

RELATIONSHIP BETWEEN TECHNOLOGICAL SELF-EFFICACY AND ENGLISH LEARNING EFFICIENCY AMONG NON-ENGLISH MAJOR STUDENTS IN JIANGXI, CHINA

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Abstract: *This study examines the relationship between technological self-efficacy and English learning efficiency among non-English major university students in Jiangxi, China. As mobile learning applications and digital tools become increasingly integrated into educational settings, understanding the relationship between technological self-efficacy and English language learning efficacy is crucial, especially for students who do not major in English language. A quantitative research design was employed, using a cross-sectional survey method to collect data from a sample of 384 students selected through stratified random sampling. The survey assessed students' levels of technological self-efficacy and their English learning efficiency, utilizing a structured questionnaire with Likert scale items. The data were analyzed using descriptive statistics and Pearson correlation analysis to explore the relationship between the variables. The results revealed a strong positive correlation between technological self-efficacy and English learning efficiency, indicating that students who are more confident in using technology tend to achieve higher efficiency in learning English. This finding underscores the importance of enhancing technological self-efficacy to improve English language outcomes for non-English major students. The study contributes valuable insights into how digital skills are related to language acquisition, suggesting that integrating technology effectively in educational practices can enhance learning efficiency. These findings have implications for educators and policymakers in designing strategies that leverage technology to support language learning, particularly in non-English major contexts, thereby improving students' proficiency and success in acquiring English as a second language.*

Keywords: *English Proficiency, Non-English Major Students, Chinese Universities, Language Learning.*

Introduction

The proliferation of mobile learning apps has significantly altered education by democratizing access to information and reshaping conventional learning paradigms. This shift is especially evident in Chinese universities, where students are not required to demonstrate fluency in English as a core competency. Mobile learning applications offer a potential avenue for non-English major students, for whom English is typically taught as an elective, to improve their language abilities. However, with these technological advancements, an important issue is how these apps will impact the English skills of Chinese university students who are not majoring in English (Zhang & Perez-Paredes, 2021).

There are multiple aspects to this dilemma. Despite the growth of language learning apps, there remains a lack of understanding regarding their effectiveness, particularly for Chinese university students whose major is not English. These apps are user-friendly, versatile, and include interactive features, but it is unclear whether they genuinely help users improve their English skills, especially in professional and academic contexts. Additionally, the effectiveness of these apps is influenced by factors such as learner motivation, pedagogical design, and access to technology (Susanto et al., 2020).

This study's greatest strength lies in its potential to influence educational policy and practice. Understanding how well mobile learning apps can enhance language skills for non-English majors is crucial, as effective communication in English is increasingly important in today's globalized world. By identifying the benefits, drawbacks, and best practices of these apps, researchers hope to assist educators in integrating them into their teaching, thereby maximizing their impact on students' final outcomes. Furthermore, policymakers can use these findings to better utilize technology in language classrooms, increasing access and improving students' learning experiences overall. The study's practical implications extend beyond academia, with the potential to enhance intercultural communication and English proficiency in a globally interconnected world.

The challenges faced by non-English major students in Jiangxi, China, in adopting mobile learning technologies are multifaceted and rooted in both educational and technological contexts. Limited digital literacy among students is a significant barrier, as many struggle to understand application software and troubleshoot issues effectively (Arshad & Yusoff, 2019). This lack of proficiency extends to managing learning materials, leading to inefficiencies in their learning processes. Technological infrastructure also poses challenges; poor network connectivity in rural or less-populated areas of Jiangxi restricts access to online resources, while apps predominantly designed with English as the primary language create additional barriers for non-English speakers (Metruk, 2022). Furthermore, low motivation, limited interest, and a lack of confidence in learning English exacerbate these challenges, leaving students ill-equipped to maximize the benefits of mobile learning technologies (Wang, 2020).

While technology offers valuable tools for English learning, over-reliance on it has unintended consequences. Features like autocorrect and spell-check, though helpful, can lead to reduced practice in speaking and writing skills, with users often failing to grasp fundamental grammar rules (Mandasari, 2020). Additionally, limited interaction with native English speakers through technological platforms reduces opportunities to learn the cultural and contextual nuances of the language. Many students do not prioritize English learning due to time constraints, lack of resources, or poor study habits, further hindering their progress (Susanty, 2021).

Educational institutions in Jiangxi have introduced policies like online group discussions and short-term courses to address these issues, but their impact on English learning outcomes for non-English majors remains limited (Gao, 2021). This problem is compounded by a lack of interest in utilizing technology effectively, particularly in areas with inadequate access to state-of-the-art equipment and resources (Metruk, 2022). Rural students, in particular, face significant disadvantages due to limited internet access and technical resources, making it challenging to use English-learning tools and participate in online activities (Rao & Chen, 2020). Furthermore, their limited digital literacy inhibits their ability to navigate and utilize online learning resources effectively (Mudra, 2020).

Educators in Jiangxi also encounter difficulties in leveraging technology for teaching English as a foreign language. Insufficient training on integrating technology into lessons reduces the potential for engaging and effective teaching practices. The lack of real-time interaction and feedback in online learning environments further diminishes the effectiveness of the learning experience (Octaberlina & Muslimin, 2020).

Low student participation and motivation remain central challenges. Modern technology, despite its potential, cannot yield significant benefits without active student engagement. Additionally, poor digital resources and unreliable internet connectivity in certain regions hinder students' ability to interact with native speakers and utilize online learning platforms effectively (Mensah et al., 2022).

This study aims to explore these multifaceted challenges by focusing on the educational and technological landscape in Jiangxi and addressing the critical research question: What is the relationship between technological self-efficacy and English learning efficiency among non-English major students in Jiangxi, China?

Literature Review

With the rise of mobile learning applications, students have gained unprecedented flexibility and control over their educational experiences, particularly in language learning. According to Criollo-C et al. (2021), these apps democratize language education by making it more accessible, while Kohnke (2021) emphasizes how mobile devices transform traditional learning paradigms through ubiquitous internet connectivity. Both scholars agree that mobile learning apps play a crucial role in breaking down time and location barriers, but Kohnke (2021) further highlights the specific benefits for non-English majors in Chinese colleges, who can integrate language learning seamlessly into their busy schedules. However, while Criollo-C et al. (2021) focus on the broad accessibility of mobile learning, Kohnke (2021) underscores the practical implications for students balancing multiple academic and extracurricular responsibilities.

In recent years, there has been an increase in interest about the use of modern technology in the process of language study, which may be broken down into two categories language learning and language teaching. The acquisition of the English language is scarcely an exception, and there is a growing body of study on the impact that contemporary technology has had on the efficiency of English language acquisition. CALL is an acronym that stands for computer-aided language learning and can refer to a variety of different tools and programmes. Some examples of CALL include online language classes, language learning apps, and software that was developed particularly for the goal of language acquisition. The employment of CALL has been seen to have a beneficial impact on the efficiency of English language acquisition, which has led researchers to draw this conclusion (Almusharraf & Khahro, 2020).

According to the findings of a meta-analysis that was conducted by Li and colleagues, the utilisation of computer-assisted language learning (CALL) was discovered to be related with a considerable improvement in English language competency, particularly in the domains of listening and speaking. This was the conclusion reached by the researchers. The authors also found that using CALL to teach older students was more successful than using it to teach younger kids. This was one of their most interesting discoveries. MALL, or mobile-assisted language learning, is a form of cutting-edge technology that can be exploited in the process of acquiring English language skills. It is also often known by its acronym, MALL. MALL is an abbreviation that stands for "mobile assisted language learning," which describes the process of employing mobile devices with the intention of increasing language acquisition. Smartphones and tablets are two examples of devices that fall within this category. There have been a number of studies done to investigate the impact that MALL has on students' ability to pick up the English language.

According to the findings of a study that was carried out by Song and Fox, the use of MALL was connected with significant improvements in English college students' listening comprehension and vocabulary development. Similarly, the use of a mobile application for the purpose of learning English vocabulary led to considerable gains in the acquisition and retention of vocabulary among Korean university students, according to a study that was carried out by Lee and colleagues.

It is becoming increasingly common for people to utilise social media sites like Facebook and Twitter with the intention of enhancing their command of the English language. Through the utilisation of these platforms, students are afforded the ability to engage in discussion with native English speakers, participate in online language groups, and gain access to actual language input (Xiuwen & Razali, 2021). A number of studies have been carried out to investigate the impact that various social media platforms have on the efficiency with which English is learnt. The use of social media platforms for the goal of acquiring English vocabulary was related with significant advances in reading comprehension and vocabulary acquisition among Mexican university students, according to the findings of a study that was carried out by Serrano-Camarena and her colleagues. The study was carried out by Serrano-Camarena and her colleagues. Following a similar line of thought, Jiang and colleagues conducted a study in which they revealed that Chinese university students who utilised social media platforms to learn English exhibited significant gains in both their English listening comprehension and speaking fluency after utilising these platforms.

Virtual reality (VR) and augmented reality (AR) are relatively new technologies that offer the potential of bringing about a sea change in the way that students study the English language. VR and AR are (Nodira & Maxfirat, 2022) abbreviated as "VR" and "AR," respectively. Students can rehearse real-life language scenarios such as ordering food in a restaurant or buying a ticket for a train by immersing themselves in a virtual or augmented world. This is made possible by the combination of virtual reality and augmented reality (VR and AR). Students can practise real-life language scenarios such as ordering food in a restaurant or buying a ticket for a train (Ericsson et al., 2023). Virtual reality (VR) and augmented reality (AR) have been the subject of a number of investigations in recent years, with the goal of determining whether or not they are helpful in the process of learning English. When applied to the process of learning English, the usage of AR technology led to considerable advances in vocabulary acquisition and retention among Filipino university students, as evidenced by a study that was carried out by Bautista and colleagues.

The employment of modern technology in the process of acquiring English language skills is not, however, without its share of challenges. One of the most critical challenges that authors are confronted with in the present day is the "digital divide," which refers to the unequal access to technology and internet connectivity. Students who are unable to make use of modern technology or who do not have access to a dependable internet connection may find themselves at a disadvantage in terms of competition when compared to their classmates who do have access to such advantages (Janssen et al., 2020). Some students could have trouble accessing and making use of the technology that is currently available, which might slow down their progress in learning a foreign language. One of these challenges is that language teachers do not have access to the appropriate training and resources needed to effectively integrate modern technologies into the classroom setting. It is probable that many language teachers lack the skills or competence necessary to appropriately integrate modern technologies into their teaching practises. This is something that needs to be looked into. This, in turn, may limit the potential advantages that can be gained from utilising technology in the process of language acquisition.

According to the findings of the empirical research, the use of modern technology within the context of English language study appears to have a good effect on the efficiency of said study. Some examples of current technologies that have been shown to be effective in assisting in the study of English include computer assisted language learning (CALL), multi-access learning environments (MALL), virtual reality and augmented reality (VR/AR), and social media. These are just some of the examples of technologies that are currently available. However, it is vital to keep in mind the challenges and restrictions that are associated to the utilisation of contemporary technology in the process of studying the English language. Some examples of these difficulties and constraints include the digital divide and the absence of proper training and support for educators. It is of the utmost importance to take into mind the pedagogical implications of making use of modern technologies in the process of acquiring English language skills. The pedagogical framework that is utilised for language learning ought to be connected with the goals and objectives of language learning, and the utilisation of technology ought to be incorporated into that framework (Gacs et al., 2020). The use of technology in language education should be guided by the most successful pedagogical practises, such as the provision of feedback and the encouragement of learner autonomy. This is so that the technology can maximise its potential in the classroom (Gonzalez Viejo et al., 2019).

The development of modern technology has the potential to make significant changes to the process of teaching English as a second language. This is because it provides students with unique ways to get language input, exercise language skills, and communicate with native speakers. In other words, it has the ability to revolutionise the process. The implementation of modern technology has been shown to have a positive impact on the effectiveness of English language acquisition, according to empirical research. Despite this, it is vital to take into mind the challenges and limitations connected with its use.

In recent years, the academic field of language education has been devoting a growing amount of attention to the various ways in which students can learn English through the utilisation of various contemporary technology. Students might be offered more opportunity to obtain language input, exercise their language abilities, and interact with native speakers as a result of the growth of modern technology, which has the potential to create opportunities of this kind. However, the influence that modern technology has on the efficacy of English learning among university students in Jiangxi, China, who are not majoring in English is not completely recognised. These students are not studying English as their first language (Wang & Chen, 2020).

Students at universities in Jiangxi, China, who are not majoring in English have been the focus of a number of studies that have been carried out to investigate the influence that CALL has on the efficiency with which they learn English. The implementation of the CALL programme led to significant gains in the students' levels of listening comprehension. In a similar vein, conducted research in which they evaluated the impact of a CALL programme on the English writing proficiency of university students who did not major in English (Fathi & Rahimi, 2024). This research was conducted on university students who did not study English as their primary language. The findings revealed that the utilisation of the CALL programme resulted in significant increases to the degree of writing competence possessed by the students (Al-Shehab, 2020). This was proved by the students' increased output of written material. According to these findings, it would appear that CALL has the potential to be an effective method for enhancing the English learning efficiency of university students in Jiangxi, China who are not majoring in English. This conclusion is based on the fact that CALL has the potential to be an effective strategy.

A number of studies have been carried out to investigate the influence that MALL has on the English-learning efficiency of university students in Jiangxi, China who are not majoring in English. These students attend universities in Jiangxi. Decided to investigate the effect that utilising a mobile app had on the amount of English vocabulary that was acquired by college students who did not major in English (Xodabande & Atai, 2022). The research was carried out at an educational institution. The findings showed that the students' level of vocabulary acquisition greatly improved as a direct result of their use of the mobile app. This improvement was evidenced by the fact that the level of vocabulary acquisition significantly improved (Bai et al., 2020). In a study that followed a similar line of thought, investigated the effect that a mobile app had on the English speaking ability of college students who did not major in English (Lei et al., 2022). This study was carried out on university students. The use of the mobile app was directly responsible, the findings of the study indicate, for the students' making considerable development in terms of their capacity to converse vocally with one another. According to this statistics, it would appear that MALL has the potential to be an effective instrument for enhancing the English learning efficiency of university students in Jiangxi, China who are not majoring in English. This conclusion is based on the fact that MALL has the capacity to be an effective instrument.

Students' technological self-efficacy, or their confidence in using digital tools effectively, is increasingly recognized as a critical factor in language learning, especially in mobile and computer-assisted contexts. With high self-efficacy, students are more inclined to engage deeply with language learning apps, exploring features that cater to vocabulary development, listening practice, and speaking skills. This confidence enables them to make full use of available resources, overcoming potential intimidation from unfamiliar or complex platforms. Technological self-efficacy empowers students to navigate digital environments independently, encouraging a proactive approach to learning. They become more willing to experiment, troubleshoot, and apply their digital skills to language tasks, which is essential in today's tech-driven educational landscape (Akkara, 2024).

Moreover, a high level of technological self-efficacy helps students achieve better learning outcomes by reducing anxiety around technology use, which can otherwise hinder their engagement and progress. In language learning, especially in areas requiring interactive practice, students who feel competent with digital tools are more likely to use features that support immersive and communicative learning experiences. This self-confidence allows them to shift

from passive to active learning, taking control of their educational journey. For non-English majors, who may have limited exposure to English outside academic settings, technological self-efficacy becomes particularly beneficial; it allows them to integrate language learning into their daily routines seamlessly, maximizing opportunities for practice and skill reinforcement. This foundational confidence with technology thus serves as an enabler, making language learning through digital means both efficient and accessible (Song et al., 2023).

Theoretical Framework

Social Cognitive Theory (SCT) provides a relevant theoretical framework for examining the relationship between technological self-efficacy and English learning efficiency. According to SCT, learning occurs within a social context and is influenced by the interaction of personal, behavioral, and environmental factors. Technological self-efficacy, a person's belief in their ability to effectively use technology, can be seen as a personal factor that directly impacts behavior, such as engagement with language learning tools. SCT posits that individuals with high self-efficacy are more likely to approach challenges with confidence, persist in the face of difficulties, and employ strategies that enhance learning outcomes. In the context of English learning, students with greater technological self-efficacy are better equipped to utilize mobile learning applications, navigate digital platforms, and access resources that improve their language skills. This aligns with the triadic reciprocal determinism in SCT, where personal confidence in technology use shapes learning behaviors and outcomes, which, in turn, can enhance self-efficacy through successful experiences.

Additionally, SCT emphasizes observational learning and the role of modeled behavior in skill acquisition. Students can observe peers or instructors effectively using technology for language learning, reinforcing their belief in their own ability to do the same. Environmental factors, such as access to reliable digital tools and supportive teaching practices, further enhance this dynamic. The theory also highlights the importance of feedback and reinforcement in sustaining self-efficacy. For instance, as students interact with language learning apps, their successful completion of tasks or positive feedback from instructors can reinforce their confidence, motivating them to explore more advanced features and engage in higher levels of learning. SCT thus provides a comprehensive lens to understand how technological self-efficacy not only influences students' approach to language learning but also interacts with other personal and environmental factors to enhance overall learning efficiency.

Methodology

The study employs a quantitative research design to investigate the impact of technological self-efficacy on English learning efficiency among non-English major university students in Jiangxi, China. A cross-sectional survey method was used, allowing data collection from a large sample at a specific point in time. The survey questionnaire was administered to a representative sample of non-English major students to gather data on their English learning efficiency and their use of modern technology in the learning process. This approach enables an objective assessment of relationships between the variables and provides insights into technological self-efficacy influence on English language learning efficiency among students. The study follows a deductive reasoning approach, allowing hypotheses to be tested based on field data.

The population for this study consisted of approximately 1,000,000 male and female students from universities in Jiangxi, providing a diverse and substantial base for analysis. To ensure a robust and manageable sample size, the Krejcie and Morgan sample size table was utilized, resulting in a sample size of 384 participants. This sample size was chosen to achieve statistical

significance and representativeness while maintaining practical feasibility. Stratified random sampling was employed to ensure representation across various subgroups within the population, such as gender, year of study, and university type, thereby addressing potential heterogeneity and enhancing the validity of the study's findings. This probability sampling method ensures that each individual in the population had an equal chance of being included, which reduces selection bias and strengthens the generalizability of the results.

The selection of stratified random sampling is particularly justified in the context of this study because it accounts for the diverse characteristics of the population, which could influence both technological self-efficacy and English learning efficiency. Stratification ensures that subgroups that may have unique patterns or experiences are proportionately represented, thereby providing a more nuanced and accurate depiction of the relationships being studied.

The study utilized a well-constructed questionnaire to collect quantitative data, with sections dedicated to the independent variable (technological self-efficacy) and the dependent variable (English learning efficiency). The use of a 5-point Likert scale allowed for the measurement of nuanced perceptions and behaviors, facilitating detailed statistical analysis. This structured approach to data collection ensures consistency in responses and allows for meaningful interpretation of the findings.

Data collection was conducted using a structured survey questionnaire, distributed online to the participants. The questionnaire was designed to capture information related to technological self-efficacy and English learning efficiency, drawing on validated measures from previous studies to ensure content and construct validity. Data analysis techniques included descriptive statistics, correlation analysis, and mediation analysis, performed using SPSS. These methods helped identify the levels of technological self-efficacy and English learning efficiency among the students, as well as the relationships between these variables. The use of descriptive survey analysis allowed for comprehensive analysis, ensuring accurate and systematic data interpretation for the study's objectives.

Results

Table 1: Demographic Profile of the Sample

		Frequency	Percent
Gender	Male	160	39.70
	Female	243	60.30
Academic Year	Freshman (Year 1)	60	14.9
	Sophomore (Year 2)	135	33.5
	Junior (Year 3)	72	17.9
	Senior (Year 4)	58	14.4
	Postgraduate Student (Masters/ PhD)	78	19.4
Major	Humanities	55	13.6
	Science	27	6.7
	Technology	61	15.1
	Engineering	59	14.6
	Mathematics	11	2.7
	Business and Economics	45	11.2
	Arts	26	6.5
	Laws	14	3.5
	Medical Science	50	12.4
English Proficiency Level	Other	55	13.6
	Beginner	83	20.6
	Intermediate	199	49.4
	Advanced	87	21.6
	Fluent	25	6.2
Frequency of Technology Usage for Learning	Native Speaker	9	2.2
	Daily	90	22.3
	Several times a week	166	41.2
	Once a week	73	18.1
	Rarely	67	16.6
Type of Devices Used for English Learning	Never	7	1.7
	Smartphone	275	68.2
	Laptop/Computer	90	22.3
	Tablet	31	7.7
	Other	7	1.7

Several demographic and contextual parameters relevant to the experiences of respondents in learning English and utilizing technology are provided in Table 4.1, along with their frequency distributions. The table also includes the demographic and contextual features. There are a number of criteria that are taken into consideration, including gender, age, academic year, major, level of English proficiency, frequency of utilization of learning technology, and forms of learning technology. With the assistance of each variable that offers insight into these subjects, it is possible to gain a deeper understanding of the preferences, routines, and level of participation demonstrated by the sample population in activities designed to improve their English language skills.

The survey encompassed a diverse group of 403 participants, among whom 60.30% (n=243) identified as female, while 39.70% (n=160) identified as male. This gender distribution indicates a slightly higher representation of female respondents. All these students are aged from 18 to 25. Regarding academic standing, the majority of participants span various undergraduate years, with sophomores (Year 2) constituting the largest group at 33.5% (n=135), followed by postgraduate students (19.4%, n=78), and juniors (Year 3) at 17.9% (n=72). Freshmen (Year 1) and seniors (Year 4) represented 14.9% (n=60) and 14.4% (n=58) of the sample, respectively. This suggests a diverse mix of academic backgrounds within the surveyed cohort.

In this research, majority of students are majoring in technology at 15.1% (n=61), then engineering at 14.6% (n=59). The participants who are majoring in humanities and other majors with 13.6% (n=55) and 13.6% (n=55), respectively. The students of medical science were also invited to join this research, with 12.4% (n=50). The participants also came from business and economics (11.2%, n=45), science (6.7%, n=27), arts (6.5%, n=26), laws (3.5%, n=14) and mathematics (2.7%, n=11).

In terms of English proficiency, the distribution was varied, with the majority of respondents falling within the intermediate category at 49.4% (n=199). Beginners comprised 20.6% (n=83), while advanced speakers and fluent speakers represented 21.6% (n=87) and 6.2% (n=25) of the sample, respectively. A smaller portion identified as native speakers, comprising 2.2% (n=9) of the total respondents. This distribution suggests a wide range of English language proficiency levels among the surveyed individuals.

When it comes to technology usage for learning, a significant portion of participants reported frequent utilization. Several times a week was the most common frequency, reported by 41.2% (n=166) of respondents, followed by daily usage at 22.3% (n=90). Meanwhile, once a week and rare usage were reported by 18.1% (n=73) and 16.6% (n=67) of participants, respectively. While a small proportion (1.7%, n=7) indicated they never used technology for learning purposes.

Regarding the type of devices used for English learning, smartphones emerged as the preferred choice among participants, with 68.2% (n=275) utilizing them. Laptops/computers were the second most commonly used devices, preferred by 22.3% (n=90) of respondents, followed by tablets at 7.7% (n=31). A minority reported using other devices, representing 1.7% (n=7) of the surveyed group. This distribution underscores the prominence of mobile technology in facilitating English language learning among the participants.

Table 2: Level of technological self-efficacy

Items	N	Mean (M)	Standard Deviation (SD)
1 I can easily edit and modify any picture using software on my computer or cell phone (i.e., photoshop, meitu, Snapseed, etc.).	403	2.99	.731
2 I can easily express my point of view using emojis or pictures when chatting with friends online.	403	3.14	.734
3 I can easily find digital resources that interest me if I want to.	403	3.10	.702
4 If I try my best, I can always find the right software, App, etc., or program it myself to solve the problem.	403	3.12	.674
5 I can easily make and edit short videos using my computer or mobile phone.	403	3.04	.757

6 If I want, I can learn a language and do programming development.	403	3.02	.740
Overall (Learning)	403	3.07	0.73
7 I can express my point of view in any online discussion forum.	403	3.00	.734
8 I can easily learn its features and functions in a short time when I open any social networking site (i.e., reply, like, etc.).	403	3.05	.721
9 I can easily use chat rooms on the Internet.	403	3.04	.740
10 I can easily use the webcam to chat with others.	403	2.95	.792
11 I can easily communicate with friends in a social media group (i.e., WeChat group, QQ group, WhatsApp group, etc.)	403	3.17	.722
Overall (Communication)	403	3.06	0.73
Overall	403	3.08	.062

The table presents a comprehensive overview of the technological self-efficacy of non-English major students in Jiangxi, China, showcasing their proficiency across various digital skills. Overall, the level of technological self-efficacy of non-English major students in Jiangxi, China is moderate, with a mean score of 3.08 and a standard deviation of 0.062, indicating a moderate level of confidence in utilizing technology. Using technology for learning with a mean score of 3.07 and a standard deviation of 0.73, while using technology for communication with a mean score of 3.06 and a standard deviation of 0.73. Notably, the highest mean score is observed in the ability to express viewpoints in online discussion forums and social media groups, suggesting a strong inclination towards digital communication platforms. Conversely, using the webcam for chatting with others and editing pictures using software on computers or cell phones exhibit lower mean scores, indicating areas where students may feel less confident or proficient.

These findings underscore the need for targeted interventions and support mechanisms to enhance students' technological self-efficacy, particularly in areas where confidence appears to be lower. Integrating practical training sessions, providing access to relevant resources, and fostering a supportive learning environment could facilitate the development of essential digital skills among non-English major students in Jiangxi, thereby empowering them to navigate the increasingly digital-centric landscape with confidence and competence.

Using technology for communication, most students responded that they can easily communicate with friends in a social media group (i.e., WeChat group, QQ group, WhatsApp group, etc.) ($M=3.17$, $SD=0.722$). A great number of students also responded that they can easily express their point of view using emojis or pictures when chatting with friends online ($M=3.14$, $SD=0.734$). At the same time, to using technology for learning, the majority of students thought if they try their best, they can always find the right software, App, etc., or program it to solve the problem ($M=3.12$, $SD=0.674$). Moreover, some students responded that they can easily find digital resources that interest them if they want to ($M=3.10$, $SD=0.702$). However, a small number of students responded that they can easily use the webcam to chat with others ($M=2.95$, $SD=0.792$). A few of them thought they can easily edit and modify any picture using software on my computer or cell phone ($M=2.99$, $SD=0.731$). some students responded that they can express their point of view in any online discussion forum ($M=3.00$, $SD=0.734$).

Table 3: Level of English learning efficiency

	N	Mean	Std. Deviation
1 I can read English text with ease.	403	3.59	1.004
2 I am comfortable with reading long texts in English.	403	3.50	1.070
3 I can understand most of the vocabulary in English texts.	403	3.57	1.015
4 I can identify the main idea of a text in English.	403	3.62	.982
5 I can comprehend the nuances and figurative language in English texts.	403	3.53	1.022
6 I can read and understand academic texts in English.	403	3.47	1.054
7 I can easily comprehend technical terms and jargon in English.	403	3.44	1.072
8 I can read and interpret complex graphs and charts in English.	403	3.46	1.076
9 I can effectively scan and skim through texts in English to locate specific information.	403	3.52	1.029
10 I can comprehend the main ideas and details of a passage in English materials I read.	403	3.60	1.005
Overall (Reading)	403	3.54	0.061
11 I can write grammatically correct sentences in English.	403	3.57	.999
12 I can write coherently organized paragraphs in English.	403	3.50	1.011
13 I can use appropriate vocabulary and tone in my writing in English.	403	3.55	.983
14 I can write clear and concise emails, reports, and other professional documents in English.	403	3.47	1.051
15 I can write creatively and expressively in English.	403	3.50	1.015
16 I can express my ideas and thoughts clearly in written English.	403	3.51	.987
17 I can write cohesive and coherent paragraphs in English.	403	3.44	1.043
18 I can effectively use grammar and vocabulary in writing English sentences.	403	3.48	1.015
19 I can write effective business emails in English.	403	3.32	1.105
20 I can write academic papers that meet international standards in English.	403	3.32	1.146
Overall (Writing)	403	3.48	0.083
21 I can speak English fluently and confidently.	403	3.42	1.076
22 I can express my ideas and opinions clearly in English.	403	3.47	1.013
23 I can participate effectively in English discussions and conversations.	403	3.43	1.036
24 I can use appropriate grammar, vocabulary, and pronunciation in English.	403	3.49	1.024
25 I can adjust my speaking style to fit different situations and audiences in English.	403	3.46	1.060
26 I can communicate effectively with native speakers of English.	403	3.35	1.081
27 I can clearly articulate my ideas and thoughts in spoken English.	403	3.43	1.038
28 I can use a wide range of vocabulary in spoken English.	403	3.36	1.097
29 I can effectively use intonation and stress in spoken English.	403	3.39	1.066
30 I can use appropriate gestures and facial expressions when speaking English.	403	3.45	1.028
Overall (Speaking)	403	3.43	0.045

31 I can understand English speakers of different accents and dialects.	403	3.35	1.111
32 I can follow English conversations and lectures without difficulty.	403	3.37	1.081
33 I can distinguish between literal and implied meanings in English conversations.	403	3.36	1.080
34 I can extract key information from English audio recordings.	403	3.46	1.019
35 I can listen, recognize, and use English idiomatic expressions and colloquialisms.	403	3.35	1.072
36 I can listen and comprehend spoken English in a variety of accents and dialects.	403	3.33	1.088
37 I can understand complex instructions and directions given in English.	403	3.35	1.063
38 I can listen and comprehend different genres of English speech (news, interviews, presentations, etc.)	403	3.37	1.075
39 I can effectively listen for specific details and main ideas in English.	403	3.39	1.053
40 I can listen with 100 percent comprehend English spoken at a normal conversational speed.	403	3.30	1.099
Overall (Listening)	403	3.37	.039
Overall	403	3.508	1.027

The table provides a detailed insight into the level of English learning efficiency among non-English major students in Jiangxi, China, across four essential language skills: reading, writing, speaking, and listening. Overall, participants demonstrate a moderate level of proficiency in English skills, with a mean score of 3.508 and a standard deviation of 1.027, indicating moderate variability in their overall responses. Most students exhibited a high level of English reading ability ($M=3.54$, $SD=0.061$), followed by writing proficiency ($M=3.48$, $SD=0.083$), then the ability to speak English ($M=3.43$, $SD=0.045$), and the level of listening proficiency is relatively lower. ($M=3.37$, $SD=0.039$).

In terms of reading, students demonstrate a relatively strong ability to comprehend English texts ($M=3.54$, $SD=0.061$). They exhibit comfort in handling various types of English materials, from academic texts to technical documents, suggesting a solid foundation in reading comprehension skills. Most students responded that they could identify the main idea of a text in English ($M=3.62$, $SD=0.982$). Also, many students mentioned that they can comprehend the main ideas and details of a passage in English materials they read ($M=3.60$, $SD=1.005$). Many students believed that they could read English text with ease ($M=3.59$, $SD=1.004$). While a small number of students they responded that they can easily comprehend technical terms and jargon in English ($M=3.44$, $SD=1.072$). And few students mentioned that they can read and interpret complex graphs and charts in English ($M=3.46$, $SD=1.076$). Some students even responded that they could read and understand academic texts in English ($M=3.47$, $SD=1.054$).

Regarding writing, students display competence in expressing themselves in written English, as reflected by mean scores 3.48, and standard deviation 0.083. While they are proficient in constructing grammatically correct sentences and coherent paragraphs, there appears to be room for improvement in writing more specialized content, such as business emails and academic papers. Most students responded that they could write grammatically correct sentences in English

($M=3.57$, $SD=0.999$). Some of students mentioned they can use appropriate vocabulary and tone in my writing in English ($M=3.55$, $SD=0.983$). These respondents also showed relatively high level of proficiency in expressing ideas clearly in written English ($M=3.51$, $SD=0.987$). However, relatively less students responded that they could write effective business emails in English ($M=3.32$, $SD=1.105$). Moreover, a small number of students can write academic papers that meet international standards in English ($M=3.32$, $SD=1.146$). And few students can write cohesive and coherent paragraphs in English ($M=3.44$, $SD=1.043$).

In the domain of speaking, students exhibit moderate proficiency in oral communication ($M=3.43$, $SD=0.045$). They demonstrate the ability to express ideas clearly, participate effectively in discussions, and adjust their speaking style according to different situations and audiences, although communication with native speakers seems to be an area for potential growth. Many students responded that they can use appropriate grammar, vocabulary, and pronunciation in English ($M=3.49$, $SD=1.024$). And a large number of students mentioned they can express my ideas and opinions clearly in English ($M=3.47$, $SD=1.013$). What is more, some students can adjust their speaking style to fit different situations and audiences in English ($M=3.46$, $SD=1.060$). While relatively less students responded that they could communicate effectively with native speakers of English ($M=3.35$, $SD=1.081$). And less students thought that they can use a wide range of vocabulary in spoken English ($M=3.36$, $SD=1.097$). Few students also mentioned that they can effectively use intonation and stress in spoken English ($M=3.39$, $SD=1.066$).

In listening, students show a moderate level of proficiency in understanding spoken English ($M=3.37$, $SD=0.039$). They demonstrate the capacity to follow conversations, extract key information from audio recordings, and comprehend various genres of English speech, albeit with some challenges in understanding English spoken at a normal conversational speed and with different accents. Many students responded that they could extract key information from English audio recordings ($M=3.46$, $SD=1.019$). Also, lots of students can effectively listen for specific details and main ideas in English ($M=3.39$, $SD=1.053$). Some students mentioned that they can follow English conversations and lectures without difficulty ($M=3.37$, $SD=1.081$), and they can listen and comprehend different genres of English speech (news, interviews, presentations, etc.) ($M=3.37$, $SD=1.075$). While few students responded that they can listen with 100 percent comprehend English spoken at a normal conversational speed ($M=3.30$, $SD=1.099$). Some respondents exhibit a relatively low level of confidence in their ability to listen and comprehend spoken English in various accents and dialects ($M=3.33$, $SD=1.088$).

Table 4: Correlation

		English Learning Efficiency
Technological Self Efficacy	Pearson Correlation	.782**
	Sig. (2-tailed)	.000
	N	384

****.** Correlation is significant at the 0.01 level (2-tailed).

The table presents the Pearson correlation analysis between technological self-efficacy and English learning efficiency among 384 students. The Pearson correlation coefficient between Technological Self-Efficacy and English Learning Efficiency is 0.782, indicating a strong positive relationship between the two variables. This means that as students' technological self-efficacy increases, their English learning efficiency also tends to improve significantly. The

correlation is statistically significant at the 0.01 level (2-tailed), as evidenced by the p-value of 0.000, which is less than 0.01. This suggests that there is a less than 1% probability that this strong positive relationship occurred by chance, confirming the reliability of the association between the two variables.

The N value of 384 indicates that the data was collected from 384 participants, ensuring a substantial sample size for the analysis. The positive correlation suggests that students who are more confident in their ability to use technology effectively are also more likely to experience higher efficiency in learning English. This finding highlights the importance of technological self-efficacy as a significant factor influencing students' language learning outcomes, suggesting that enhancing technological skills could lead to better English learning efficiency among non-English major students.

Discussion

One of the most important endeavors that serves as a crucial endeavor to unravel the difficulties of language acquisition in the digital era is the investigation into the relationship between technological self-efficacy, students' motivation, and English learning efficiency among students in Jiangxi, China who are not majoring in English. This investigation is being conducted among students who are not majoring in English. In order to gain a better understanding of the ways in which these three key factors interact with one another and have an impact on the outcomes of English language learning among this particular group of students, one can gain useful insights into the ways in which technological competence, levels of motivation, and English proficiency interact with one another as a result of the findings. Furthermore, they give light on successful tactics that can be applied to improve the activities involved with language learning. This is an additional benefit.

The findings of the study reveal that there is a substantial association between the degree to which students are confident in their ability to make use of technology and the degree to which they are able to effectively acquire English language abilities. This correlation was found to be significant. This study found that students who reported having higher levels of technical self-efficacy demonstrated a higher degree of proficiency in the exploitation of digital tools and resources for the goal of language acquisition (Tran, 2018). The significance of fostering students' digital skills in order to equip them with the capacity to employ technology as a catalyst for language learning is brought into sharper light as a result of this incident.

Additionally, the research shed light on the dynamic relationship that exists between technical self-efficacy, and the efficiency with which English language learning is accomplished. Through the course of the research, this connection was brought to light. According to the findings, students who have higher levels of technological self-efficacy are more likely to have stronger motivation towards English language learning, which eventually leads to increased levels of proficiency. This is because students who have higher levels of self-efficacy use technology more effectively. Students that have higher levels of self-efficacy are able to make better use of technology, which is the reason behind this phenomena (Luo, 2021). Students who have a lower level of technical self-efficacy, on the other hand, may have a more difficult time utilizing digital learning tools during their attempts to improve their academic performance. There is a possibility that these students experience a decline in their levels of motivation with regard to learning as a consequence. The relevance of this underscores the necessity of specific interventions that aim to strengthen students' technological abilities and provide an atmosphere that is motivated and friendly to successful language learning. These interventions should be implemented in order to

help students acquire a language. This is something that cannot be overstated in terms of its significance.

Conclusion

The study concludes that technological self-efficacy plays a significant role in enhancing English learning efficiency among non-English major students in Jiangxi, China. The strong positive correlation between technological self-efficacy and English learning efficiency indicates that students who are confident in using technology tend to be more effective in acquiring English language skills. This highlights the importance of equipping students with the necessary digital skills and tools to improve their language learning experiences. By fostering technological proficiency and creating a supportive environment, educators can enhance the overall effectiveness of English language education, ultimately leading to better academic outcomes for non-English major students in China.

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