	0.738			
	ETI4	0.776			
	ETI5	0.775			
Learning Facilities (LF)	LF1	0.804	0.853	0.855	0.541
	LF2	0.747			
	LF3	0.647			
	LF4	0.723			
	LF5	0.749			
Learners' Motivation (LM)	LM1	0.823	0.924	0.925	0.606
	LM2	0.798			
	LM3	0.766			
	LM4	0.755			
	LM5	0.747			
	LM6	0.81			
	LM7	0.769			
	LM8	0.754			
Shadowing Exercises through Mobile-assisted Language Learning (S)	S1	0.784	0.945	0.945	0.612
	S2	0.822			
	S3	0.748			
	S4	0.715			
	S5	0.767			
	S6	0.721			
	S7	0.79			
	S8	0.744			
	S9	0.824			
	S10	0.917			
	S11	0.751			

Upon examining Tables 4 and 5, the model demonstrates discriminant and construct validity, as well as reliability. The correlations among constructs in Table 4 are below 0.85, ensuring unique contributions and avoiding collinearity issues. Table 5 shows high factor loadings (>0.5), Composite Reliability (CR) values (>0.60), and Average Variance Extracted (AVE) values (>0.50) across all

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constructs, indicating strong internal consistency and convergent validity. This validation ensures the model's suitability for research objectives, enhancing credibility and generalizability of the findings, and supporting further investigations and practical applications in language learning and educational research.

4.4. Hypothesis Testing

Table 6.
Testing report of mediating effect shadowing exercises through mobile-assisted language learning (S).

Hypothesis	Total Beta / no Mediator; P-value	Direct Beta /after Mediator entered; P-value	Indirect Beta; P-value	Mediation type observed
S mediates The relationship between SS and LA.	.209; 0.000	.108; 0.019	.102; 0.000	Partial
S mediates The relationship between ETI and LA.	.227; 0.000	.198; 0.000	.030; 0.013	Partial
S mediates The relationship between LF and LA.	.293; 0.000	.231; 0.000	.063; 0.000	Partial
S mediates The relationship between LM and LA.	.261; 0.001	.215;0.001	.046; 0.000	Partial

Note: n = 5,000 repetitions

Table 6 sheds light on the mediating role of S in the relationships between the predictor variables and LA. The observed partial mediation effects underscore the complexity of these relationships, indicating that while S is a significant contributor to LA, it does not fully account for the effects of the predictor variables. This finding highlights the importance of considering multiple factors simultaneously when designing interventions aimed at enhancing language learning outcomes.

Table 7.
Hypothesis Testing.

H(x)	Hypothesis	Finding
H1	There is a significant influence of school support on the Listening Ability of EFL Learners of Higher Vocational Colleges in Wuxi City, Jiangsu Province, China.	Accepted
H2	There is a significant influence of English teachers' influence on the Listening Ability.	Accepted
H3	There is a significant influence of learning facilities on the Listening Ability.	Accepted
H4	There is a significant influence of learners' motivation on the Listening Ability.	Accepted
H5	There is a significant influence of school support on shadowing exercises using MALL .	Accepted
H6	There is a significant influence of English teachers' influence on Shadowing exercises using MALL.	Accepted
H7	There is a significant influence of learning facilities on shadowing exercises using MALL .	Accepted
H8	There is a significant influence of learners' motivation on Shadowing exercises using MALL.	Accepted
H9	There is a significant influence of shadowing exercises using MALL (S) on listening ability.	Accepted
H10	Shadowing exercises using MALL has a significant mediating effect on the relationship between school support and Listening Ability.	Accepted
H11	Shadowing exercises using MALL has a significant mediating effect on the relationship between learning facilities and Listening Ability.	Accepted
H12	Shadowing exercises using MALL has a significant mediating effect on the relationship between English teachers' influence and Listening Ability.	Accepted
H13	Shadowing exercises using MALL has a significant mediating effect on the relationship between learners' motivation and Listening Ability	Accepted

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5. Discussion

5.1. Implications for EFL Education

5.1.1. Theoretical Implications

The research conducted on listening proficiency among EFL learners in vocational colleges in Wuxi City, Jiangsu Province, China, offers several theoretical contributions. Firstly, it enhances our theoretical understanding of the factors influencing listening ability, with a particular emphasis on educational support systems and conducive learning environments. Secondly, by examining the mediating role of MALL (Mobile-Assisted Language Learning)-based shadowing exercises, the study provides insights into technology-assisted language learning as a bridge between educational inputs and outcomes. Furthermore, it differentiates the effects of various factors on listening ability and explores the intermediary mechanisms through which these factors operate, offering a nuanced perspective. Lastly, the study provides empirical support for theoretical relationships, demonstrating the significant effects of school support, teacher influence, and learners' motivation, as well as highlighting the mediating role of MALL-based shadowing exercises.

5.1.2. Practical Implications

The findings of this study offer practical guidance for educational practitioners and policymakers. Vocational colleges should invest in modern language learning facilities and resources to enhance the development of listening skills, thereby improving the educational environment. Educators should be equipped with the latest pedagogical methods and technology to boost teaching effectiveness. Additionally, educational institutions should implement strategies to foster and maintain student motivation, including setting clear goals, providing feedback, and creating opportunities for real-world application. Incorporating MALL-based shadowing exercises into teaching strategies can provide controlled and supportive practice environments for students. Policymakers can utilize the findings to inform decisions related to resource allocation, curriculum development, and technology integration in language teaching. Moreover, educational institutions can prioritize and allocate resources more effectively based on empirical evidence showcasing the positive impacts of school support, teacher influence, and learners' motivation on listening ability.

5.2. Limitations and Suggestions for Future Research

The study on listening ability among EFL learners in vocational colleges in Wuxi, China, while insightful, has limitations. Here are key areas for future research:

5.2.1. Mediating Factors

The study focused on the role of shadowing exercises through MALL. Future research should explore other potential mediators, such as cognitive factors, affective states, and learning strategies.

5.2.2. Moderating Variables

The study did not account for moderating variables like learner personality traits, cultural backgrounds, or learning duration. These factors could influence the relationship between educational inputs and listening ability.

5.2.3. Generalizability

The findings are limited to vocational colleges in Wuxi. Future studies should replicate the research in diverse educational settings and cultural backgrounds to test the model's validity.

5.2.4. Longitudinal Analysis

Cross-sectional analysis was used in this study. Longitudinal research is needed to understand how relationships between variables evolve over time and the long-term effects on listening ability.

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5.2.5. Broader Factors

The study focused on specific educational factors. Future research should consider a broader range of variables, including learner's first language and other cognitive abilities etc..

In summary, these limitations provide opportunities for future research to explore a more comprehensive understanding of factors influencing listening ability in EFL learners.

6. Conclusion

The study provides a comprehensive analysis of learning factors and their relationship with listening ability among Chinese EFL learners, emphasizing the role of school support, teacher influence, learning facilities, and learner motivation. Additionally, the study underscores the transformative potential of technology, particularly MALL, in enhancing listening ability and amplifying the effects of other learning factors. The results advocate for an integrated approach to EFL instruction, combining traditional and innovative methods.

In conclusion, this research contributes to optimizing language learning outcomes in a digital age and has implications for educational policy, teacher training, and curriculum development. Future research should explore long-term effects and the potential of emerging technologies in enhancing language learning.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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