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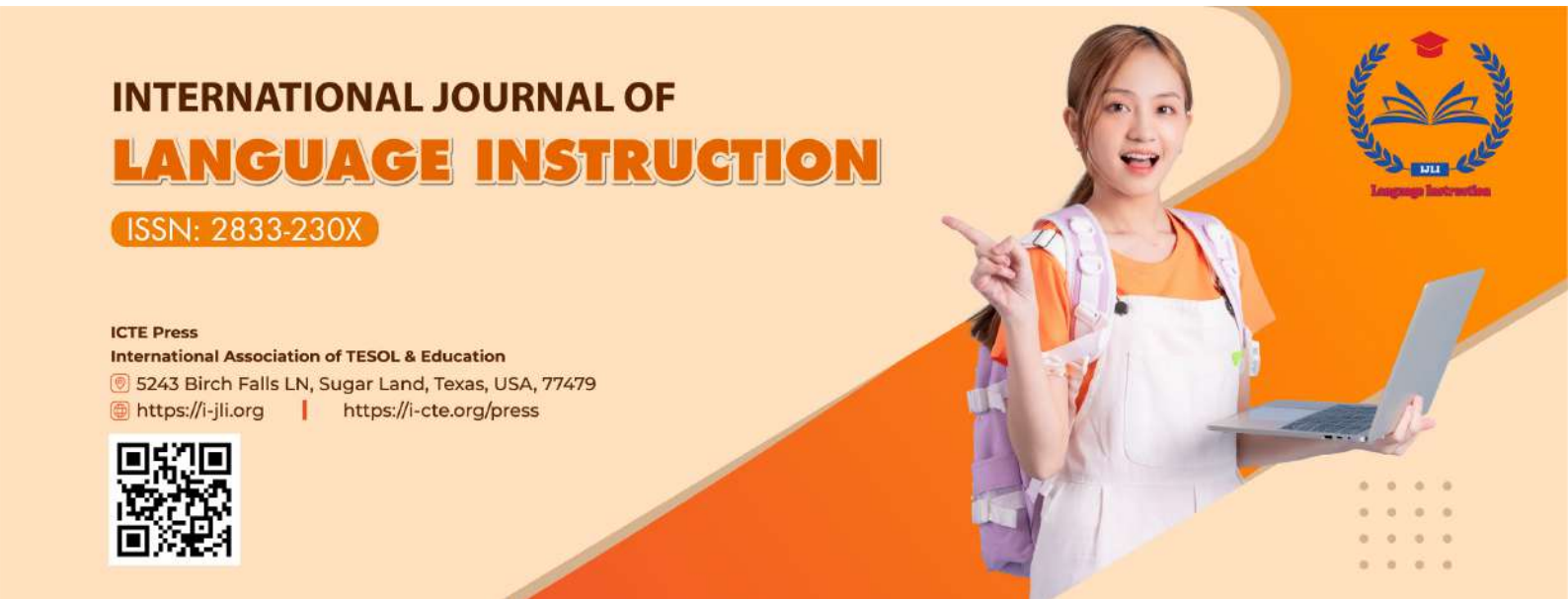

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Articles **Pages**

A Note from the Editor-in-Chief

Dear authors and colleagues,

It is my great pleasure to announce the publication of Vol. 3, No. 3, 2024 of the International Journal of Language Instruction (IJLI). This issue showcases an impressive array of research papers that contribute to the growing field of language instruction, offering valuable insights into various aspects of language learning and teaching. I would like to extend my sincere gratitude to the authors, editorial staff, and reviewers whose dedication and hard work have made this issue possible.

This volume features four significant studies:

Diep and Le (2024), from Van Lang University, analyzed coherence and cohesion in essays written by 80 junior English majors at their institution. Using a mixed-methods approach, they identified frequent lexical cohesion errors, particularly in repetition and misuse. The study highlights the need for targeted instruction to improve students' writing coherence and cohesion.

Le (2024), from the University of Social Sciences and Humanities, Vietnam National University, HCM City, conducted a semantic analysis of the preposition towards in The Complete Sherlock Holmes from a cognitive linguistics perspective. Using quantitative methods, the study examined 175 instances, revealing both spatial and non-spatial meanings. The findings highlight the complexity of towards in expressing directional and abstract concepts.

Nguyen et al. (2024), from National Economics University, Hanoi, examined factors affecting learner autonomy in English-medium instruction (EMI) among 224 English-major students at three economics universities in Hanoi. Using quantitative methods, they found motivation, learning strategies, and teacher support were key influencers, while poor English proficiency hindered autonomy, underscoring the need for targeted interventions.

Do et al. (2024) examined EFL learners' perceptions of technology self-efficacy in online language learning at a Vietnamese university, surveying 910 students from various departments, including Haiphong University, Hanoi University, and Hanoi University of Science and Technology. Using quantitative analysis, they found moderate self-efficacy overall, with male and engineering students showing higher confidence in technology use. The findings emphasize targeted support for improving learners' self-efficacy.

As we move forward, we remain committed to fostering an inclusive and dynamic forum for language instruction research. We look forward to your continued support and engagement in the upcoming issues.

Thank you all for your dedication and contribution to the International Journal of Language Instruction.

Thanks God for everything!

With warm regards,

Associate Professor Dr. Pham Vu Phi Ho
Editor-in-chief
Faculty of Foreign Languages, Van Lang University, Vietnam

An Analysis of Coherence and Cohesion in English Majors' Academic Essays

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ABSTRACT

This research investigates coherence (how ideas are logically connected) and cohesion (how sentences flow together) errors in essays written by junior English majors. Analyzing 80 essays and conducting 10 interviews, the researchers identified common errors and usage patterns. Using Halliday and Hasan's (1976) framework for cohesion and Oshima and Hogue's (2006) framework for coherence, the findings reveal frequent use of lexical cohesion, such as repetition and synonyms, but also misuse of cohesive devices. The study suggests that clear instructional interventions should be developed to improve writing skills, and regular feedback should be provided. Teachers should demonstrate the use of cohesive devices to connect ideas and enhance coherence and peer review activities can also help students learn from each other's writing. Future research should consider longitudinal studies and cross-institutional comparisons to track progress and identify common issues.

Keywords: coherence, cohesion, error analysis, essay writing, higher education

Introduction

Writing skills are essential in many aspects of modern society and crucial in various situations and jobs. They help people share their thoughts and ideas, organize and summarize information, and convince others (Ahmed, 2019). Additionally, writing stimulates thinking, assisting people in developing the ability to synthesize, analyze, and reflect (Rao, 2007).

However, writing skills contain many challenges. This especially holds true for those who are trying to learn a secondary language or majoring in one since they are constantly required to produce essays and academic writings (Lismay, 2020; Putra & Astari, 2022). As a result, writing is considered the most challenging skill to master out of the four macro skills in the English language as users must be able to utilize a wide range of sub-skills from basic-level skills like spelling and word order to high-level ones, namely organizing ideas and lexical items (Ahmad, 2019; Alqasham et al., 2021; Bui et al., 2021; Muluk et al., 2022; RahmtAllah, 2020; Saeed et al., 2022; Sholah, 2019).

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Amongst the various elements that learners must implement into their writing text, coherence, and cohesion are two major factors that can determine an essay's quality (Alqasham et al., 2021; McNamara et al., 2010;). As such, for a written text to be effective and impactful, it needs the presence of both cohesion and coherence. Without these two features, the texts appear strange, unpleasant, and/or sometimes outright meaningless (Aminovna, 2022; Lismay, 2020; Putra & Astari, 2022). Despite their significance, the two concepts remained confusing to students and troublesome to teachers, leading to students' inability to deliver a cohesive and coherent text and/or misuse or overuse of such devices (Noori, 2020; Suwandi, 2016).

At a private university in Vietnam, English majors are required to complete multiple writing courses, yet many students may not fully grasp cohesion and coherence after completing foundational courses. This gap hinders their ability to tackle more advanced academic writing tasks effectively. Therefore, this study aims to investigate common writing errors and reasons regarding cohesion and coherence in students' essays, identify their usage patterns and propose effective methods to enhance the writing proficiency of English majors.

Literature review

Importance of Coherence and Cohesion

Halliday and Hassan (1976) introduced the concept of cohesion in their work "Cohesion in English," defining it as the various methods available for connecting a part of a text with what has previously been mentioned. Also, some experts define cohesion as phrases linked together in ways that the discourse itself can manifest clearly and presentably to readers (Bailey, 2003; Renkema, 2004). Upon using cohesion, the user is “tying” or “gluing” their words to set up a clear and logical meaning for the reader, thus giving the text its “flow” (Moxley, 2015).

Cohesion performs its function through what are called cohesive devices. Hedge (2005) describes cohesive devices as tools that connect parts of a text into logically related sequences, indicating the relationships between ideas to clarify the writer's intentions. Cohesive devices consist of two major categories, including grammatical cohesion and lexical cohesion. Halliday and Hassan (1976), in their widely accepted taxonomy of cohesive devices, identify five sub-categories: reference, substitution, ellipsis, conjunction, and lexical cohesion.

Coherence, like cohesion, is also essential in writing. It means arranging ideas logically in a text so readers can easily understand and find meaning. If each sentence is good, without context from previous sentences, readers may be confused (Halliday & Hasan, 1989), or a sentence can confuse readers if it starts unexpectedly. Furthermore, Kuo (1995) explores how coherence can be achieved through contextual ties, like using shared knowledge between writer and reader.

Research into coherence and cohesion has sparked debates among experts. Some researchers put the two terms as “two faces of the same coin”, interwoven and vital in constructing a text’s meaning (Farida & Arifin, 2020; Bui et al., 2021; Lismay, 2020). Others try to differentiate the two concepts and insist that cohesion and coherence do not always go together (Oller & Jonz, 1994; Widdowson, 2007).

As Tanskanen (2006) puts it, "successful communication depends on both cohesion and coherence, which are simultaneously independent and intertwined." In conclusion, based on this explanation, coherence and cohesion can indeed stand separately and still perform their designated functions, but it would be most favorable for writing to have both devices.

Error Analysis

Error analysis plays a crucial role in second language acquisition as it helps learners identify their mistakes, allowing them to make the necessary adjustments to correct and improve upon those errors. Hasyim (2002) concludes that error analysis is a tool used to name, categorize, and clarify learner's errors during their performance in writing and/or speaking skills. He also states that analyzing activities can help teachers obtain information regarding common errors made by learners. Meanwhile, Ulla (2014) believes error analysis involves observing, analyzing, and categorizing deviations from second language rules to uncover the underlying systems guiding the learner's language use. For example, Do and Le (2023) found common collocation errors regarding verb + noun and adjective + noun, which contribute to learners' lack of competence in their essay writing.

Error analysis is defined as a technique to point out, group, and assess the inappropriate language usage conducted by learners using a set of rules provided by linguistics (Ingemann & Crystal, 2008). Simply put, error analysis is a technique that teachers use, following a set of principles, to reveal students' mistakes in writing or speaking activities. Ho's (2024) study revealed that the most common issues were with referencing, citation, coherence, cohesion, plagiarism, and paraphrasing. Problems related to lexicon and grammar were less frequent and were the group of issues that EFL students encountered less often in academic writing.

It also helps teachers identify, classify, and interpret such mistakes accurately and gives them a greater view of student errors. For the sake of this study, the analysis focuses on analyzing students' mistakes in coherence and cohesion.

Cohesion Framework

Halliday and Hasan (1976) identified five properties through which cohesion can be established, as detailed in Figure 1 employed by Rahman (2013).

Firstly, reference is arguably the most frequently used cohesive device in any writing. It involves using a word to refer to a preceding or subsequent item. This concept can be divided into two sub-types, i.e., endophora and exophora. Endophora is further classified into anaphora (referring to a preceding item) and cataphora (referring to a subsequent item). The key distinction is that endophora refers to an item within the text, whereas exophora refers to an item outside the text or a surrounding object, requiring the listener or reader to understand the context to grasp the meaning. For example, a person might point to an object and say "this" or "it," as in "I like this." Cohesive reference can be categorized into three main types: personal, demonstrative, and comparative. Personal reference refers to the use of personal and possessive pronouns such as *I, you, we, they, he, she, it or his, her, them, their*, etc. to create text cohesion. For example, in the sentence "Ariston, the Greek slave, is painting. *He* stands at a wall with *his* brush in hand.", the personal pronoun *he* refers to Ariston since they are one and the same. The pronoun also refers to "the Greek slave," which is an appositive noun phrase that gives the

reader more information about Ariston. The possessive pronoun in this setting refers to the relationship between Ariston and the brush. Demonstrative reference achieves its cohesion through determiners (*the*, *this*, *that*, *these*, *those*) and adverbs (*here*, *then*, *now*, *then*) because they refer to someone or something in a text or the environment. Comparative reference is used when users need to contrast or compare at least two elements, and this type of reference consists of adjectives and adverbs. Adjectives of identity (*same* or *equal*), adverbials (*likewise, otherwise, etc.*), and other comparative adjectives (*better*, *worse*, *faster*, *greater*, *etc.*) are all evidence of comparative reference.

Secondly, substitution involves replacing one element with another to avoid repetition and occurs in three forms: nominal, verbal, and clausal. Nominal substitution replaces a noun or head noun with "one" or "ones." Verbal substitution functions, similarly, using the word "do" (in its various forms) to replace a lexical verb or an entire verb phrase. Clausal substitution employs the words "so" and/or "not" to substitute for a presumed clause in positive or negative contexts.

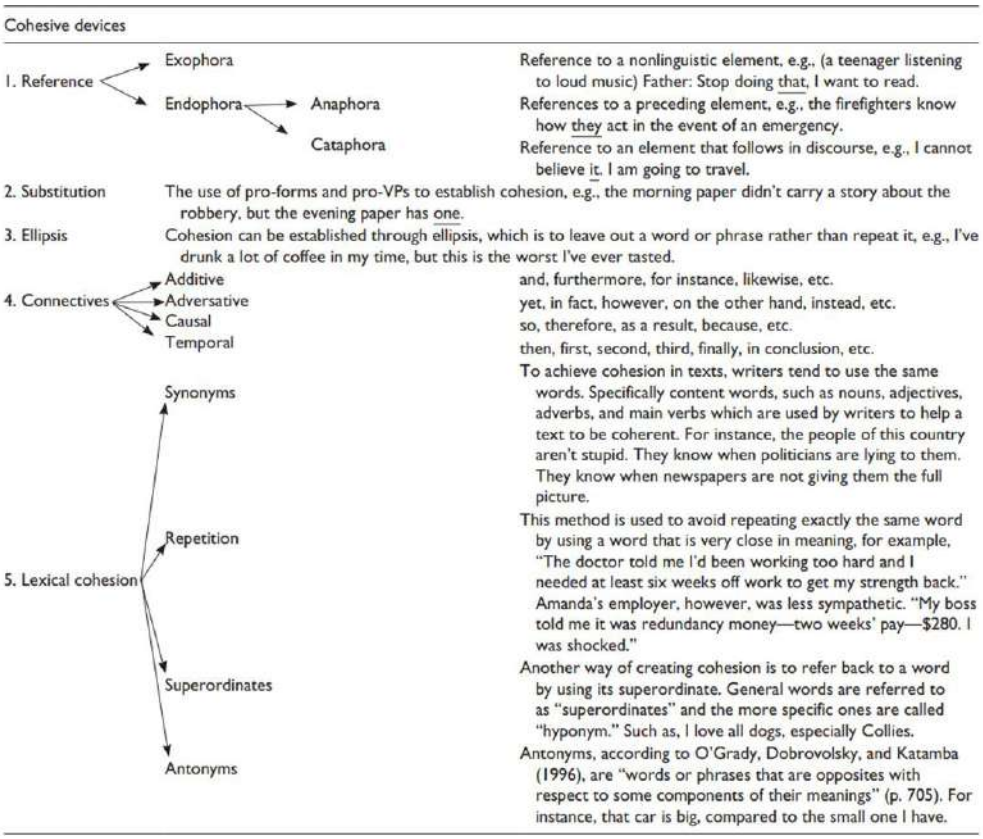
Third, like substitution, ellipses have three main types: nominal, verbal, and clausal. The difference between ellipses and substitution is that ellipses leave out parts of the text instead of replacing them. Because of this, ellipses are not usually used in academic writing and are more common in everyday speech. For example, nominal ellipsis omits a noun or noun phrase, such as in "I want a piece of cake, and she does too," where "does" replaces "wants a piece of cake." In verbal ellipsis, part of the verb phrase is left out, like in "She can play the drums, and he can too," where "can play the drums" is omitted after "he." Clausal ellipsis removes an entire clause, such as "She enjoys singing, and he, jogging," where "enjoys jogging" is not repeated. These types of ellipses help make speech more concise by avoiding repetition, which is useful in everyday conversation.

Fourth, conjunctions are semantic relations that connect sentences through adverbs or connectives. There are four main types of conjunctions: additive, adversative, causal, and temporal. Additive conjuncts allow writers to add extra information. For example: “Plastic poses a danger to animals. Furthermore, it destroys natural habitats and could potentially harm humans.” Adversative conjuncts illustrate the contrast between sentences, such as in: “Hades is portrayed as an evil, ruthless god. However, he is known to be fair and loving to his wife.” Causal conjuncts show the cause-effect relationship between sentences: “He stayed up late last night. As a result, he missed the bus this morning and was late for work.” Temporal conjuncts are used to show sequences of events and create a chain of actions. For example: “I watched TV yesterday. Then I remembered I had a paper due in a few days. Afterward, I wrote the paper in a panic.”

Finally, lexical cohesion involves repeating words from a previous sentence or using synonyms or words within the same classification or category. This cohesive device includes four main types: synonymy, repetition, hyponymy, and metonymy.

Figure 1

Cohesive Devices (Rahman, 2013)



Coherence Framework

Coherence refers to the extent to which readers can understand a given context through proper idea placements. Illogical or incoherent writing can cause confusion. Oshima and Hogue (2006) describe coherence in writing as the seamless flow of sentences, where each sentence logically connects to the next without abrupt transitions. The two authors suggested four ways to achieve coherence.

A simple way to achieve coherence is to repeat key nouns. Doing this will help emphasize the main theme or character and help build focus in one's writing (Maria, 2015). However, Ahmed (2019) warned that this method should be used in moderation since too much repetition would cause readers to get bored and eventually lose focus.

Another way of achieving coherence is by using consistent pronouns. An essay would be incredibly boring and repetitive to read through if it mainly consists of repetition. An easy remedy is to use pronouns in place of the repeated nouns. This will not only reduce reiteration but also improve diversity in the discourse (Maria, 2015). An important note for this segment is consistency. To build coherence, a writer must ensure that the pronouns address the same person and/or thing (Ahmed, 2019). Moreover, Maria (2015) warns that writers should avoid using the indefinite "you" as it causes vagueness, and the tone would be overly casual.

Transition signals – often called linking words or adverbials - refer to using specific words or phrases, such as *however, because, etc.*, to create links and transition between ideas. As Ahmed

(2019) stated, "these devices indicate to the reader the specific relationship between what was said and what will be said. They can be added to a text to make it clear how the sentences are related to each other".

Arranging ideas in logical order is of paramount importance in achieving coherence. If texts are not arranged in any logical order, the writing will most certainly be incomprehensible. Regarding this element, there are several kinds of *logical order*, namely chronology, importance, and contrast (Ahmed, 2019), which means (1) chronology pertains to time, meaning that the events or contents in an essay are arranged in sequential order, (2) importance refers to discussing ideas in either increasing or decreasing order of significance and (3) contrast functions by arranging ideas so that they are compared.

Previous Studies

Many studies have examined how cohesive devices are used in different languages and contexts, providing important insights into how students use these tools in their writing.

Yang and Sun (2012) studied cohesive devices in argumentative writing with 60 students. Their mixed-methods study found a strong link between the correct use of cohesive devices and writing quality, although many students misused specific cohesive items. Kafes (2012) focused on lexical cohesion in essays written by intermediate-level students in Turkish and English, finding strong similarities in their use of lexical cohesion but a common issue with vocabulary repetition.

Rahman (2013) examined cohesive devices in descriptive writing by Omani student-teachers. This qualitative study found significant differences in the use of cohesive devices between first-year, third-year, and native speakers, with repetition and reference being common areas of overuse and errors. Has (2021) analyzed cohesive and coherence devices in student writing among 100 students, showing that all cohesive devices were used, but the substitution was notably missing, causing issues in producing cohesive and coherent texts.

Bui et al. (2022) studied Vietnamese college students' writing, involving 168 senior-year students. This mixed-methods research found that references, conjunctions, and lexical items were the most frequently used cohesive devices, though misconceptions often led to errors. Oanh and Huynh (2023) focused on cohesive devices in argumentative writing by EFL learners, specifically junior English majors at Thu Dau Mot University, Vietnam. Their qualitative study found that references, conjunction, reiteration, and collocation errors were common, often due to grammatical issues related to their mother tongue.

These studies show the importance of cohesive writing devices and the challenges students face in mastering their use. The present study aims to build on this work by investigating how cohesive devices are used and how coherence is achieved in student writing at a private university. It seeks to better understand effective writing practices and support teachers in guiding students to develop cohesive and coherent texts.

Research Questions

This study aims to investigate student's competency in essays in terms of coherence and cohesion. The research goes over the essays from students of a faculty of foreign languages, counting and documenting cohesion-and-coherence-related errors and figuring out how competent the students are. This study intends to explore student's competency in (1) using cohesive devices and (2) creating coherent writings.

Therefore, it aims to answer the following questions:

1) How frequently do English majors use each type of cohesive device in essays?

2) What types of cohesion errors do they make in essays?

3) How frequently do English majors use various criteria to achieve coherence?

4) What are the reasons for their errors?

Methods

Pedagogical Setting & Participants

The study was carried out at a private university in Ho Chi Minh City, Vietnam. The institution provides comprehensive language education programs, including majors in English and Chinese languages. Regarding the English language program, the faculty offers a four-year English language program designed to equip students with advanced language skills. This program prepares students for careers that require high English proficiency, such as translation, interpretation, teaching, and working in various business sectors. Through rigorous training in reading, writing, speaking, and listening, students develop the competency needed to excel in professional environments that demand strong English language abilities.

The study employed convenience sampling, selecting 80 volunteer participants from the population of English major students who were all in their junior year and aged 20-21. The sample consisted of 32 males and 48 females, with intermediate English proficiency ranging from higher B1 to B2 levels. They had learnt three courses of academic writing before starting with how to write an essay, meaning that they are in the training program's second year or $^{\text{fourth}}$ semester.

Design of the Study

The current research used both quantitative and qualitative approaches. By using Halliday and Hasan's (1976) taxonomy for cohesion and Oshima and Hogue's (2006) taxonomy for coherence, the study aimed to analyze competence in writing cohesive and coherent essays. Specifically, the study analyzed manually the frequency with which students use each type of cohesive device and various devices for coherence. The study also investigated the errors students commit when applying cohesion and coherence. From there, cohesive devices and coherent devices were collected and analyzed. Then, errors of each respective mechanic (cohesion and coherence, respectively) were identified and classified into types based on the

taxonomies. Finally, semi-structured interviews were conducted to determine the student's opinions on cohesion, coherence concepts, and errors.

Data collection & analysis

The study used written essays and interviews as its main data collection instruments. As for essays, participants were given a writing topic and 40 minutes to complete an essay in class under the observation of the researchers. The following topic was chosen because of its up-to-date problem that is believed to be the most concern after graduation, i.e., "Nowadays many people choose to be self-employed, rather than to work for a company or organization. Why might this be the case? What could be the disadvantages of being self-employed" (Cambridge IELTS 14, 2019).

Overall, the researchers collected 80 essays for documentation and analysis, comprising approximately 24,000 words. The primary objective was to identify cohesion and coherence errors in students' writing. Initially, the researchers read through the data set to identify cohesive and coherent devices used in the essays, and then the errors were classified into types and sub-types based on existing taxonomies. Next, errors were documented according to their types (Table 2), which were categorized into four main groups: misuse, redundancy, omission, and overabundance (Ong, 2011; Rahman, 2013). Additionally, the frequency of each type of cohesive and coherent device and the frequency of errors was recorded to provide a comprehensive view of the students' use of these devices and the common challenges they faced.

Table 2

Types of Cohesive Errors (Ong, 2011; Rahman, 2013)

Error	Definition
Misuse	A cohesive device is used in place of a correct one. The one in use is incorrect
Redundancy	A cohesive device in use is unnecessary or redundant
Omission	A necessary cohesive device is absent from the text.
Overabundance	A cohesive device is used repeatedly, but other words can replace them. The replacement is still correct.

Regarding the 20-25-minute interviews, the researchers interviewed 10 volunteers (coded from S001 to S010) using semi-structured questions. This approach allowed for flexibility while staying focused on key topics. The researchers used Vietnamese to assist the participants to better understand the topic and for convenience. Doing this helped individuals get their ideas across more easily and made the interview process happen smoothly. The purpose was to assess their understanding of cohesion and coherence concepts in their essays. The questions aimed to uncover the reasons behind any mistakes and to gather insights into their thought processes while writing. The researchers employed thematic analysis to analyze the interviews. This method involved transcribing the interviews, coding the data to identify recurring themes, and organizing these themes into broader categories that reflect the participants' perspectives and experiences.

Findings

Research question 1: How frequently do English majors use each type of cohesive device in essays?

Table 3

Frequency of Cohesion Use

Reference	Substitution	Ellipsis	Conjunction	Lexical cohesion	Total
1775	31	44	1412	2210	5472
32.43%	0.5%	0.8%	25.8%	40.38%	100%

As seen from Table 3, the students employed lexical cohesion most frequently, accounting for 40.38%. This was followed by reference and conjunction, which accounted for 32.43% and 25.8%, respectively. The two remaining devices, substitution, and ellipsis, were used sparingly, with ellipses appearing 44 times (a mere 0.8%) and substitution occurring 31 times, contributing only 0.5% to the total.

Research question 2: What types of cohesion errors do they make in essays?

Table 4

Types of Cohesion Errors

Type	Misuse	Redundancy	Omission	Overabundance	Total
Reference	50	27	7	5	89
	56.17%	30.33%	7.86%	5.61%	100%
Conjunction	55	27	55	7	144
	38.19%	18.75%	38.19%	4.86%	100%
Lexical cohesion	49	39	2	73	163
	30.06%	23.92%	1.22%	44.78%	100%

As mentioned, cohesion and its error share a similar pattern, in which the more cohesive devices were used, the more errors were made. The students applied lexical cohesion the most, which also resulted in the highest number of errors with this device. From Table 4, out of 163 errors, 73 (approximately 45%) were due to overabundance, 49 (30.06%) to misuse, 39 (23.92%) to redundancy, and 2 (1.22%) to omission. Although reference was used more frequently than conjunction, students made fewer errors with reference. From Tables 3 and 4, there were 1,775 instances of reference with only 89 errors, while conjunction had 1,412 instances with 144 errors.

Most conjunction blunders fell into the misuse and omission error types, with both consisting of 55 errors (38.19%). Redundancy is next with 27 mistakes (18.75%), and overabundance is with 7 errors (4.86%). For reference, its 89 fumbles mainly revolved around misuse and redundancy, 56.17% and 30.33%, respectively. At the same time, omission and overabundance shared few errors, only about 7.86% and 5.61%. In summary, students made most of their errors through misuse and redundancy of three cohesive devices. However, many omission mistakes

were also witnessed in the conjunction device, and the same goes for lexical cohesion and the overabundance type.

RQ3: How frequently do English majors use various criteria to achieve coherence?

From Table 5, the data revealed the various devices or methods students employed to achieve coherence in their essays. Using the coherence framework proposed by Oshima and Hogue (2006), the author identified 5,907 unique coherence devices in 80 essays. Of these, 1,961 were instances of repeating words or synonyms, making it the most commonly used method to achieve coherence. Next in line was using correct pronouns, with 1,495 instances comprising just over a quarter of the total device count. Following closely behind are transitional links with their 1,412 appearances, contributing 23.90% to the coherence count. Lastly, it is a logical order with 1,039 (17.58%) unique sentences that helped build and maintain coherence throughout the students' essays.

Table 5

Frequency of Coherence Device

Repetition/ Synonym	Pronouns	Transitional links	Logical order	Total
1961	1495	1412	1039	5907
33.19%	25.30%	23.90%	17.58%	100%

RQ4: What are the reasons for the errors?

Table 6 highlights 396 cohesion errors, with lexical cohesion errors being the most frequent (41.16%), followed by conjunction errors (36.36%) and reference errors (22.47%). No errors were found in substitution and ellipsis. Meanwhile, Table 7 indicates 502 coherence errors, with logical order errors being the most prevalent (30.27%), followed by transitional link errors (26.09%), repetition/synonym errors (24.90%), and pronoun errors (18.72%).

Table 6

Cohesion Errors

Error	Reference	Substitution	Ellipsis	Conjunction	Lexical cohesion	Total
Number	89	0	0	144	163	396
Percentage	22.47%	0%	0%	36.36%	41.16%	100%

Table 7

Coherence Errors

Error	Repetition/ Synonym	Pronouns	Transitional links	Logical order	Total
Number	125	94	131	152	502
Percentage	24.90%	18.72%	26.09%	30.27%	100%

After the errors for both cohesion and coherence had been identified, there was a need for insights into why the students could make these mistakes. Careful inspection revealed that students overused lexical cohesion, namely repetition and synonymy. They also misused or

omitted plenty of connectives, leading to large errors in both cohesion and coherence. As for the reference device, students primarily used it incorrectly or unnecessarily. Regarding coherence, a logical order was the criterion with most blunders. Therefore, these were the focus of the interview, as shown in the results.

Unfamiliarity with the concepts

To establish a foundation and introduce the topic to all participants, the researchers inquired about their familiarity with the concepts of cohesion and coherence. Six out of ten students partly understood those terms, while S006 expressed confusion, believing two terms were synonymous.

Limited vocabulary and overabundance

Afterward, each student was asked why these cohesion errors could occur in essays. Most attributed limited vocabulary to misuse and overabundance errors. They continued to explain that since students' word pool was narrow, they could only go so far until errors like those happened. When writing an essay, people often encode their knowledge and socio-cultural backgrounds. Hence, S007 and S009 reasoned that students would make redundant mistakes because of the nature of Vietnamese culture and literature. As for the error omission, S001, S003, and S008 said that forgetting to proofread or forgetting specific words was the root cause for this segment. Lastly, interviewees gave various responses to the overabundance error type. Some, like S005 and S002, suggested that time pressure does not offer students the luxury to think, so they often repeated the same word to finish on time. Others, like S010 and S004, mentioned that confusion between written and spoken forms can lead to these mistakes, as spoken language tends to be more forgiving regarding the repetition of words or ideas. Most answers, however, highlighted that insufficient vocabulary and/or grammar is the main reason for overabundance.

Illogical order

Four interviewees suffered coherence inaccuracies through the logical order criteria. As a result, they were asked an additional question about this mishap. Surprisingly, their answers were similar. S007 and S008 shared that because of their writing style, they were more suited to describing ideas through importance and deductive means, so they neglected the other logical orders. S009 mentioned that they were highly influenced by their L1 writing requirements, describing them as primarily deductive and significant in their writing process. As for S010, they suggested critical thinking to be their obstacle. They pointed out that they were not familiar with brainstorming, creating bad habits, which led them to have little choice in arranging their ideas.

Moving forward, the participants were then asked why they struggled with the logical order criteria and its types, using it wrongly or sparingly. Only one person did not provide an answer to this question, stating that they could not think of anything significant; other than that, the remaining nine volunteers all shared their insights on the matter. S001, S002, S003, and S005 shared a common perspective. They believed that students were not used to different types of logical order. As a result, learners tended to stick to what they were most comfortable with and would shy away from experimenting with newer elements. Another point that the participants

made, in coordination with the previous statement, was when students write a topic, they generally do not think about multiple aspects and thus only use a handful of ways to organize their essay. The fear of making errors was a different opinion on why this might happen, and it usually held learners back (S005, S007, S010).

A special case in this interview is S006. He produced a short essay (about 230 words) without major flaws in cohesion or coherence. He did not focus much on the specific criteria but mapped out the entire essay. He explored this approach to help him select the right words and structure his writing appropriately.

Discussion

Lexical Cohesion

The results showed three main devices used: reference, conjunction, and lexical cohesion. Lexical cohesion had the highest error rate, followed by conjunction and reference.

Table 8.

Types of lexical cohesion

Repetition	Synonymy	Total
1169	792	2210
52.89%	35.83%	88.72%

Generally, the study has determined that the number of cohesive instances (5472, see Table 3) contributed about 22.8% of the total word count (24,000). This finding contradicted several results that examined the cohesive devices used by L2 English students (Bui et al., 2022; Rahman, 2013). Their findings suggested less; about 7% of the word count was cohesive devices. As established earlier, across 80 essays, the most preferred cohesive device were lexical cohesion. Upon closer inspection, the students mostly used repetition and synonyms for their essays (see Table 8). Other studies also reinforce this notion, stating that English learners relied heavily on lexical cohesion in their writings (Kafes, 2012; Rahman, 2013). Specifically, Kafes' (2012) data pointed out that repetition was the primary device that the students used. Mojica's study (2006) also concluded that repetition was used abundantly compared to other types of lexical cohesion.

However, apart from repetition, many feasible ways can diversify an essay while building cohesion. Rahman (2013) supported the statement and suggested that repetition is a popular choice for non-native students, while other devices were extremely neglected. A great portion of errors fell into the overabundance kind and a near identical ratio for both misuse and redundancy mistakes. The number somewhat coincided with Bui et al. (2022), revealing that overabundance was most frequent for lexical cohesion. Lacking vocabulary is a common problem for many foreign language learners. Since they do not possess many words to express themselves, repetition tends to arise. Another reason could be time pressure, as an essay lasts for 40 minutes only.

Reference

Another detail is that students mainly use *reference*, *conjunction*, and *lexical cohesion* while evading the other remaining two types (see Table 6). This aligned with the studies by Bui et al. (2022), Rahman's (2013), and Yang and Sun (2012). As mentioned, lexical cohesion was used the most, followed by reference and conjunction. This high density could be attributed to the students' familiarity with these devices; this fondness, however, does not translate to better proficiency.

In other words, more cohesive devices do not guarantee higher cohesiveness since writers could risk potential errors. Yang and Sun's (2012) concluded that although sophomores (lower proficiency) produced more cohesive ties, their quality was not compared with their senior counterparts (high proficiency) due to inexperience. In the present study, students casually used personal references (i.e., you, I, they) in large quantities, indicating their familiarity with the device. The high density of references caused students to fumble in the misuse and redundancy categories, making the essay akin to that of oral discourse.

Conjunction

Although implemented plentifully, the *conjunction* was utilized the least (except for substitution and ellipsis) among the three devices (Bui et al., 2022; Rahman, 2013; Yang & Sun, 2012). Its error types revealed some struggles that students might encounter when writing essays. Data collection suggested students' problems using the correct conjuncts and/or placing one appropriately. Stated by Oanh and Huynh (2023), students might not fully understand the grammatical knowledge of conjunctions to use them properly.

Regarding *substitution* and *ellipses*, data analysis suggested that the two devices were surprisingly underused. This finding aligned with Bui et al.'s (2022) study, in which almost no substitution or ellipsis were in their data. The reason for such shortcomings could be that students do not quite grasp the concept of these two devices. Has (2021) proposed that the overuse of reference might be due to its similar function to substitution. Since students are less familiar with substitution, they tend to rely more on references. Substitution and ellipsis are generally features of spoken language, making them less suitable for written tasks compared to reference, conjunction, and lexical cohesion. Because of the low usage of these two methods, they are also the least problematic area for students.

Coherence Analysis

Data analysis has picked up on various coherent devices used to support ideas and make sense of the words written. The results show that 33.19% are *repetition*, differing greatly from Has' (2021) findings. The opposition trend continued with both *pronouns* and *transitional links*. The researchers recorded 25.30% and 23.90%, respectively (see Table 5), while Has (2021) documented fewer for the two criteria (13.85% and 16.54%, respectively). Admittedly, the researchers judged only personal pronouns (he, his, she, her, it, they, them, you, I) as they deemed that those pronouns if used consistently, can construct a steady narrative and coherence.

The *logical order* is the unique element in this criterion. There are several ways to organize one's essay, such as chronological order, importance order, or contrast order. Because the essay's type gives opinions, the researchers have chosen four order kinds: importance, contrast, deductive, and cause-effect, to act as special arrangements in essays. Each type of order has a specific set of keywords that the researchers used for identification. Moreover, the researchers determined that each sentence could act in logical order if it supports the preceding sentence and contains the necessary keywords.

To begin with, *logical order* helps the writer express their ideas clearly. Words like "first," "second," and "lastly" show the order of importance. Contrast is used to show differences between ideas; words like "however," "although," and "on the other hand" are common for this purpose. Deductive or general to specific order involves starting with a general idea and then providing details; phrases like "for example," "for instance," and "as an example" indicate this order. Cause-effect type explains the relationship between two things, where one is the cause and the other is the effect, including "because", "since", "thus," and "as a result." For analysis, a logical order is considered incorrect if it misses its keywords or if a sentence does not support the main topic or previous ideas. Usually, these indicators are transitional links or conjunctions.

The reasons for making errors

Below are examples illustrating different types of logical orders and their errors in practice. These examples demonstrate the importance of contrast, deduction, and cause-effect relation in that order.

In terms of the order of importance, student S8 was trying to list possible characteristics of self-employment. The word "another" is one of many keywords for this type of order as it gives people clues that there are more important ideas before this sentence. The next sentence immediately caused confusion as it missed a necessary word. The first and second sentences were not linked, appearing as separate statements. Consequently, the student wanted to list the next reason in their argument yet failed to include a correct conjunct. This mistake, even small, could create confusion for readers.

> *... Another difficulty that I face when starting a business is that the competitive market is very harsh from large and small businesses to large corporations. (...) I have a mastery mindset, dare to think, and dare to do, have a great ambition to dream ...* [S8]

Regarding contrasting order and its blunder, despite using an appropriate link, their reasons were confusing to read through and did not fully explain the original statement. One can read through the sentences and piece out what the writer meant. However, the idea was poorly delivered, causing a poor reading experience and a difficult analysis experience.

> *... For example, now, instead of choosing to work in companies or factories, young people choose to do business, such as opening a clothing store, coffee shop, milk tea shop, or online business. <u>But</u> they just thought about it at first and didn't think the long-term, because nowadays many people also have self-employment thoughts, so the self-employed business is expanding and popular everywhere, so after a while, many shops had to temporarily close their operations and have to apply for jobs …* [S43]

The statement below is another example of the contrasting category. The student gave an opinion on the advantages of self-employment and supported that statement by describing the disadvantages of contracted labor. Yet, they mistakenly used the wrong transitional link. Upon reading the sentences, a reader can point out this anomaly and know that the writer made a mistake.

> *... For example, if I have my own job or sick days while working, I can take time off work without asking anyone's permission. And when working at the company, I have to write an email to ask for permission and have my salary deducted* ...[S6]

The next issue was the deductive logical order. The research underlined a few words that indicated an example being given. The paragraph's goal was to draw out several advantages of freelancing. Their main points for the paragraph were flexible schedules and flexible career choices. The examples to support these points, however, were puzzling to decipher. Overall, the sentences could be understood with some effort, but the poor organization made its deductive function fall short. The next two examples were no better than the first.

Finally, the excerpt below illustrates the cause-effect relationship. In these sentences, the learner wanted to conclude that working alone is not always a good choice. However, they missed a connective in the final sentence. The overall meaning was not impacted, but most people would understand the message but a somewhat strange literary engagement.

> *... Being self-employed has certain drawbacks, such as not having enough time to accomplish the things you want to do or feeling nervous most of the time since you must do everything by yourself. (...) Working alone may not always be the best option.* [S41]

As the result states, logical order error was rated highest. The small analyses above explained a couple of common mistakes that many students made in the data set. The mistakes included missing and/or wrong conjunctions, lack of support for the original idea in sentences, poor idea organization, and meaning that might make sense.

To gain further insight into the reasoning behind the mistakes, the researchers interviewed 10 students, labeled S001 to S010. The previous section summarized the results, so this section highlights some notable responses.

The researchers identified specific instances where S001 misused words.

> *Yeah,* (awkward laughing) *I made that mistake because I was careless. I wrote too fast and used it wrong. As for the second one, it's been so long since I use it, I forgot its meaning back then…. well, it is a bit silly, but, like I said, I wrote my essays too fast. In the end, I forgot to recheck it so I must have forgotten those two conjunctions.* [S001]

The participant forgot some important conjunctions and made careless use of a word. Moreover, he admitted to failing to remember the second word and wrote the wrong word, rushing to meet the 40-minute duration.

Some interviewees expressed similar views regarding overuse mistakes. For example, S009 committed two cohesion mistakes: redundancy and overabundance. For overabundance, poor vocabulary repeatedly came up during the interview as the main reason. However, regarding their redundancy, S009 said an interesting idea: that the nature of Vietnamese literature causes

him trouble with English in general and redundancy in specific. He went on to explain that the writing requirement from L1 had taken root in their mind that now "it is an auto-pilot reaction".

> *For overabundance, I can say that I still have limited lexical items and expressions, so I almost always make this error. For redundancy, because of the influence that I got from Vietnamese literature, which requires you to write complex words in a sentence. So, I think that, when trying to apply it to English writing, it can cause some unwanted words.* [S009]

Furthermore, they exhibited three problems with their cohesion usage. They tried incorporating as many complex structures and words as possible to ensure their essay did not appear dull. For this point, Hung (2022) concluded that this way of writing is a common misconception among Vietnamese students.

> A*bout redundancy and omission, I think it is because it's been a long since I last wrote an essay. It's been a long time since I utilized these complex words and structures, so I guess I forgot a few things here and there. Also, when I wrote the essay, I wanted to use a variety of different structures so the essay wouldn't be boring to read.* [S008]

Overall, the interviews revealed valuable information regarding the four types of cohesion errors. Limited vocabulary seemed to be the main reason for the participants' misuse and overabundance, while omission and redundancy had some surprising factors. Omission can be attributed to rushing and forgetfulness, and redundancy can be linked to students' Vietnamese writing styles.

The essays applied all 4 kinds of logical order quite equally. However, the students also made plenty of errors; for instance, S007 claimed that his way of presenting ideas can be confusing to many, plus a personal negligence to written skills.

> *I generally don't focus much on organizing since I am not good at literature, and I don't really plan on improving that. Another reason could be due to my way of explaining things. I intend to say (or write in this case) what comes to mind, and I usually use a lot of examples to refer to things.* [S007]

In an interview with S010, she argued that limited brainstorming can reduce the various types of logical order in written English. Moreover, she shared that the fear of speaking her mind made her have less vocabulary than desired.

> *I have a bad habit of ignoring critical thinking and just answering quickly and briefly to be done with it. This made me rarely think profoundly about different aspects of a problem/topic, and I'm quite ashamed of this. I also have the fear of saying the wrong thing or using the wrong word because I don't want to be criticized by others.* [S010]

In sum, the students used plenty of lexical cohesion, reference, and conjunction as cohesive ties in their writings. Lexical cohesion, notably repetition, was the most common, followed by reference and conjunction. Their errors mostly resolved around misuse and redundancy categories, with a few exceptions. Substitution and ellipses were shockingly underrepresented; thus, the researchers did not record any mistakes in those devices. Furthermore, more coverage does not mean higher proficiency; students may be more familiar with the devices and opt for

them more frequently. The reasons for the errors can come from time pressure, unfamiliarity, and lexical resources.

Regarding coherence, the research focused on how well students organized their ideas logically and found that this was where most mistakes happened. Interviews with students confirmed these findings and added some new insights. The interviews highlighted issues like different writing styles, first language (L1) influences, the importance of brainstorming, and personal carelessness.

Conclusion

Summary of the Study

This study examined the errors regarding cohesion and coherence in the essays written by English majors. Employing a mixed-methods approach, the researchers analyzed 80 essays to identify errors in these fundamental aspects of writing and conducted 10 interviews to explore their underlying reasons. The study found that lexical cohesion, including repetition and synonymy, was the most frequently used cohesive device but also had the highest error rate. Common errors included misuse, redundancy, and overabundance of cohesive devices. Furthermore, the logical order was the most problematic criterion for coherence, with many students struggling to organize their ideas logically. Errors in the use of transition signals and consistent pronouns were also noted. The researchers also revealed several reasons for the errors, such as unfamiliarity with concepts of coherence and cohesion, limited vocabulary, overabundance, and illogical order, indicating that students face challenges in maintaining logical order and effectively using cohesive devices, with lexical cohesion presenting the highest error rate. These results emphasize the significance of cohesion and coherence in writing and provide valuable insights into areas where students may benefit from additional support and instruction.

Limitations of the Study

This research has several limitations. First, it was conducted at a private university, providing a limited and confined context for such a broad topic. Secondly, due to time constraints, the author utilized a data set of only 80 essays, which is insufficient for generalizing the findings to the larger population. Lastly, the research did not delve into the sub-types of cohesion.

Recommendations

The study's findings suggest several ways to improve students' writing skills, specifically focusing on cohesion and coherence. Firstly, teachers should develop interventions to enhance students' understanding and application of these concepts. The interventions can be workshops or seminars focusing on the concepts of cohesion and coherence, illustrating correct and incorrect usage. Moreover, teachers can build interactive lessons, including hands-on activities, or incorporate regular writing exercises focused on practicing specific cohesive devices and coherence strategies.

Secondly, regular assessment and feedback are crucial to monitor students' progress in these areas. Teachers should provide constructive feedback to help students address specific issues

pertaining to cohesion and coherence in their writing. Teachers should demonstrate how to use cohesive devices to connect ideas and improve overall coherence. Beneficially, peer review activities can allow students to receive feedback from their peers and learn from each other's writing. Future research should explore longitudinal studies and cross-institutional comparisons to monitor progress and pinpoint common challenges.

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Biodata

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The Semantic Analysis of TOWARDS from the Perspective of Cognitive Linguistics

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ABSTRACT

The utilization of language has contributed to the imperative need for comprehension, selection, and articulation of the semantics of words, phrases, sentences, paragraphs, etc. Indeed, meaning serves as an abstract entity within linguistic expressions, embodying the objects and phenomena of the world. Language signals are derived from human cognition, reflecting individuals' perceptions of the surrounding world. The evolution of cognition is intricately intertwined with and propels the advancement of the conceptual system and semantics, consequently impacting the content and structure of the language system. This article conducts an analysis of the semantic network of the preposition towards in Arthur Conan Doyle's The Complete Sherlock Holmes through cognitive perspective, encompassing spatial and non-spatial connotations. A quantitative method has been employed in this research endeavor to examine the meanings of this preposition. Subsequently, a limited-scale semantic network was established based on the findings. Furthermore, the result of this research can be used as a prototype for subsequent investigations.

Keywords:
Towards, semantics, semantic network, cognitive linguistics

Introduction

In the era of globalization, there has been a surge in the demand for acquiring and utilizing the English language within Vietnam, transcending conventional imperatives of mere communication, business exchange, trade, and so on to encompass in-depth exploration of culture, arts, history, and literature. To address the needs of Vietnamese learners in comprehending, mastering, and employing the English language across varied domains, a plethora of English language learning software, and a diverse array of teaching methodologies spanning from direct interactions to online platforms across various social networks have emerged. Rigorous academic inquiries have been undertaken into the learning process of Vietnamese learners and the efficacy of diverse English language teaching strategies. For

instance, Nguyen and Nguyen (2024) underscore aspects related to motivation, advantages, and challenges concomitant with the learning voyage, while Nguyen (2023) conducts an in-depth examination into the application of Artificial Intelligence (A.I.) in the realms of English language pedagogy and learning. Moreover, rigorous studies are delving into semantic exploration of the English language, particularly with regard to its application in translation tasks or the field of translation, as evidenced by the scholarly contributions of Nguyen and Pham (2022), Vo (2022), and Tran (2023). The overarching aim of these scholarly investigations is to thoroughly and precisely articulate the nuances of meanings encapsulated within concepts, terms, expressions, etc., within distinct linguistic contexts in English, and subsequently juxtapose them with Vietnamese or vice versa, with the ultimate goal of comprehensively summarizing and maximizing the synthesis of their connotative significances.

Despite the advancements in technology that support language learners in meeting specialized language requirements and developing English language proficiency, there remains a fundamental need for comprehensive research on the semantics of vocabulary in various contexts. A thorough examination of meanings and usage scenarios of high-frequency vocabulary is imperative to furnish AI-powered language learning support software with thorough and accurate data. Such research endeavors are crucial to aid learners in cultivating a sophisticated and precise understanding of semantics in language acquisition. Moreover, the cognitive perspective, which introduces novel meanings to address a plethora of diverse expression needs in real-life contexts, is extensively employed in linguistic studies.

Within this cognitive framework, notable attention is directed towards the exploration of spatial terms denoting location or positioning. It is observed that apart from conventional spatial meanings, these terms also encapsulate non-spatial subtleties that significantly contribute to their semantic depth. Tyler and Evans (2003) have made significant contributions in the English language by investigating and constructing the semantic network of the preposition *over* through a cognitive lens. Findings from this study underscore the pivotal role of non-spatial meanings in conveying the semantic richness of the preposition *over*. However, a comprehensive inquiry into the semantics of prepositions and spatial particles in English remains largely unexplored.

Furthermore, the cognitive perspective is not limited to English studies but also extends to research in other languages. For instance, Luu's (2024a, 2024b, 2024c) research focuses on the semantics of location words in Chinese, such as "里" (LI), "中" (ZHONG), and "内" (NEI). A comprehensive examination shows a diverse range of spatial and non-spatial meanings associated with these terms. It is apparent that these words often carry metaphorical connotations related to body parts, information categories, organizational structures, and other abstract concepts beyond their primary geographical connotations. The comparison of the expressive contexts of these terms in Chinese with their equivalents in Vietnamese facilitates a comprehensive understanding for researchers and language learners, enabling them to utilize these meanings with precision and accuracy.

In the realm of cognitive linguistics, the very essence of human cognition regarding objects, events, relationships, processes, and the like within the surrounding world has engendered the concept of meaning. Semantic meaning stands as the foremost element that delineates human

perception, an entity that predates the evolution of language. Each semantic interpretation of a term may correspond to a distinct and precise conceptual notion.

Humans frequently resolve the relationship between linguistic signals and their meanings through adjustment, using existing symbols, or introducing new symbols and conventions. However, this resolution process must adhere to the principles governing the internal development of the language signal system in terms of formal aspects. During the process of conceptualization, the processes of classification and systematization are constantly taking place. This is one of human beings most important cognitive activities (Pham, 2024).

From a cognitive perspective, this research study delves into the semantic network of the preposition *towards* in *The Complete Sherlock Holmes* (authored by Doyle, 2009). It is anticipated that the outcomes of this investigation will contribute to a better understanding and more efficient utilization of this preposition in both writing compositions and communication contexts.

Literature review

A comprehensive overview of towards

In the English language, the preposition *towards* is part of a group of spatial prepositions that encode directional information, indicating the relationship between a moving object (Trajector) (TR) and a reference point (Landmark) (LM).

Figure 1

Proto - scene for *towards* (Lindstromberg, 2010)

In Figure 1, the preposition *towards* signifies that **TR** is oriented towards **LM** (black point). While **LM** serves as a specific referential entity within the trajectory of **TR**, it is plausible that **TR** may not ultimately reach **LM**.

Lindstromberg (2010, p. 30, 60) points out that the preposition *toward* (*towards*) is defined as "nearer and nearer, in the direction of." The landmark (**LM**) in a trajectory marked by the preposition *toward* does not necessarily have to be the endpoint of the trajectory because the semantical feature of *toward* is to indicate a direction of motion only, never reaching the endpoint. For example, in sentence (1):

(1) She started **toward** the house, but then turned **toward** the barn.

In both clauses of sentence (1), the motion events encoded by the prepositional phrases "toward the house" and "toward the barn" have specific landmarks, which are *the house* and *the barn* respectively. The moving entity *She* follows a directional path with a specific goal in mind, but with no endpoint.

At times, the encoding role of the preposition *toward* in the motion path focuses solely on the direction of movement without necessarily implying a definite spatial endpoint for that path.

(2) As they carried on **toward** the setting sun, the travelers …

In sentence (2), the preposition *toward* encodes the characteristic of a motion path with a relatively specific endpoint, which in this case is *the setting sun*. The goal of the movement in this instance is a spatially vague entity because this endpoint is transient, as the sun will soon set, and the trajectory of the motion path may deviate from the originally planned route. Therefore, if we consider the endpoint as a point of reference or a reference frame, the spatial extent of the entity in this case becomes overly broad and ambiguous. Consequently, the utilization of the preposition *toward* in this context is deemed appropriate.

According to Lindstromberg (2010, p. 60), the preposition *toward* can be conjoined with diverse reference points and frames, including the direction of movement, orientation, or non-spatial directional motion.

(3) She dropped her bouquet as we went **towards** the vestry (*The Complete Sherlock Holmes*, p. 242)
(4) My brother and I rushed **towards** the window, but the man was gone (*The Complete Sherlock Holmes*, p. 77)
(5) I rushed **forward**, fell down, clapped my hand to my face, and became a piteous spectacle. It is an old trick (*The Complete Sherlock Holmes*, p. 131)
(6) Then suddenly he plunged **forward**, wrung my hand, and congratulated me warmly on my success (*The Complete Sherlock Holmes*, p. 140)

Sentences (3) and (4) indicate a sense of movement with the preposition *towards* having a referent object, namely *the vestry* and *the window*. On the other hand, sentences (5) and (6) depict a sense of movement with the preposition *forward* lacking any referent object, without a specific point of reference or frame of reference.

Methods

Research methodology

The methodologies applied in this research encompass the descriptive, comparative, and analytic-synthetic approaches. Specifically, these methods involve the description of the semantics of the preposition *towards*, the comparison of its semantics with other prepositions (such as *to* and *forward*), and the analysis of the polysemous characteristics of the preposition *towards*, which includes both spatial and non-spatial meanings. Above all, these methods are applied to scrutinize the semantic network of *toward*.

Data collection & analysis

The linguistic data utilized to analyze the semantics of the preposition *toward* have been sourced from *The Complete Sherlock Holmes*, written by Arthur Conan Doyle. The decision to employ The Complete Sherlock Holmes for the purpose of investigation stems from the following reasons: 1. As a work of detective fiction, it is expected to contain a multitude of spatial prepositions. 2. This extensive and cohesive data source, comprising approximately 1000 pages, exhibits uniformity in genre, writing style, and vocabulary, rendering it suitable for scholarly research.

Results/Findings

Examine the semantics of towards

According to quantitative analysis, *The Complete Sherlock Holmes* features 175 occurrences of the preposition *towards*. Specifically, 107 instances of *towards* are employed in a spatial context, constituting 61.1% of the total occurrences. Conversely, 68 instances of *towards* are used in a non-spatial sense, making up 38.9% of the total instances.

Table 1

Frequency of *towards* used in *The Complete Sherlock Holmes*

Into	*Numbers (hits)*	*Percentage (%)*
spatial meanings	107	61.1
non-spatial meanings	68	38.9
Total	175	100

* *Towards specifies spatial character*

According to Tyler and Evans (2003, p.77), polysemous vocabulary constructs a semantic network. Within this semantic network, both primary and derived meanings exist.

The spatial interpretation represents the primary meaning (Tyler, 2003) of the preposition *towards*. Within *The Complete Sherlock Holmes*, the spatial interpretation constitutes a majority of 61.1% of usage, surpassing the non-spatial interpretation (derived meaning) which accounts for 38.9%. Findings from surveys indicate that, within the spatial context, 'towards' serves not only to denote the direction and endpoint of movement but also to specify the location of a particular entity within the spatial domain.

Towards represents direction of motion

Scholars in the English-speaking world commonly contend that the predominant connotation of the term *towards* is indicative of directional progression. For example:

(7) It tended down **towards** the river - side, running through Belmont Place and Prince's Street (p. 91)

(8) He ran distractedly, his pistol in his hand, **towards** a gap in the hedge (p. 460)

In sentences (7) and (8), the landmarks delineating the trajectory of movement are identified as *the river - side* and *a gap in the hedge*. However, both *the river - side* and *a gap in the hedge* serve merely as reference frames and do not constitute specific endpoints of the movement trajectory. Therefore, in sentences (7) and (8), *towards* signifies the direction of movement, rather than indicating the destination of the moving entities (*It* and *He*).

Despite the predominant connotation of *towards* as indicating the direction of movement, an extensive examination of *The Complete Sherlock Holmes* reveals that out of the total instances, only 11 cases involve *towards* denoting a direction of movement. Conversely, there are 53 occurrences where *towards* represents a particular reference point on the trajectory of movement, serving as the endpoint of the movement.

Towards signifies telic motion

In the entirety of *The Complete Sherlock Holmes*, *towards* signifies the endpoint of movement through a diverse array of referential entities. For instance:

(9) We walked together **towards** my hotel (p. 10)

10) Presently he tired of this amusement, and, dropping from branch to branch, he squatted down into the old attitude and moved **towards** the stables, creeping along in the same strange way as before (p. 938)

Towards in sentences (9) and (10) denotes deliberate directional movement. The entities referred to in these sentences are clearly defined, specific, and fixed locations (*my hotel* and *the stables*).

However, upon examination of the subsequent sentences (11), (12), and (13), the referent entity does not pertain to a particular geographical location but rather conveys the positional presence of an individual or group of individuals. For example:

(11) 'Yes, sir,' I answered, pushing a chair **towards** him (p. 308)

(12) Colonel Stark went up to her, whispered something in her ear, and then, pushing her back into the room from whence she had come, he walked **towards** me again with the lamp in his hand (p. 231)

(13) The younger had left us, but he suddenly returned through another door, leading with him a gentleman clad in some sort of loose dressing-gown who moved slowly **towards** us (p. 376)

In sentences (11) and (12), the referential points identified are the locations of an individual, namely, *him* and *me*. Conversely, in sentence (13), the referential point is the location of a group of individuals, denoted as *us*.

Hence, the referential entities in sentences (11), (12), and (13) do not designate a particular concrete spatial location. These referential entities embody abstract characteristics and are not fixed but merely temporary conventions that dissolve upon the completion of the motion event. This distinction is evident when compared to the referential entities in sentences (9) and (10) representing *my hotel* and *the stables*.

In *The Complete Sherlock Holmes*, *towards* is frequently utilized with referents denoting the presence of an individual or a group of individuals at a specific location. Specifically, out of a total of 107 occurrences, preposition *towards* conveys spatial significance in 46 cases, representing a significant proportion of 43%.

Per the analysis of scholars in the field of English language studies, the semantic attribute of *towards* does not serve the purpose of conveying information to ascertain the definitive or non-definitive nature of a moving event. In instances where *towards* is utilized, the speaker typically displays a disinterest in whether the object in motion reaches its intended destination or if it successfully concludes its trajectory of movement.

In sentences (9) and (10), the motion verbs *walked* and *moved* in the past tense do not specify

whether the trajectors of motions, *We* and *he*, reached the target referent points, *my hotel* and *the stables*, respectively.

When examining the semantic distinctions between the prepositions *to* and *towards* in sentence (9) and sentence (14).

(14) We walked together **to** my hotel (Tyler, & Evans, 2003, p. 231)

In the framework of motion events, both prepositional phrases in sentences (9) and (14) have the same goal of motion *my hotel*, but in the sentence (14), "according to our intuition, the semantics of the preposition *to* emphasizes reaching the destination, arriving at a specific physical target" (Tyler, & Evans, 2003, p. 231). Movement along this path of motion is typically constrained, leading to the conclusion that this is telic motion and, in some cases, (when certain factors are combined, such as tense or aspect), it may involve boundness.

On the other hand, sentence (9) also provides information describing a motion event with a definite referential endpoint (telic), but the encoded information of the preposition *toward* only specifies the direction of movement (Lindstromberg, 2010, p. 60) without indicating whether the moving entity reaches the target *my hotel* or not. It is possible that the process of moving along the path of motion can be altered or interrupted. Therefore, sentence (9) represents telic yet unbounded motion.

In general, in order to ascertain whether a motion event is telic or bounded when the predicate structure includes the preposition *toward*, it is necessary to combine other elements to ensure an adequate amount of information, including aspect, tense, nouns, and subordinate clauses.

Even though the semantic feature of the preposition *toward* does not inherently specify whether the moving object achieves its destination, in *The Complete Sherlock Holmes*, instances exist where the usage of *toward* denotes telic and bounded motion trajectories. An illustrative example is:

(15) I dragged her **towards** the door and was lucky to get her back into the cab without a public scene, for she was beside herself with rage (p. 857)

Sentence (15) comprises two clauses forming a sequence of motion events, with one containing the preposition *toward*. In the first clause *I dragged her towards the door*, the trajectory in which the agent *I* acted *dragged* upon the patient *her* encoded by the preposition *toward* does not provide sufficient information to determine whether this action is telic and bounded. However, when this clause is combined with the subsequent clause *and was lucky to get her back into the cab* within the same sequence of motion events involving the same agent, it becomes evident that the clause with the preposition *toward* now acquires telic and bounded characteristics.

The motion trajectory in the two clauses involving the same agent with two landmarks, *door* and *cab*, requires the first event to be completed for the second event to occur: the agent must pass through the first landmark *door* in order to reach the second landmark *cab*.

However, within *The Complete Sherlock Holmes*, instances in which *towards* signifies telic and bounded motion trajectories akin to that in sentence (15) are infrequent, with only 02 occurrences out of a comprehensive analysis of 107 cases where *towards* conveys spatial

semantics, representing a mere 1.8% proportion.

Based on the aforementioned examples, it is evident that the spatial preposition *towards* has the capability to signify telic motion trajectories. These motion events predominantly exhibit atelic characteristics, with a minority displaying telic features.

Towards notifies spatial localization

In alignment with established spatial prepositional usage, *towards* is deployed within the corpus of *The Complete Sherlock Holmes* to delineate the precise spatial orientation of entities. An illustration of this can be seen in:

(16) The face which was turned **towards** us formed a dark cliff, with ferns and brambles growing in its niches (p. 610)

(17) One of these windows was turned **towards** the high road (p. 484)

In sentences (16) and (17), the preposition *towards* is not indicative of a trajectory of movement but rather signifies the spatial positioning of objects. It specifies the placement of *The face which* and *One of these windows*.

Although utilized for spatial positioning, in sentences incorporating *towards*, it appears to denote that entities continue to move within space, exemplified by:

(18) Dozens of exiguous threads which lead vaguely up **towards** the centre of the web where the poisonous, motionless creature is lurking (p. 666)

(19) My lens discloses more than one bloodmark, especially **towards** the end of the rope (p. 82)

Towards is used in sentence (18) to spatially locate *Dozens of exiguous threads*, emphasizing their dynamic orientation towards and integration with *the central of the web*. Similarly, in sentence (19), *towards* serves to pinpoint the *bloodmark* on the rope, highlighting greater variability towards the end of the rope.

In *The Complete Sherlock Holmes*, *towards* is employed extensively for spatial positioning, appearing in 43 cases, constituting 40.1% of the total 107 instances where *towards* denotes spatial significance.

Towards assumes non-spatial character

Semantic meaning is not an inherent quality but rather emerges through the cognitive processes of human perception. Driven by the imperatives of existence and growth, humans consistently broaden their comprehension of the tangible world, particularly the spatio-physical world. This recurrent process of conceptual expansion finds expression in language systems, fostering continual linguistic development.

Thus, from a historical and developmental standpoint, semantic meaning is newly generated based on a relatively stable foundation, through practical cognitive activities linked with language.

As a matter of principle, subsequent semantic meanings are invariably shaped in relation to antecedent ones, leveraging them as foundational premises. Nonetheless, as posited by Nguyen

(2001, p.23-24), in formal terms, the signs through which new semantics meanings are fashioned may not align with the original signs that served as the inception points for the subsequent semantic developments.

There are situations in *The Complete Sherlock Holmes* that fully depict all elements of a motion event (motion verb, moving entity, reference point), but *towards* does not denote spatial meaning; rather, it carries a non-spatial sense. For example:

(20) We should have gone a long way **towards** solving the mystery (p. 344)

The motion event in sentence (20) is defined by the modal verb *should have gone*, with the moving entity being *We*. However, the reference point is not a location in space but an abstract concept *solving the mystery*, hence *towards* in sentence (20) carries a non-spatial meaning.

According to Lindstromberg (2010), the landmark (LM) is related to the meaning of prepositions. In *The Complete Sherlock Holmes*, there are numerous instances where spatial prepositions in general, and *towards* in particular, are used in situations where the landmark is an abstract concept, not a specific physical entity.

From *The Complete Sherlock Holmes*, we can enumerate the non-spatial senses of *towards*, which include:

- *The temporal sense*

Within the human conceptual framework, a correlation between space and time typically exists. This correlation is evident in the portrayal of motion events, which inherently involve a temporal dimension. This temporal aspect refers to the period during which a physical entity moves between spatial points, exemplified by:

(21) Bill drove to New York **for** two hours. (Frawley, 1992, p. 303)

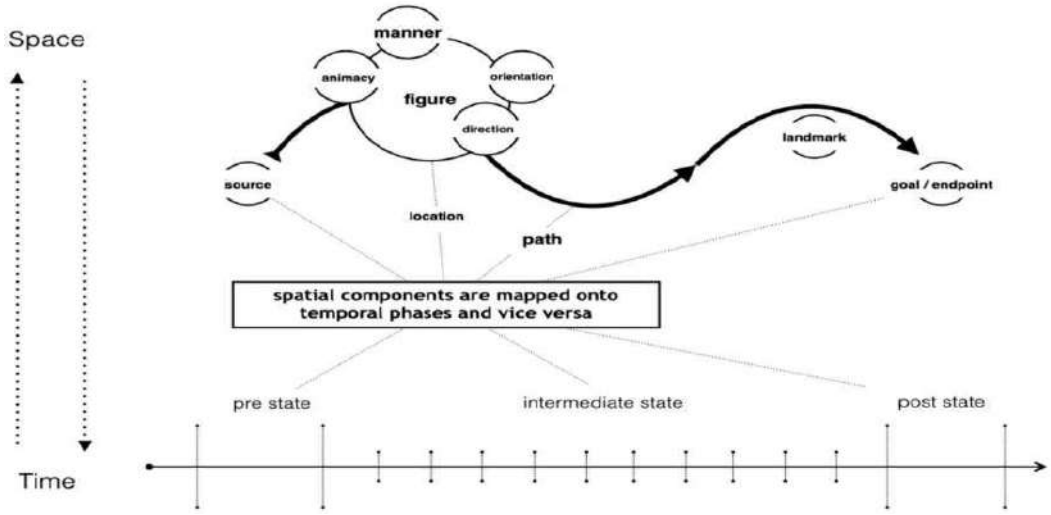
Alternatively, an event generally can be characterized by its depiction encompassing both spatial and temporal dimensions, for example:

(22) Colonel Walter died in prison **towards** the end of the second year of his sentence (p. 797)

Gerwien and Stutterheim (2022) synthesize the relationship between spatial and temporal concepts through a diagram (Figure 2) that depicts the spatial components of a motion event in relation to different temporal states.

Figure 2

Spatial components that typically constitute a motion event, extended by the temporal-dimension. (Gerwien & Stutterheim, 2022, p.3)



In the realm of temporal semantics, *towards* often does not signify a discrete temporal point. For example:

(23) It was a wild, tempestuous night **towards** the close of November (p. 527)

Additionally, *towards* is frequently employed to indicate a temporal endpoint. For example, in sentence (22), it denotes *the end of the second year of his sentence*; in sentence (23), it signifies *the close of November*; and in sentence (24), it denotes *the end of the first year during which Holmes and I shared chambers in Baker Street*.

(24) I cannot be sure of the exact date, for some of my memoranda upon the matter have been mislaid, but it must have been **towards** the end of the first year during which Holmes and I shared chambers in Baker Street (p. 363)

- *The tendentious or purposive sense*

Tyler and Evans (2003, p.59) contend that humans commonly broaden their knowledge from the domain of space to that of non-space, and these expanded conceptualizations are regularly mirrored within language systems.

Empirical evidence from everyday life suggests that human beings exhibit not only spatial and temporal orientations, but also orientations in other dimensions such as activity and desire. Their specificity characterizes some of these orientations. For instance:

(25) Presuming that your theory is correct, if he can lay his hands upon the man who threatened you last night, he will have gone a long way **towards** finding who took the naval treaty (p. 396)

(26) His trained and experienced faculties were at once directed towards the detection of the criminals, with the gratifying result that the brother, Thaddeus Sholto, has already been arrested, together with the housekeeper, Mrs. Bernstone,

> an Indian butler named Lal Rao, and a porter, or gatekeeper, named McMurdo (p. 93)

In sentences (25) and (26), the specific orientation pertains to *finding who took the naval treaty* and *the detection of the criminals*.

Furthermore, orientations of an abstract nature exist, such as *some definite and practical end* (sentence 27) and *the position which I now hold* (sentence 28).

> (27) Sherlock Holmes' smallest actions were all directed **towards** some definite and practical end (p. 18)

> (28) The third of these cases was that of the Musgrave Ritual, and it is to the interest which was aroused by that singular chain of events, and the large issues which proved to be at stake, that I trace my first stride **towards** the position which I now hold (p. 330)

- *The agentive sense*

In the agentive sense, it refers to actions or behaviors that are controlled or initiated by a conscious agent or individual. It implies that the action is purposeful and intentional, as opposed to being spontaneous or passive. In this sense, *towards* signifies the relationship between an action and an object that is affected by the action, for example:

> (29) Worst of all, he speedily assumed the same attitude **towards** my daughter, Alice (p. 28)

> (30) Our prisoner's furious resistance did not apparently indicate any ferocity in his disposition **towards** ourselves (p. 54)

The impact of an action in the agentive sense can vary, with some instances bearing positive elements and others carrying negative connotations. For example:

> (31) "On the contrary, I think that we have both shown extraordinary patience towards him," I answered (p. 320)

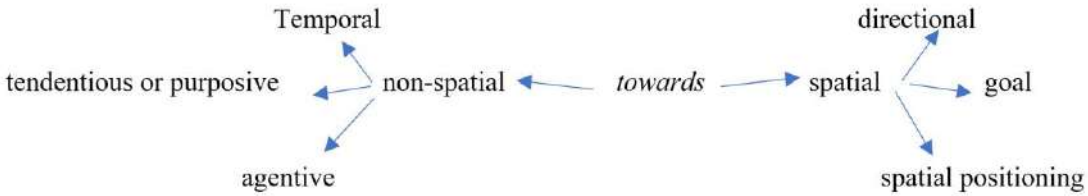
> (32) His manners **towards** the maid- servants were disgustingly free and familiar (p. 28)

In sentence (31), the action demonstrates a positive influence, whereas in sentence (32), the action exhibits a negative impact.

From all the senses that have been referenced earlier, the semantic network of *towards* in *The Complete Sherlock Holmes* can be illustrated as follows (Figure 3):

Figure 3

The semantic network for *towards*



The different senses encompassed within the semantic network of the preposition *towards* as documented above may not be entirely comprehensive. *Towards* may potentially entail further spatial and non-spatial connotations that cannot be fully elucidated within the scope of *The Complete Sherlock Holmes*.

Conclusion

Overall, the semantics of spatial prepositions in a general sense and specifically the preposition *towards* signify spatial relationships. While maintaining their inherent meanings, the semantics of these prepositions have developed into a diverse set of meanings, encompassing non-spatial interpretations as well.

The phenomenon of polysemy exhibited by *towards* serves as a salient illustration of the intricate cognitive processes that unfold during human engagement with their surrounding environment. Individuals engage in the construction of abstract conceptual frameworks and subsequently encapsulate these constructs within linguistic signals. Notably, these conceptual formulations and their linguistic articulations often fall short of achieving a comprehensive representation that fully aligns with the expressive intent of the individual. Upon the reproduction of spatial contexts, individuals are prompted to critically reevaluate existing conceptual paradigms, thus facilitating the emergence of novel layers of meaning. "Attributable to the inventive capacities of the speaker, a multitude of lexical items persist in their structural semblance while undergoing profound semantic alterations, thereby exemplifying a sustained trajectory of semantic evolution. This phenomenon aptly epitomizes the intricate interplay of polysemous dynamics, semantic transmutation, and semantic development within linguistic domains." (Le, 2008, p. 67).

The formation of the semantic network of *towards* as well as other spatial prepositions follows certain principles. Vocabulary consists of a complex and detailed network of relationships linking form and meaning, in which each form is paired with a network or chain of meanings. According to cognitive semantics, polysemous words create semantic networks.

The meanings within the semantic network of *towards* are diverse yet interconnected. When determining the meaning of this word, researchers need to take into account various factors such as the speaker, discourse context, linguistic context, and signal function, but the most important factor, prioritized in determining the meaning of a word, is human perception when using language.

Therefore, meaning emerges from the complex interplay between real-world experiences and the conceptual processes of human cognition. This experiential grounding not only shapes the formation of word meanings but also influences language utilization and innovative expression.

Concurrently, the findings of studies through a cognitive perspective will also serve as data for the development of translation software or artificial intelligence (A.I.) applications in specialized language contexts. Therefore, additional research in this field is essential to lay the groundwork for a linguistic register or even a corpus of meanings and equivalents in activities involving language use, translation, and research.

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Biodata

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Factors Affecting Learner Autonomy in EMI Studying of English-Major Students at some Economics Universities in Hanoi, Vietnam

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ABSTRACT

This paper aims to synthesize and analyze factors affecting learner autonomy in EMI learning and proposes effective solutions to eliminate existing issues related to learner autonomy. Employing a quantitative method, the sample for this study consisted of 224 Business English majors enrolled in the top three economics universities in Hanoi, Vietnam, including National Economics University (NEU), Foreign Trade University (FTU), and Thuongmai University during the academic year 2023-2024. The findings showed that some factors such as motivation, attitude, learning strategies, and English proficiency have a significant impact on learner autonomy in EMI learning, especially motivation, which has the strongest positive influence. Teachers, teaching methods, and learning materials motivate and develop students' learning autonomy. Moreover, the findings also revealed that learning culture might have the least influence on how students control their learning. From these findings, students can recognize which factors actively support their learning autonomy in EMI learning or are likely to hinder their understanding. These findings recommended that students, teachers, and universities implement specific solutions for nurturing and developing learner autonomy in EMI classrooms and university learning environments.

Keywords: learner autonomy, EMI learning, English-major students

Introduction

In Vietnam, the popularity of students studying English at economics universities is widely acknowledged among educators. In this Business English major, students receive instruction in both English language skills and economic principles; moreover, popular learning programs use English to study specific subjects, called specialized subjects. However, in the modern environment - the environment where technology has developed rapidly, and international integration is inevitable, several issues of teaching and learning in Vietnam have emerged due to long-standing teaching and learning techniques. Traditional teaching approaches are claimed to result in students' passiveness in learning and probably hinder their language acquisition. On

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the other hand, students are frequently shy and unwilling to question their teachers in the classrooms (Tran, 2013). Therefore, cultivating students' autonomous learning ability is an urgent need for social development to adapt to fast speed and high frequency of knowledge updates. Students need to be proactive in learning and absorbing new knowledge and catching up with rapid changes and daily development. Additionally, teaching methods at economics universities in Hanoi also require autonomous learning from students when students can take the initiative to set their goals, make a clear study plan, select skills and methods to be used, monitor the procedure of acquisition properly, and evaluate what they have learned. Therefore, autonomous learning at economics universities in Hanoi is very important.

Learner Autonomy, according to Holec (1981, p.3), is defined as "the ability to take charge of one's own learning". Specifically, it is the idea of "knowing how to learn", which is supported by the metacognitive abilities of goal-setting, preparation, execution, self-evaluation, and self-assessment. On the other hand, learner autonomy is regarded as a capability - "for detachment, critical reflection, decision-making, and independent action" (Little, 1991) or the ability to learn "without the involvement of a teacher" (Dickinson, 1987, p.11). English Medium Instruction (EMI) is commonly defined as using the English language to teach academic or content subjects in contexts where the language is not commonly spoken in society (Macaro, Curle, Pun, An, & Dearden, 2018).

While numerous studies have explored learner autonomy, the predominant focus is on foreign language instruction (EFL). For the record, at least 25 studies emphasizing LA in language acquisition have been conducted in Vietnam since 2007 (Dinh, 2017). On the other hand, studying learner autonomy in EMI learning has not been considered. This paper is the first of its kind to identify factors that influence learner autonomy, delving deeper into EMI learning.

Literature review

Learner autonomy

Learner autonomy has been perceived and translated into practice in different ways in terms of particular political, social, and contemporary situations (Dang, 2012). Autonomy, according to Holec (1981, p.3), is defined as "the ability to take charge of one's own learning," specifically, it is the idea of "knowing how to learn," which is supported by the metacognitive abilities of goal-setting, preparation, execution, self-evaluation, and self-assessment. On the other hand, learner autonomy is regarded as a capability - "for detachment, critical reflection, decision-making, and independent action" (Little, 1991) or the ability to learn "without the involvement of a teacher" (Dickinson, 1987, p.11). It is also contended as an ability to perform rational decision-making processes over learning activities (Hunt, Gow & Barnes, 1989); likewise, other researchers (e.g., Duong & Nguyen, 2018; Tran & Duong, 2018; Tran, 2018; Tran & Vo, 2019) have pinpointed that learner autonomy as a complicated process in which learners must become more active and independent in language classrooms and outside classrooms in different aspects such as choosing extra materials and learning techniques, and self-evaluating their learning outcomes. In short, there are different definitions of learner autonomy. Within the scope of this study, learner autonomy is regarded as a learner's willingness and ability to take responsibility for his/her own learning.

Learner autonomy in English learning

Learner autonomy has generally been prioritized in educational settings, especially in language learning (e.g, Gremmo & Riley, 1995; Benson, 2001; Duong & Seepho, 2013, 2014; Duong,

2015; Tran & Vo, 2019), (e.g., Holec, 1981; Dickinson, 1995; Little, 1991; Benson, 2003). McDevitt (1997) contends that "the end product of language learning is an independent learner in every aspect of the language". (p.34). Autonomy is described as a learning process in which learners acquire linguistic competence and learn "how to learn". To be specific, autonomy in learning language concerns the growth of learning awareness and the acquisition of an anonymizing capacity that allows learners to gradually take control of their learning process. In order to train learners to become independent, it is necessary to consider them in all of their dimensions. This involves identifying distinct roles for both teachers and learners (Ruiz-Madrid & Sanz-Gil, 2007).

Learner autonomy in EMI learning

In EMI learning, learner autonomy, "The use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English" (p.4) is how Dearden (2014) defines EMI. EMI is related to CLIL (content and language integrated learning), according to Doiz, Lasagabaster, and Sierra (2011). In general, the profound purpose of EMI is the acquisition of content, academic, or subject-related knowledge. However, EMI classes can be typically challenging when students transition from an L1-construct program to an EMI program (Evans & Morrison, 2011, 2016). The difficulties of transition involve a sudden shift in the instructional language to an unfamiliar L2 and a deeper understanding and expertness in subject knowledge (Macaro, 2018).

Learner autonomy in EMI learning has not been widely delved into. There is evidence focusing on several aspects of learner autonomy in EMI classrooms. For example, to cope with the transition to EMI classes, the majority of learners autonomously carry out previews on textbooks and slides before lessons (Ding & Stapleton, 2016) and organize and make connections among knowledge taught in class. As a result, in EMI classes, learners have a level of learner autonomy in the adoption of various strategies to overcome difficulties.

Influencing Factors on Learner autonomy of students in EMI learning

Several recent studies have illustrated how factors such as motivation, learning attitude and strategies, English proficiency, teachers and teaching methods, learning culture and social environment, information technology, and online learning resources can influence learner autonomy.

Motivation

"Autonomous learners are by definition motivated learners" (Ushioda in Dornyei, 2001:59). According to many researchers, motivation is significant to the growth of learner autonomy. It is believed to be the main stimulating factor affecting the autonomy of students (Dornyei, 1998) because it promotes a learner's desire in the EFL classroom. Motivation makes students look optimistic and feel more confident about their ability and success in EFL or EMI learning. Dickinson (1992) believed that inner drive is required for learner autonomy. Furthermore, according to Spratt, Humphreys, and Chan's (2002) views, students will have a great sense of class engagement if they are motivated. Learners with a strong passion are more inclined to go forward and implement their learning methods better, which demonstrates learner autonomy's fundamental qualities (Chen, 2015).

Accordingly, this study expects motivation to help students gain better learner autonomy in EMI classes.

H1: Personal motivation, such as future career expectations, positively promotes learner autonomy in an EMI setting.

English proficiency

According to Zhang and Li (2004, p.21), it is concluded that learner autonomy is closely related to language levels. Fei (2007) also shares a similar viewpoint that students' English proficiency is significantly and positively related to their learner autonomy. This means that their English proficiency increases with their learner autonomy in EMI courses as students have to use English for every class activity and task.

Moreover, Zhang and Li's study (2004, p.22) illustrates considerable differences in the students' learner autonomy when their English proficiency is significantly different. However, the students' high or low English proficiency does not always imply that their learner autonomy will be high or low correspondingly (Fei, 2007).

Accordingly, this research expects good English skills to lead to better learner autonomy in EMI classes. Poor English skills can hinder students from improving their learner autonomy when studying EMI.

H2: Students' poor English proficiency level negatively influences their ability to be autonomous learners in an EMI environment.

Learning attitude and strategies

Learners' attitudes influence learning efficiency (Wenden, 1991) as it is difficult for students to make the necessary effort if they do not believe they have the ability to learn. In other words, attitudes contribute to learner autonomy's growth. In support of this idea, according to Thao & Tham (2018), it is believed that learning attitude is one of the most significant aspects that need to be considered for developing learner autonomy. Owning a positive attitude means having an optimistic view, and Qin (2016) shares a similar viewpoint that the more optimistic students are, the more eagerly they learn. As a result, they will spend more time studying though they are in or out of classes. This boosts the learner's autonomy, especially in EMI courses where English explains and discusses everything. Besides, learning strategies are another factor that influences students' learner autonomy in EMI studying. The learning strategies are how students plan, set goals, and carry out learning reasonably to achieve the best results and are various. Students use a number of learning strategies flexibly in different contexts. Learning strategies are steps taken by the learner to make language learning more successful, self–directed, and enjoyable (Oxford, 1990, cited in Cook, 2008). This is further supported by Chen (2015), Zaqiri (2015), Tram and Kha (2023), who all believe that learning strategies can affect learners' ability to self-direct their learning. Ablard and Lipschultz (1998, p. 97) state that different high-achievement students apply different strategies. In other words, learning strategies influence learner autonomy, and in EMI courses, choosing and owning a suitable study strategy will help determine the effectiveness of learner autonomy.

Accordingly, learning attitudes and strategies are expected to support learner autonomy in EMI classes.

H3: A good learning attitude and an appropriate learning strategy positively affect the learner's autonomy in EMI studying.

Teachers and teaching method

The role of teachers in the development of learner autonomy has probably become an important area of research in this field (e.g. Breen and Mann 1997; Voller 1997). This is because teacher autonomy - the teacher's decisions and work activities - is defined by the teacher's role in the classroom setting (Samuels, 1970). According to Thavenius (1990), teachers in an autonomous classroom should be willing to allow learners to take responsibility, let learners discover without

interfering with their processes, change the classroom environment to encourage more active participation from students and help every learner find his/her individual needs. According to Camilleri (1999), the teacher is responsible for helping learners be aware of alternative strategies and learning styles. Moreover, the teacher gives praise and feedback, which other learners can provide after completing the joint projects. Learners then get more personal feedback and guidance through the logbooks, a medium of communication and a tool of organization and reflection. Besides, in terms of EMI courses, students' beliefs are not stable but dynamic and can shift when students get various learning experiences (Jiang & Zhang, 2019). As a result, so as to shape their learner autonomy in EMI, it is necessary for instructors to recognize the importance of their roles in classes (Dearden, 2018).

In terms of teaching methods, there are three dominant methods, including Positivism, Constructivism, and Critical theory, which help students acquire knowledge and are related to learner autonomy (Kettani, 2014).

Positivism

This teaching method is built upon the assumption that learning can only consist when knowledge transfers from one person to another. (Benson & Voller, 1997: 20). In other words, it strongly emphasizes the value of teachers as knowledge facilitators. Consequently, students will become unmotivated to set learning objectives, make decisions, and become passive in absorbing the knowledge. This has negative impacts on learner autonomy by impeding its development (Tram & Kha, 2022).

Constructivism

In contrast to positivism, this approach facilitates students' discovery of objective knowledge and new information from their own experience and existing knowledge base (Kettani 2014). It is also believed that constructivism leads directly to the proposition that knowledge cannot be taught but only learned because knowledge is something "built up by the learner" (Glasersfeld & Smock, 1974:16, cited in Candy). Therefore, it promotes the development of learner autonomy (Tram & Kha, 2022).

Critical theory

According to Kettani (2014), this method shares a similar view with constructivism, that knowledge is constructed rather than learned. Besides, Leaver et al. (2005) also believed that analytical thinking is beneficial to learner autonomy. The approach encourages students to share their opinions, to have critiques, and to be thought of as authors of their own worlds rather than trying to comprehend and explain things. As a result, students have the ability to learn and construct their own concepts (Tram & Kha, 2022).

Accordingly, appropriate teachers and teaching methods can help students become more autonomous when EMI is applied in the educational environment.

H4: Teacher support and teaching methods positively impact the development of learner autonomy.

Learning culture and social environment

Culture has been the subject of some debate when promoting learner autonomy in different contexts (Benson and Voller, 1997b). "Culture" is usually defined as national/ethnic cultures such as "Western culture" or "Asian culture". There is some evidence that learner autonomy differs among societies. Hofstede (1986; 1990) classifies countries according to social-psychological dimensions, including "individualism/collectivism"; "high/low power distance".

In detail, according to Dickinson (1996) and Esch (1996), individualism has a strong connection with autonomy. In contrast, collectivism may be seen as conducive to interdependent, group-based versions of autonomy (Littlewood,1996a; Aoki and Smith, 1999; Sinclair, 2000). Another definition of "culture" refers to the values and norms of behaving in different communities, such as a classroom or school culture. Learner autonomy has frequently been linked to these particular kinds of places; however, Benson and Voller (1997b: 12) argue that it would be more beneficial to focus on "the content of learning and relationships between students, teachers and institutions"-that is, educational components that are related to the 'culture' of specific kinds of learning environments. Therefore, all learning is "cultural" since it involves interacting with one's contexts, including objects, other people, and their words or ideas, in order to develop meanings; in this perspective, “culture and context are indivisible” (Breen, 2017c: 177).

Environmental factors, including situational and social aspects, have an important influence on learner autonomy, according to Benson (2001, p.49). Parents, siblings, relatives, friends, and teachers influence the social learning environment. However, autonomous learners typically need peer interactions because they may find it easier to collaborate in the classroom in this social setting (friends). Similarly, Vietnamese students are comfortable engaging with others through communication, it is obviously easier for them to exchange learning information and resources and discuss group assignments assigned by teachers thanks to technological advancements (Dang, 2010). Likewise, according to Kemala (2016), when students feel involved with their classmates, they have more motivation to learn since group work enables them to share ideas, learn, and motivate each other.

Accordingly, this study expects learning culture and social environment to be unimportant in learner autonomy in EMI classes.

H5: The factors relating to learning culture and social environment do not affect the students' autonomy much.

Information technology and online learning resources

Remarkably, the appearance of a new learning environment, the modal affordances of technology-mediated environments, typically enhances learner autonomy. The extensive range of online learning materials means that learners can select what is useful and worth doing according to a personally held criterion. In addition, educational technologies expose language learners to a digital, social environment where they can get into the real world and practice language skills. According to Thuy & Thu (2023), mobile phones have the ability to assist students in learning academic vocabulary, and also help them improve other skills, such as listening and speaking. Technologies such as video-conferencing software, namely Zoom or Microsoft Teams, make it possible to learn in real-time, even if geographically separated (Zhong, Q. M. 2018). Other related online tools such as discussion forums (YouTube collecting and sharing information) and online chat environments (Gmail, social media: Facebook, Instagram, Zalo), provide language learners with sociable, collaborative, and real-world learning experiences (Chan & Chan, 2011; Cheng, Paré, Collimore, & Joordens, 2011; Little, 2001). Recently, some innovative learning programs that promote some form of learner autonomy have been created based on the advancement of IT, such as 3D virtual learning (Yeh & Lan, 2018), Kahoot apps (Yürük, 2019); a flipped EFL instructional model (Tsai, 2019). Using ChatGPT for writing instruction could boost students' learning motivation. ChatGPT aids students in developing ideas and forming outlines for various writing assignments; moreover, students could utilize ChatGPT as a mentor to receive feedback on their written assignments and receive recommendations for improvements (Nguyen, T. T. H.2023). Finally, according to Murray (1999), educational technology can effectively promote learner autonomy.

On the other hand, technology may present obstacles to the practice of learner autonomy (Reinders & Hubbard, 2013). These obstacles may include the limitations of technological tools and their use contexts (small screens, loud environments, short durations of time for the use of mobile phones), information and media literacy (Hafner, Chik & Jones, 2015; Author & Colleague, 2018; Reinders & Hubbard, 2013; Toffolio & Perrot, 2017).

Accordingly, this study expects information technology, especially online resources, to support learner autonomy in EMI classes.

H6: Information technology and online resources positively impact students' self-learning and autonomy.

Research Questions

To fulfill the purpose of the study, the study was seeking to answer the following research questions:

1. What factors influence the learner autonomy of English-major students in EMI learning at economics universities in Hanoi?
2. To what extent do these factors impact students' learner autonomy in an EMI environment?

Methodology

Pedagogical Setting & Participants

The target population for this study consists of English-major students at three economics universities in Hanoi, Vietnam: National Economics University, Thuongmai University, and Foreign Trade University. In this study, the selected sample members had a special relationship with the phenomenon under investigation - learner autonomy in EMI studying of English-major students in Economics universities, sufficient and relevant study experience in the field of English and Economics. In this study, the research team also targeted Freshmen and sophomores of economics universities because there are students who already have English certificates and can change their scores as they are allowed to skip courses for English integrated skills at university. Therefore, these students can join EMI classes. A sample size of 224 students is determined based on the formula for regression analysis by Green (1991).

Design of the Study

Quantitative methodology was used to gather and analyze data. Thus, according to Creswell (2012), correlations between variables that already exist can be found and explained. A questionnaire will be employed to collect quantitative data for the study. The questionnaire consists of four clusters. The items in the clusters are presented according to a 5-point Likert scale.

The study aims to find out the factors affecting learner autonomy in EMI learning of English-major students at economics universities in Hanoi. Therefore, this research was designed to identify the direction based on three issues: identify the benefits and challenges of learner autonomy among English-major students at three economics universities, identify factors affecting their learner autonomy in EMI learning, and assess the impact of these factors on their learner autonomy in EMI learning.

Data collection and analysis

Quantitative methods are used to obtain comprehensive data in this research. According to Lancsaster (2005), the questionnaire has been widely used and is good in data collection,

especially when involving many respondents. Therefore, a questionnaire with four sections and 61 questions is designed based on the research model. The first section consisted of four questions that inquired about the participants' demographic data to provide general information about their gender, university, years of school, and number of hours of self-study per day. The second section is divided into three parts, each with four to five questions about students' perceptions of the characteristics, benefits, and difficulties of learner autonomy in the EMI environment. The third and most significant section of the questionnaire included questions about the six factors affecting learner autonomy in EMI studying of English-major students at an economics university in Hanoi, including three internal factors and three external factors. The last section is also divided into two parts, each with seven questions about suggestions to improve students' learner autonomy in the EMI environment. The demographic questions section is designed as a closed-ended question with a multiple-choice format. The rest of the sections were evaluated using Likert-5 scale items (Scale 1: Strongly Disagree, Scale 2: Disagree, Scale 3: Neutral, Scale 4: Agree, Scale 5: Strongly Agree).

The data processing used in this study is SPSS. Descriptive statistics were used to summarize the demographic characteristics of the respondents. Descriptive statistics are brief informational coefficients that summarize a given data set, which can represent the entire population or a sample of a population (Adam Hayes, 2023).

Results

Factors affecting learner autonomy in EMI studying

First, the findings in Table 1 showed that factors related to motivation, learning attitude, and strategies affect the learner autonomy of English-majored students in EMI studying the most. For items 3, 5, 7, and 8, M = 3.96, 4.04, 3.81, and 3.79, respectively, showed that the majority of participants acknowledged their influences. It was believed that motivations, such as a desire to get better scores, gain a deeper understanding of the major, improve English skills, and an understanding of the potential benefits of doing so (better job internship opportunities), would positively affect learner autonomy of English-majored students in EMI studying more than the other factors (items 3 and 5). In addition, students' learning attitudes and strategies, especially the method of discussions with teachers and friends, have crucial impacts on their learner autonomy. Most survey participants agreed with this statement (M=3.81), demonstrating the beneficial impact of students' preferences for discussing activities.

Second, the survey showed that teachers' support and teaching methods aided students in developing greater learner autonomy in EMI studying. Teachers were thought to have a significant influence on the learner autonomy population. Findings from numerous question items serve as evidence of this. Most students responded to the survey's items 17 and 18 (M = 3.76 and M=3.77) with the statement that their teachers encouraged their creativity and proactive self-management of learning in class and were always ready to assist whenever they needed help. Additionally, providing students with materials and encouraging them to learn about the topic on their own before the next class gave them more opportunities to decide about learning-related matters and guide their own learning (items 15 M = 3.76). The survey also revealed that poor English proficiency also negatively affected learner autonomy in EMI studying (item 12, with M = 3.27).

Table 1

Factors affecting learner autonomy in EMI studying

No	Statement	n	M	S.D.
1	I self-study and review knowledge because attending EMI classes helps me remember knowledge longer.	224	3.60	1.291
2	I self-study because I want to absorb lessons better when attending EMI classes.	224	3.77	1.256
3	I self-study because I want to get better scores when taking EMI classes.	224	3.96	1.104
4	I study and prepare lessons by myself because I want to be more confident when exchanging and discussing with friends and teachers in EMI classes.	224	3.59	1.224
5	I self-study because I want to gain a deeper understanding of the major and improve my ability to use English, which will help me have better job internship opportunities.	224	4.04	1.118
6	I self-study because I enjoy learning and researching specialized knowledge on my own.	224	3.69	1.312
7	I self-study specialized knowledge through discussions with teachers and friends.	224	3.81	1.202
8	I learn knowledge by myself without discussing or sharing it with anyone.	224	3.79	1.258
9	I research and learn specialized knowledge by myself by applying classroom knowledge to practice, such as through outside specialized internships.	224	3.51	1.260
10	I have a disadvantage in understanding vocabulary, terms, and specialized concepts in lectures.	224	2.88	1.538
11	I have a disadvantage in understanding textbooks and documents written in English because of the limited vocabulary.	224	3.18	1.254
12	I have a disadvantage in taking notes during class because of the teacher's pronunciation and speaking speed.	224	3.27	1.316
13	I understand the lesson content because I am proficient in English listening skills.	224	2.92	1.465
14	I communicate effectively with teachers and express opinions clearly in English.	224	2.96	1.451
15	I was provided with materials and encouraged to learn about the topic on my own before the next class.	224	3.76	1.218
16	The teacher explains everything, and there is only one default answer.	224	3.72	1.119
17	Teachers encourage creativity and proactive self-management of learning in class.	224	3.76	1.082
18	Teachers are always ready to assist me whenever I need help.	224	3.77	1.119
19	The teacher's poor professional knowledge and ability to use English made it difficult for me to absorb the lecture.	224	3.58	1.309
20	In Vietnamese culture, I am encouraged to develop a sense of responsibility.	224	3.80	1.292
21	Schools/classrooms with a high spirit of self-study help improve my learner autonomy.	224	3.78	1.168
22	Family members, teachers, friends: My parents influenced my habit of self-study when I was young, and I still maintain this habit.	224	3.87	1.205
23	Chatting with friends in class helps me comfortably exchange	224	3.86	1.218

	information about assigned assignments.			
24	The library and self-study room are fully equipped with modern equipment and are ideal places for self-study rather than in a rented room or at home.	224	3.65	1.276
25	Actively connecting with teachers and friends via chat applications such as Facebook, Instagram, and Twitter... makes me learn more.	224	3.77	1.067
26	I actively search for relevant lecture videos on YouTube about the topic before and after class.	224	3.78	1.055
27	I self-study because I have access to all the materials (books, newspapers, magazines, CDs, DVDs...) provided by the school library.	224	3.97	.990
28	Electronic textbooks contain a lot of misleading and outdated information.	224	3.88	1.102

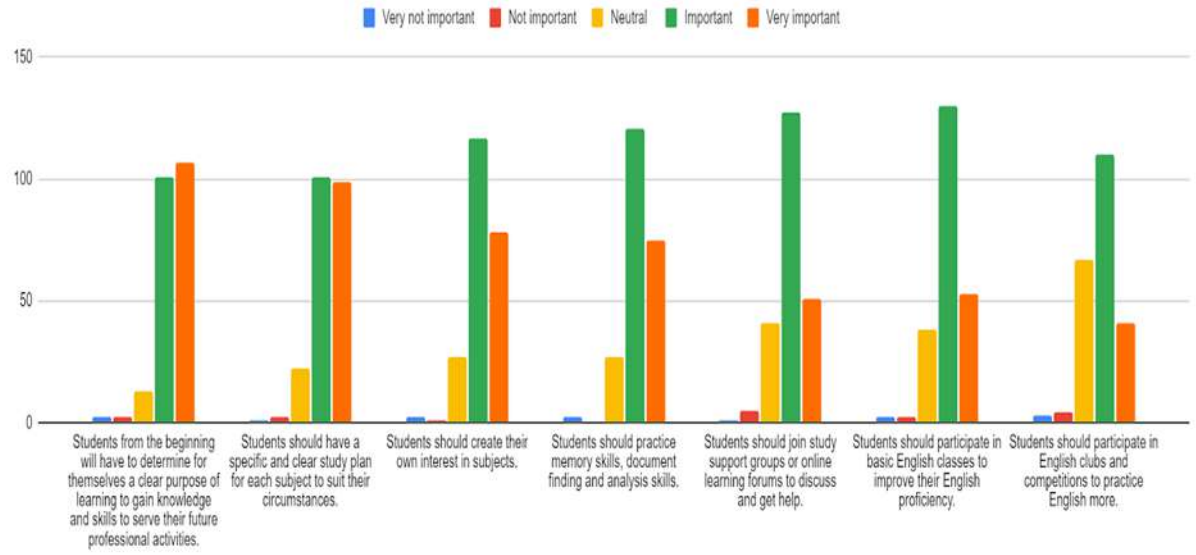
Finally, the results also showed how influential learning cultures and social environments like Vietnamese culture or family members and friends could be. This is shown by the answers to problems in items 30 and 32 with M = 3.8 and 3.87, respectively. Although many respondents said that electronic textbooks contain a lot of misleading and outdated information (item 28, with M = 3.88), it was also clear that information technology and online learning resources were additional important factors influencing the development of learner autonomy. Students also said that actively connecting with teachers and friends via chat applications such as Facebook, Instagram, and Twitter... helped them learn more independently. (Item 25, M = 3.77)

Solutions to overcome the difficulties of learner autonomy in EMI studying

For internal difficulties

Figure 1 shows students' perceptions of the importance of some given methods which help to overcome difficulties affecting learner autonomy in EMI studying from the internal environment. It can be seen that most students believe that the given solutions are necessary and important. However, defining clear goals for learning and having an appropriate study plan are judged to be especially important to help improve their autonomy, with approximately 100 votes for each level "very important" and "important ."Besides, students should create interest in the subjects and practice to improve memory; reading, finding, and analyzing skills are also appreciated solutions. The remaining solutions related to participation in communities, such as online forums, English classes, or English competitions, also get the attention of students, but these methods are mostly assessed as important. Therefore, the results suggest that students rate methods on their own higher than participation in a community or outside interaction. In other words, students themselves are the most effective method for the internal difficulties of learner autonomy in EMI studying.

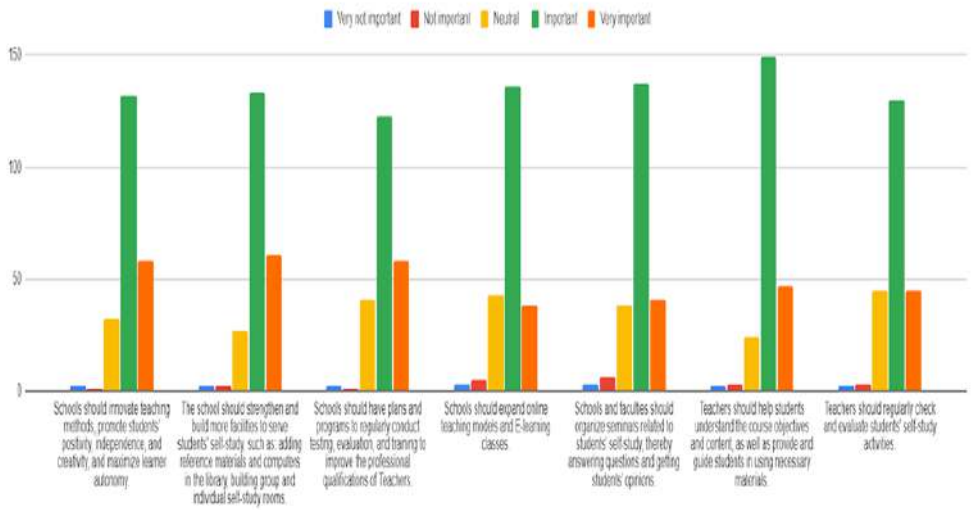
Figure 1
Solutions to overcome internal difficulties.



For external difficulties

According to Figure 2, it can be seen that the majority of participants believe that the given solutions to external difficulties are important. In terms of very important level, schools should innovate teaching methods that encourage students' independence and autonomy in learning while upgrading and improving facilities and learning environment, adding more materials, and conducting surveys to get students' feedback on teaching quality are methods that receive a lot of supports, nearly 60 students give these methods the "very important" votes. In addition to the school, teachers also play an important role in helping students overcome difficulties from outside. According to the survey results, many students believe that teachers should help students understand the purpose of the course, guide students in the use of learning materials, and evaluate students' self-study regularly. These are considered as two important methods, with approximately 150 and 125 votes for important levels, respectively.

Figure 2
Solutions to overcome external difficulties



Discussion

Benefits and challenges for students when applying learner autonomy in EMI

The findings indicate that learner autonomy offers both benefits and challenges for English-major students at economics universities.

Regarding benefits, the finding revealed that most students agreed that learner autonomy helps them better understand the lesson's knowledge and foreign language skills. Besides, the process of autonomy also gives students opportunities to improve other important skills, especially their English language and critical thinking skills.

On the other hand, there are several challenges when students come to autonomous learning. Firstly, foreign language proficiency and the allocation of self-study time significantly affect their learner autonomy in EMI learning. Specifically, over 100 students agreed, and around 30 students totally agreed that poor English proficiency is the greatest difficulty in their autonomy when participating in EMI classes. The reason is that students have to use English for all activities in the EMI classes. Besides, most students also admit that they cannot properly allocate time for self-study, which limits their autonomy in EMI studying.

Factors affecting learner autonomy in EMI learning

The findings show that the listed factors significantly influence English-major students' learner autonomy at three Hanoi economics universities.

Regarding motivation, the findings revealed that learner autonomy was promoted by students' aspirations for high academic achievement, a deeper understanding of the major, and improvement of English language proficiency for future careers. Dickinson (1992) also stated these drives, saying that autonomy might be a result of motivation or a precondition for it.

Secondly, learner autonomy has benefited from student's preferred learning attitudes and strategies. Specifically, due to the enjoyment of exploring specialized knowledge and applying knowledge to practice such as internships, self-studying is considered to positively impact students' autonomy. This result indeed shares the same opinions as Qin's (2016), who stated that learners who are interested in a subject for a while adopt positive attitudes towards learning. As a result, the subject would receive more concentration, and a learning objective would be set. Moreover, although there is a trend in learning attitude and strategy, each student still has a highly individualized approach to learning and applying knowledge.

Thirdly, there is a big difference between students' English proficiency. Students find it difficult to understand vocabulary, specialized terminology, and concepts in lectures and face challenges in understanding English textbooks and materials and communicating effectively in English.

The teachers have been the most important factors. Learner autonomy was considered to be promoted by the teacher's support such as proposing or giving students further reading resources, encouraging them to come to their own conclusions, and welcoming any questions. This statement has been supported by Kemala (2016), who states that this would be advantageous in providing students with more freedom to select or use their own learning strategies. Alonazi (2017) also agreed that teachers act as supervisors, resource providers, counselors, and facilitators of learner autonomy in EMI learning. However, there is a certain level of disagreement about teachers' professional knowledge and English proficiency; as a result, some students have difficulty in acquiring knowledge. The diversity in the perceptions shows that there is a need to focus more on improving teachers' teaching quality and language proficiency to create a better learning environment.

In addition, students feel encouraged to develop a sense of responsibility in Vietnamese culture and recognize the high level of self-directed learning in the school/classroom environment. The role of family, teachers, and friends in shaping and maintaining self-study habits from a young age is highly valued. This is called the social context, which supportively develops an environment where students can interact with others, as Dang (2010) emphasized. However, there are concerns about the facilities in the library and self-study rooms. This is because they do not fully meet the optimal self-study needs of students despite being equipped with modern facilities. These evaluations reflect the diversity of students' expectations and individual experiences. This emphasized the importance of creating a diverse and supportive learning and social environment to promote students.

Finally, information technology and online learning resources play a crucial role in enhancing learner autonomy. The findings show that students actively perceive connection with teachers and friends through social networks such as Facebook and Instagram as an important part of the learning process. For example, students actively search for lecture videos on YouTube before and after classes in order to grasp the knowledge. Besides, accessing all materials provided by the library emphasizes the value of diverse and rich resources. Students can plan, plan their learning thanks to opportunities to use technological advancements in EMI learning. In this way, they can build up their prior knowledge to produce new knowledge, aligning with Begum and Chowdhury's results (2015). Additionally, the more opportunities the online learning resources give students to discover outside of the classroom, the more learner autonomy can be improved. This agrees with Harmer's (2007) and Kemala's (2016) hypotheses. However, there are concerns about the quality of e-textbooks, indicating some concerns about misinformation and outdated information, which hinder the process of learner autonomy (Kemala, 2006).

In conclusion, it has been demonstrated that a variety of factors influence learner autonomy. These include motivation, learning attitude and strategies, English proficiency, teachers and teaching methods, learning culture and social environment, and information technology and online learning resources.

Conclusion

Summary of the study

In summary, our study found a variety of factors that affect autonomous ability among English-major students in EMI studying. They are motivation, learning attitude and strategies, English proficiency, teacher and teaching method, learning culture and social environment, and information technology and online learning resources. Motivation, good learning attitude and strategies, teacher support and teaching method, and technology and online learning resources have all been mentioned as variables supporting learner autonomy. The other aspects, such as students' poor English proficiency, are also identified as an obstacle to autonomous learning in EMI studying.

Implications for students

It is highly recommended that students enhance their motivation and learning attitude by clarifying their own target of studying or connecting studies to their career aspirations. Besides, an effective learning strategy, which is also important to students, can be developed by creating individualized learning plans. It is also advised that English proficiency, including a good vocabulary and other skills, should be improved to develop the learner autonomy of English-

major students studying at EMI.

Implications for teachers

The factors that affect the learner autonomy of English-major students in EMI studying have been identified. Teachers should adopt innovative teaching methods like encouraging active learning or fostering a positive learning environment to provide students with more opportunities to learn things on their own. Additionally, teachers significantly impact students' learner autonomy, so their roles in improving autonomous learning should be enhanced by being the learning guides, resource providers, or student progress evaluators.

Implications for universities

It is highly suggested that universities should upgrade their facilities and resources, especially library resources, dedicated spaces for self-study, or computers. In addition, it is advised that universities should ensure qualified and modern teachers and a positive educational environment in a range of ways, such as regular evaluation and training or expanding online and e-learning. Moreover, it is also vital for universities to focus on first-year students' training and orientation. Strengthening cooperation among universities, including NEU, TMU, and FTU, in sharing resources and experiences in teaching EMI is also considered another way to improve learner autonomy.

Implementing these recommendations can significantly empower students, promoting autonomy and a lifelong learning mindset within EMI environments.

Recommendations for future research

Building upon the findings and insights gained from the research, it is crucial to identify potential areas of improvement and further investigation. To gain a comprehensive understanding of the factors influencing learner autonomy in EMI studying of English-major students, future studies should consider a particular factor analysis. By examining data more specifically, researchers can understand how the factors affect learner autonomy clearly and then have more specific solutions for each factor to improve the learner autonomy of students. Furthermore, with the diversity of major education, future studies should focus on the other potential majors that attract a large number of students but without relations to English rather than English majors. This analysis not only helps to explore the real difficulties students face in improving their learner autonomy in EMI studying but also enables a better understanding of the broader context.

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Measuring EFL Learners' Perceptions of Technology Self-efficacy in Online Language Learning

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ABSTRACT

Technology self-efficacy plays a pivotal role in learners' technology uptake during their learning process in technology-mediated learning environments. This study aims to explore EFL learners' perceived technology self-efficacy in online language learning. The quantitative data obtained in this study was via a survey questionnaire with 910 learners of a Vietnamese university. The study results revealed that the overall level of EFL learners' technology self-efficacy was moderate, except for their high efficacy in using the Internet to gather information. Moreover, these results indicated that male learners were more confident in fulfilling online learning tasks than their female counterparts. The learners majoring in engineering showed more confidence in their capability to use computers and learning management systems in their English learning process compared to those of other majors. However, the learners' length of time learning English had no significant impact on their perceptions of technology self-efficacy. The findings provide some insights into how the EFL learners perceive their self-efficacious beliefs of technology use in online language learning, which will help train strategies to promote technology uptake in Vietnamese higher education settings.

Keywords: technology self-efficacy, online learning, EFL learners, perception, measuring

Introduction

Since its debut in the early 1960s, technology has been recognized as an ultimate element of the education setting (Plumm, 2008). Many scholars (Goodman, 2001; Lai & Gu, 2011; Reinders & White, 2011) suggest that integrating technology in education can expand learners' resources, venues, and learning spaces and enable a self-initiated learning experience. Thanks to the Industrial Revolution 4.0, technology has helped to improve the efficiency of foreign language teaching and learning (Nguyen & Pham, 2022), particularly

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after the Covid-19 pandemic with the upsurge of technology-enhanced learning environments (Madden et al., 2023). In such a learning mode, technology self-efficacy (TSE) is seen as a crucial factor affecting learners' technology use for their learning (Qashou, 2021; River, 2021; Teo & van Schaik, 2012). As self-efficacy influences people's task choice, effort, and persistence (Schunk & Pajares, 2002), those having stronger self-efficacious beliefs are more likely to choose challenging activities, strive harder as well as stick to their selection even if they confront difficulties. Therefore, researchers also report that there is a positive correlation between learners' TSE and their perceived ease of technology use (Venkatesh & Davis, 1996), technology uptake (Eastin & LaRose, 2000), learner engagement (Chen, 2017), and learning performance especially in technology-mediated learning environments (Joo et al., 2000; Wang et al., 2013; Wei & Chou, 2020).

On the other hand, learners having lower TSE tend to suffer higher levels of anxiety (Compeau & Higgins, 1995; Shu et al., 2011; Wilfong, 2006), confusion, a loss of control, frustration, and withdrawal related to technology use in their learning (Bates & Khasawneh, 2004). Moreover, Gist and Mitchell (1992), together with Isman and Celikli (2009), pointed out that learners' inexperience with technology before entering university directly influences their level of TSE. Hence, efforts to enhance TSE may mitigate frustrating interactions with technology.

Given its essential role in online learning, although TSE has been well-researched in other contexts, it is under-researched in Vietnam. Recent work by Vietnamese researchers has explored TSE in different aspects, including computer self-efficacy (Ho et al., 2020), online tool management (Luu & Pham, 2022), and Internet self-efficacy (Pham et al., 2021). Yet, there needs to be empirical evidence in learners' perceptions of their TSE level regarding the use of computers, the Internet, and a learning management system in online language learning. Thus, this study was undertaken to bridge the gap. The primary aim of the study was to measure EFL learners' perceived level of TSE in online learning at tertiary education and to examine the associations between TSE and variables such as gender, major, and length of time learning English.

Literature Review

Definition of technology self-efficacy

In light of social cognitive theory, Wood and Bandura (1989) defined self-efficacy as "the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (p. 408). In other words, self-efficacy can refer to one's confidence in their capability to control their thoughts, affect, and actions needed for particular outcome attainment (Bandura, 2001; Christensen & Knezek, 2015). In the realm of education, self-efficacy is believed to be highly related to task choice, effort, persistence, and achievement (Multon et al., 1991; Schunk & Pajares, 2002) as well as adaptableness to new technology (Gist & Mitchel, 1992).

Grounded in self-efficacy theory, TSE is described by McDonald and Siegall (1992) as "the belief in one's ability to successfully perform a technologically sophisticated new task" (p.

467). Similarly, Cai et al. (2019), together with Saville and Foster (2021), conceptualized TSE as the level of confidence people have in successfully employing specific technologies to increase learning outcomes. These perspectives reach a consensus on viewing TSE as learners' perceived level of confidence in using technological learning tools to achieve targeted learning outcomes, which lays the theoretical base for this study.

TSE in online language learning

In online language education, TSE is believed to impact learners' interactions with digital platforms and resources and their learning experiences. Higher TSE enables learners to navigate online tools with greater ease, engage more proactively with content interactions, and collaborate more effectively with peers, thereby deepening their language learning experiences (Lai, 2008; Shakarami et al., 2013). As online education increasingly relies on technological gadgets for instruction and communication, learners' confidence in their technological skills is crucial for fully leveraging these resources (Pan, 2020).

Empirical evidence further supports the significance of TSE in technology-mediated language learning environments. Shakarami et al. (2013) found that learners with higher self-efficacious beliefs attained positive learning results in language tests compared to their peers with lower ones. Their study also highlighted that high self-efficacy facilitated individual learning and group interactions on online networking sites. Similarly, Pan (2020) emphasized that learners' perceived TSE and acceptance of technology radically influenced their learning outcomes. Furthermore, Wang et al. (2013) demonstrated that TSE is positively related to final online course results. These findings underline the need for educators to take TSE into consideration when designing online language learning to better support learner engagement and performance.

Different researchers perceived TSE differently in the context of higher education in Vietnam. Doan's (2021) research addressed TSE as levels of confidence in using technology for online learning. Other recent work by Vietnamese researchers has explored TSE in various aspects, such as computer self-efficacy (Ho et al., 2020), online tool management (Luu & Pham, 2022), and Internet self-efficacy (Pham et al., 2021). These previous studies shared a common finding that TSE was positively correlated with learners' learning experiences in online language environments.

Components of TSE in online learning

In the context of technology-enhanced learning, there are some specific self-efficacies, including computer, the Internet, and learning management use, which can be regarded as subscales under the umbrella concept of TSE (Al-Harthi, 2016; Alqurashi, 2016; Chien, 2012; Sun et al., 2008).

Computer self-efficacy (CSE) is referred to as "an individual's perceptions of his or her ability to use computers in the accomplishment of a task" (Compeau & Higgins, 1995). It can be featured at both generic and application-specific levels (Marakas et. al, 1998), which encompasses not only general information, communication literacy, and digital literacy (Kennedy et al., 2008) but also discipline-specific competencies (Clark et al., 2009) as well as computer application selection for learning (Ertmer et al., 2010; Lai et al., 2012). CSE

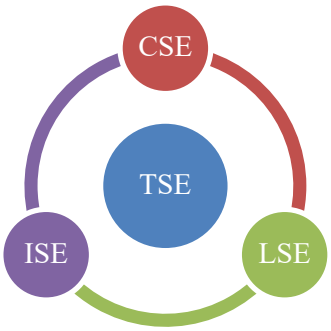
impacts perceived ease of use (Terzis & Economides, 2011) and ultimately affects learners' willingness and intention to use the computer (Chang & Tung, 2008; Hsu et al., 2009).

When expanded to the World Wide Web domain, Internet self-efficacy (ISE) is taken into consideration. It is conceptualized as "the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments" (Eastin & LaRose, 2000, p. 1). On the same line, Tsai and Tsai (2003) and Lai (2008) viewed ISE as people's confidence or perception of their capability to use the Internet. Some researchers (e.g., Darnell & Hagg, 2002; Miltiadou & Yu, 2000; Whitty & McLaughlin, 2007) argued that ISE could be differentiated from CSE by looking at the advancement of the Internet or online technology and dissimilarities in the skill sets acquired for a computer or Internet-based technologies use. Some of the skills, for instance, connecting to the Internet or starting a web browser, can be categorized as simple, while the others involving managing a blog or publishing a website can be seen as sophisticated.

The third construct of TSE is learning management system self-efficacy (LSE), which is defined as "learners' self-assessment regarding one's skills using a learning management system (LMS)" (Martin et al., 2010, p.30) or the extent to which one can have confidence in their capabilities in using learning management system (Zheng et al., 2018). Jia et al. (2014) research results reveal that this type of self-efficacy positively affects the task outcome. In their studies, Martin et al. (2010) developed and validated a measurement scale investigating learners' confidence levels with learning management system use, including course content and test access, grade views, asynchronous and synchronous communication, and the use of advanced tools. Their findings show that there was a positive relationship between learners' LSE and their course performance in the hybrid learning environment.

Figure 1

The components of TSE in online learning



* TSE: technology self-efficacy, CSE: computer self-efficacy, ISE: Internet self-efficacy, LSE: learning management system self-efficacy

Measuring tools for TSE

Developing a measuring tool for TSE is important because it allows the opportunity to gauge learners' beliefs accurately and determine their capabilities to employ technology effectively. Various measurement instruments using different scales and surveys have been introduced in this regard. Compeau and Higgins (1995) created a Likert-scaled survey with 21 items

assessing people's CSE. They asked the respondents to rate their level of confidence in technology use. The higher score signifies a higher level of self-efficacy. After being reviewed, this scale ensures both content and construct validity as well as reliability (Wang et al., 2004).

Having been influenced from their work, many measures of TSE have been adopted in numerous ways, such as online TSE (Miltiadou & Yu, 2000), online learning self-efficacy (Zimmerman & Kulikowich, 2016), information technology self-efficacy (Hwang et al., 2016), ISE (Easten & LaRose, 2000; Jokisch et al., 2020) and learning management system self-efficacy (Martin et al., 2010). This study conceptualizes TSE as a construct with three sub-dimensions involving CSE, ISE and LSE (see Figure 1). Consequently, the previous measurement instruments lay the basis for designing a data collection instrument for this research.

Research Questions

This study sought to answer these two research questions:

1. How do the EFL learners perceive their technology self-efficacy in an online language learning environment at a Vietnamese university?
2. Are there any differences in EFL learners' perceived technology self-efficacy with reference to gender, major, and length of time learning English?

Methods

The quantitative method was employed in this study because of its strengths in "conceptualizing variables, profiling dimensions, tracing trends and relationship, formalizing comparisons and using large and perhaps representative sample" (Punch, 2013, p. 304).

Participants

The population of this study was first-year non-English majors of the research site who were enrolling in the General English 1 course. They were in their first semester at university, trying to familiarize themselves with the new teaching and learning environment. One of their biggest challenges was the academic requirements, which differed from their previous schooling level. They were asked to spend a certain amount of self-study time on several active activities before and after class to attain the expected academic achievements. In this study, the course General English 1 was designed for non-English-major freshmen on the Moodle platform, which was configured on the institution's e-learning server. It served as a "virtual extension of the face-to-face classroom" (Dang, 2012, p. 79), which accommodated learners' needs and offered opportunities for enhancement of language learning out of class.

A sample of 910 learners were of volunteer recruitment. Among them, 33.1% were male (n=301), 65.5% were female (n=596), and the remaining 1.4% (n=13) were of undefined gender identity. Their majors included education (n=242, 26.6%), engineering (n=205, 22.5%), tourism (n=37, 4.1%) and business (n=426, 46.8%). As regards learners' length of time in their English learning journey, the majority had spent more than nine years (n=498, 54.7%), followed by 34.9% (n=318) having spent from five to less than nine years and 10.3% (n=94) less than five years studying English.

Design of the Study

This study used quantitative research methods, including a survey, to examine how EFL learners perceive their TSE in online language learning.

The questionnaire construction on technology self-efficacy was based on the Computer Self-efficacy scale (Murphy et al., 1989; Howard, 2014); the Online Technologies Self-efficacy scale (Eastin and LaRose, 2000; Hao, 2016; Miltiadou & Yu, 2000) and Learning Management System self-efficacy scale (Martin et al., 2010). Two more items were self-developed in terms of using computers and LMS. After revisiting these items, the researchers divided them into three subscales, namely computer self-efficacy (CSE), Internet self-efficacy (ISE), and learning management system self-efficacy (LSE). This part of the survey started with "I would be confident…" followed by verb phrases. The respondents were asked to specify their extent of agreement by choosing a five-point Likert scale, stretching from Not confident at all (1) to Very confident (5). A list of the constructs and items is available in Appendix A.

The questionnaire was translated into the participants' native language, Vietnamese. This helped minimize the respondents' confusion and saved them time in completing the questionnaire. Back-translation was then employed. The Vietnamese version of the survey questionnaire was sent to two university lecturers in Vietnam. They were both Vietnamese, one obtaining a PhD in TESOL in New Zealand and the other holding a PhD in English studies in Vietnam. These two lecturers translated the Vietnamese version back into English. Then, the dissimilarities between the original English survey questionnaire and these two translated English versions were cautiously examined.

Fifty learners joining in the pilot stage were requested to complete the questionnaire to check the reliability of the items. It was then analyzed in SPSS version 27 to measure the Cronbach's α coefficient. The values of the Cronbach's α for the three constructs namely CSE, ISE and LSE were 0.892, 0.915 and 0.967 respectively, which showed good internal consistency reliability of the items.

Data collection & analysis

A non-probability sampling technique was adopted. To select the sample, a survey was sent to the Announcement Section of the General English 1 course in the LMS in the 14th week of the course, which was on December 18th, 2023. At the beginning of the survey, the research project was introduced. If the learners were willing to fill in the survey questionnaire, they ticked a consent box on the first page and then started filling out the questionnaire. All the respondents were informed of the research objectives and that their participation was voluntary and would not impact their study results. To increase the response rate from the learners, a reminder was sent to the Announcement Section a week later. In total, 941 learners completed the survey, which made up 58.96 percent of the course' enrolled learners. Once the data were screened to delete cases with missing values or inappropriate responses, 910 valid responses were retained for further analysis.

The data yielded by the survey questionnaire were coded and fed into a data file (SPSS version 27), from which exploratory factor analysis (EFA) was generated to gather evidence

of the measurement scale's validity and reliability. EFA is a "technique for identifying groups or clusters of variables" (Field, 2013, p. 628). In this study, EFA was conducted to extract possible clusters of the data collected from the 28 items for technology self-efficacy.

Kaiser Meyer-Olkin (KMO) and Bartlett's test of sphericity were generated to check the factorability of each section. The KMO statistic refers to "the ratio of the squared correlation between variables to the squared partial correlation between variable" (Field, 2013, p. 684). The KMO index ranges from 0 to 1, with a value close to 1 demonstrating that correlation patterns are relatively dense. Hence, factor analysis should produce distinct and relevant factors. As Hutcheson and Sofroniou (1999) recommended, values from 0.5 to 0.7 are mediocre, those from 0.7 to 0.8 are good, those from 0.8 to 0.9 are great, and those exceeding 0.9 are superb. Bartlett's test of sphericity examines the relationship between variables, and it is considered significant with $p < 0.05$ (Cohen et al., 2017). As presented in Table 1, the KMO for the questionnaire was superb, with 0.972, which verified the adequacy of the sampling for the analysis. The *p*-value in Bartlett's test was 0.000, which is smaller than 0.05, indicating that associations between the variables were large enough for principal component analysis (PCA), which is a multivariate technique for recognizing groups or clusters of variables (Field, 2013).

Table 1

KMO and Bartlett's test of the TSE scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.972
Bartlett's Test of Sphericity	Approx. Chi-Square	22420.888
	df	378
	Sig.	0.000

Next, Kaiser's criterion recommended that all the factors with eigenvalues greater than 1 should be retained (Kaiser, 1960). This was based on the idea that "the eigenvalue of a factor represents the amount of the total variance explained by that factor" (Pallant, 2016, p. 185). Hence, an eigenvalue of 1 indicates a substantial amount of variance. The result (see Appendix B) showed three factors of technology self-efficacy having eigenvalues above 1 (15.908, 1.936, and 1.308), which in combination described 68.404% of the variance.

Also, Horn's parallel analysis (1965) checked the number of factors to retain. This analysis compares the actual eigenvalues extracted from the original dataset and those from a random dataset. A factor is retained when the former is greater than the latter from the parallel data (O'Connor, 2000). Table 2 indicates that the first three actual eigenvalues were higher than those in the corresponding columns; thus, three factors were extracted.

Table 2

Comparison among actual, average, and percentile eigenvalues

Factors	Actual eigenvalues	Average eigenvalues	95^{th} percentile eigenvalues
1	15.908	1.336	1.383
2	1.936	1.287	1.318
3	1.308	1.252	1.281

PCA using Promax rotation was conducted on 28 items for learners' technology self-efficacy. The item loadings were suppressed to 0.4. The first-factor analysis showed that one item (ISE8) with factor loading was smaller than the cutoff value of 0.4. Moreover, the three items (LSE2, LSE3, LSE4) had high cross loadings. Hence, the items ISE8, LSE2, LSE3, and LSE4 were removed, and the factor analysis was rerun on the 24 remaining items. The factor loadings on the three components are shown in Table 3, with a total variance of 69.691 percent. The three clusters of items consisted of computer self-efficacy (5 items), Internet self-efficacy (8 items), and learning management system self-efficacy (11 items).

Table 3

Principal component analysis on 24 TSE items (ISE8, LSE2, LSE3, LSE4 removed)

	Component 1	Component 2	Component 3
LSE8	.923		
LSE13	.886		
LSE14	.885		
LSE15	.853		
LSE7	.851		
LSE9	.839		
LSE12	.794		
LSE6	.768		
LSE10	.768		
LSE5	.632		
LSE11	.604		
ISE6		.928	
ISE4		.913	
ISE3		.831	
ISE2		.714	
ISE1		.672	
ISE7		.663	
LSE1		.602	
ISE5		.572	
CSE3			.901
CSE4			.826
CSE2			.805
CSE1			.755
CSE5			.649

After factor analysis, internal consistency was examined. As revealed from Table 4, the values of Cronbach's alpha for the factors of computer self-efficacy (CSE), Internet self-efficacy (ISE), and learning management self-efficacy (LSE) were 0.899, 0.921, and 0.958, respectively, indicating high reliability for each factor within the data sample.

Table 4
Cronbach's α internal consistency

Constructs	Indicators	Cronbach's Alpha	Internal consistency
CSE	5	0.899	Good
ISE	8	0.921	Excellent
LSE	11	0.958	Excellent

Results/Findings

EFL learners' perceptions of technology self-efficacy

The respondents exhibited ratings for their confidence regarding different aspects of computer, Internet, and learning management system self-efficacy between 1 (not confident at all) and 5 (very confident). The descriptive analysis was conducted using mean (*M*) and standard deviation (SD). As guided by Ketsing (1995) and Srisaad & Nilkaew (1992), *M*=1.00 - 1.50 meaning very low, *M*=1.51 - 2.50 meaning low, *M*=2.51 - 3.50 meaning moderate, *M*=3.51 - 4.50 meaning high and *M*=4.51 - 5.00 meaning very high.

The descriptive analysis is presented in Table 5 below. As can be seen, the learners only showed their confidence in using the Internet to gather information (ISE6) at a high level with a mean score of 3.51, whereas their confidence in using MS Office such as MS Word, MS Excel, PowerPoint (CS3) was low with the mean score of 2.44. The remaining was at a moderate mean score of 2.59 and 3.18. Of concern across these items is large standard deviations around 1.1, indicating that the learners disclosed substantial dissimilarities in their confidence rating.

Regarding computer self-efficacy (5 items), the learners showed their confidence mostly in working on a personal computer (*M*=2.90), followed by organizing and managing files on the computer, persisting and completing most any computer-related task, and remaining calm when facing computer difficulties, with mean score values of 2.73, 2.68, and 2.59, respectively. They felt at least confident in using MS Office, as mentioned earlier.

In terms of Internet self-efficacy (8 items), except "using Internet to gather data" (ISE6), the remaining seven items, such as "opening a web browser," "clicking on a link to visit a specific website", "bookmarking a website", "downloading files from the Internet", "using emails to communicate", "learning advanced skills within a specific Internet program" and "logging in to my course in the LMS" received roughly similar ratings with the mean score being in the range of 2.91 - 3.18.

Finally, concerning the LMS self-efficacy (11 items), the learners expressed their confidence mostly in downloading the course documents to my computer (LSE11) with a mean value of 3.01. Their ratings for the rest ranged from 2.63 to 2.97.

Table 5

Descriptive analysis of the learners' technology self-efficacy (*N*=910)

	Min	Maxi	Mean	Std. Deviation	Variance	Interpretation	Skewness
CSE1	1	5	2.90	1.146	1.314	Moderate	0.161
CSE2	1	5	2.73	1.151	1.325	Moderate	0.264
CSE3	1	5	2.44	1.123	1.261	Moderate	0.472
CSE4	1	5	2.68	1.134	1.285	Moderate	0.294
CSE5	1	5	2.59	1.153	1.329	Moderate	0.329
ISE1	1	5	3.02	1.234	1.522	Moderate	0.009
ISE2	1	5	2.91	1.202	1.444	Moderate	0.067
ISE3	1	5	3.01	1.175	1.382	Moderate	0.056
ISE4	1	5	3.18	1.148	1.318	Moderate	-0.072
ISE5	1	5	2.92	1.189	1.414	Moderate	0.084
ISE6	1	5	3.51	1.130	1.278	High	-0.312
ISE7	1	5	3.09	1.156	1.336	Moderate	0.038
LSE1	1	5	3.14	1.141	1.302	Moderate	-0.030
LSE5	1	5	2.99	1.112	1.237	Moderate	0.120
LSE6	1	5	2.83	1.169	1.366	Moderate	0.150
LSE7	1	5	2.77	1.116	1.246	Moderate	0.300
LSE8	1	5	2.70	1.139	1.298	Moderate	0.300
LSE9	1	5	2.65	1.181	1.394	Moderate	0.334
LSE10	1	5	2.91	1.126	1.269	Moderate	0.217
LSE11	1	5	3.01	1.130	1.277	Moderate	0.145
LSE12	1	5	2.97	1.121	1.257	Moderate	0.144
LSE13	1	5	2.76	1.175	1.380	Moderate	0.276
LSE14	1	5	2.63	1.181	1.394	Moderate	0.333
LSE15	1	5	2.76	1.163	1.353	Moderate	0.264

Effect of demographic factors on perceived TSE

To provide more insights into the learners' perceptions of TSE, one-way ANOVA, and posthoc tests were performed to examine the possible correlation and effects of demographic features such as gender, major, and length of time studying English on their perceived level of TSE. These tests were utilized to determine statistical disparities between different groups by comparing the means of independent variables (Field, 2013). The eta squared values were also calculated to measure the effect size of the statistically significant difference.

Results from the ANOVA tests (Table 6) indicated that there was a statistically significant difference among the three gender groups (male, female, and unknown) in relation to LSE with F=10.035, p=0.000 < 0.05. The eta squared value was 0.022, which showed a small effect size. Moreover, there was no statistical significance between the gender groups in terms of CSE and ISE.

Table 6

Results of one-way ANOVA comparing learners' perceptions of TSE by gender

		Sum of Squares	df	Mean Square	F	Sig.	Eta squared
CSE	Between Groups	9.441	2	4.720	4.759	.009	
	Within Groups	899.559	907	.992			
	Total	909.000	909				
ISE	Between Groups	3.273	2	1.637	1.639	.195	
	Within Groups	90.727	907	.999			
	Total	909.000	909				
LSE	Between Groups	19.679	2	9.839	10.035	**.000**	**0.022**
	Within Groups	889.321	907	.981			
	Total	909.000	909				

Post-hoc analysis using Tukey's HSD was conducted to identify the variations in mean scores among the gender groups for the perceived TSE. Table 7 and Figure 2 reveal that the mean score for the female group was significantly different from the male group at the 0.05 level of significance with a mean difference of 0.31, p=0.000. However, there was no significant difference between the male and female and unknown groups. Generally, these results suggest that male learners are more confident in fulfilling LMS-related tasks than their female counterparts.

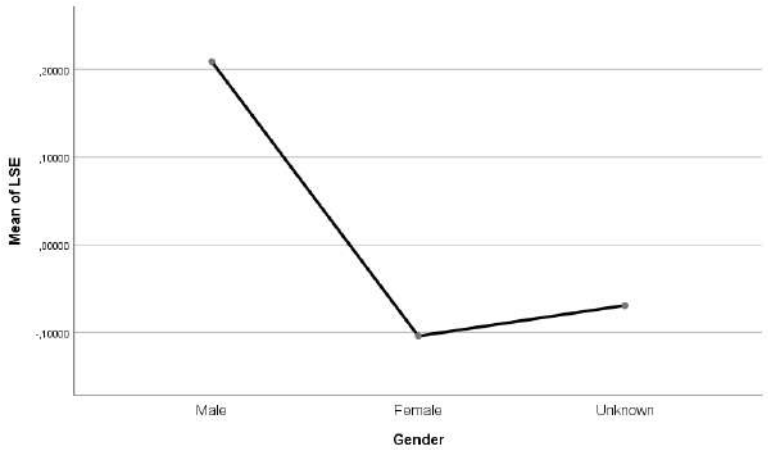
Table 7

Post-hoc comparisons for learners' perceptions of LSE by gender

Dependent Variable	(I) Gender	(J) Gender	Mean Difference (I-J)	Std. Error	Sig.
LSE	Male	Female	**.31317579***	.07001895	**.000**
		Unknown	.27827531	.28050180	.582
	Female	Male	**-.31317579***	.07001895	**.000**
		Unknown	-.03490048	.27761287	.991
	Unknown	Male	-.27827531	.28050180	.582
		Female	.03490048	.27761287	.991

Figure 2

Means plots for learners' perceptions of LSE by gender



Secondly, one-way ANOVA and post-hoc tests were conducted to investigate the effect of major groups on their perceptions of TSE, including education, engineering, tourism, and business. Results from the ANOVA tests (Table 8) show that there was a statistically significant difference between the four majors in CSE and LSE, with F=6.143, p=0.000, and F=5.595, p=0.001, respectively. The eta squared values were 0.02 and 0.018, which were small effect sizes. Moreover, there was no statistical significance between the major groups regarding ISE.

Table 8

Results of one-way ANOVA comparing learners' TSE by major

		Sum of Squares	df	Mean Square	F	Sig.	Eta squared
CSE	Between Groups	18.123	3	6.041	6.143	**.000**	**0.02**
	Within Groups	890.877	906	.983			
	Total	909.000	909				
ISE	Between Groups	4.222	3	1.407	1.409	.239	
	Within Groups	904.778	906	.999			
	Total	909.000	909				
LSE	Between Groups	16.535	3	5.512	5.595	**.001**	**0.018**
	Within Groups	892.465	906	.985			
	Total	909.000	909				

To recognize the disparities in mean scores among the four major groups for the CSE and LSE, a post-hoc analysis using Tukey's HSD was conducted. Table 9, Figure 3, and Figure 4 reveal that the mean score for engineering was significantly different from the other majors at the 0.05 level of significance. However, there was no significant difference between education, tourism, and business. These results suggest that the learners specializing in engineering were more confident in doing computer- and LMS-related tasks in their English learning process compared to those of other majors.

Figure 3

Means plots for learners' CSE by major

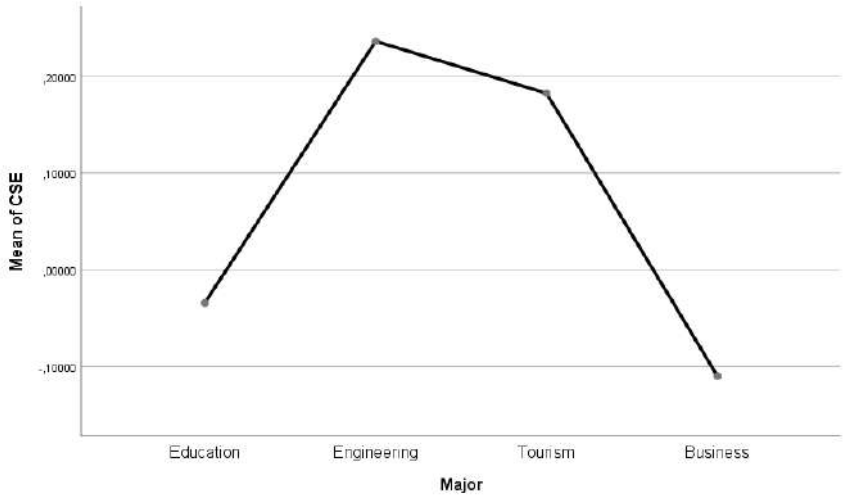


Table 9

Post-hoc comparisons for learners' TSE by major

Dependent Variable	(I) Major	(J) Major	Mean Difference (I-J)	Std. Error	Sig.
CSE	Education	Engineering	**-.27079290***	.09412695	**.021**
		Tourism	-.21688486	.17504044	.602
		Business	.07553468	.07982163	.780
	Engineering	Education	**.27079290***	.09412695	**.021**
		Tourism	.05390804	.17712291	.990
		Business	**.34632758***	.08429034	**.000**
	Tourism	Education	.21688486	.17504044	.602
		Engineering	-.05390804	.17712291	.990
		Business	.29241954	.16995333	.313
	Business	Education	-.07553468	.07982163	.780
		Engineering	**-.34632758***	.08429034	**.000**
		Tourism	-.29241954	.16995333	.313
LSE	Education	Engineering	**-.26345148***	.09421079	**.027**
		Tourism	-.29387478	.17519635	.336
		Business	.05159248	.07989273	.917
	Engineering	Education	**.26345148***	.09421079	**.027**
		Tourism	-.03042330	.17728067	.998
		Business	**.31504397***	.08436541	**.001**
	Tourism	Education	.29387478	.17519635	.336
		Engineering	.03042330	.17728067	.998
		Business	.34546726	.17010470	.177
	Business	Education	-.05159248	.07989273	.917
		Engineering	**-.31504397***	.08436541	**.001**
		Tourism	-.34546726	.17010470	.177

Figure 3

Means plots for learners' CSE by major

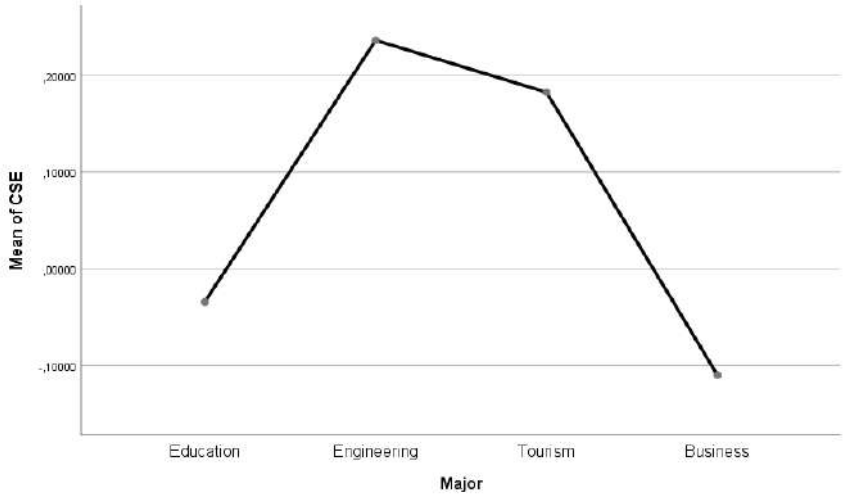
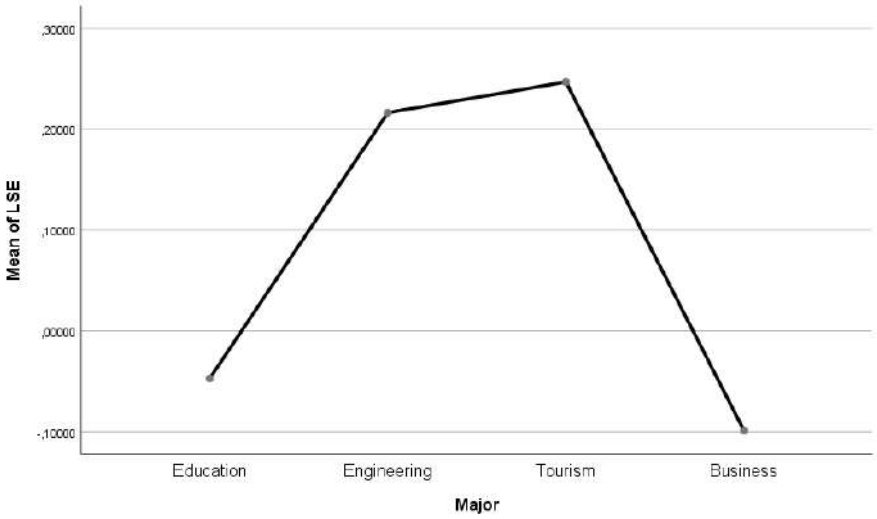


Figure 4
Means plots for learners' LSE by major



Thirdly, one-way ANOVA and post-hoc tests were carried out to examine the effect of the length of time EFL learners had spent learning English. Results from the ANOVA tests (Table 10) show no statistically significant difference among the three groups regarding the duration of studying English. This suggests that the length of time learning English had no significant effect on any of the learners' perceptions of TSE.

Table 10

Results of one-way ANOVA comparing learners' TSE by the length of time studying English

		Sum of Squares	df	Mean Square	F	Sig.
CSE	Between Groups	2.170	2	1.085	1.085	.338
	Within Groups	906.830	907	1.000		
	Total	909.000	909			
ISE	Between Groups	1.724	2	.862	.862	.423
	Within Groups	907.276	907	1.000		
	Total	909.000	909			
LSE	Between Groups	1.967	2	.984	.984	.374
	Within Groups	907.033	907	1.000		
	Total	909.000	909			

Discussion

This study was conducted to address the research questions of the EFL learners' perceptions of TSE in their online language learning experience. The results revealed an overall moderate belief of TSE. These findings partly echoed those of Lai (2008) and Luu and Pham (2022), targeting Asian undergraduates. This could be possibly explained by Asian culture, including Vietnamese culture, where teacher-led instruction has greatly affected learners' attitudes and beliefs. Moreover, due to the cultural emphasis on humbleness, it is possible that Vietnamese learners might have reported their self-efficacy at a moderate level (Kim et al., 2021).

Out of all the 24 items, the EFL learners felt most self-efficacious in using the Internet to gather information. This indicates that digital natives are likely to be good at Internet information seeking to serve their learning in online environments. This might be explained by their daily exposure to and usage of the Internet for both learning and other purposes.

Moreover, the results demonstrated no statistical significance between the gender groups in terms of CSE and ISE. This result supports, in part, the findings by Holcomb et al. (2004), Keengwe (2007), Pham et al. (2021), and Wang et al. (2009), showing no gender differences for self-efficacious beliefs regarding the use of computers and Internet. However, there were gender variations in LSE between male and female groups, which suggests that male undergraduates showed more confidence in doing LMS tasks than their female counterparts. This finding contradicts Rezki's (2018) and Kraja and Muka's (2023) research, which found no significant dissimilarities regarding the effect of gender on learners' LSE.

Regarding the effect of studying majors on TSE, the difference between the CSE and LSE was statistically significant in favor of the learners specializing in engineering. As a comparison, our finding is in partial agreement with some previous research such as Mekhzoumi et al. (2018) and Pham et al. (2021), which unveiled some impact of study majors on learners' self-efficacy. A possible explanation for this result might be more exposure and experience with computers and LMS gained by the learners majoring in engineering compared to those of other majors.

Interestingly, this study detected no significant effect of the length of time studying English on any of the learners' perceptions of TSE. However, with few research projects exploring this impact, the results should be interpreted with caution.

Conclusion

In summary, the purpose of the study was to measure the confidence of Vietnamese EFL undergraduates concerning the use of technology for online language learning as well as its relationship with gender, major, and length of time studying English. The study showed that the learners reported their TSE at a moderate level. Furthermore, the research detected gender variations in relation to LSE between male and female learners. The learners majoring in engineering had higher mean scores regarding CSE and LSE than their counterparts. The study also indicated no significant correlation between learners' time studying English and their confidence in using technology in their learning process. Bearing in mind that self-efficacy plays a critical role in the online learning process (Peterson & Arnn, 2004), it is essential to enhance learners' TSE level so that they can make the best use of technological tools for their knowledge acquisition. Accordingly, more orientations, training sessions, and thorough instructions should be provided to the freshmen as they offer guidelines and opportunities for learners to familiarize themselves with the LMS and its features, boosting their self-efficacy regarding technology uptake. Regardless of its important contribution, this research reveals some limitations regarding collecting quantitative data at one point in time, as learners' perceptions of self-efficacy are not static but dynamic in nature. Therefore, it is necessary to include qualitative data from a longitudinal perspective in future research to

obtain better results for interpretation. Another limitation of the study was that the data collected was restricted to the local EFL population of an academic institution; hence, future work can be conducted with a variety of samples regarding age, geography, and culture.

In short, this study provides both theoretical and practical insights. Firstly, the findings extend further support to prior research on learners' confidence in technology use in online learning mode. Furthermore, the insights provided in this study are significant for institution leaders, program developers, and lecturers to understand EFL learners' TSE for online language learning.

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Appendix A

EFL Learners' Perceptions of Technology Self-efficacy

No.	Construct	Items I would feel confident……	No confidence	Little confidence	Some confidence	Confidence	High confidence
1	Computer self-efficacy (CSE)	working on a personal computer.					
2		organizing and managing files on the computer.					
3		using MS Office (MS Word, MS Excel, PowerPoint).					
4		persisting and completing most any computer-related task.					
5		remaining calm when facing computer difficulties because I can rely on my abilities.					
6	Internet self-efficacy (ISE)	opening a web browser (e.g. Explorer, Chrome, Firefox).					
7		clicking on a link to visit a specific website.					
8		bookmarking a web site.					
9		downloading files from the Internet.					
10		using email to communicate.					
11		using Internet to gather information.					
12		learning advanced skills within a specific Internet program.					
13		troubleshooting Internet problems.					
14	Learning management system self-efficacy (LSE)	logging in to my course in the Learning Management System.					
15		reading the text-based announcements posted by my instructor.					

16		viewing the course documents online.					
17		accessing the links to the web resources.					
18		viewing the feedback for the online test/quiz.					
19		viewing my grades in the grade book.					
20		taking a test/quiz online.					
21		posting text messages in the discussion group.					
22		creating a new thread in the discussion group.					
23		submitting assignments online.					
24		downloading the course documents to my computer.					
25		exchanging files with my group members.					
26		joining a virtual class or conferencing session.					
27		posting my reflection to a blog.					
28		collaborating on web pages to add the content and foster interactive engagements.					

Appendix B

Total variance explained for 28 items related to technology self-efficacy

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.908	56.815	56.815	15.908	56.815	56.815	8.217	29.348	29.348
2	1.936	6.916	63.731	1.936	6.916	63.731	6.398	22.850	52.198
3	1.308	4.673	68.404	1.308	4.673	68.404	4.537	16.205	68.404
4	0.876	3.130	71.533						
5	0.702	2.508	74.042						
6	0.584	2.084	76.126						
7	0.546	1.950	78.076						
8	0.510	1.822	79.898						
9	0.475	1.696	81.594						
10	0.430	1.535	83.129						
11	0.399	1.425	84.554						
12	0.368	1.313	85.867						
13	0.342	1.221	87.087						
14	0.329	1.176	88.264						
15	0.321	1.147	89.411						
16	0.313	1.117	90.527						
17	0.294	1.050	91.577						
18	0.277	0.988	92.565						
19	0.270	0.963	93.528						
20	0.243	0.868	94.396						
21	0.237	0.845	95.241						
22	0.227	0.810	96.052						
23	0.216	0.772	96.824						
24	0.205	0.732	97.556						
25	0.188	0.671	98.226						
26	0.177	0.632	98.859						
27	0.162	0.579	99.437						
28	0.158	0.563	100.000						

Extraction Method: Principal Component Analysis.

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