

Choices of Language Learning Strategies and English Proficiency of EFL University Learners

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Abstract

Language learning strategies (LLS) are conscious behaviours used by language learners to foster the acquisition, storage, and use of new information. This study investigated the LLS used by Thai EFL university students using a questionnaire based on Oxford's (1990) LLS taxonomy. It also identified the relationship and the difference in LLS use across clusters of academic study. The participants were 1,523 first-year students enrolled in a general English course at a university. The findings showed that university students reported a moderate use of LLS. Affective strategies were used the most frequently, followed by metacognitive, compensation, cognitive, social and memory strategies, respectively. The analysis revealed that LLS were interrelated and that LLS use differed across academic clusters. The present study also revealed the relationship between learning strategy employment and English proficiency. Overall, the results demonstrate that the use of learning strategies among Thai university learners varies, depending on individual differences and contextual factors. The findings also suggest that learners would benefit greatly from training in the use of learning strategies.

Additional qualitative research is needed to understand the learners' selection of specific strategies within each category of strategies. Such research would provide further important pedagogical and theoretical implications.
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1. Introduction

Learning strategies are a critical factor in facilitating the successful acquisition of a second or foreign language (L2) and have been the subject of much research (Griffiths, 2013; Oxford, 2003, 2017). This research has underlined the importance of adapting or applying effective pedagogical methods to promote the use or creation of learning strategies that allow students to control their language learning and increase their learning autonomy. Due to advances in digital technologies and their applications, the English language has become an essential tool in the 21st century. English is used to seek information, exchange ideas, and network, and is now taught as a second or foreign language at all education levels in many countries around the world.

Language learning strategies (LLS) involve conscious, selected behaviours performed to achieve a particular task, and the application of LLS depends on the task being resolved. LLS are often employed to memorize, process, store, retrieve and use new information in real situations. Learners also use these strategies to enhance their self-confidence, autonomy and self-regulation when learning a target language. LLS also includes cognitive skills that can be learned and improved (O'Malley & Chamot, 1990), and allow language learners to advance their language knowledge development in their own way.

Research has shown that learning strategies facilitate English language learning and assist language learners both inside and outside the classroom (Goh & Foong, 1997; Khamkhien, 2011; Oxford, 2011). Several studies have aimed to identify the most and least frequently used strategies among L2 learners (Foster et al., 2017; Phonhan, 2016; Rardprakhon, 2016). Overall, language learners employ various strategies to learn English and LLS are extensively used among learners (Habok & Magyar, 2018; Oxford, 2003). It has also been shown that proficient learners are more likely to actively engage in LLS, employ a wider variety of strategies, and select a more appropriate strategy than their less proficient peers (Al-Qahtani, 2013; Habok & Magyar, 2018; Oxford & Nyikos, 1989; Rao, 2016; Wu, 2008). However, other studies have found no relationship

between proficiency levels and the implementation of LLS (Phonhan, 2016; Rardprakhon, 2016).

Several studies have investigated which LLS are used the most frequently among language learners. Some studies reported that cognitive strategies were the most frequently used by EFL learners (Al-Qahtani, 2013; Charoento, 2017; Chen, 2009; Wong, 2005; Wu, 2008), while memory strategies were used the least (Bonyadi et al., 2012; Goh & Foong, 1997; Griffiths & Parr, 2001; Khamkhien, 2011; Kunasaraphan, 2015; Srisupha, 2012; Su, 2005; Tieocharoen & Rimkeeratikul, 2019). Other studies reported that language learners used social strategies more than other strategies (Suwanarak, 2015; Tieocharoen & Rimkeeratikul, 2019) but others reported that social strategies were the least likely to be used by EFL learners (Foster et al., 2017; Ghavamnia et al., 2011; Phonhan, 2016). It is likely that the selection of strategies to learn English still varies. Indeed, previous studies have demonstrated relationships between LLS and various factors, including age, gender and motivation (Al-Qahtani, 2013; Chen, 2009; Gerami & Baighlou, 2011; Giang & Tuan, 2018; Habok & Magyar, 2018; Rao, 2016; Wu, 2008; Zhang & Xiao, 2014). Understanding the nature of strategy use among EFL learners may provide a clearer picture of the frequency of LLS use and the specific strategies selected to learn English.

2. Theoretical Framework

2.1 Language learning strategies

Language learning strategies (LLS) have been extensively defined in the literature. In 1972, Selinker described these strategies as tactics that L2 learners use to make the new, and cognitively demanding, linguistic system easier and simpler. Later, Wenden (1987) stated that LLS are plans, routines, and operations that the learner uses to obtain, store, retrieve, and use information. O'Malley and Chamot (1990) view LLS as intentional behaviours or cognitive skills that help learners understand, learn, and remember new information. Oxford (1990) defined LLS as “approaches or techniques that learners use to enhance their progress in developing second language (L2) skills”, and A. Cohen (1998) argued that the learner consciously selects LLS. LLS can thus be defined as conscious, selected behaviours used to overcome particular

language learning challenges. The structure of the LLS depends on the matter being resolved and the context of the learning goal or situation. Overall, such strategies are used to comprehend, synthesize, store, retrieve and use information in speaking or writing.

More recently, learning strategies have been broadly defined as procedures that facilitate learning tasks (Chamot, 2005). Such strategies are most often conscious and goal-driven. Indeed, Ortega (2009) described learning strategies as conscious mental and behavioural procedures that learners engage in with the intent of gaining control over their learning. LLS have also been defined as activities that learners consciously select to regulate their learning (Griffiths, 2008). In 2017, Oxford further explained that L2 learning strategies are complex, dynamic actions selected and used by learners in specific contexts to accomplish language tasks and increase their language learning development. These strategies are often combined and regulated in various ways to meet their learning needs. Indeed, the appropriateness of different strategies depends on multiple personal and contextual factors (Oxford, 2017).

The various definitions of LLS were the focus of early studies, yet there is still no definite agreement for defining and classifying LLS. However, at present, Oxford's (2017) definition of LLS is the most comprehensive and useful (Thomas & Rose, 2019). Based on this recent definition of LLS, the current study also defines LLS as conscious behaviours and thought processes selected and used by learners to perform learning actions in particular contexts. In this study, LLS reflect the learners' ability to deploy strategies to comprehend, store, retrieve and access relevant knowledge for their L2 learning and use.

2.2 Types of LLS

Research in the area of second language (L2) learning strategies has made great efforts to classify diverse learning strategies. For example, based on cognitive theory, O'Malley and Chamot (1990) categorised LLS into three groups: cognitive, metacognitive, and social-affective strategies. Cognitive strategies include the activities learners use to obtain, process, comprehend, store, retrieve, and use language information. Metacognitive strategies are the activities learners use to plan, manage, and monitor their learning. Finally, socio-affective

strategies are based on social-mediating activities and interacting with others.

By contrast, Oxford (1990) divided LLS into two main categories: direct and indirect. Direct strategies directly influence the learning process by helping learners overcome knowledge gaps to achieve insight into the target language. Such strategies include memory strategies, cognitive strategies, and compensation strategies. Memory strategies are techniques specifically tailored to help learners create mental images of learning items to remember and store new information and later retrieve that information. These techniques include placing new words in new contexts, using keywords, and representing sounds in one's memory. Cognitive strategies relate to processing information and structuring it to better comprehend and produce language in different ways. Such strategies include note-taking, summarising, reasoning, and creating structures. Compensation strategies deal with language gaps between a learner's first language (L1) and a second language (L2). Examples of these strategies include guessing the meaning of unknown words, gesturing while reading, listening for or using synonyms, and paraphrasing when dealing with difficulties that occur in communication.

Indirect strategies facilitate and manage language learning without directly involving the learning process in the target language. These strategies include metacognitive, affective, and social strategies. Metacognitive strategies include manipulating language knowledge and cognitive functions in language learning and use through organizing, planning, and evaluating one's learning process. Affective strategies relate to emotions, feelings, motivation, anxiety and self-efficacy. These strategies help learners gain control over their emotional behaviours, attitudes, and motivation. Examples of affective strategies include relaxation techniques or singing songs in the target language to lower anxiety. Social strategies deal with seeking help or input from others, interactions, feedback and L2 culture. Such strategies include asking questions, cooperating with peers, and developing empathy towards people who speak the target language.

3. Previous Studies on LLS Use

Over the past decades, much research has been conducted on LLS (Griffiths, 2013; Griffiths & Cansiz, 2015; Habok & Magyar, 2018;

Khamkhien, 2011; Macaro, 2006; Oxford, 2011; Wu, 2008). Many of these studies have confirmed that LLS help students become more effective language learners and enhance their English language mastery. It has also been shown that several factors can affect the learner's choice of strategy, including language proficiency, years of study, learning goals, gender, personality traits, learning styles, the field of study, aptitude, teaching methods, task requirements, national origin, learning contexts, affective factors, and age (Al-Qahtani, 2013; Charoento, 2017; Chen, 2009; Green & Oxford, 1995; Oxford, 1989; Rao, 2016; Wu, 2008).

Language proficiency levels correlate with the frequency and range of learning strategy use. Specifically, highly proficient learners typically employ a wider range of learning strategies than their less proficient peers (Al-Qahtani, 2013; Gerami & Baighlou, 2011; Giang & Tuan, 2018; Habok & Magyar, 2018; Magogwe & Oliver, 2007; Oxford, 1989; Taguchi, 2002; Wu, 2008) and also use strategies more frequently (Foster et al., 2017; Gerami & Baighlou, 2011; Magogwe & Oliver, 2007; Taguchi, 2002; Wu, 2008) and more effectively (Chen, 2009) than their low proficient peers. However, some studies found no significant relationship between language proficiency levels and the execution of LLS (Phonhan, 2016; Rardprakhon, 2016). Moreover, while some previous studies have shown a positive link between language proficiency levels and LLS use, others have reported the opposite (Nisbet et al., 2005; Chen, 2009; Gerami & Baighlou, 2011; Giang & Tuan, 2018; Habok & Magyar, 2018). Nevertheless, current research has emphasized that use of LLS promotes language learning proficiency (Al-Qahtani, 2013; Charoento, 2017; Chen, 2009; Green & Oxford, 1995; Rao, 2016; Wu, 2008) and, overall, these studies showed that proficient learners were more likely to be actively engaged in LLS, employ a wider variety of strategies and select more appropriate strategies than their less proficient peers (Al-Qahtani, 2013; Habok & Magyar, 2018; Oxford & Nyikos, 1989; Rao, 2016; Wu, 2008).

The learning context, teaching materials and cultural values also influence learning strategies (Chamot, 2004; Oxford, 1989). For instance, an educational system that focuses on competitive tasks and learning cultures in which competition is valued may result in learners selecting individual rather than cooperative strategies. Indeed, Grainger (2012) argued that the choice of LLS in learning a foreign language depended on the cultural background and the learning context to which the students

were exposed. Griffiths (2013) further explained that language learning in a communicative environment requires specific strategies, as does learning in a conventional grammar-translation context. Oxford (1990) also noted that explicit and implicit learning contexts could help develop strategy use and, therefore, the values of the learners' culture and the educational system could affect the learners' choice of strategies.

Educational systems and environments also play a role in using LLS (Chamot, 2004; Grainger, 2012; Khamkhien, 2011; Oxford, 1989, 1990, 2017; Prakongchati & Intaraprasert, 2007). Zhong (2015) examined two Chinese migrant learners' strategy use over time and identified a relationship between learners' beliefs and their learning strategies. The study showed that both Chinese migrant learners changed their beliefs and learning strategies after they had experienced a new language teaching approach in New Zealand. The study illustrates the complex relationship between learners' beliefs and learning strategies and reveals that learning strategies can shift over time, particularly after exposure to a new learning context and environment. Other studies have also reported that the frequency and choice of learning strategies are socially mediated and context-dependent (Habok & Magyar, 2018; Hashim et al., 2018; Tieocharoen & Rimkeeratikul, 2019). Together, these findings suggest that the environments and contexts in which learners acquire the target language influence the frequency of use and choice of learning strategies.

Highly motivated students also apply more strategies, and with a higher frequency, than less motivated peers (Al-Qahtani, 2013; Oxford & Nyikos, 1989). Indeed, motivated students employ a more comprehensive range of strategies and are also able to select more appropriate strategies (Oxford, 1990). That is, motivation does not merely impact the general frequency of strategy implementation, but also influences the learner's choice of strategy. This is consistent with other findings that motivation and LLS allow learners to build a strategic plan for better learning (Griffiths, 2013; Kunasaraphan, 2015; Macaro, 2006; O' Malley & Chamot, 1990; Oxford, 1990; Taguchi, 2002). Indeed, motivation shapes one's strategic plans and helps group metacognitive awareness with broader learning goals when compared to discrete strategies. Furthermore, motivation drives learners to complete their learning tasks. Griffiths (2013) argued that external and internal motivation influence learners to become successful. Therefore, learners

with positive experiences may become motivated, but this can be challenging in an environment where mixed-ability learners are present. That is, the learners' confidence level in language learning can scaffold or hinder their language learning.

In the Thai EFL context, research into language learning strategies has primarily focused on the frequency with which LLS are used among English language students, including the most and least frequently used strategies (Foster et al., 2017; Khamkhien, 2011; Phonhan, 2016; Srisupha, 2012; Suwanarak, 2015; Tieocharoen & Rimkeeratikul, 2019), with a focus on the LLS use in English major students or related study programs (Tieocharoen & Rimkeeratikul, 2019; Toomnan, 2019). Research in the Thai EFL context has also demonstrated the relationship between LLS use and English proficiency among language learners (Phonhan, 2016; Prakongchati, 2012). However, these studies have produced mixed results (Kunasaraphan, 2015; Prakongchati & Intaraprasert, 2007). Some studies reported that social strategies were the most frequently used by language learners (Suwanarak, 2015; Tieocharoen & Rimkeeratikul, 2019), while others found social strategies to be the least frequently used by EFL learners (Foster et al., 2017; Phonhan, 2016). However, some of these studies rely on relatively small sample sizes, ranging from just above 50 learners to a few hundred of participants (Foster et al., 2017; Phonhan, 2016; Rardprakhon, 2016; Tieocharoen & Rimkeeratikul, 2019; Toomnan, 2019), which may account for the conflicting results.

Understanding learners' strategy use is of great significance for practitioners and scholars, as it could yield fruitful information to the language acquisition process and the role of learning strategies in language development, particularly in EFL contexts. The aim of the current study is to raise awareness of LLS among language learners, teachers, and those involved in curriculum design and language learning development programs. Specifically, the current study investigates the use of English LLS by first-year students at a government university in Thailand. The present study also compared LLS use in undergraduates across academic disciplines and examined the relationship between LLS and English proficiency across academic clusters. English proficiency was based on the Ordinal National Educational Test in English and General English test scores. Three research questions were formulated to guide the study, as follows:

1. What strategies do Thai university learners use the most and least frequently to learn English?
2. Are there any differences in the LLS used by Thai university learners of different clusters of academic study?
3. What is the relationship between LLS and English proficiency across academic clusters of Thai university learners?

4. Research Methods

4.1 Participants and settings

The study was conducted at a government university in the northeast of Thailand in 2019. Participants were 1,523 undergraduate students (448 males and 1,075 females) enrolled in General English Subject at the Office of General Education. The participants were 19-20 years old and were first-year university students studying in three academic clusters: Social Sciences (SS); Science and Technology (ST); and Health Science (HS). The SS cluster consisted of 877 students (224 males and 653 females) from Faculty of Humanities and Social Sciences, Faculty of Education, Faculty of Business Administration and Management, Faculty of Tourism and Hotel Management, Faculty of Fine and Applied Arts, College of Politics and Governance, College of Music, Faculty of Cultural Science, and Faculty of Law. The ST cluster included 477 students (183 males and 294 females) from Faculty of Science, Faculty of Technology, Faculty of Engineering, Faculty of Architecture, Urban Design and Creative Arts, Faculty of Environment and Resource Studies, and Faculty of Informatics. Finally, the HS cluster included 169 students (41 males and 128 females) from the Faculty of Nursing, Faculty of Pharmacy, Faculty of Medicine, Faculty of Public Health, and Faculty of Veterinary Medicine.

Participants were selected to represent a range of English language abilities, from advanced beginners to upper-intermediate levels. In addition, their families were from various socioeconomic and vocational backgrounds. The class size ranged from 130 to 150 students. All participants were Thai native speakers, and none had studied English in an English-speaking country. At the time of data collection, the participants received an average of three hours of English instruction per

week with Thai EFL teachers. Overall, participants had gained an average of 12 years of experience learning English in a formal context in Thailand.

4.2 Research instruments

The questionnaire on LLS use assessed the participants' self-reported English learning strategies. The questionnaire consisted of two parts. The first part concerned the participants' demographic background information, such as gender, faculty, and their Ordinary National Educational Test (ONET) scores. The ONET is a test administered by the National Institute of Education Testing Service (Public Organization). It was used to assess students' academic proficiency in the English language before leaving high school and is considered the most standardised test in Thailand. The total score available on the ONET is 100 points.

The second part was a 36 questionnaire-item measure developed from Oxford's (1990) taxonomy of language learning strategy to investigate Thai university learners' self-reported learning strategies in different academic learning clusters. The LLS questionnaire included six learning strategy categories: memory strategies, cognitive strategies, compensation strategies, metacognitive strategies, affective strategies, and social strategies. The participants were asked to rate the category and frequency of strategy they typically performed while learning English. The questionnaire frequency was equally divided into ratio scales, ranging from 0% to 100%. The structures of the questionnaire were memory strategies (items 1-6), cognitive strategies (items 7-12), compensation strategies (items 13-18), metacognitive strategies (items 19-24), affective strategies (items 25-30) and social strategies (items 31-36). For the sake of clarity and to avoid possible errors because of the participants' different English comprehension levels, the questionnaire was translated by two professional translators into Thai, the participants' mother tongue.

The questionnaire was used in a pilot group of 163 students, none of whom participated in the main study. A reliability analysis was performed for the questionnaire, which indicated a high degree of internal consistency across items ($\alpha = 0.90$). The Item-Objective Congruence (IOC) was also conducted to evaluate the questionnaire by using a score range from -1 to +1. The items with scores lower than 0.5

were removed from the questionnaire, and the items with scores higher than 0.5 were retained. The questionnaire was verified by five experts with doctoral degrees and at least ten years of experience in English language teaching at tertiary education institutions in Thailand.

The General English Test (GET) was also given to all participants of the study. The GET was first developed based on the textbook: *Life by National Geographic Learning* (2019). It was designed for Communicative English (0041002), a compulsory subject at the university. The GET validity was also assessed by English language experts of Western Languages and Linguistics Department. The GET was finally approved by the board of the Office of General Education of the university before its administration. The GET was used to measure students' learning achievement in the general English course at the university. The total score on the GET is 100 points. Like the ONET score, the GET score was used to determine the relationship between participants' LLS and English proficiency.

4.3 Research procedure

All participants were asked to sign a consent form before the study and permission was also obtained from the university. The LLS questionnaire was given to participants in their language classroom two weeks before the end of the semester. Before the questionnaire was administered, the instructions and illustrations of the questionnaires were provided to participants in their native Thai language. Screening measures were also implemented. The GET was given to all participants during the final examination week. Participants who did not provide the ONET scores in the questionnaire were excluded from the analysis. Those who provided the same answer in response to 10 consecutive questionnaire items were also excluded.

Descriptive statistics (means and standard deviations) were calculated, and inferential statistics were used to analyze the data. An ANOVA was used to compare the mean scores of three academic clusters, and post hoc tests were performed to detect any significant differences between the pairs. Effect sizes were also calculated. According to Oxford (1990), the ranges of the frequency of strategy use are low strategy use (0.00 – 2.49), medium strategy use (2.50 – 3.49), and high strategy use (3.50 – 5.00). That is, the range from 0% to 49.9% is

considered low-frequency strategy use, between 50% and 69.9% is moderate, and 70% or above is considered high-frequency strategy use.

5. Results

5.1 LLS use by Thai university learners

Table 1 summarises the descriptive statistics for the participants' responses to the questionnaire regarding their LLS in a Thai EFL context. Overall, the participants reported a moderate frequency of LLS use, with an overall mean of 55.8% (SD = 1.93). Regarding individual strategies, the most frequently used strategy was affective (mean = 68.9%; SD = 1.76), followed by metacognitive strategies (mean = 58.7%; SD = 1.55). The least frequently used strategies were memory (mean = 49.9%; SD = 1.66) and social strategies (mean = 50.3%; SD = 1.93).

Table 1

Overall LLS use of Thai university learners

Strategy	Mean (%)	SD
Memory	49.9	1.66
Cognitive	52.1	1.63
Compensation	55	1.7
Metacognitive	58.7	1.55
Affective	68.9	1.76
Social	50.3	1.93
Overall	55.8	1.35

5.2 LLS use by different academic clusters

Table 2 illustrates the LLS use of Thai university students from different academic clusters. For the Social Sciences cluster, participants most frequently used the affective strategy (68.9%), followed by metacognitive (59.3%), compensation (55.6%), cognitive (52.4%), social (51.2%), and memory (49.9%) strategies. Similarly, Science and Technology participants reported affective as the most frequently used strategy (67.2%), followed by metacognitive (56.4%), compensation (52.7%), cognitive (49.7%), social (48.2%), and memory (47.6%)

strategies. However, a slight difference was observed in Health Science (HS) participants who reported social (51.6%) as the least frequently used strategy instead of memory (56.1%). Like the other academic clusters, the most commonly used strategy among HS participants was affective (74%), followed by metacognitive (61.8%), compensation (58.2%), and cognitive strategies (57.1%).

Notably, the analysis of the current findings revealed that participants in all academic clusters reported affective as the most frequently used strategy, and the order of LLS use is relatively similar. The present results also indicate that Thai university participants are medium LLS users, according to Oxford (1990).

Table 2

LLS use of Thai university learners by academic clusters

Clusters	SS (n = 877)		ST (n = 477)		HS (n = 169)		Effect size		
	\bar{x} (%)	SD	\bar{x} (%)	SD	\bar{x} (%)	SD	F-value	Sig.	
Memory	49.9	1.62	47.6	1.62	56.1	1.78	16.759	.000	.02
Cognitive	52.4	1.61	49.7	1.60	57.1	1.65	13.709	.000	.02
Compensation	55.6	1.46	52.7	1.49	58.2	1.38	10.593	.000	.01
Metacognitive	59.3	1.51	56.4	1.56	61.8	1.60	9.398	.000	.01
Affective	68.9	1.74	67.2	1.78	74.0	1.68	9.543	.000	.01
Social	51.2	1.92	48.2	1.89	51.6	2.05	4.007	.018	.01
Overall	56.2	1.33	53.7	1.33	59.8	1.37	14.248	.000	.02

The ANOVA analysis revealed that LLS use differed significantly between academic clusters [$F(2, 1520) = 14.428, p < .001, \eta^2_p = .02$] and post hoc tests revealed significant differences between all pairs of academic clusters. For the individual strategies, a significant difference between the clusters was found for memory [$F(2, 1520) = 164.759, p < .001, \eta^2_p = .02$], cognitive [$F(2, 1520) = 13.709, p < .001, \eta^2_p = .02$] and compensation strategies [$F(2, 1520) = 10.593, p < .001, \eta^2_p = .01$] and post hoc tests revealed significant differences between each pair of academic clusters for these strategies. These findings suggest that the frequency with which different LLS are used varies across different learning conditions and contexts.

The analysis of the current findings also revealed significant differences between academic clusters in metacognitive [$F(2, 1520) =$

9.398, $p < .001$, $\eta^2_p = .01$], affective [$F(2, 1520) = 9.543$, $p < .001$, $\eta^2_p = .01$], and social strategies [$F(2, 1520) = 4.007$, $p < .01$, $\eta^2_p = .01$]. However, the post hoc tests indicated no significant difference between SS and HS in metacognitive strategy and no difference in affective strategy use between SS and ST. There was also no statistically significant difference between SS and HS in the use of social strategies. Together, these findings indicate that learning conditions and contexts play a significant role in language learning, at least to some extent, in a Thai university context.

Table 3 shows the correlations between individual aspects of LLS. All correlation coefficients were positive and statistically significant at $p < .01$ (2-tailed). The strength of the correlations between pairs of LLS use was medium (J. Cohen, 1988). These results suggest that Thai university participants appear to incorporate various language learning strategies rather than relying on individual learning strategies.

Table 3

Correlations between LLS

	Mem	Cog	Comp	Metacog	Affective	Social
Memory						
Cognitive	.79**					
Compensation	.57**	.65**				
Metacognitive	.60**	.60**	.60**			
Affective	.52**	.55**	.54**	.62**		
Social	.58**	.60**	.53**	.55**	.52**	

Note: $N = 1,523$; ** $p < .01$ (2-tailed)

5.3 Relationship between LLS and English proficiency

This section addresses the relationship between LLS use and English proficiency, as assessed by the participants' performance on the GET and ONET. The mean and standard deviation for the GET and ONET performance is shown in Table 4. The results show that, on average, the participants achieved an average performance of 43.5% on the GET and 33.7% on the ONET. This suggests that Thai university participants had relatively low knowledge of the English language.

Table 4

Thai university learners' English proficiency

Test	Mean (%)	SD
GET	43.5	2.31
ONET	33.7	1.63

Performance on the GET and ONET for each academic cluster is shown in Table 5. The findings revealed that HS participants scored the highest on the GET (61.7%) and the ONET (45.8%). Performance on the GET and ONET was relatively similar for SS and ST participants. Specifically, SS participants achieved an average performance of 41.1% on the GET and 32.8% on the ONET, and ST participants scored an average of 41.0% on the GET and 31% on the ONET. The ANOVA analysis showed that there were significant differences between clusters on the GET [$F(2, 1520) = 63.278, p < .001, \eta^2_p = .08$] and on the ONET [$F(2, 1520) = 58.831, p < .001, \eta^2_p = .07$]. Specifically, the post hoc demonstrated a significant difference between SS and HS, and SS versus ST and HS participants. However, the post hoc indicated no significant differences between SS and ST participants on the GET and ONET. These results indicate that HS participants have a higher level of English language proficiency than SS and ST participants, and SS and ST learners have a similar English language proficiency level.

Table 5

Thai university learners' English proficiency by academic clusters

Cluster	SS		ST		HS		F-value	p-value	Effect size
	Mean (%)	SD	Mean (%)	SD	Mean (%)	SD			
GET	41.1	1.33	41.0	1.90	61.7	2.67	63.278	.000	.08
ONET	32.8	1.51	31.0	1.45	45.8	2.08	58.831	.000	.07

Note: $N = 1,523$; $**p < .01$ (2-tailed)

As shown in Table 6, the correlations between LLS use and English proficiency are positively linear. Furthermore, all correlation coefficients

were statistically significant at $p < .01$ (2-tailed). In general, the magnitude of correlations between LLS and proficiency was in the range of 0.17 to 0.36, suggesting a small association (J. Cohen, 1988). Similarly, the correlation coefficients of LLS use and English proficiency were statistically significant, indicating a significant, albeit weak, relationship between LLS and performance on the GET and ONET for all academic clusters (see Table 7).

Table 6

Correlations between LLS and English proficiency

Strategies	Mem	Cog	Comp	Metacog	Affective	Social	Overall	
Test	GET	.34**	.36**	.21**	.17**	.33**	.22**	.34**
	ONET	.36**	.34**	.21**	.22**	.26**	.23**	.35**

Note: $N = 1,523$; ** $p < .01$ (2-tailed)

Table 7

Correlations between LLS and English proficiency by academic clusters

	Language learning strategies (LLS)		
	SS	ST	HS
GET	.36**	.27**	.29**
ONET	.33**	.34**	.32**

Note: $N = 1,523$; ** $p < .01$ (2-tailed)

6. Discussion

6.1 LLS use by Thai EFL learners

The current findings showed that the participants used language learning strategies with moderate frequency. Indeed, Thai university learners appear to be medium language learning strategy users, according to Oxford (1990). The result is consistent with other studies investigating the frequency of LLS use in EFL learners in other contexts (Bonyadi et al., 2012; Habok, & Magyar, 2018; Hashim et al., 2018; Khamkhen, 2011; Kunasaraphan, 2015; Nguyen & Terry, 2017; Rardprakhon, 2016; Toomnan, 2019; Wu, 2008). Moreover, Thai university learners showed a hierarchy of LLS use and were most likely to

use the affective strategy, followed by metacognitive, compensation, cognitive, social and, finally, memory strategies. Notably, the current findings support previous results showing that learners adopt a range of strategies to learn English, but they use these strategies to differing degrees (Griffiths & Parr, 2001; Habok, & Magyar, 2018; Hashim et al., 2018; Khamkhien, 2011; Kunasaraphan, 2015; Nguyen & Terry, 2017; Rardprakhon, 2016; Toomnan, 2019). Overall, the current findings indicate that learner factors or individual differences determine English learning strategy selections among EFL learners.

The current findings also revealed that Thai university learners in all academic clusters showed similar LLS use and all clusters reported the affective strategy as the most frequently used strategy. However, significant differences were also detected between academic study clusters, suggesting that learning contexts or environments may influence language learning in Thai university learners. Moreover, the preferences of LLS in Thai university learners might be explained by the interrelatedness of LLS use. Indeed, the present results show a positive medium relationship between different LLS, suggesting that Thai university learners incorporate various language learning strategies rather than using an individual learning strategy alone. This is partly because language acquisition is socially mediated and context-dependent. In addition, language teaching in a Thai context often relies on grammar-based tasks with little attention paid to communication, which might explain their choice of strategies (Kulsiri, 2006; Fitzpatrick, 2011; Kanchai, 2019; Nonthaisong, 2015). These findings align with previous studies showing that the execution of learning strategies is dependent on learning tasks and contexts (Grainger, 2012; Jie & Xiaoqing, 2006; Liyanage & Bartlett, 2012; Nguyen & Terry, 2017; Riazi & Rahimi, 2005; Song, 2005; Suwanarak, 2015; Taguchi, 2002; Toomnan, 2019).

Affective strategies might be the most frequently adopted by Thai university learners due to an underlying self-motivation to learn English. Affective strategies help learners monitor their emotional behaviours, attitudes and motivation. For instance, affective strategies may be used to manage fears or to encourage themselves when their test scores are disappointing. Moreover, language learners might set their learning goals and reward themselves when the test scores are satisfying. Interesting, other studies have reported that affective strategies are infrequently

used in a Thai EFL context compared to other strategies (Khamkhien, 2011; Kunasaraphan, 2015; Phonhan, 2016). However, this may be explained by differences in the learning condition and context to which students are exposed when acquiring the target language or differences in the measures of learning strategies used the different studies.

Metacognitive strategies were the second most frequently used strategies among Thai university learners. These strategies involve executive processes that regulate and manage learning and include strategies for planning, monitoring and evaluating the learner's English studies. An example of this strategy is identifying weaknesses in one's developmental process of learning and practice. In this study, university learners applied this knowledge to evaluate their existing English learning strategies and modify their extensive language practice approach. The participants' responses showed that some of their most common metacognitive strategies were noticing their English mistakes and using that information to improve, working with friends who are good at English, ascertaining how to become better English learners, and thinking about their progress. These results are consistent with previous reports that learners are very aware of themselves as learners and highly analytical about the process involved in improving their English (Goh & Foong, 1997; Ghavamnia et al., 2011; Griffiths & Parr, 2001; Kunasaraphan, 2015).

Compensation strategies were the third most frequently used in the current study. These strategies allow learners to use the language to speak or write in English, even when their vocabulary is limited. For instance, the use of linguistic clues to guess the meaning or creating words based on linguistic clues may compensate for their lack of vocabulary. Such strategies were moderately used by Thai EFL university learners to compensate for the missing knowledge in English due to a lack of vocabulary.

The cognitive strategy was ranked fourth by Thai university learners. The current findings revealed that Thai university participants preferred to read and translate English texts to Thai, their mother tongue, and indicated a strong preference for using electronic devices, such as electronic dictionaries or automatic translation tools to enhance their English learning. Indeed, electronic dictionaries have become a primary tool and source for learning a language, especially learning English as a foreign language in Thailand, where English is not used in

everyday life or communication. Using electronic devices is considered more hands-on and practical than using a printed dictionary. Moreover, electronic dictionaries may be the quickest method to find the meanings of unknown words, the part of speech of words, or learn related words. It is therefore not surprising that Thai EFL university learners rely heavily on electronic dictionaries when learning English.

The social strategy ranked fifth among the six categories of language learning strategies. This is somewhat surprising given that the current English curriculum in Thailand emphasizes life-long education for social interaction and improvement through communicative competence (Wongsothorn et al., 2002). Indeed, Thai learners are expected to use social strategies or interactions more in English learning, especially in a classroom context. One account for this unexpected finding may lie with classroom teachers, who may not be adept at new teaching methods, including promoting learner-centeredness and interactions with peers in class or providing opportunities for naturalistic communication. According to Oxford (2011, 2017), these strategies could enhance learning a second or foreign language, especially in language classrooms. The low frequency of social strategies may also result from Thai learners being introverted or too shy or reluctant to speak English either with Thai peers or foreigners (Pornpibul, 2005). Furthermore, most Thai teachers still use a textbook-based, grammar-translation approach, which emphasises grammatical rules and structures, vocabulary, and reading. Thus, in a regular English classroom, Thai university students might not have the opportunity to practice social interactions and communication with their colleagues. Moreover, Thai students rarely participate in English events or activities in which English is spoken. Indeed, the use of English remains minimal in day-to-day communications and outside the classroom. In addition, the medium of instruction used in regular English classes is predominately Thai, the learner's mother tongue. This may account for the lack of opportunities for Thai university students to use or interact in English outside the language classroom or to attend public events and occasions where English is used as the primary means of communication.

The current study also showed that memorization was the least frequently used strategy among Thai university learners. This suggests that the learners spent significantly more time regulating and managing their learning than storing and recalling new information. This finding is

consistent with commonly accepted accounts of the learning strategies used by Thai learners. Indeed, previous studies have shown that Thai learners are predisposed to using memorization as a learning technique. For example, Khamkhien (2011) noted that Thai learners often scrutinized words and phrases and paid little attention to thinking about the overall organization of texts. Kunasaraphan (2015) also reported that while Thai university students were less likely to use memory strategies, they were often encouraged by their teachers to memorize and repeat texts to show their understanding. They also habitually remembered grammar rules and performed translation exercises. However, while Thai learners are traditionally thought to use memorization techniques, it is clear from the current findings that the learners made very little use of specific techniques or mnemonic devices to enhance their memorization efforts. Nevertheless, it may also be the case that the students were entirely unaware of the specific memory strategies mentioned in the questionnaire, which included categorizing the lessons and linking them with background knowledge, using visual or auditory techniques to enhance memory, reviewing the studies in textbooks, reviewing the lessons in electronic devices, and taking notes.

6.2 LLS use by academic clusters of learning

The findings revealed that Thai university students in all academic clusters reported a moderate implementation of LLS. Specifically, HS students reported the most frequent use of LLS, followed by SS students and, finally, ST students. This indicates that Thai EFL university students used LLS at a medium level, according to Oxford's (1990) categories. The findings also show that Thai university students used different strategies when they learn English. Indeed, Thai university students appear to use specific actions, behaviours, or techniques to tackle a difficult English language task to enrich their learning. Such learning strategies improve their perception, reception, storage, retention and retrieval of language information (Oxford, 2017). Examples of these techniques include planning for a language task, evaluating one's learning, employing analysis to find the meaning of an unknown word or expression, and asking questions (Cohen, 1998; Grainger, 2012; Hashim et al., 2018; O'Malley & Chamot, 1990; Oxford, 1990, 2017; Song, 2005; Toomnan, 2019).

The use of LLS across the academic clusters likely varies partly because learning conditions are different. Specifically, the ST university students tend to have logical and mathematic intelligence, and often analyze problems, calculate based on mathematical processes, and use scientific approaches. By contrast, the SS university students, particularly those in language majors, may have skills relating to verbal and linguistic faculties. These skills may be applied to learn languages or even express themselves rhetorically to acquire new information through social interactions and communications.

Another learning condition that appears to be familiar to Thai EFL university learners is exposure to modified or adapted input from teachers. For example, English teachers with HS students may modify and attune their vocabulary words and structures to make it easier for them to understand. At the same time, they use more complex linguistic features and words in the SS context. Overall, teachers who regularly interact with students seem to have an intuitive sense of what adjustments they need to make to help their specific students understand the subject content. The current findings are in line with previous results that strategy use entails complex actions, depending on the nature of different learning tasks and contextual factors (Giang & Tuan, 2018; Grainger, 2012; Liyanage & Bartlett, 2012; Nguyen & Terry, 2017; Song, 2005; Suwanarak, 2015; Tieocharoen & Rimkeerakikul, 2019; Toomnan, 2019).

The final explanation for the significant differences in strategy use among university learners' academic clusters could be individual differences in L2 learning. Such differences may be based on a learner's own experience. For instance, some teachers may foster learning in extroverted students who interact without inhibition in English learning tasks and seek opportunities to practice language skills. The current findings seem to support previous studies showing that learner factors and learning experience can influence the selection of strategies to acquire and develop language proficiency (Giang & Tuan, 2018; Griffiths, 2013; Grainger, 2012; Liyanage & Bartlett, 2012; Nguyen & Terry, 2017; Song, 2005; Suwanarak, 2015; Tieocharoen & Rimkeerakikul, 2019; Toomnan, 2019; Zhong, 2015).

To conclude, the current study revealed the differences in the applications of strategies to learn English among academic clusters of

learning at tertiary education. The results indicate that the choice of learning strategies depends on both learner variables and contextual factors. Strategy use also involves complicated behaviours and actions that are influenced by the nature of learning activities and language tasks. As such, the strategy preferences that are observed is likely to vary across different LLS studies.

6.3 Relationship between LLS and English proficiency of Thai university learners

Consistent with previous studies (e.g., (Giang & Tuan, 2018; Griffiths, 2013; Grainger, 2012; Liyanage & Bartlett, 2012; Nguyen & Terry, 2017; Song, 2005; Suwanarak, 2015; Tieocharoen & Rimkeerakikul, 2019; Toomnan, 2019; Wong, 2005; Zhong, 2015), the current findings indicated that LLS and English proficiency are positively related, to a moderate degree (J. Cohen, 1988), for all academic clusters. This suggests that a higher frequency of LLS use is associated with better language proficiency. As such, the explicit training of learning strategies for Thai EFL university learners may enhance learning outcomes. However, the learning conditions or contexts may influence English learning. More specifically, applying learning strategies in different clusters may depend on the students' characteristics and preferences in learning. Therefore, the teaching of learning strategies tailored to academic clusters and individual differences may be essential for improving EFL university learners' progress and enhancing their English competence, at least in Thai university contexts. However, it should be noted that the degree to which LLS use and English proficiency are correlated is likely to vary because several learner factors and contextual variables will also influence the selection and use of LLS.

7. Conclusion

The current study investigated Thai EFL university students' overall language learning strategies, including differences in strategy use across different academic clusters. This study also examined whether there was a relationship between Thai university learners' LLS and English proficiency. The quantitative data obtained from the questionnaire showed that Thai EFL university students reported moderate use of LLS.

Specifically, affective strategies were used the most frequently, followed by metacognitive, compensation, cognitive, social and memory strategies, respectively. The current findings also indicate that the use of learning strategies among Thai university students from different academic clusters varies with learner differences and contextual factors. Indeed, learners may differ in the amount of time they dedicate to English learning, their learning characteristics and styles, motivation, intelligence, day-to-day communication, and social interactions with peers and other people both inside and outside the language classrooms. Environmental and contextual factors, such as learning cultures, values, tasks, and activities, could also impact the learners' choices of LLS. The current findings also showed that Thai university students' use of learning strategies is positively related to their English proficiency; that is, more proficient learners tend to deploy a broader range of strategies and select more appropriate strategies than their less proficient peers. Altogether, the current study confirms the positive nexus between learners' LLS use and English proficiency and also indicates that various factors influence the selections of language learning strategy.

8. Pedagogical Implications and Suggestions for Future Research

Thai university learners report a moderate use of learning strategies and the positive correlation between LLS use and English proficiency. Therefore, university learners would benefit greatly from training in using all learning strategies to increase their overall use of these strategies, and English proficiency accordingly. Moreover, instructors will need to offer their students guidance when experimenting with these new strategies and determining the types of strategies they prefer. The results also indicate that Thai university learners are more likely to select and use some strategies over others to improve their English, and this selection appears to depend on learning contexts and individual differences. Notably, affective strategies associated with learner variables, such as motivation, learning preferences and aspirations, play a critical role in English language learning among Thai university learners. Language teachers and practitioners can therefore design instructions that meet the needs of learners and implement pedagogical activities and tasks that learners find inviting and motivating.

These results of this study are based on answers to questionnaires. As such, the strategies reported are those that the participants perceived themselves as using. Future research is needed to determine if these strategies are actually used during language learning. This is especially crucial in the case of individual learning strategies. More in-depth studies into actual mental processes should be conducted using immediate verbalization and think-aloud protocols. Furthermore, qualitative research is needed to understand learners' selection of strategies within each category. In particular, further analysis of why English language learners vary in their choice of individual strategies would be helpful. This would help identify the strategies that could enhance language learning but are not fully exploited by learners. The current findings could be used, together with those obtained in other studies of EFL learners in similar situations, to better understand the implementation of learning strategies and to improve language learning quality in EFL contexts.

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