



The Relationship between Language Learning Strategies and Achievements in English for Undergraduate Nursing Students at a Private University

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APA Citation:

Yippikun, C., Sirisukeepradit, P., & Plengjaroensirichai, N. (2025). The relationship between language learning strategies and achievements in English for undergraduate nursing students at a private university. *Journal of Language and Linguistics*, 6(1), 53-74. <https://doi.org/10.62819/jel.2025.810>

Received: February 3, 2025

Revised: March 22, 2025

Accepted: April 3, 2025

Abstract

This study investigated the use of English language learning strategies (LLS) among Thai undergraduate nursing students and compared LLS usage across three proficiency levels. It also examined the relationship between LLS usage and achievements in English for Nursing Purposes (ENP). The sample consisted of 170 fourth-year nursing students selected through purposive sampling. The study adopted the Strategy Inventory for Language Learning (SILL) questionnaire developed by Oxford (1990) to collect data. Descriptive statistics were used to describe the frequency of LLS usage, with one-way ANOVA to determine differences in LLS usage across proficiency levels. Additionally, Pearson's product-moment correlation coefficient was employed to explore the relationship between LLS usage and ENP achievements. The results showed that overall, students used LLS at a moderate level, with a significant correlation at $p < 0.05$, and memory strategies were employed the most frequently. There was a difference in LLS usage among high, moderate, and low achievers in ENP writing and speaking achievements. Furthermore, the findings revealed a positive relationship between the overall use of LLS and ENP writing achievements.

Keywords: English for nursing purposes, language learning strategies, Thai nursing students, proficiency level

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Introduction

Thailand is widely accepted as a medical tourism country, and a significant number of foreign visitors access its healthcare services (Naranong & Naranong, 2011; Office of the National Economic and Social Development Council, 2019; TIR, 2020). According to the policy of international medical hub development in Thailand (B.E. 256–2569), there are four main service categories: The Wellness Hub (service center for health promotion), Medical Service Hub (service center for health), Academic Hub (service center for academic service and research), and Product Hub (center of medicine and health products). Thailand is being driven to create an international medical hub to compete with other countries, using the potential and strength of the country's healthcare system to attract tourists and generate income. Consequently, there is a high demand for nurses in Thailand to improve their English language skills.

Thai nurses, however, seem to have no confidence in communicating in English without preparation when dealing with a patient's anxiety and collaborating with colleagues and physicians (Palaleo & Srikrajang, 2018). This might cause problems for nurses because a significant amount of medical terminology is used in the hospitals, and accurate communication is essential. Chetsadanuwat (2018) reported that Thai nurses working in both public and private hospitals must apply the four skills of English language as tools for communicating and collaborating with patients, colleagues, and physicians on a daily basis. These authors explained that the most necessary English language skills for Thai nurses were listening, speaking, reading, and writing, respectively. Moreover, in terms of medical terminology, textbooks, and dialogues, these skills could make a significant difference between learning General English (GE) and English for Nursing Purposes (ENP). Consequently, it is essential for Thai nursing students and nurses studying ENP to improve their English language learning (ELL).

In Thailand, English is taught as a Foreign Language (EFL) and tends to be used only in education, business, medical contexts, and so on. Under these circumstances, EFL students often find it difficult to improve their English language skills. Akbari (2015) found that the main obstacle faced by EFL nursing students was being in an environment that did not encourage them to improve and become familiar with the English language because they only learn it in the classroom, with no opportunity to practice outside of it. Moreover, the biggest concern for nurses in Thailand was their ability to communicate in English, which they viewed as a barrier (Wong et al., 2014). Hence, although Thai nurses had been provided with many English courses when studying in primary, middle, high school, and higher education, they seemed to lack English competency and confidence when communicating in English at the hospital (Wong, 2004).

In ELL, some directions or strategies could help learners become more successful in reaching their English language target. For instance, ENP courses could be developed to help nursing students not only improve their ELL but also their language learning strategies (LLS). Chiou and Chen (2010) identified a significantly positive relationship between LLS and the ENP achievements of

EFL nursing students. However, English language learners need instruction strategies on how best to apply LLS to improve their English language skills. According to a study by Likitrattanakorn (2018), in Thailand, students employed a variety of LLS in higher education when learning English as undergraduates.

Although many studies exist on the use of LLS by EFL students in Thailand, few have assessed the use of LLS by nursing students. Hence, the present study aims to investigate the type of LLS frequently used by Thai nursing students to learn ENP by comparing the proficiency of high, moderate, and low achievers while also exploring the relationship between the use of LLS in learning ENP and the achievements of Thai nursing students.

Literature Review

1. English for Nursing Purposes (ENP)

The area of teaching English with a focus on teaching language skills for particular disciplines is known as *English as a Specific Purpose* (ESP). From the early days of ESP in the 1960s, it was being developed for what learners need to study. Researchers have found that defining a clear-cut definition of ESP is a difficult task (Stevens, 1988). Widdowson (1983) defined that ESP was a training that focused on developing specialized competences, while General English (GE) was education that aimed to develop general abilities. Additionally, Hutchinson and Waters (1987) stated that there was no difference in theory, but in practice there was a big difference between ESP and GE. In addition to being different from GE, ESP was created to meet the unique needs of learners studying the English language. It was designed by utilizing activities, methodologies, and course materials that were relevant to particular disciplines (Dudley-Evan and St. John, 1998). Meanwhile, the need for workplace communication was able to drive ESP course materials and pedagogies for communication, such as English for Engineers, English for Science, English for Tourism, English for Medical Purposes (EMP), etc. (Hutchinson and Waters, 1987).

According to Gylys and Wedding (1983), medical discourse is a specific vocabulary used in the healthcare setting, like diagnosis, to accurately and successfully accomplish a communicative goal. The language used in a hospital setting is also advanced and should be taught in a specialized English classroom rather than a general one. The goal of learning the English language is not to acquire a general education or become fluent in English but to increase linguistic efficiency in academic, professional, and workplace settings (Basturkmen, 2006). According to the survey by Lee (1999), the top four most used aspects of EMP are doctors' orders, patients' chief complaints and symptoms, medical terminology, and diagnostic reports. It is imperative that nursing students devote the most time and energy to these areas. However, according to Celik, Yildiz, Mart, & Bingol (2014), ENP is rather related to EMP and under ESP.

Nor Puteh and Nor Mohammad (2017) stated that ENP should also have its own course materials, tests, and benchmarks created and written by experts in that field, as well as professional material designers. Becoming a nurse means joining a discourse community, adopting others' thoughts,

feelings, and beliefs, and using language to establish oneself as a member of that community (Bosher, 2011; Hussin, 2008). In addition, Bosher (2006) discovered that to succeed in nursing programs, students need to possess both clinical and academic skills. Nursing students need to apply reading strategies and skills to complex reading material, usually in textbook format; apply listening strategies and skills during lectures; take notes to add to the lecture outlines; study effectively for tests; participate actively in discussions; ask questions; and write research papers on various topics in nursing. The goal of teaching ENP, according to Yang and Su (2003), is to either prepare nursing students for their future needs in professional communication or meet their needs as they pursue further education at nursing institutions.

Some studies have also described the languages spoken in hospital settings in Thailand, particularly between nurses and foreign patients. Chetsadanuwat (2018) carried out a study to identify the need for English usage among nurses at international hospitals. The study revealed that nurses rated listening as the most necessary skill for learning about a patient's history and symptoms. The other skills, namely speaking, reading, and writing, were also required at a high level when asking patients about their main complaints and symptoms, reading a physician's order, and writing various medical forms.

Nevertheless, ENP courses, English teacher pedagogies, and class materials in higher education should be prepared to facilitate nursing students in acquiring English language skills. Most importantly, EFL nursing students who do not use English as a medium language in their daily lives need to invest a great of time in improving themselves, both in ENP courses and outside the classroom. Nursing students also need to be introduced to several LLS to encourage them to master English ENP (Chiou & Chen, (2010). Thus, in addition to ENP courses, nursing students need to be self-directed learners and employ LLS to achieve their English language goals in the nursing profession.

2. Language Learning Strategies (LLS)

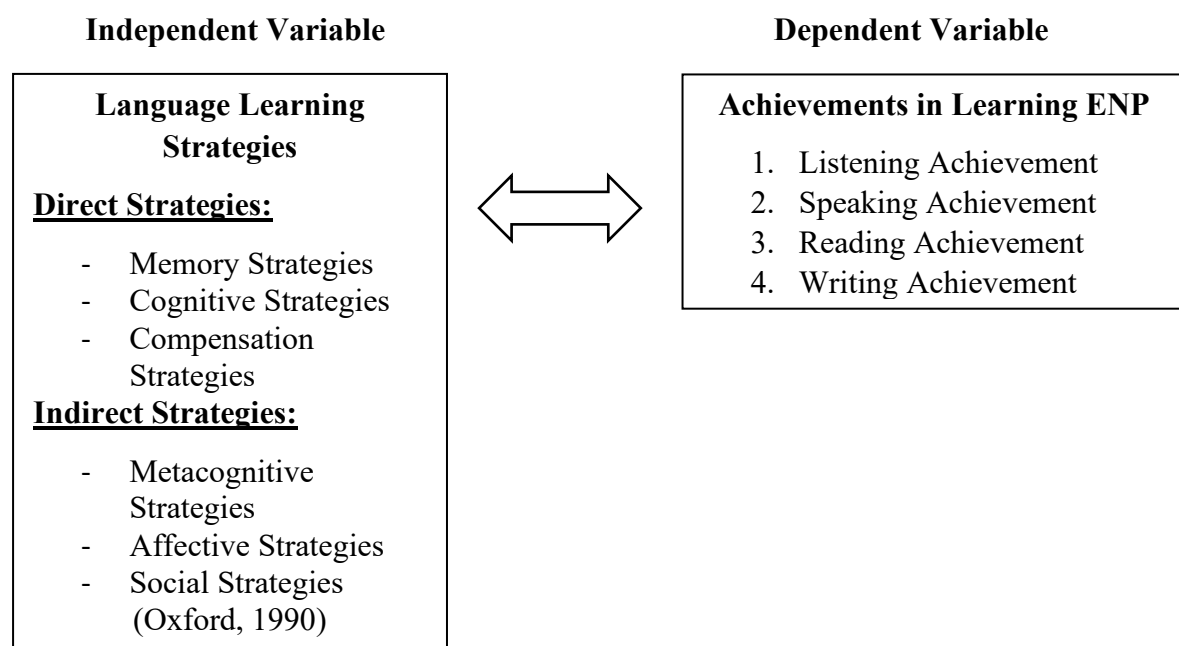
Language learners are encouraged to be more self-directed when using LLS. Self-direction is crucial since teachers may not always be available to assist them when using the language outside the classroom. Furthermore, the active development of language proficiency in a new language requires self-direction (Oxford, 1990). Learning inside and outside the classroom is essential for understanding the theories and practices. Learning could encourage people to improve themselves and fit better with their future careers. Learning without strategies, however, makes it difficult for learners to achieve their goals. LLS could help learners recognize what they truly need to employ in their learning to be better at acquiring new information and content (Monereo et al., 2001; Oxford & Ehrman, 1995). Likewise, LLS is defined by Chamot (2004) as “the conscious thoughts and actions that learners take in order to achieve a learning goal.”

Moreover, English is the most used language for reading and speaking globally in countries where it is taught as a *Second Language* (ESL) or a *Foreign Language* (EFL) (Kachru, 1992). Consequently, LLS have also received much attention in the past few years for improving the English skills of learners. The use of LLS encourages learners to successfully and efficiently learn English, allowing students to find their own ways of learning English (Cohen, 1990; O'Malley & Chamot, 1990). Similarly, Su (2005) also pointed out that LLS were key to learners being successful in ELL. Therefore, LLS have been widely accepted by many previous studies as being key to improving the English language skills of learners (Chiou & Chen, 2010; Mirza, 2015; Taheri et al., 2020). In other words, learning English without LLS could lead to learners failing in ELL. LLS are not particularly new and have been used for many years in the field of English language education, helping students to become more confident and autonomous in their learning. Therefore, it is essential to incorporate LLS, particularly in the context of ELL.

According to Oxford (1990), LLS falls into two main categories: direct and indirect strategies. These can be further divided into six sub-categories: 1) memory strategies, 2) cognitive strategies, 3) compensation strategies, 4) metacognitive strategies, 5) affective strategies, and 6) social strategies. Direct strategies provide direct mental support for language learning, comprising memory, cognitive, and compensation strategies. Indirect strategies provide indirect support for language learning, consisting of metacognitive, affective, and social strategies.

Figure 1

Conceptual Framework of the Study



Research Objectives

1. To investigate the language learning strategies frequently used by Thai nursing students in learning English for Nursing Purposes
2. To compare the use of language learning strategies by Thai nursing students when learning English for Nursing Purposes, categorized according to high, moderate, and low achievers
3. To explore the relationships between the use of language learning strategies in learning English for Nursing Purposes and the achievements of Thai nursing students

Research Questions

1. What language learning strategies do Thai nursing students frequently use to learn English for Nursing Purposes?
2. Do high, moderate, and low-achieving Thai nursing students use language learning strategies differently when learning English for Nursing Purposes?
3. What is the relationship between the use of language learning strategies in learning English for Nursing Purposes and the achievements of Thai nursing students?

Methodology

1. Research Design

This was an exploratory correlational study in which the quantitative approach was adopted for collecting and analyzing data to identify the ways LLS were used by the participants. This study aimed to (1) investigate the LLS Thai nursing students frequently use in learning ENP; (2) compare the use of LLS by Thai nursing students in ENP, categorized into high, moderate, and low achievers; and (3) explore the relationships between the use of LLS in learning ENP and the achievements of Thai nursing students.

2. Population

This research was conducted at a Private University in Nakhon Pathom, Thailand, where 430 undergraduate students were enrolled in both the Thai and international programs of Bachelor of Nursing Science (BNS) in the academic year 2020. There were 110 students in the international program and 320 students in the Thai program. However, the 320 nursing students in the Thai program accounted for the main research population in this study since the aim was to explore ELL in Thailand in relation to EFL or a non-English environment. In the BNS Thai program at the university, the curriculum includes five compulsory English courses. English I and English II focus on GE, while English III, English IV, and English V focus on ENP.

3. Sample and Sampling

Drawing upon the population in this study, 320 undergraduate nursing students were enrolled in the BNS Thai program. However, under the objectives of this study, the research participants would need to complete five compulsory English courses and take an English Proficiency Examination. Hence, according to the academic registration affairs information provided by the university, 170 fourth-year nursing students had completed five compulsory English courses and The achievements in ENP as required by the university. In line with the study objectives, purposive sampling was employed to select the 170 fourth-year nursing students from the BNS Thai program.

4. Instruments and Procedures

According to the quantitative research design, a questionnaire is distributed to examine participants' self-reported data, such as characteristics, behavior, attitudes, beliefs, opinions, and the use of LLS. In this study, the SILL questionnaire (Oxford, 1990) was adapted to collect quantitative data on the use of LLS in learning ENP and the achievements of nursing students enrolled in the BNS Thai program. The SILL questionnaire (Oxford, 1990) has been extensively used to investigate the use of LLS in ELL and ESP both in the international context (Ahmadishokouh & Derikvand, 2015; Chiou & Chen, 2010; Hayati, 2015; Khaleel Mohammad & Alrefaee, 2019; Taheri et al., 2020) and Thai context (Rardprakhon et al., 2016; Sukkrong & Yordchim, 2017; Sukying, 2021). Hence, the English-Thai version of the questionnaire was adapted and translated by the researcher to allow students at the low proficiency level to clearly understand the instructions and questions. The questionnaire consisted of three main parts: 1) General Information, Educational Background, and English Achievements; 2) Language Learning Strategies in Learning English for Nursing Purposes; and 3) Additional Opinions.

In addition, LLS in learning ENP consisted of 50 items about six categories; they are memory strategies (items 1-9), cognitive strategies (items 10-23), compensation strategies (items 24-29), metacognitive strategies (items 30-38), affective strategies (items 39-44), and social strategies (items 45-50). Furthermore, Oxford (1990) stated that "the SILL questionnaire was first designed as an instrument for assessing the frequency of use" (Oxford, 1995). Thus, a choice of five Likert scales was used in this questionnaire and response for each strategy described: never (0% of the time), seldom (25% of the time), sometimes (50% of the time), usually (75% of the time), and always (100% of the time).

The SILL is a reliable and valid questionnaire and appears to be the only LLS questionnaire that has been extensively checked for reliability and validity in multiple ways (Oxford, 1990; Oxford & Burry-Stock, 1995). The adapted English-Thai version of the questionnaire of the study was also checked again by the experts, with index objective congruence (IOC) used to calculate their average scores. A panel of five experts, including two professors in the English section, one nursing professor with expertise in the area of nursing management, one non-native English

nursing lecturer, and one statistics lecturer, was used to establish instrument content validity. Each question required an average score of 0.67 to pass the validity test. Those items failing to meet the required cut-off score were revised according to the experts' suggestions. The questionnaire reliability computed by using the Cronbach's alpha coefficient was 0.92. Based on Tavakol and Dennick (2011), the Cronbach's alpha value between 0.70 and 0.95 was the acceptable value.

5. Data Collection

Fourth-year nursing students who had completed five compulsory English courses were required to take the achievements in ENP in the second semester of the academic year 2020 before graduation. The achievements in ENP were developed based on the ENP courses by English instructors from the English section. The examinations were submitted to the English Standard Committee of the University, consisting of English instructors, English-speaking nursing instructors, and university administrators from the nursing college and academia, who were asked to check, analyze, and validate the content. The examinations were then revised according to their comments. There were four sets of examinations: listening (100 items = 100 points), reading (100 items = 100 points), writing (6 items = 100 points), and another writing section (3 items = 100 points). The fourth-year nursing students returned from clinical practice on Friday and attended the university on Saturday to take the listening and reading examinations in the morning (9 am–12 pm) and the writing and speaking examinations in the afternoon (1 pm–4 pm). After finishing the examinations, the 170 nursing students were asked to complete the questionnaire by the researchers. Before responding to the questionnaire, the researchers introduced themselves, explained the objectives and benefits of the study, and asked the students to complete the consent form.

6. Data Analysis

The data obtained from the 170 questionnaires were interpreted in the form of descriptive statistics to assist in organizing, analyzing, and presenting the students' views in terms of the use of LLS by means of a Statistical Program. The descriptive statistics were then interpreted according to the classification proposed by Oxford (1990), with a mean of 2.5 or under indicating low strategy users, a mean of between 2.5 and 3.5 indicating moderate strategy users, and a mean of 3.5 and above indicating high strategy users. In addition to the descriptive statistics, one-way ANOVA was employed to compare the use of LLS by Thai nursing students in learning ENP, categorized into high, moderate, and low achievers. Lastly, the Pearson Correlation Coefficient was used to explore the relationships between the use of LLS in learning ENP and the achievements of Thai nursing students.

Furthermore, the scores for the 170 nursing students participating in the study gathered by the researchers from the achievements in ENP were analyzed and classified into three proficiency

levels: high, moderate, and low. Indeed, high achievers scored higher than 80 points on each examination, moderate achievers scored from 60 to 80 points on each examination, and low achievers scored lower than 60 points on each examination.

Results

The research findings on LLS used by Thai nursing students to learn ENP are presented in this section. The findings reveal (1) the LLS nursing students frequently use for learning ENP, (2) the use of LLS among high, moderate, and low achievers, and (3) the relationships between the use of LLS in learning ENP and the achievements of Thai nursing students. The results of the collected data aim to address the three research questions.

1. Descriptive Statistics on LLS Use by Thai Nursing Students

The descriptive data of the 170 Thai nursing students' ENP achievements in listening, reading, writing, and speaking skills from the English Proficiency Examination are shown in Table 1.

Table 1

Descriptive Statistics of ENP Achievements

ENP Achievements	<i>N</i>	<i>M</i>	<i>SD.</i>	Min	Max
Listening	170	58.16	17.18	25.00	89.00
Reading	170	57.81	19.82	17.00	84.00
Writing	170	61.36	18.23	3.00	83.00
Speaking	170	72.12	10.33	5.00	84.00

As can be observed, the 170 students achieved scores in listening, reading, writing, and speaking (LRWS) for ENP. The average scores for LRWS were as follows: listening (58.16), reading (57.81), writing (61.36) and speaking (72.12). These mean scores indicate that the students performed well in speaking, followed by writing, listening, and reading, respectively. According to the classification of three English proficiency levels in this study, the results illustrate that the students have a low proficiency level (lower than 60 points) in listening and reading ENP achievements and have a moderate proficiency level (between 60-80 points) in writing and speaking ENP achievements.

To determine which LLS the students frequently used, the descriptive statistics of the two major categories of LLS (direct and indirect) were calculated. The results revealed the mean score for overall LLS use was $M = 3.46$, direct strategies $M = 3.48$, and indirect strategies $M = 3.45$. This implies that the students used direct strategies (Memory, Cognitive, and Compensation) slightly more frequently than indirect strategies (Metacognitive, Affective, and Social). Consequently, both direct and indirect strategies were moderately employed by the students in this study.

Table 2

Degree and Rank of the Use of LLS

LLS	<i>N</i>	<i>M</i>	<i>SD.</i>	Min	Max	Levels	Rank
Memory	170	3.56	0.80	3.28	3.82	High	1
Metacognitive	170	3.54	0.80	3.32	3.69	High	2
Compensation	170	3.46	0.80	3.29	3.64	Moderate	3
Cognitive	170	3.43	0.79	3.22	3.56	Moderate	4
Social	170	3.43	0.82	3.21	3.59	Moderate	5
Affective	170	3.39	0.87	3.09	3.53	Moderate	6

Table 2 presented the descriptive data on the use of LLS by students when learning ENP. The 170 Thai nursing students frequently used two strategies: one direct (Memory, $M = 3.56$) for example, “*I think of the relationships between what I have already learned in my content course and new things I learn in my ENP class.*” and one indirect (Metacognitive, $M = 3.54$) for example, “*I try to find as many ways as I can to use my English.*”, and these two categories of LLS were interpreted as high level. Additionally, Compensation ($M = 3.46$), for example, “*When I can’t think of a word during a conversation in English, I use gestures.*” Cognitive ($M = 3.43$), for example, “*I watch English language TV programs or YouTube channels suggested by my ENP teachers*”; Social ($M = 3.43$), for example, “*If I do not understand something in English, I ask other people to slow down or repeat*”; and Affective ($M = 3.39$), for example, “*I try to relax whenever I feel afraid of using English,*” were used at a moderate level.

Table 3

Range of Scores of ENP LRWS Achievements by Three Proficiency Levels

ENP Achievements in LRWS	Low Achievers		Moderate Achievers		High Achievers		Range	
	<i>Mean</i>	<i>SD.</i>	<i>M</i>	<i>SD.</i>	<i>Mean</i>	<i>SD.</i>	Lower	Upper
Listening	44.24 (<i>n</i> =92)	8.42	70.04 (<i>n</i> =45)	5.84	84.00 (<i>n</i> =33)	4.54	25.00	89.00
Reading	41.18 (<i>n</i> =88)	11.32	70.03 (<i>n</i> =37)	6.74	83.57 (<i>n</i> =45)	3.28	17.00	84.00
Writing	41.62 (<i>n</i> =60)	15.57	69.41 (<i>n</i> =85)	7.40	84.72 (<i>n</i> =25)	4.01	3.00	83.00
Speaking	41.13 (<i>n</i> =8)	20.36	70.46 (<i>n</i> =112)	4.71	84.24 (<i>n</i> =50)	3.30	5.00	84.00

Table 3 displayed the LRWS mean scores across three proficiency levels for ENP achievements. Firstly, the mean score for listening was 44.24 received by 92 low achievers, 70.04 by 45 moderate achievers, and 84.00 by 33 high achievers. Secondly, the mean score for reading was 41.18, received by 88 low achievers, 70.03 by 37 moderate achievers, and 83.57 by 45 high achievers. Thirdly, the mean score for writing was 41.62 received by 60 low achievers, 69.41 by 85 moderate achievers, and 84.72 by 25 high achievers. Lastly, the mean score for speaking was 41.13, received by 8 low achievers, 70.46 by 112 moderate achievers, and 84.24 by 50 high achievers.

Table 4

Comparison of Means of LLS across Low, Moderate and High Achievers of ENP Writing Achievement

LLS		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Memory Strategies	Between Groups	2	2.689	1.345	3.994	.020
		167	56.22	.337		
	Within Group	169	58.91			
	Total					
Cognitive Strategies	Between Groups	2	5.256	2.628	7.535	.001
		167	58.25	.349		
	Within Group	169	63.51			
	Total					
Compensation Strategies	Between Groups	2	4.390	2.195	5.897	.003
		167	62.17	.372		
	Within Group	169	66.56			
	Total					
Metacognitive Strategies	Between Groups	2	3.112	1.556	3.762	.025
		167	69.08	.414		
	Within Group	169	72.20			
	Total					
Social Strategies	Between Groups	2	3.015	1.508	3.721	.026
		167	67.65	.405		
	Within Group	169	70.67			
	Total					

Table 4 compared the use of LLS among Thai nursing students across low, moderate, and high achievers in ENP writing. Significant differences were found in the five categories of LLS, among them Memory ($p = .02 < .05$), Cognitive ($p = .00 < .01$), Compensation ($p = .00 < .01$), Metacognitive ($p = .02 < .05$), and Social ($p = .03 < .05$). However, only Affective strategies showed no significant difference among low, moderate, and high achievers in ENP writing. The results of the one-way ANOVA and post-hoc Scheffe's test are presented in Table 5.

Table 5

Multiple Comparisons by Means of the Use of LLS across Low, Moderate, and High Achievers of ENP Writing Achievement

LLS	(I) English Achievers Level	(J) English Achievers Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Memory	Low	Moderate	-1.96	.098	.137	-.438	.045
		High	-.365.	.138.	.020	-.706	.024.-
	Moderate	High	-.169	.132	.443	-.495	.157
Cognitive	Low	Moderate	-.224	.099	.083	-.470	.022
		High	*536.-	140.	.001	883.-	189.-
	Moderate	High	-.312	.134	.071	-.643	.020
Compensation	Low	Moderate	-.160	.103	.300	-.414	.093
		High	-.498*	.145	.003	-.857	-.140
	Moderate	High	-.280	.139	.054	-.681	.005
Metacognitive	Low	Moderate	-.139	.108	.442	-.407	.129
		High	-.419*	.153	.026	-.797	-.041
	Moderate	High	-.280	.146	.163	-.642	.081
Social	Low	Moderate	-.141	.107	.425	-.406	.124
		High	-.412*	.151	.026	-.786	-.038
	Moderate	High	-.271	.145	.176	-.629	.086

** $p \leq .01$, * $p \leq .05$

According to Table 5, the post-hoc analysis for Memory strategies shows statistically significant mean differences ($-.36$, $p = .03 < .05$) between low and high achievers in ENP writing. High achievers ($M = 3.77$, $SD. = 0.57$) tended to use Memory strategies more frequently than low achievers ($M = 3.40$, $SD. = 0.55$).

In terms of Cognitive strategies, according to the post-hoc analysis, there were statistically significant mean differences ($-.53$, $p = .00 < .01$) between low and high achievers in ENP writing.

This implied that high achievers ($M = 3.78$, $SD. = 0.55$) applied Cognitive strategies more frequently than low achievers ($M = 3.24$, $SD. = 0.61$).

As for Compensation strategies, the post-hoc analysis revealed statistically significant mean differences ($-.53$, $p = .00 < .01$) between low and high achievers in ENP writing. It was found that high achievers ($M = 3.81$, $SD. = 0.59$) employed Cognitive strategies more frequently than low achievers ($M = 3.31$, $SD. = 0.63$).

According to the post-hoc analysis for Metacognitive strategies, there were statistically significant mean differences ($-.42$, $p = .02 < .05$) between low and high achievers in ENP writing, suggesting that high achievers ($M = 3.82$, $SD. = 0.63$) used Cognitive strategies more frequently than low achievers ($M = 3.41$, $SD. = 0.65$).

In terms of Social strategies, the post-hoc analysis displayed statistically significant mean differences ($-.41$, $p = .02 < .05$) between low and high achievers in ENP writing, suggesting that high achievers ($M = 3.71$, $SD. = 0.67$) applied Cognitive strategies more frequently than low achievers ($M = 3.29$, $SD. = 0.61$).

Table 6

Comparison of Means of LLS across Low, Moderate and High Achievers of ENP Speaking Achievement

LLS		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Compensation Strategies	Between Groups	2	2.669	1.335	3.489	.033*
	Within Group	167	63.89	.383		
	Total	169	66.56			

** $p \leq .01$, * $p \leq .05$

Table 6 compared the use of LLS by Thai nursing students, categorized into low, moderate, and high achievers in ENP speaking, revealing no significant difference in the five categories of LLS. On the other hand, there was a significant difference in Compensation strategies, following the results of the one-way ANOVA and the post-hoc Scheffe's test, presented in Table 7.

Table 7

Multiple Comparisons by Means of the Use of LLS across Low, Moderate, and High Achievers of ENP Speaking Achievement

LLS	(I) English Achievers Level	(J) English Achievers Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Compensation	Low	Moderate	.315	.226	.165	-.131	.762
		High	.061	.235	.797	-.404	-.526
	Moderate	High	-.255*	.105	.017	-.462	-.047

** $p \leq .01$, * $p \leq .05$

Table 7 displayed the results of the post-hoc analysis for Compensation strategies. As can be observed, there were statistically significant mean differences ($-.25$, $p = .02 < .05$) between moderate and high achievers in ENP speaking. It was found that high achievers ($M = 3.62$, $SD. = 0.62$) employed Compensation strategies more frequently than moderate achievers ($M = 3.37$, $SD. = 0.61$).

2. Correlation between the Use of LLS and ENP Achievements among Thai Nursing Students

The purpose of this section is to clarify the correlation between Thai nursing students' LLS and ENP achievements. The gathered data were analyzed using the Pearson Correlation Coefficient to determine the relationship between the use of LLS and ENP achievements.

Table 8

Correlation between the Use of LL and ENP Achievements

LLS		Listening	Reading	Writing	Speaking
Memory	Pearson Correlation	-.046	-.100	.176*	.088
	Sig. (2-tailed)	.552	.195	.022	.256
Cognitive	Pearson Correlation	-.022	-.043	.216**	.006
	Sig. (2-tailed)	.776	.580	.005	.937
Compensation	Pearson Correlation	.096	-.038	.174*	.059
	Sig. (2-tailed)	.215	.625	.023	.448
Metacognitive	Pearson Correlation	.045	.014	.154*	-.004
	Sig. (2-tailed)	.563	.857	.045	.962

Table 8 (Continued)

LLS		Listening	Reading	Writing	Speaking
Affective	Pearson Correlation	-.005	-.093	.055	-.031
	Sig. (2-tailed)	.944	.227	.474	.692
Social	Pearson Correlation	.037	-.011	.173*	-.039
	Sig. (2-tailed)	.636	.890	.024	.612
Total	Pearson Correlation	.012	-.049	.190*	.013

** $p \leq .01$, * $p \leq .05$

The data in Table 8 were analyzed by Pearson Correlation Coefficient to investigate the relationship between the six categories of LLS and ENP achievements. The results revealed that listening, reading, and speaking in the ENP achievements of Thai nursing students showed no significant correlation with the six categories of LLS and its overall use. However, in English writing achievement, the use of LLS was found to have a statistically significant correlation with ENP writing achievement.

Therefore, the use of Memory strategies was found to have a statistically significant correlation with ENP writing achievement at the $p < .05$ level and the value of (r) (.18*). In addition, the use of Cognitive strategies was revealed to have a statistically significant correlation with ENP writing achievement at the $p < .01$ and the (r) value (.22**). Furthermore, the use of Compensation strategies was shown to have a statistically significant correlation with the ENP writing achievement at $p < .05$ and the (r) value (.17*). Additionally, the use of Metacognitive strategies was found to have a statistically significant correlation with ENP writing achievement at $p < .05$ and the value of (r) (.15*). In addition, the use of Social strategies was found to have a statistically significant correlation with ENP writing achievement at $p < .05$ and the (r) value (.17*). Lastly, the overall use of LLS displayed a statistically significant correlation with ENP writing achievement at $p < .05$ and the value of (r) (.19*).

Discussion

According to the research objectives, three topics are discussed in this section: the use of LLS by Thai nursing students in learning ENP, the comparison of the LLS means used across three proficiency levels, and the correlation between the LLS used and ENP achievements.

1. LLS Used in Learning ENP by Thai Nursing Students

The results for the use of LLS in learning ENP by Thai nursing students revealed that they employed six categories of LLS in learning ENP at a moderate level ($M = 3.46$), consistent with the findings in previous literature in that EFL nursing students used six categories of LLS at a moderate level (Chen & Chou, 2010; Chan, 2014). In addition to the overall LLS used in the study, the findings also revealed that Memory ($M = 3.56$) and Metacognitive strategies ($M = 3.54$) were frequently used at a high level, aligning with the study by Noprival and Alfian (2024) which reported that Indonesian EMP and ENP students in higher education employed Memory and Metacognitive strategies at a high level. Therefore, consistent with previous studies, this study found Memory strategies to be favored by learners (Al-Khresheh & Al-Ruwaili, 2020). The most frequently used individual Memory strategies included: *“I think of the relationships between what I have already learned through my course content and new things I learn in my ENP class”* ($M = 3.82$), *“I try to use new words. I have learned new sentences in my ENP class and can remember them”* ($M = 3.74$), *“I connect the sound of a new English word and its image to help me remember it word in my ENP class”* ($M = 3.68$), *“I remember a new word by making a mental picture of a situation in which the word might be used in the ENP class”* ($M = 3.59$) and *“I use rhymes to remember new English words in my ENP class”* ($M = 3.56$). As a result, Memory strategies assist the students in storing and retrieving knowledge for use in language learning in the future (Oxford, 1990). In addition, this indicates that Thai nursing students frequently apply Memory strategies in learning ENP to acquire new words (Al-Khresheh & Al-Ruwaili, 2020; Oxford, 1990). This aligns with Chan (2014), who found that nursing students recited more English vocabulary to improve their speaking, writing, and reading skills.

Metacognitive strategies ($M = 3.54$) were ranked at the second highest level by Thai nursing students, consistent with the findings in previous literature, which reported that Indonesian nursing students employed Metacognitive strategies at a high level (Parera, 2022). The findings of the study also illustrate that the individual Metacognitive strategies frequently used were *“I try to find as many ways as I can to use my English”* ($M = 3.69$), *“I try to find out how to be a better learner of English”* ($M = 3.68$), *“I pay attention when someone is speaking English”* ($M = 3.66$), *“I think about my progress in learning English”* ($M = 3.64$), and *“I notice my English mistakes and use that information to help me do better”* ($M = 3.58$). Thus, Metacognitive strategies can motivate students to concentrate, arrange, and plan for language tasks, consciously search for practice opportunities, monitor errors, and evaluate their improvement (Alfian, 2021; Hardan, 2013; Oxford, 1990).

It might be a culture of English language teaching in Thailand that foster the nursing students to have high level use of Memory strategies. This has been known for decades that Thai teachers usually teach English language by emphasizing a grammatical practice and memorizing a sentence structure or vocabulary (Chanaroke & Niemprapan, 2020). This teaching approach is also known as Grammar-Translation method, which mainly focuses on remembering grammatical knowledge (Sukavatee & Khlaisang, 2023). It can affect the students' language learning behavior as they will

rely too much on memorization, for instance, they will always remember a sentence or a word to take an English test.

2. Comparison of LLS Means Used across Three Proficiency Levels

Students tend to use more LLS as they advance in their proficiency, and their proficiency levels could have a major impact on the LLS they employ (Damanik, 2022; Sartika et al., 2019). The findings of the study revealed that the three proficiency levels of Thai nursing students classified by ENP listening and reading achievements showed no significant difference across high, moderate, and low achievers. This implies that Thai nursing students had the ability to set clear goals, manage, assess, review, and evaluate their ENP learning, listening, and reading skills, consistent with the findings of Rardprakhon et al. (2016), who reported no significant difference in the use of LLS by Thai undergraduate students across three levels of English proficiency.

In contrast, the findings revealed that high and low achievers in ENP writing showed statistically significant differences in the use of five LLS, namely Memory, Cognitive, Compensation, Metacognitive, and Social. This indicates that Thai nursing students who were high achievers in ENP writing employed these five categories of LLS more frequently than low achievers. These findings align with those of Khaleel Mohammad and Alrefaee (2019), who revealed a statistically significant difference between high and low achievers in the overall use of LLS when using Metacognitive, Compensation, and Cognitive strategies. This may be related to the students' characteristics between high and low achievers. As for the high achieving-learners, they have personality traits that encourage them to succeed further. Therefore, they are more motivated and self-regulated than the other achievers. According to Kiatkeeree and Ruanjaroon (2022) found that Thai English language learners' personalities influenced on language achievement and engagement. Sukying (2021) supported that language learning strategies may be varied depending on the students' characteristics and preferences. Furthermore, the findings illustrate that high and moderate ENP achievers, classified by ENP speaking achievement, demonstrated a statistically significant difference in the use of Compensation strategies. This suggests that Thai nursing students who were high achievers in ENP speaking employed Compensation strategies more frequently than moderate achievers. Similarly, Syafryadin et al. (2022) asserted that in order to avoid communication gaps during speaking activities, compensation strategies are significantly important when learning a language.

3. Correlation between LLS Used and ENP Achievements

In addition to examining the use of LLS and comparing them across three proficiency levels of Thai nursing students, this study also explored the relationship between the LLS used and ENP achievements. The findings of the study reveal a statistically positive correlation between the use of five categories of LLS and ENP writing achievement, namely Memory, Cognitive, Compensation, Metacognitive, and Social. On the other hand, the findings also reveal that no

statistically significant correlation exists between the use of LLS and ENP listening, reading, and speaking achievement. This indicates that Thai nursing students who employed more LLS more frequently, especially in these five categories, can succeed in ENP writing achievement.

Consequently, Nurakhir and Palupi (2018) reported that nursing students valued English as essential for both their academic studies and future careers. This aligns with the findings of Ahmed and Al-Enezi (2023), who reported that EFL nursing students perceived English vocabulary capability to be crucial in English language writing to produce quality clinical nursing notes. Finally, English is required to communicate (listening, speaking, reading, and writing) with foreign patients, colleagues, and physicians in Thai hospitals, respectively (Chetsadanuwat, 2018). Finally, Moradimokhles and Hwang (2020) found that the English proficiency of EFL nursing students was significantly improved by blended learning.

Conclusion

In this present study, the students moderately used both direct strategies (Memory, Cognitive, and Compensation) and indirect strategies (Metacognitive, Affective, and Social) to learn ENP. In other words, the students employed direct strategies ($M = 3.48$) slightly more frequently than indirect strategies ($M = 3.45$). Consequently, the students most frequently used Memory strategies to learn ENP, while the least frequently used were Affective strategies.

In comparing the use of LLS across three proficiency levels of ENP achievements, according to the results of one-way ANOVA, there were no significant differences across high, moderate, and low achievers of ENP listening and reading in the use of LLS. On the other hand, only high and low achievers of ENP writing achievement showed any statistically significant difference in the five LLS, namely Memory, Cognitive, Compensation, Metacognitive, and Social. Meanwhile, in terms of ENP speaking achievement, only high and moderate achievers showed statistically significant differences in Compensation strategies.

Therefore, the results revealed no statistically significant relationship between the use of LLS and ENP listening, reading, and speaking achievement. Meanwhile, there was a significant positive relationship between the five categories of LLS used (Memory, Cognitive, Compensation, Metacognitive, and Social) and ENP writing achievement.

Nevertheless, the most evident limitation noticed in the study is that all the participants selected for this research were 170 fourth-year nursing students from a private university in Nakhon Pathom, Thailand. It restricts the generalizability of the findings to other universities, disciplines, or broader EFL contexts. Additionally, only self-reported data from the SILL questionnaire as a research instrument might influence the reported LLS usage. Therefore, incorporating qualitative data through mixed-methods research design could provide a more comprehensive understanding of how nursing students use LLS and offer deeper insights into their learning experiences.

Finally, the findings of this current study have practical implications for improving ENP courses. English teachers can use these insights to design targeted interventions that promote the effective use of LLS, particularly memory and metacognitive strategies, which were most frequently employed by high achievers. Moreover, curriculum developers should consider utilizing LLS training into ENP courses to help students adopt more effective strategies across all English language skills. Future research should extend these findings to other academic contexts and explore how strategy evolves over time to support long-term language proficiency growth.

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