Motivation and Challenges During and Post COVID-19 Pandemic Among Lao EFL Undergraduate Students in the Scientific Disciplines

Vixai Ketphommavong[a,*], Sukhum Wasuntarasophit[b]

[a] ke_vixai@kkumail.com, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
[b] sukwas@kku.ac.th, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
[*] Corresponding author, sukwas@kku.ac.th

ABSTRACT

The COVID-19 pandemic has compelled global higher education institutions, e.g. in Laos, to suddenly switch to online learning platforms without planning for multidimensional challenges to overcome. This study aimed to investigate Lao EFL undergraduate students' motivation and challenges for learning English during and post COVID-19. The participants comprised 75 students studying in various food science programs at a Lao university. This research adopted a mixed-methods design that integrated quantitative and qualitative approaches. The research tools consisted of questionnaires and semi-structured interviews. The results showed a moderate level of integrative motivation among students during the pandemic, which subsequently escalated to a high level after the COVID-19 pandemic. Meanwhile, their instrumental motivation remained consistently high throughout both pandemic periods. The findings also revealed a slight decrease

in student challenges during the pandemic, transitioning from high to moderate levels compared to the post-pandemic period. Students encountered difficulties in developing self-regulation skills during and after the COVID-19 pandemic, along with added financial burdens, including increased living costs in the post-pandemic period. Face-to-face learning was preferred by students. Moreover, these findings provided valuable insights, pedagogical implications, and recommendations to address emerging technological trends in English language education.

Keywords: Motivation, challenges, COVID-19 pandemic, EFL undergraduate students

Introduction

English has become increasingly essential to the Lao educational system. Since international organizations and business investors have provided the Lao government with developmental assistance, people from other countries expect to use English for communication with Lao citizens. Meanwhile, English is needed for university students, not only for their academic achievement but also for their career employment (Bouangeune et al., 2008; Gutiérrez-Colón & Somsivilay, 2021).

Despite English being essential for Lao society, students' limited English proficiency represents one of the most challenging roadblocks to bypass in Lao higher education. Several studies have shown that attempts to teach and learn English in Laos have proven unsuccessful due to ineffective teaching, insufficient learning resources, irrelevant courses, poor English skills, and negative attitudes towards English (Gutiérrez-Colón & Somsivilay; 2021; Souriyavongsa et al., 2013; Xaypanya et al., 2017). These shortcomings can create a lack of motivation to learn English in Lao EFL students, particularly those who desire to pursue further education abroad or be employed by multinational companies that demand outstanding English skills.

Motivation is a key element behind successful acquisition of second languages. It is linked to higher degrees of student engagement and academic success (Kanoksilapatham et al., 2021). Likewise, many renowned scholars (e.g., Dörnyei, 2001, 2005; Dornyei & Ryan, 2015; Gardner, 1985) have recognized that motivated learners with constructive viewpoints will succeed better than those without. Competent students who are not sufficiently ambitious or committed will be unable to meet their goals in the long run. Furthermore, Renandya (2015) claimed that motivated students would be

more determined, passionate, self-confident, and persistent in their educational pursuits.

In recent years, numerous researchers have grown interested in motivation for English language learning worldwide, notably in Asian higher education, as motivation has a significant impact on student achievement. For instance, studies conducted in Bangladesh (Mamun et al., 2018; Rahman et al., 2021), Iraq (Ugla, 2021), Myanmar (Narada et al., 2020), Thailand (Assavanadda & Tangkiengsirisin, 2018), and Vietnam (Ngugen, 2019) have contributed valuable insights in this regard. The Attitude/Motivation Test Battery (AMTB) questionnaires from Gardner (2004) were modified for use in previous research. Gardner's motivation framework is widely accepted and has received significant support in the field of language learning. Those studies showed that the majority of students were strongly motivated, with instrumental motivation exceeding integrative motivation in the EFL learning environment. Nonetheless, some studies have claimed that students' levels of motivation were average (Mamun et al., 2018) and that integrative motivation exceeds compared to instrumental motivation (Narada et al., 2020). It is obvious that EFL students' types and levels of motivation can fluctuate across various domains.

The COVID-19 pandemic has compelled higher education around the globe to suddenly switch to online learning platforms (Howard et al., 2022; Mishra et al., 2020; Murphy, 2020). In order to maintain students' academic excellence and relevance to digital learning environments, they need to be encouraged and well-equipped with digital competence (Howard & Tondeur, 2023; Tondeur et al., 2023; Zhao et al., 2021) to guarantee that they have sufficient knowledge and skills to deal with unforeseen challenges. These can boost their engagement and motivation for English language learning. Nevertheless, the sudden and urgent switch to online education has posed multidimensional challenges and obstacles. Empirical studies have indicated that while learning online, motivation among students declined drastically during the pandemic (e.g., Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Okyar, 2023; Ozer & Badem, 2022). The results of these studies show that the biggest drawbacks requiring action consist of low-quality internet performance, ineffective social interaction, external distractions, limited digital capacity, poor digital pedagogy, a shortage of digital learning resources, and negative attitudes towards digital education. Some scholars have reported that students suffer from mental health issues and heavy academic burdens (Al-Kumaim et al., 2021; Hussein et al., 2020; Li & Che, 2022; Maqableh & Alia, 2021; Okyar, 2023). Some have argued that during the pandemic, students lacked self-regulation (Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Zhang & Wu, 2022). These crucial issues negatively impact students' motivation and hence their academic success in online education.

Furthermore, the COVID-19 pandemic also catalyzed Lao universities to urgently move to an online learning environment without sufficient planning from 2020 to 2021, just as it did other nations across the world. Google Meet, Zoom, and WhatsApp were the main platforms adopted to accommodate online learning throughout the pandemic (Ministry of Education & Sports, 2021). After the COVID-19 pandemic, the vast majority of Lao universities reverted back to face-to-face instruction, and less attention was given to online or blended learning systems. Several scholars, on the other hand, have recently recommended a hybrid or more blended approach (Febrianto & Susanto, 2023; Howard & Tondeur, 2023; Imran et al., 2023; Müller et al., 2023; Munir, 2022; Nassar et al., 2023; Stoian et al., 2022) or flipped learning (Kantamas, 2023; Linling et al., 2023; Liu et al., 2023) through which students can benefit from both online and face-to-face education. Moreover, these learning platforms are flexible, creative, critical, interactive, and reflective. They also employ new technologies and methods that can help improve students' motivation, self-regulation, personalization, and continuous learning. Consequently, questions have been raised about the implementation of these learning platforms as the new normal. Lao EFL students still face several obstacles in their language learning future.

Conducting studies on motivation is complex and multidimensional due to varying trends over time (Bower, 2019; Lai & Aksornjarung, 2018). To date, most of the aforementioned studies in Asian nations have employed quantitative research designs, and very few have explored university EFL students' motivations based on Gardner's (1985) theoretical framework, especially after the COVID-19 pandemic. At the same time, there is a dearth of investigations of EFL students' motivation and the effect of online or blended learning systems in Lao higher education during and after the COVID-19 pandemic. Moreover, Lao researchers have predominantly utilized either quantitative or qualitative approaches with English-major students in their research. For example, participants have come from comparable educational backgrounds, which included pre-service teachers (Souriyavongsa et al., 2013), English teachers (Chatouphonexay & Intaraprasert, 2014), students majoring in English (Gutiérrez-Colón & Somsivilay, 2021), and students majoring in education (Xaypanya et al., 2017).

From a review of the literature, there has been a scarcity of previous studies investigating motivation to learning English in the disciplines of science, e.g. food science, in Lao higher education. Science disciplines could potentially have an enormous impact on motivation, since students in these fields would have more career options if they acquired sufficient English skills after they graduated (Kanoksilapatham et al., 2021). This study, therefore, has bridged the research gaps by aiming to investigate the types and levels of motivation among Lao EFL undergraduate students in the science disciplines

and the challenges of learning English during and post COVID-19 by employing a mixed-methods study that incorporates quantitative and qualitative data. Two research questions were addressed as follows:

1. What are the types and levels of motivation in learning English among Lao EFL undergraduate students in the science disciplines during and post COVID 19?

2. What are the challenges in learning English among Lao EFL undergraduate students in the science disciplines during and post COVID 19?

Literature Review

Definition of Motivation in Language Learning

Motivation comprises multiple dimensions and complexities in the learning process. Gardner (1985) stated that motivation represents the integration of perseverance, aspiration, and a positive mindset to meet the goal of learning a language. Motivated students are optimistic, goal-oriented, confident, and dedicated to their studies and never give up until they achieve it (e.g., Dörnyei, 2001, 2005; Renandya, 2015; Ryan & Deci, 2000).

Furthermore, motivated students are more proactive and perform better in their studies because they have desire, clear purpose, and flexibility, which is backed up by commitment. To support this claim, numerous researchers (e.g., Ozer & Badem, 2022; Imsa-ard, 2020; Meşe & Sevilen, 2021; Ngugen, 2019; Ulfa & Bania, 2019) have recently confirmed that motivation has a strong correlation with students' academic achievement because it is a vital element of efficient learning. Meanwhile, several studies on motivation in English language learning, particularly in Asian contexts, have shown that a majority of students are more strongly motivated by instrumental motivation than integrative motivation (e.g., Assavanadda & Tangkiengsirisin, 2018; Ngugen, 2019; Rahman et al., 2021; Ugla, 2021).

To sum up, motivation may be defined in a variety of aspects. It is a key variable within a positive mindset, which has a strong influence on students' success in language learning. All those crucial qualities are reinforced with persistence to accomplish an objective. This current study examines motivation for English language learning during and post COVID-19 among Lao EFL undergraduate students in the science disciplines.

Theoretical Frameworks for Motivation in Language Learning

There are a myriad of theoretical frameworks to measure motivation. Nonetheless, the three most popular have been extensively utilized in language learning: Gardner (1985)'s, Ryan and Deci (2000, 2017)'s, and

Dörnyei (2005, 2009)'s. Overall, these three motivational frameworks provide a comprehensive understanding of the language learning process as well as the correlations between students' motivation and other variables relevant to their language learning in diverse contexts (e.g., Deci & Ryan, 1985; Dörnyei, 2005, 2009; Gardner, 1985; Gardner & Lambert, 1972, Kanoksilapatham et al., 2021; Ryan & Deci 2000, 2017, 2020). However, this study has adopted Gardner's motivational framework because of its consistent support by numerous empirical studies. It provides insightful and practical implications to effectively explore students' motivation in EFL contexts. This framework is further discussed below.

Gardner's motivational framework

Gardner is the pioneer of motivation in language learning, and his theoretical framework is associated with the social psychology of second language (L2) learning. Gardner and Lambert (1972) proposed a motivational framework, namely the social educational model (SEM), which includes two motivational types: integrative and instrumental motivation. The former is described as a passion for learning a language to interact with individuals from various cultures and communities. The latter is described as a passion for learning a language to achieve a specific purpose, such as getting a high-paying job, studying at a prestigious university, or publishing in an international journal.

Moreover, the Attitude/Motivation Test Battery (AMTB) questionnaire was initially developed by Gardner (1985) as a research instrument to assess the impact of motivation and attitude on bilingual communities in Canada and France. The AMTB questionnaire was then extensively adopted, adapted, and developed by incorporating new statements. More recently, Gardner's (2004) AMTB questionnaire has been widely employed to investigate the types and levels of students' motivation for language learning since it can shed light on how motivation and attitude play vital roles in various contexts (e.g., Assavanadda & Tangkiengsirisin, 2018; Kanoksilapatham et al., 2021; Ngugen, 2019; Rahman et al., 2021; Ugla, 2021).

Interestingly, Gardner (1985) emphasized that students with integrative motivation would have better performance than those with instrumental motivation in L2 learning contexts. However, several researchers (e.g., Assavanadda & Tangkiengsirisin, 2018; Ngugen, 2019; Rahman et al., 2021; Ugla, 2021) have recently argued that students with instrumental motivation would have a higher impact than those who have integrative motivation in the EFL context. In recent studies researchers have returned to Gardner's framework and the AMTB (2004) questionnaire to

investigate students' types and levels of motivation in English language learning (e.g., Assavanadda & Tangkiengsirisin, 2018; Ngugen, 2019; Rahman et al., 2021; Ugla, 2021). Hence, this study employs Gardner's model as a theoretical framework.

Challenges and Emerging Technological Trends in English Language Education

Gardner (1985) asserted that extremely motivated students work harder to achieve their goals. Nevertheless, students' motivation may fluctuate constantly if they do not have definite purpose, strong desire, and required skills to accomplish these goals in language learning. Recent empirical evidence has demonstrated that students' motivation in contexts of higher education decreases significantly when learning online, e.g. during the COVID-19 pandemic (Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Okyar, 2023; Ozer & Badem, 2022). Researchers have found diminished digital competence, unstable internet connections, a lack of physical and social interaction, external distractions, and technical issues to be the most common obstacles to success. Other aspects include mental health issues, heavy workloads (Al-Kumaim et al., 2021; Hussein et al., 2020; Li & Che, 2022; Maqableh & Alia, 2021; Okyar, 2023), a lack of technological tools, difficulties with accessing digital resources (Hussein et al., 2020; Maqableh & Alia, 2021), low learning outcomes (Ozer & Badem, 2022), and high internet charges (Dutta & Smita, 2020).

More significantly, self-regulated or autonomous learning is a major factor in supporting holistic development, lifelong learning, and English skills to prepare students to survive in a rapidly changing world, but it is one of the biggest challenges encountered by students during the COVID-19 pandemic (Al-Kumaim et al., 2021; Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Munir, 2022; Zhang & Wu, 2022). However, the aforementioned factors can also demotivate students in learning English and potentially have a negative impact on their physical, mental, and social well-being, as well as their learning outcomes and educational achievement.

In this regard, some researchers have reported that most students prefer face-to-face courses because they can take better advantage of the learning platform, in particular with physical and social interaction among peers and instructors (e.g., Iqbal et al., 2022; Okyar, 2023; Ozer & Badem, 2022). However, some have recently suggested blended and flipped learning solutions since they are innovative pedagogies that integrate new technologies and conventional approaches and also foster flexibility, critical thinking, collaboration, and self-regulation (Febrianto & Susanto, 2023; Howard & Tondeur, 2023; Imran et al., 2023; Kantamas, 2023; Linling et al., 2023; Liu

et al., 2023; Müller et al., 2023; Munir, 2022; Nassar et al., 2023). Blended and flipped approaches have tended to be employed in recent and future directions within higher education domains.

So far, little is known about research on EFL undergraduate students' challenges in transitioning to face-to-face learning after the COVID-19 pandemic, especially for non-major English students in the field of food science in Lao universities. There is a research void in literature reviews that needs to be explored. Thus, the novel findings of this research can enrich the available literature as well as provide valuable insights into the challenges faced by Lao EFL undergraduate students. They will also contribute to the enhancement of instructors' pedagogical approaches through the integration of new digital technologies, personalized learning, adaptive learning, and artificial intelligence (AI), leading to innovative and constructive education in order to meet students' needs, motivation, and pace of learning English in Lao higher education institutions, as well as similar EFL contexts all over the world.

Moreover, the novelty of the research would also provide support for students' and instructors' efforts to strengthen their holistic development, adaptable skills, digital competence, self-regulated learning, and lifelong learning in order to stay updated and better equip themselves with the skills and knowledge needed to effectively utilize the latest technologies to handle the rapidly changing landscape of education (Howard & Tondeur, 2023; Yun, 2023; Tondeur et al., 2023). These essential qualities have been combined with generative AI, such as ChatGPT, and other AI tools for the best educational practices and sustainable development for future (Annamalai et al., 2023; Dai et al., 2023; Kohnke et al., 2023). However, some scholars have recently expressed concerns about the efficacy of using these AI tools in upholding academic integrity and evaluating students in higher education (e.g., Cotton et al., 2023; Dai et al., 2023; Ou et al., 2024).

Methodology

Research Design

An explanatory sequential mixed methods design was applied to deal with the research questions, which comprised two phases: gathering and analyzing quantitative data was the first phase. The later phase gathered and analyzed qualitative data to reinforce, prove, and further confirm the quantitative results.

Participants

The participants of this research consisted of 75 undergraduate students (1st to 4th years) in the faculty of food science at a Lao university. These students were enrolled in four programs of study: Agribusiness and Marketing (ABM), Food Processing Technology (FPT), Post-harvest Technology and Product Promotion (PHP), and Economics for Rural Development and Business Extension (ERB). They were non-majors in English. The period for collecting data was near the end of the second semester, academic year 2023, so some students could not be contacted. The participants were therefore selected through convenience sampling. The eligibility for qualitative data inclusion was for 10 students from various programs and academic years within the faculty to volunteer.

Research Instruments

Questionnaire

This research employed a questionnaire adapted from Gardner (2004) to examine Lao EFL students' motivations for learning English, since it is a trustworthy and valid assessment tool that provides a comprehensive understanding of students' perspectives and motivations in EFL settings. Simultaneously, extensive studies (Al-Kumaim et al., 2021; Aroonsrimarakot et al., 2023; Dutta & Smita, 2020; Hussein et al., 2020; Iftanti et al., 2023; Li & Che, 2022; Maqableh & Alia, 2021; Okyar, 2023; Ozer & Badem, 2022; Zhang & Wu, 2022) on students' experiences during and after the COVID-19 pandemic in higher education were carefully scrutinized, analyzed, and synthesized to create a robust evaluation tool addressing critical study problems.

The questionnaire was classified into three major parts: demographic data covering gender, academic year, program of study, English learning experience, international exposure, learning platforms, devices used, and internet access; the types and levels of motivation (integrative motivation: statements 1-10, instrumental motivation: statements 11-20, and three open-ended questions); and challenges (statements 1-30 and three open-ended questions), employing a five-point Likert scale to rate variables of motivation and challenges during and after the COVID-19 pandemic. The questionnaire was translated into Lao to facilitate comprehension.

Semi-structured Interview

The semi-structured interview was established to determine further perspectives on motivation and challenges in learning English during and after the COVID-19 pandemic, aiming to complement the quantitative data. It was categorized into two main parts: students' motivation (three open-ended questions) and challenges (three open-ended questions). Ten volunteers in the faculty were chosen for interviews. To accommodate students, they were interviewed in the Lao language. The interview was recorded, transcribed, and subsequently translated into English.

Validity and Reliability

The content validity of the questionnaire and semi-structured interview were assessed by three experienced English teaching professionals with over ten years of expertise. The Item-Objective Congruence Index (IOC) was also utilized to validate the questions and statements and the objectives of the study. Feedback and suggestions regarding the research tools were provided. In this study, some motivational statements were removed and integrated. A pilot study was undertaken prior to data collection. Twenty students were randomly gathered for the questionnaire, whereas the semi-structured interviews were conducted with 10 students from a related faculty. Reliability assessment using Cronbach's alpha coefficient resulted in values of 0.929 and 0.920.

Data Collection

Before collecting data, permission was approved by the dean of the food science faculty, and ethical approval was also obtained from the Ethics Center in Human Research at Khon Kaen University. Participants received advance notice of the study's purpose and were requested to provide honest and thoughtful responses. A hybrid data collection approach comprising online and face-to-face methods was employed: In the initial phase, the data was quantitatively collected through Google Forms using WhatsApp, which required completion within one week. Physical copy forms were mandated to be filled out during class sessions and promptly compiled upon completion. In the subsequent phase, the data was qualitatively gathered via face-to-face interviews with signed consent forms beforehand after consent forms were signed.

Data Analysis

The quantitative approach underwent analysis utilizing SPSS software for descriptive statistics: frequencies, percentages, means (M), and standard deviations (SD). Demographic data was evaluated using frequency and percentage analyses, while statements to explore students' motivation and challenges in learning English during and after the COVID-19 pandemic were analyzed using means (M) and standard deviations (SD). The assessment of motivation and challenge levels relied upon established criteria: 1.00–2.49 = very low, 2.50–3.49 = moderate, 3.50–4.49 = high, and 4.50-5.00= very high. However, the qualitative approach was examined using thematic content analysis to categorize and evaluate the responses systematically. To protect confidentiality, pseudonyms were used for significant messages and quotes.

Results

This section examines the demographics, learning platforms, technological tools, and quantitative and qualitative outcomes of students' English learning motivation and challenges during and post COVID-19.

Table 1

Student demographics

Students' Demographics (N=75)		Frequency	Percentage
Gender	Male	18	24.00
	Female	57	76.00
Year of Study			
	1st year	5	6.67
	2nd year	15	20.00
	3rd year	25	33.33
	4th year	30	40.00
Program of Study			
	ABM	27	36.00
	FPT	20	26.67
	PHP	3	4.00
	ERB	25	33.33
English Learning Experience			
	5-8 years	36	48.00

	9-12 years	33	44.00
	More than 12 years	6	8.00
International Exposure			
	Vietnam	3	4.00
	Thailand	14	18.67
	Vietnam, Thailand	12	16.00
	No International Exposure	46	61.33

As presented in Table 1, the sample comprised 75 participants, predominantly female (76%) and in their fourth year of study (40%). The majority were enrolled in the ABM (36%) and ERB (33.33%) programs. Participants had varying levels of English learning experience, with the largest cohorts having 5-8 years (48%) and 9-12 years (44%) of experience. Notably, 61.33% of the participants had no international exposure, while 18.67% had experience exclusively in Thailand, and 16% had experience in both Vietnam and Thailand.

Table 2

Learning platforms and technological tools employed by students during and post COVID-19

Learning Platforms and Technological Tools		Frequency	Percentage
Learning Platforms			
Face-to-Face Learning			
	During	12	16.00
	Post	63	84.00
Online Learning			
	During	52	69.33
	Post	0	0.00
Blended Learning			
	During	23	30.67
	Post	11	14.67
Video Conferencing Platforms			
Google Meet			
	During	53	70.67
	Post	22	29.33
Zoom			

	During	45	60.00
	Post	28	37.33
Microsoft Teams			
	During	13	17.33
	Post	6	8.00
WhatsApp Chat/Video Call			
	During	39	52.00
	Post	33	44.00
Line Chat/Video Call			
	During	15	20.00
	Post	8	10.67
Facebook Live			
	During	21	28.00
	Post	9	12.00
Messenger Chat/Video Call			
	During	19	25.33
	Post	12	16.00
Learning Devices			
Mobile Phone			
	During	46	61.33
	Post	22	29.33
Desktop Computer/Laptop			
	During	15	20.00
	Post	13	17.33
iPad/ Tablet			
	During	12	16.00
	Post	7	9.33
Internet Packages			
Mobile Data Packages			
	During	43	57.33
	Post	30	40.00
Wi-Fi			
	During	18	24.00
	Post	13	17.33
LAN			
	During	10	13.33
	Post	8	10.67

Table 2 shows that face-to-face learning increased dramatically, rising from 16% during the COVID-19 pandemic to 84% in the post-pandemic period. Conversely, online learning served as the predominant method, accounting for 69.33% of the total during the pandemic. However, this sharply declined after the pandemic due to its non-implementation. Furthermore, the table highlights a decline in blended learning, falling from 30.67% during the pandemic to only 14.67% after the pandemic. Moreover, Google Meet, Zoom, and WhatsApp emerged as the most prominent video conferencing platforms, with an average usage exceeding 60% during the pandemic and maintaining a significant presence after the pandemic (29.33%, 37.33%, and 44%, respectively). Meanwhile, mobile phones dominated as the primary learning device during the pandemic, with a frequency of 61.33%, which decreased to 29.33% after the pandemic. Throughout this period, mobile data packages remained the most popular channel of internet service, with usage slightly declining from 57.33% to 40%.

Quantitative results

To address the research questions, quantitative data from the questionnaire were analyzed. The results provide insights into the types and levels of motivation and challenges in learning English during and post COVID-19 reported by Lao EFL undergraduate students in the science disciplines, which are shown in the following tables.

Table 3

Types of students' motivation for learning English during and post COVID-19

No.	Statements	During		Motivation Level	Post		Motivation Level
		M	SD		M	SD	
	Integrative Motivation						
1	Learning English helps me convey my knowledge and information to other people who use English.	3.27	0.64	Moderate	3.49	0.67	Moderate
2	Learning English makes me understand different sources of knowledge (e.g., e-books, movies, music, etc.).	3.79	0.74	High	4.03	0.66	High

3	Learning English enables me to fully engage in activities with foreigners who have different backgrounds.	3.15	0.77	Moderate	3.36	0.78	Moderate
4	Learning English helps me better understand cultures and people's ways of life in English-speaking countries.	3.76	0.73	High	3.91	0.72	High
5	Learning English helps me have more confidence in expressing myself when attending international events such as meetings, workshops, or webinars.	3.32	0.81	Moderate	3.47	0.83	Moderate
6	Learning English helps me enjoy traveling to foreign countries.	3.52	0.76	High	3.77	0.81	High
7	Learning English helps me make more friends from many parts of the world.	3.41	0.92	Moderate	3.48	0.78	Moderate
8	Learning English helps me integrate more easily with English speaking communities.	3.29	0.90	Moderate	3.48	0.81	Moderate
9	Learning English enables me to meet and interact with more varied people from different countries.	3.57	0.87	High	3.79	0.83	High
10	Learning English enables me to communicate easily with others online.	3.72	0.86	High	3.81	0.80	High
	Mean	3.48	0.80	Moderate	3.66	0.77	High
	Instrumental Motivation						
11	Learning English is vital since I wish to have a great profession and high salary in the future.	4.23	0.71	High	4.41	0.64	High
12	Learning English is vital since I wish to apply it in my future profession.	4.16	0.77	High	4.36	0.69	High

13	Learning English helps me get more useful information for my future profession.	4.09	0.72	High	4.32	0.70	High
14	Learning English is vital since I wish to study abroad.	3.32	0.87	Moderate	3.47	0.86	Moderate
15	Learning English is vital since I wish to access more extensive sources of knowledge such as journals, newspapers, and magazines.	3.52	0.79	High	3.65	0.71	High
16	Learning English helps me to learn new approaches to improve my English skills.	3.77	0.80	High	3.95	0.73	High
17	Learning English is vital since I wish to use it when I utilize information and communication technology (ICT).	4.05	0.68	High	4.17	0.69	High
18	Learning English helps me become a skillful and educated person.	3.44	0.86	Moderate	3.57	0.77	High
19	Learning English helps me to be more successful in my academic performance and daily life	3.76	0.71	High	3.97	0.68	High
20	Learning English is vital since I wish to utilize it when I travel to foreign countries.	3.48	0.83	Moderate	3.80	0.82	High
	Mean	3.78	0.77	High	3.97	0.73	High
	Average Mean S1-S20	3.63	0.79	High	3.81	0.75	High

According to Table 3, the quantitative results revealed that during the COVID-19 pandemic, students had a moderate level of integrative motivation (M = 3.48, SD = 0.80), which subsequently increased to a high level (M = 3.66, SD = 0.77) after the COVID-19 pandemic.

In both periods of the COVID-19 pandemic, it was found that the highest variables on students' integrative motivation occurred when they expressed a desire to acquire knowledge from various sources such as books, music, movies, etc. (M = 3.79, SD = 0.74 and M = 4.03, SD = 0.66), explore different cultures (M = 3.76, SD = 0.73 and M = 3.91, SD = 0.72), and enhance their online communication skills (M = 3.72, SD = 0.86 and M =

3.81, SD = 0.80). However, the integrative variable that held the least significance for students was actively participating in activities with individuals from different nationalities (M = 3.15, SD = 0.77 and M = 3.36, SD = 0.78).

Similarly, a high level of instrumental motivation was observed during and after the COVID-19 pandemic, with a noted increase (M = 3.78, SD = 0.77 and M = 3.97, SD = 0.73). The instrumental variables of utmost importance included students' recognition of the significance of English for their future careers (M = 4.23, SD = 0.71 and M = 4.41, SD = 0.64), their commitment to improving ICT skills (M = 4.05, SD = 0.68 and M = 4.17, SD = 0.69), and their language proficiency (M = 3.77, SD = 0.80 and M = 3.95, SD = 0.73). Nonetheless, the desire to pursue education in a foreign country (M = 3.32, SD = 0.87 and M = 3.47, SD = 0.86) was reported to be of least importance.

Generally, students' motivation was high for both periods of the COVID-19 pandemic. The motivational variables demonstrated disparate levels from moderate to high, with the average mean values of instrumental motivation (M = 3.81, SD = 0.75) slightly surpassing integrative motivation (M = 3.63, SD = 0.79), as indicated in Table 3.

Table 4

Challenges that impact students' learning English during and post COVID-19

No.	Statements	During		Challenge Level	Post		Challenge Level
		M	SD		M	SD	
	Category 1 Technological Skills						
1	I lack ICT knowledge and skills, so I cannot perform well when learning English.	3.83	0.89	High	3.68	0.86	High
2	Because I lack training in technological skills, I am unable to express myself as effectively when learning English.	3.48	0.88	Moderate	3.35	0.81	Moderate
3	There are too many learning modes, so I am confused when learning English	3.39	0.86	Moderate	3.27	0.86	Moderate
	Mean	3.56	0.88	High	3.43	0.84	Moderate
	Category 2 Technological Infrastructure Issues						

4	The internet connection is slow or unstable.	4.29	0.61	High	3.81	0.69	High
5	The internet costs are too high, so I spend too much money.	3.63	0.85	High	3.55	0.79	High
6	I cannot access the internet at home.	3.25	0.96	Moderate	3.21	0.93	Moderate
7	My location lacks technical infrastructure.	3.27	0.98	Moderate	3.21	0.90	Moderate
8	I lack technological devices, when learning English, such as a laptop, camera, headset, etc.	3.53	0.83	High	3.39	0.85	Moderate
	Mean	3.59	0.85	High	3.43	0.84	Moderate
	Category 3 Technical Support						
9	I lack technical support, such as installing software, drivers, computer programs, etc.	3.33	0.93	Moderate	3.28	0.89	Moderate
10	I lack effective guidelines for learning English.	3.77	0.75	High	3.59	0.77	High
	Mean	3.55	0.84	High	3.43	0.83	Moderate
	Category 4 External Interference						
11	My family distracts me while I am learning English, such as making noises while watching TV, talking loudly, playing music, etc.	3.72	0.78	High	3.25	0.77	Moderate
12	My neighbors interfere with me while I am learning English, such as talking loudly, making loud noises, having parties very often, etc.	3.31	0.85	Moderate	3.13	0.74	Moderate
	Mean	3.51	0.82	High	3.19	0.76	Moderate
	Category 5 Social Interaction						
13	I cannot interact with my peers, so I have not been supported by them when I don't understand the course content or face difficulties.	3.95	0.71	High	3.43	0.74	Moderate

14	When I am learning English, I can't ask questions or get immediate feedback from my instructors.	3.47	0.78	Moderate	3.20	0.75	Moderate
15	I cannot discuss or debate topics to express myself with my peers and instructors.	3.48	0.81	Moderate	3.35	0.80	Moderate
	Mean	3.63	0.77	High	3.32	0.76	Moderate
	Category 6 E-resource Issues						
16	I cannot download online course materials when learning English.	3.24	0.82	Moderate	3.16	0.84	Moderate
17	I cannot access e-resources.	3.31	0.79	Moderate	3.20	0.74	Moderate
18	My faculty's e-resources are limited, so I face difficulties accessing them.	3.28	0.76	Moderate	3.24	0.73	Moderate
	Mean	3.28	0.79	Moderate	3.20	0.77	Moderate
	Category 7 Health Issues						
19	I feel dizzy from staring at a smartphone or computer screen.	3.92	0.77	High	3.40	0.82	Moderate
20	I feel lonely and stressed when switching among online, face-to-face, or blended learning environments.	3.76	0.80	High	3.27	0.81	Moderate
	Mean	3.84	0.78	High	3.33	0.82	Moderate
	Category 8 Financial Issues						
21	I spend a lot of money on my education, particularly on living costs, travel to university, and accommodation.	3.41	0.99	Moderate	3.96	0.92	High
22	Moreover, I spend a lot of money on my extracurricular activities.	3.19	0.98	Moderate	3.45	0.83	Moderate
	Mean	3.30	0.98	Moderate	3.71	0.87	High
	Category 9 Self-regulation Issues						
23	I lack a clear purpose for learning English.	3.59	0.74	High	3.53	0.72	High

24	I lack the self-discipline to learn English. Therefore, I cannot make satisfactory progress.	3.72	0.73	High	3.67	0.74	High
25	I poorly manage time for learning English.	3.97	0.68	High	3.88	0.75	High
26	I lack study skills for learning English. Therefore, I cannot perform well on my examination.	4.15	0.65	High	4.05	0.71	High
	Mean	3.86	0.70	High	3.78	0.73	High
Category 10 Heavy Workloads							
27	I feel overwhelmed when I discuss or present many topics in English.	3.68	0.68	High	3.56	0.64	High
28	I have been given many difficult assignments for learning English.	3.72	0.69	High	3.55	0.72	High
29	Sometimes, I request extensions for the due dates of my assignment submissions.	3.44	0.78	Moderate	3.40	0.79	Moderate
	Mean	3.61	0.72	High	3.50	0.72	High
Category 11 Poor Academic Performance							
30	I have low learning outcomes in my English courses.	3.39	0.75	Moderate	3.32	0.74	Moderate
	Mean	3.39	0.75	Moderate	3.32	0.74	Moderate
	Average Mean S1-S30	3.58	0.80	High	3.44	0.79	Moderate

Table 4 illustrates 11 challenge categories. Overall, students' challenges experienced a slight decrease during the COVID-19 pandemic from a high to a moderate level compared to the post-pandemic period, with average mean values (M = 3.58, SD = 0.80, and M = 3.44, SD = 0.79), respectively. Notably, Lao EFL undergraduate students consistently ranked self-regulated skills (M = 3.86, SD = 0.70, and M = 3.78, SD = 0.73) as the most significant challenges across all categories. Similarly, heavy workloads (M = 3.61, SD = 0.72, and M = 3.50, SD = 0.72) remained consistently significant during both pandemic periods. Additionally, health concerns (M = 3.84, SD = 0.78) and social interaction (M = 3.63, SD = 0.77) were critical challenges during the pandemic, while financial issues (M = 3.71, SD = 0.87) emerged as unexpected and significant findings after the pandemic.

Nonetheless, unstable internet connections (M = 4.29, SD = 0.61), absence of study skills (M = 4.15, SD = 0.65), difficulties with time management (M = 3.97, SD = 0.68), social and physical isolation among peers (M = 3.95, SD = 0.71), and symptoms of dizziness resulting from extended exposure to smartphones or computer screens (M = 3.92, SD = 0.77) emerged as the biggest challenges encountered by students during the COVID-19 pandemic. Meanwhile, costly extracurricular activities (M = 3.19, SD = 0.98) had a negligible impact.

The dearth of study skills (M = 4.05, SD = 0.71), financial issues (M = 3.96, SD = 0.92), struggles with time management (M = 3.88, SD = 0.75), inconsistent internet connections (M = 3.81, SD = 0.69), and a shortage of ICT skills (M = 3.68, SD = 0.86) proved to be the most prominent hurdles confronted by students after the COVID-19 pandemic, while concomitantly, neighbor interference (M = 3.13, SD = 0.74) was deemed to be negligible.

However, a thorough analysis of the 11 categories showed that self-regulation skills (M = 3.78, SD = 0.73) were the foremost challenges for Lao EFL students, particularly after the COVID-19 pandemic, necessitating effective interventions to resolve these challenges.

Qualitative results

Qualitative results obtained from open-ended parts of the questionnaire (n = 75) and semi-structured interviews (n = 10 volunteers) were intended to reinforce and affirm the quantitative findings. The content analysis explored Lao EFL undergraduate students' perspectives on their motivation and challenges in learning English during and post COVID-19. The excerpts of those data were translated from the Lao language to English for better grasp and clarity. Furthermore, every excerpt included identification of the participants. Some key excerpts are presented below.

Motivation for Learning English

Extract 1: "…I am motivated to master English to effectively communicate with foreigners, explore the diverse cultures and lifestyles of English-speaking nations, and pursue a rewarding career…"

(FFS-ABM4, the questionnaire)

Extract 2: "…my goal in attaining English proficiency is to become an interpreter within non-governmental organizations (NGOs), which would enable me to earn a living and provide financial support for my family…"

(FFS-ERB4, the questionnaire)

> Extract 3: "…I aspire to seamlessly interact with English speakers, apply it in daily life and international journeys, advance in my profession, and achieve a well-paid career…"
>
> (FFS-PHP3, the questionnaire)

As demonstrated above, students consistently reported that their motivation for learning English throughout both pandemic periods was to enhance their future career prospects, facilitate cross-cultural communication, expand their international experiences, and acquire essential skills and knowledge from diverse platforms to improve their overall well-being.

> Extract 1: "…Proficiency in English will open up numerous career opportunities, allowing me to acquire diverse knowledge, engage with foreigners, and contribute to NGOs…"
>
> (FFS-ABM4, the interview)

> Extract 2: "…I aspire to effectively communicate with individuals from diverse cultures, gain extensive knowledge from various online sources such as movies, songs, and e-books, pursue international career opportunities, and become a highly-paid translator…"
>
> (FFS-ERB4, the interview)

> Extract: 3 "…I aim to develop my English skills to advance my future career prospects, increase my chances of securing high-paying employment, explore different cultures, and effectively utilize them in my daily life…"
>
> (FFS-PHP3, the interview)

As illustrated above, students have acknowledged the significance of English for their future careers, intercultural communication, access to extensive sources of knowledge, academic achievement, and international travel, as these variables can effectively improve their quality of life.

Challenges in Learning English

> Extract 1: "…I favor face-to-face learning as it enables me to promptly seek clarification from instructors and interact with my peers. During the pandemic, I encountered numerous challenges, including slow internet speeds, high internet costs, poor time management, a shortage of ICT skills, and heavy workloads. Post COVID-19 pandemic, I faced hurdles in time management for improving my English language learning…"
>
> (FFS-ABM4, the questionnaire)

Extract 2: "…I prefer face-to-face learning because of the instructors' clear explanations, which facilitate better comprehension. Due to my limited English background, I face difficulties with self-discipline, time management, and effective learning strategies, which hampers my overall progress in learning English during and after the COVID-19 pandemic…"

(FFS-FPT2, the questionnaire)

Extract 3: "…I prefer face-to-face learning because it allows me to actively participate in learning activities, enhance lecture comprehension, and encounter fewer challenges. During the pandemic, my main challenges comprised unreliable internet connections, family distractions, insufficient technical support, a scarcity of guidelines for learning English, and heavy workloads. After the pandemic, I faced challenges with ineffective study techniques and the financial burden of high living costs…"

(FFS-PHP3, the questionnaire)

As evidenced above, the primary challenges faced by students during the COVID-19 pandemic encompassed unreliable internet connectivity, limited self-regulation skills, the absence of physical interaction, familial distractions, and heavy workloads. Even after the pandemic, they continued to encounter issues with self-regulation skills and faced financial burdens associated with high living costs.

Extract 1: "…during the COVID-19 pandemic, I faced challenges with high internet costs, external distractions, poor time management, and heavy workloads. Post-pandemic, I encountered difficulties with high living costs, ineffective study skills, and a lack of self-discipline…"

(FFS-ABM4, the interview)

Extract 2: "…during the pandemic, I encountered challenges with unstable internet connections, expensive internet costs, family distractions, heavy workloads, and ineffective study techniques. Post-pandemic, I faced high living costs and continued to struggle with inadequate study techniques. I favor face-to-face learning due to the support provided by peers and instructors…"

(FFS-FPT2, the interview)

Extract 3: "…during the COVID-19 pandemic, I encountered difficulties with study skills, stress, limited peer interaction, and inadequate ICT skills. I experienced high living costs and sustained limited study skills post-pandemic. I prefer face-to-face learning as it allows me to interact more effectively with my instructors…"

(FFS-PHP3, the interview)

As shown above, students faced major challenges during the COVID-19 pandemic, including unreliable internet connections, a dearth of study skills, restricted peer and instructor interactions, familial distractions, and heavy workloads. After the pandemic, students struggled with cultivating self-regulation skills and encountered increased living costs. Moreover, they favor face-to-face learning for its multitude of advantages, specifically the improved understanding of lessons, instant feedback, and active participation.

Discussion and Conclusion

Overall, the findings consistently indicated high levels of student motivation during and post COVID-19. Motivational variables exhibited varying levels, with instrumental motivation slightly surpassing integrative motivation, ranging from moderate to high. However, quantitative results showed a moderate level of integrative motivation among students during the COVID-19 pandemic, which later elevated to a high level post-pandemic. Simultaneously, their instrumental motivation remained consistently high throughout both pandemic periods. These findings align with previous studies (e.g., Imsa-ard, 2020; Ngugen, 2019; Rahman et al., 2021), indicating that most EFL students are highly motivated, with instrumental motivation exceeding integrative motivation. Furthermore, these findings support evidence from prior investigations (e.g., Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Okyar, 2023; Ozer & Badem, 2022) that the shift to online learning during the COVID-19 pandemic has reduced student motivation. A thorough analysis of qualitative data from the questionnaire's open-ended section and semi-structured interviews robustly supports and corroborates the quantitative findings. Key variables driving student motivation include recognizing the significance of English for future careers, acquiring diverse skills and knowledge, exploring cross-cultural communication, achieving academic success, and pursuing international experiences to enhance the quality of life. These factors are ranked in descending order of importance. Conversely, active participation in diverse cultural activities and pursuing education abroad, particularly during the COVID-19 pandemic, are the least motivating factors. The study's findings indicate a strong commitment of Lao EFL undergraduate students to learning English, confirming previous research (e.g., Assavanadda & Tangkiengsirisin, 2018; Imsa-ard, 2020; Kanoksilapatham et al., 2021; Ngugen, 2019; Rahman et al., 2021).

The subsequent findings generally revealed a moderate decrease in challenges, transitioning from a high to moderate level in the post-pandemic period. Based on quantitative results, self-regulated skills challenges consistently ranked highest among the 11 categories. Likewise, heavy workloads remained consistently high throughout both pandemic periods.

Moreover, health concerns and limited social interaction posed significant obstacles during the pandemic. Surprisingly, financial issues emerged as a prominent post-pandemic challenge.

Yet, underlying the aforementioned key categories, unstable internet connections posed the highest level of frustration, whereas costly extracurricular activities presented the lowest during the COVID-19 pandemic. Apart from this, major challenges encompassed a deficiency of study skills, poor time management, limited peer interaction, and ergonomic symptoms resulting from prolonged smartphone or computer screen exposure. Post-pandemic obstacles primarily consisted of study skill deficiencies, financial challenges, time management struggles, unreliable internet connections, and a shortage of ICT skills, with neighbor distractions being negligible. Moreover, qualitative analysis reinforced and expanded upon the quantitative findings, highlighting unreliable internet connections, insufficient study skills, limited peer and instructor interactions, family distractions, and heavy workloads as significant challenges during the pandemic. These findings are congruent with recent investigations, which have shown the impact of poor internet performance, limited interactions, mental health challenges, and heavy academic burdens (e.g., Al-Kumaim et al., 2021; Hussein et al., 2020; Li & Che, 2022; Maqableh & Alia, 2021; Okyar, 2023), as well as the role of self-regulated learning (Al-Kumaim et al., 2021; Aroonsrimarakot et al., 2023; Iftanti et al., 2023; Munir, 2022; Zhang & Wu, 2022), impeding the progress of English language learning. Post-pandemic challenges have underscored the importance of self-regulation skills and the increased cost of living. Lastly, face-to-face learning is favored by the majority of students for its myriad benefits, notably robust peer and instructor support. This finding is in line with prior research. (e.g., Iqbal et al., 2022; Okyar, 2023; Ozer & Badem, 2022).

Drawing upon the comprehensive quantitative and qualitative data analysis discussed above, this study highlights self-regulation skills and financial issues as the foremost challenge faced by Lao EFL undergraduate students during the two pandemic periods. Addressing these issues, vital for enhancing student motivation and fostering lifelong learning, is imperative to English language education.

Implications, Limitations, and Recommendations

To improve English language education, administrators and policymakers should proactively support consistent professional development for novice teachers. This should focus on improving academic expertise, research abilities, and digital pedagogical skills, as well as fostering a robust teacher network for sharing obstacles and best practices. One

effective approach is to invite renowned scholars and experts in emerging trends and contemporary pedagogies in English language education to serve as mentors and coaches.

Meeting students' needs requires integrating diverse and effective teaching and learning approaches, encompassing contemporary pedagogies, course content, learning resources, evaluation methods, and new digital technologies. Simultaneously, the establishment of an English language program that incorporates mentoring, coaching, and emerging digital technology can enhance students' self-regulation, motivation, and lifelong learning in the evolving educational landscape.

Blended and flipped learning have gained popularity in higher education during post-COVID-19, thus achieving a necessary balance between face-to-face and online classes. Moreover, emerging technological trends in English language education, such as generative AI technologies (ChatGPT, chatbots, Gemini, and other AI tools) should be taken into account. However, teachers need comprehensive training in digital pedagogies to critically select appropriate platforms and pedagogical approaches aligned with their specific contexts.

Public and private stakeholders, including the Ministry of Education and Sports and education technology companies, should collaborate to increase subsidies and investments in digital infrastructure and technological innovation in education. These collaborative efforts can minimize costs associated with digital infrastructure and facilitate the adoption of cutting-edge educational technology. This would enhance the excellence and accessibility of digital education, bridging the gaps of inequality and digital disparity.

This study has limitations as it employs a small sample, focusing on undergraduate students in food science at a university in Laos. Therefore, the findings may not be representative of all Lao EFL students or higher education institutions. To address this limitation, future research should consider employing a larger and more diverse sample across technical, scientific, and social disciplines in various academic institutions. This approach would enhance both the reliability and generalizability of the findings.

More importantly, this study proposes a conceptual model that integrates diverse contemporary pedagogical approaches and emerging AI technologies. Further studies can explore students' and instructors' perspectives on these AI technologies and assess their effectiveness in developing self-regulation skills within an English language program, particularly in blended, flipped, and other online learning environments with an emphasis on mentoring and coaching. This model has the potential to generate novel findings and contribute to innovative pedagogy. Additionally,

future investigations could delve into the ethical implementation and evaluation of the efficacy of emerging AI technologies within higher education contexts, helping establish best practices for their appropriate use in English language education.

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About the Authors

Vixai Ketphommavong: An M.A. English student at the Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand. He graduated with a Bachelor of Arts in English from Savannahet Teacher Training College. He is currently teaching English at the Faculty of Food Science, Savannakhet University, Lao PDR. His research interests include students' motivation and challenges, learner autonomy, contemporary pedagogy, and technology in English language education.

Sukhum Wasuntarasophit: An assistant professor at the Department of English, Faculty of Humanities and Social Sciences, Khon Kaen University, Khon Kaen, Thailand 40002. His interests include corpus linguistics, language teaching, vocabulary, and collocation.

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