

A Study of English Language Learning Strategies Used by Pre-service Teachers in Sagaing University of Education

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Abstract

The purpose of the study was to investigate the English language learning strategies used by pre-service teachers in Sagaing University of Education. Participants of the study were 680 students from four learning levels. The Myanmar version of Strategy Inventory for Language Learning (SILL) that was adapted from SILL developed by Oxford (1990) was used as the instrument. The results revealed that pre-service teachers used language learning strategies in learning English within the medium range. While they used metacognitive strategies at most, they used memory strategies at least. In addition, they used indirect strategies more than direct strategies. Except memory strategies and social strategies, female students significantly used language learning strategies more than male students. Pre-service teachers specialized in English Language Teaching (ELT) used cognitive, compensation and metacognitive strategies more than pre-service teachers not specialized in ELT with the high level of use. In the light of these results, EFL teachers and learners should be aware of the use of language learning strategies and use these strategies in their teaching-learning processes.

Keywords: Language learning strategies, pre-service teachers, SILL

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1. Introduction

In the area of second or foreign language learning, researchers have focused on how learners process new knowledge and use of learning strategies during their learning process (Oo & Oo, 2018). Wenden and Rubin (1987) defined learning strategies as “any set of operations, steps, plans and routines used by the learner to facilitate the obtaining, storage, retrieval and use of information”. According to Chamot and Kipper (1989), learning strategies are tactics, and learners’ thoughts and actions include observable and non-observable features of learning strategies. Oxford (2018) defined language learning strategies as “purposeful, conscious (or at least partially conscious), mental actions that learner uses to meet one or more self-chosen goals, such as (a) overcoming a learning barrier, (b) accomplishing an L2 task, (c) enhancing long-term L2 proficiency, and (d) developing greater self-regulation (ability to guide one’s own learning)”. Although language learning strategies classifications have been created by scholars and researchers, the current study will be based on the Oxford’s (1990) classification as she linked learning strategies to four language skills: listening, speaking, reading and writing by taking into account linguistic and communicative aspects of L2 learning strategies as well as emotional functions in her learning strategy system.

1.1 Oxford’s Classification of Language Learning Strategies

Oxford (1990) developed a detailed taxonomy for language learning by integrating all learning strategies into a single taxonomy. In her system, she classified language learning strategies into two main categories: direct strategies and indirect strategies. These two types of strategies support each other, and each strategy group connects with and assists other strategy group. Direct strategies are language learning strategies which directly involve the target language. These strategies, namely memory strategies, cognitive strategies, compensation strategies, need mental processing of the language, but they function differently for unique purposes (Oxford, 1990).

Memory strategies sometimes called mnemonics are crucial in foreign language learning due to the fact that students require to remember large amount of information (Oxford, 1999). They fall into four sets: creating mental linkages, applying images and sounds, reviewing well and employing action. Students use these strategies to support them remember new language items (Parr & Griffiths, 2001).

Cognitive strategies are also important in learning a new language (Oxford, 1990). In Oxford’s classification, she subsumed these strategies into four subcategories: practicing, receiving and sending messages, analyzing and reasoning and creating structure for input and output. They help students in thinking about and understanding the new language (Parr & Griffiths, 2001), being the most popular strategies among language learners (Oxford, 1990).

Compensation strategies help learners to compensate for their lack of knowledge (Parr & Griffiths, 2001). These strategies are under two broad sets: guessing intelligently in listening and reading, and overcoming limitations in speaking and writing. They help learners to keep on using the language even though they have insufficient knowledge. Özyilmaz (2012) stated that some of these strategies supported learners who used

compensation strategies could communicate better than those who were not.

Metacognitive strategies are related to students' management of their own learning (Parr & Griffiths, 2001). These strategies go beyond the cognitive strategies and support learners with a way to coordinate with their learning process. They include three groups: centering your learning, arranging and planning your learning, and evaluating your learning. They are particularly important for successful language learning as they can guide learners who lose their focus when they are faced with too much new language items to learn (Oxford, 1990).

Affective strategies are related to students' feelings about the new language (Parr & Griffiths, 2001). Three key sets of these strategies are lowering your anxiety, encouraging yourself, and taking your emotional temperature. Learners' affective part can influence on the success or failure of their language learning. While negative feelings can hinder their improvement in learning, learning process can be enjoyable if they have positive emotions and attitudes (Oxford, 1990).

Social strategies are strategies that learners use to interact with other people (Parr & Griffiths, 2001). Three sets of these strategies are asking questions, cooperating with others and empathizing with them. They provide learners with the opportunities to communicate with other people through better understanding about them (Oxford, 2003). When learners look closely to other people's behaviours, they can express how they feel and think to deepen their cultural understanding and knowledge (Oxford, 1999).

1.2 Factors Influencing on Language Learning Strategies

Numerous studies have investigated language learning strategies use in terms of gender which is one of the influencing factors on the strategy use. The research findings have shown that while some research studies have found significant differences in language learning strategy use by male and female students, other studies have revealed that there was no significant difference based on gender. On the one hand, Hsieh (2006) investigated 713 second-year junior high school students' English language learning strategies use and its relationship with their English learning environment; they found that female students used English language learning strategies more than males. Tang and Tian (2015) reported that there was a significant difference in the use of compensation strategies between Chinese EFL graduate males and females. Rianto (2020) also conducted a study of language learning strategy use among Indonesian EFL university students and the results showed that female students used strategies more frequently than male students and significant differences were found between male and female students for that overall strategy use and five of the six strategy category use, except compensation strategy category. Similarly, Bashir et al. (2021) found that there was a significant difference in language learning strategy use in terms of gender and female EFL students used more learning strategies than male students.

On the other hand, Özyılmaz (2012) reported that male students used more strategies than female students, and males applied compensation strategies than their counterparts. Khamkhien (2010) studied the factors affecting language learning strategy reported use by Thai and Vietnamese EFL learners. He found that there was a significant difference between Thai male and female students only in cognitive strategy category, whereas, gender was not an influencing factor on language learning strategy used by Vietnamese male and female students. Likewise, Shmais (2003) verified that there were no significant differences in using language learning strategies in terms of gender.

Various researchers have also conducted the students' use of language learning strategies based on specialization in English. Tsan (2008) conducted a study consisting of 330 subjects (212 English education major students and 118 non-English education major students). The researcher found that English major students employed learning strategies more frequently than their counterparts and there was a significant difference in strategy use. In addition, Chuin and Kaur (2015) examined the types of language learning strategies used by 73 English majors in Malaysia and the results revealed that the participants were high users of learning strategies. While they used metacognitive strategies the most, memory strategies were the least preferred strategies. Vo et al. (2023) also reported that non-English majors' use of language learning strategies were within the medium range and the most frequently used strategies were metacognitive strategies and the least used strategies were social strategies.

In Myanmar, Oo and Oo (2018) conducted a mixed method research on the use of language learning strategies by 63 students who were preparing for the International Language Testing System (IELTS) in terms of gender. They found that male students employed more metacognitive strategies than female students whereas females used cognitive strategies mostly. There are very few research studies focusing on pre-service teachers' English language learning strategies use in Myanmar. Previous studies have shown contrary results of language learning strategies in terms of gender. Considering the above factors, in this study, data were collected by using large sample size and factors affecting English language learning strategies (gender and specialization) were investigated.

2. Aim

The main aim of the research is to investigate the English language learning strategies used by pre-service teachers in Sagaing University of Education.

3. Methodology

In this research study, one of the descriptive methods, questionnaire survey method, was used.

3.1 Research Questions

The following research questions are addressed for this study.

1. How do pre-service teachers use their language learning strategies in learning English?
2. Is there any significant difference between the average ratings for six categories of language learning strategies used by pre-service teachers?
3. Is there any significant difference among direct and indirect strategies used by pre-service teachers?
4. Is there any significant difference among strategy categories used by pre-service teachers according to gender?
5. Is there any significant difference among strategy categories used by pre-service teachers according to specialization?

3.2 Participants

All participants in the current study were pre-service teachers who studied in Sagaing University of Education (SUOE) in third year (junior), third year (senior), fourth year (junior) and fourth year (senior). They were selected for this study by using simple random sampling method and the total number of participants was 680 students. A sample of 170 students in each course participated in this research work (see Table 1).

3.3 Instrument

As the instrument, Strategy Inventory for Language Learning (SILL) developed by Oxford (1990) was modified for the present research purpose. This SILL was composed of 50 items with six categories, that is memory strategies (item numbers: 1-9), cognitive strategies (item numbers: 10-23), compensation strategies (item numbers: 24-29), metacognitive strategies (item numbers: 30-38), affective strategies (item numbers: 39-44) and social strategies (item numbers: 45-50). This scale was five-point rating scale, that is, always, often, sometimes, rarely and never. The scores assigned to these rating scales were 5, 4, 3, 2, 1. The average score was taken to determine high use, medium use and low use. The cut points that were determined by Oxford (1990) were used. Concerning with using LLS, she developed scale ranges and identified different levels of use (see Table 2).

Table 1 Sample Courses and Sample Size

No.	Name of Course	Number of Participants
1.	Third year (junior)	170
2.	Third year (senior)	170
3.	Fourth year (junior)	170
4.	Final year (senior)	170

Table 2 Scale Range and Level of Use

No.	Scale Range	Level of Use
1.	3.5-5.0	High use
2.	2.5-3.4	Medium use
3.	1.0-2.4	Low use

Source: From Oxford (1990)

The Background Information Questionnaire was adapted from Lee and Oxford (2008). Items from Background Information Questionnaire concerned gender, learning level, importance of English and learning of English in every week.

3.4 Reliability and Validity

3.4.1 Instrument Validity

To get questionnaire validation, English Language Learning Strategies Questionnaires and translations of these English questionnaires into Myanmar were given to five experts, experienced teachers in Sagaing University of Education. They were requested to give their opinions, advice and suggestions regarding the suitability of each item in the questionnaire for the research purpose, correct spelling, grammatical construction, punctuation,

sentence structure, the clarity of the language usage, and appropriateness of translation of English questionnaires into Myanmar in order to enhance participants' understanding of each sentence. And then, according to their advice, suggestions and support, these questionnaires were modified again.

3.4.2 Pilot Study

The purpose of pilot study is to pre-test the reliability of questionnaires on a small sample before conducting main study. This study was carried out with 50 students: ten third year (junior) students, 15 third year (senior) students, ten fourth year (junior) students and 15 final year (senior) students who studied in Sagaing University of Education, Demographic variables and background information were collected on the questionnaire.

Based on the findings of pilot test, the Cronbach's alpha coefficient was calculated to determine the reliability of the questionnaires. The Cronbach's alpha coefficient for the entire 50 items of English Language Learning Strategies Scale was 0.88. Thus, the total Cronbach's alpha coefficient for English Language Learning Strategies Scale was reasonably reliable. And then, main study started to collect required data for the study.

3.5 Procedure

The data for the main study was collected from randomly selected students from four learning levels: third year (junior), third year (senior), fourth year (junior) and final year (senior) in Sagaing University of Education. The data was collected from a sample of 303 male and 377 female students of the selected four learning levels. First of all, they answered background questionnaire. Then, they were asked to answer the questionnaire. Before administering the questionnaire, they were asked to read the objectives of study, the general instructions and to express their level of agreement or disagreement with each statement given in the scale.

3.6 Analysis of the Data

After data collection, the data were transferred to a computer for statistical analysis using the Statistical Package for the Social Science (SPSS) version (22). The data were analysed using descriptive statistics (means and standard deviations) and inferential statistics (repeated measures ANOVA, and *t* test for independent samples and paired sample). To identify three levels of English language learning strategy use (low use, medium use and high use), the cut of the points determined by Oxford (1990) were used.

4. Findings and Results

4.1 Results of Background Information

Regarding the subjects' amount of time in learning English outside of class per week, 57.5% of BEd students spent less than one hour, 31.91% of BEd students spent 2-5 hours, 8.82% of BEd students spent 5-10 hours and 1.77% of them spent over 10 hours. In other words, over half of the subjects spent less than one hour per week studying English after class. And, only a few of them spent over 10 hours per week studying English after class.

Concerning the importance of being proficient in English, 58.82% of BEd students accepted being proficient in English was very important for them; 34.41% of participants accepted being proficient in English was important for them; 5.88% of them accepted being proficient in English was somewhat important for them; 0.89% of them accepted being proficient in English was not so important for them; but none of them accepted being proficient in English was not important at all.

4.2 Results of Language Learning Strategies and Overall Strategy Use

The minimum, maximum, means and standard deviations for six categories of language learning strategies and overall strategy use are presented (see Table 3). According to the results in Table 3, the descending order of language learning strategies used by pre-service teachers is metacognitive strategies, compensation strategies, social strategies, cognitive strategies, affective strategies and memory strategies. The mean score of overall strategy use was 3.31, indicating that participants used language learning strategies in learning English within the medium range.

Therefore, it can be interpreted that regarding the direct strategies, student teachers linked verbal with sound, motion or touch in order to aid the storage and retrieval of information within the medium range. They could also manipulate the language material in direct ways through reasoning, analysis, note-taking, summarising, synthesising, outlining, reorganising information, practising in naturalistic settings, and practising structures and sounds formally with medium frequencies. They sometimes compensated for lack of knowledge of grammar and vocabulary of the target language.

Turning to the indirect strategies, they were able to manage their own learning with the high use. They sometimes had the abilities to be aware of their thinking processes and decisions about the actions to be taken if progress was unsatisfactory. The learners could arrange their language learning in an effective way, notice and learn from errors and evaluate their overall progress with the high and medium level of use but, they planned their language learning with the low level of use. They sometimes used techniques like self-reinforcement and positive self-talk which helped learners gain better control over their emotions, attitudes and motivations related to the

language learning. They also interacted with other people through improving their understanding and enhancing language production with the medium frequencies.

Table 3 Descriptive Statistics for Language Learning Strategies and Overall Strategy Use

Variables	N	Min	Max	M	SD	Rank
Memory Strategies	680	13	43	3.17	0.557	6
Cognitive Strategies	680	20	68	3.30	0.559	4
Compensation Strategies	680	6	30	3.34	0.619	2
Metacognitive Strategies	680	12	45	3.47	0.688	1
Affective Strategies	680	6	30	3.23	0.683	5
Social Strategies	680	7	30	3.32	0.684	3
Overall Strategy Use	680	70	228	3.31	0.510	

4.3 Results for Language Learning Strategies by Using Repeated Measure ANOVA

A repeated measure ANOVA, with Huynh-Feldt correction, was conducted to assess whether there were differences between the average ratings of the six categories of language learning strategies (see Table 4). Results indicated that participants did rate the six categories of language learning strategies differently, $F(4.35, 2951) = 39.64, p < .001$.

Table 4 Results of Tests of Within-Subjects Effects for Pre-service Teachers in the Use of Language Learning Strategies

Source		Sum of Squares	df	Mean Square	F	p
Strategy	Huynh-Feldt	35.824	4.347	8.242	39.636	.000***
Error (Strategy)	Huynh-Feldt	613.701	2951	.208		

Note: *** $p < .001$

In order to know which paired means were significantly different, the data were also analysed by using Pairwise Comparison (see Table 5). Therefore, according to the results in Table 5, it can be interpreted that student teachers used metacognitive strategies at most, but they used memory strategies at least.

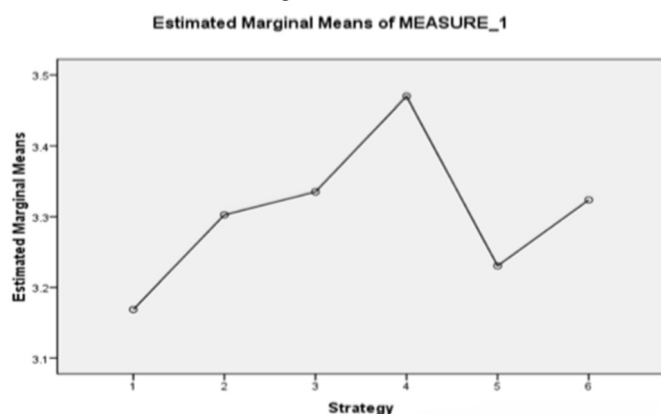
Table 5 Results of Pairwise Comparison for Strategy Use among Pre-service Teachers

Strategy Category	Strategy Category	MD	p
1	2	-.134*	.000***
	3	-.166*	.000***
	4	-.301*	.000***
	5	-.062	.206
	6	-.155*	.000***
	2	3	-.032
4		-.167*	.000***
5		.072*	.040*
6		-.021	1.000
3	4	-.135*	.000***
	5	.105*	.002**
	6	.011	1.000

Strategy Category	Strategy Category	MD	<i>p</i>
4	5	.240*	.000***
	6	.146*	.000***
5	6	-.093*	.001**

Note: MD=Mean Difference

* The mean difference is significant at the .05 level.



* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 1 Profile Plot for Language Learning Strategies Used by Pre-service Teachers

The results in Figure 1 indicated that there was a significant mean difference between six categories of language learning strategies. In this figure, it was clear that students used metacognitive strategies at most while they used memory strategies at least.

4.4 Use of Language Learning Strategies by Type of Strategies

Paired sample *t* test was applied to find out differences in the strategy use by pre-service teachers according to the type of language learning strategies. Table 6 shows that a paired or correlated sample *t* test indicated that the students' use of direct strategies was significantly lower than their use of indirect strategies, $t(679) = -6.034$, $p = .000$. Thus, the difference in the use of strategies was statistically significant, and it can be said that students used indirect strategies more than direct strategies.

Table 6 Means, Standard Deviations and Paired Sample *t* Test for Language Learning Strategies Used by Pre-service Teachers

Variables	N	M	SD	<i>t</i>	<i>df</i>	<i>p</i>
Direct Strategies	680	3.27	.49317	-6.034	679	.000***
Indirect Strategies		3.36	.59583			

Note: *** $p < .001$

4.5 Use of Language Learning Strategies by Gender

In order to explore gender differences in language learning strategies used by pre-service teachers in learning English, descriptive analysis was conducted. The means and standard deviations of male and female students' use of language learning strategies – memory, cognitive, compensation, metacognitive, affective and social strategies – and overall strategy use together with the level of use are described (see Table 7).

Regarding the result in Table 7, metacognitive strategies category was the most frequently used strategies by male students, ranked within the medium use. Affective strategies category was the least used strategies, ranked within the medium use. The descending order of language learning strategies used by males was metacognitive strategies, social strategies, cognitive strategies, compensation strategies, memory strategies and affective strategies. The average mean of overall strategy use was 3.24, indicating that male students used language learning strategies in learning English within the range of medium use.

According to the result in Table 7, metacognitive strategies category was the most frequently used strategies by female students, ranked within the high use. Memory strategies category was the least used strategies, ranked within the medium use. The descending order of language learning strategies used by females was metacognitive strategies, compensation strategies, social strategies, cognitive strategies, affective strategies and memory strategies. The average mean of overall strategy use was 3.37, indicating that female students used language learning strategies in learning English within the range of medium use.

Moreover, in order to know whether gender differences in using language learning strategies in learning English were statistically significant or not, *t* test for independent samples was conducted (see Table 8).

In accordance with Table 8, the mean scores of language learning strategies were different by gender. The results of *t* test showed that there were significant differences between male and female students' use of compensation and affective strategies in learning English at 0.001 level ($p < .001$). Similarly, the results of *t* test revealed that there were significant differences between male and female students' use of cognitive and metacognitive strategies in learning English at 0.01 level ($p < .01$). In addition, the results of *t* test indicated a significant difference in using overall strategy by gender ($p < .01$). Therefore, it can be said that females used language learning strategies in learning English more than males. According to the results, females used metacognitive strategies more than males with the high use.

Table 7 Means, Standard Deviations and Level of Use for Language Learning Strategies and Overall Strategy Used by Gender

Variables	Gender	N	M	SD	Level of Use
Memory Strategies	Male	303	3.14	0.564	Medium use
	Female	377	3.19	0.551	Medium use
Cognitive Strategies	Male	303	3.23	0.585	Medium use
	Female	377	3.36	0.532	Medium use
Compensation Strategies	Male	303	3.22	0.639	Medium use
	Female	377	3.43	0.588	Medium use
Metacognitive Strategies	Male	303	3.38	0.707	Medium use
	Female	377	3.54	0.666	High use
Affective Strategies	Male	303	3.13	0.723	Medium use
	Female	377	3.31	0.637	Medium use
Social Strategies	Male	303	3.27	0.731	Medium use
	Female	377	3.37	0.640	Medium use
Overall Strategy Use	Male	303	3.24	0.535	Medium use
	Female	377	3.37	0.480	Medium use

Table 8 *t* Test for Language Learning Strategies Used by Pre-service Teachers according to Gender

Variables	Gender	N	MD	<i>t</i>	<i>df</i>	<i>p</i>
Memory Strategies	Male	303	-0.05	-1.291	678	.197
	Female	377				
Cognitive Strategies	Male	303	-0.13	-2.295	678	.003**
	Female	377				

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8 (continued)

Variables	Gender	N	MD	t	df	p
Compensation Strategies	Male	303	-0.21	-4.291	678	.000***
	Female	377				
Metacognitive Strategies	Male	303	-0.16	-2.942	678	.003**
	Female	377				
Affective Strategies	Male	303	-0.18	-3.589	604.698	.000***
	Female	377				
Social Strategies	Male	303	-0.10	-1.963	678	.050
	Female	377				
Overall Strategy Use	Male	303	-0.14	-3.466	678	.001**
	Female	377				

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

4.6 Use of Language Learning Strategies by Specialization

In exploring differences in language learning strategies used by prospective teachers in learning English according to specialization, descriptive analysis was conducted. The means and standard deviations of language learning strategies and overall strategy used by ELT specialization students and students not specialized in ELT are described (see Table 9, 10).

Table 9 Means, Standard Deviations and Level of Use for Language Learning Strategies and Overall Strategy Used by Pre-service Teachers according to Specialization

Variables	Specialization	N	M	SD	Level of Use
Memory Strategies	ELT	250	3.33	0.522	Medium use
	Non-ELT	430	3.07	0.556	Medium use
Cognitive Strategies	ELT	250	3.54	0.490	High use
	Non-ELT	430	3.16	0.550	Medium use
Compensation Strategies	ELT	250	3.55	0.569	High use
	Non-ELT	430	3.21	0.612	Medium use
Metacognitive Strategies	ELT	250	3.74	0.608	High use
	Non-ELT	430	3.31	0.684	Medium use
Affective Strategies	ELT	250	3.35	0.635	Medium use
	Non-ELT	430	3.16	0.700	Medium use
Social Strategies	ELT	250	3.48	0.615	Medium use
	Non-ELT	430	3.23	0.705	Medium use
Overall Strategy Use	ELT	250	3.52	0.428	High use
	Non-ELT	430	3.20	0.507	Medium use

According to the results in Table 9, metacognitive strategies category was the most frequently used strategies by students majoring in ELT, ranked within the high use. Memory strategies category was the least used strategies, ranked within the medium use. The descending order of language learning strategies used by pre-service teachers specialized in ELT is metacognitive strategies, compensation strategies, cognitive strategies, social strategies,

affective strategies and memory strategies. The mean of overall strategy use was 3.52, indicating that participants specialized in ELT used language learning strategies in learning English within the range of high use.

In the results of the study (see in Table 9), metacognitive strategies category was the most frequently used strategies by students not majoring in ELT, ranked within the medium use. Memory strategies category was the least used strategies, ranked within the medium use. The descending order of language learning strategies used by student teachers not specialized in ELT was metacognitive strategies, social strategies, compensation strategies, cognitive strategies, affective strategies and memory strategies. So, they used cognitive and affective strategies with the same frequency. The average mean of overall strategy use was 3.20, indicating that participants not specialized in ELT used language learning strategies in learning English within the range of medium use.

Moreover, in order to know whether differences in language learning strategies used by prospective teachers in learning English were statistically significant or not according to specialization, *t* test for independent samples was conducted.

Table 10 *t* Test for Language Learning Strategies Used by Pre-service Teachers according to Specialization

Variables	Specialization	N	MD	<i>t</i>	<i>df</i>	<i>p</i>
Memory Strategies	ELT	250	0.26	5.926	678	.000***
	Non-ELT	430				
Cognitive Strategies	ELT	250	0.38	9.031	678	.000***
	Non-ELT	430				
Compensation Strategies	ELT	250	0.34	7.293	678	.000***
	Non-ELT	430				
Metacognitive Strategies	ELT	250	0.43	8.252	678	.000***
	Non-ELT	430				
Affective Strategies	ELT	250	0.19	3.554	678	.000***
	Non-ELT	430				
Social Strategies	ELT	250	0.25	4.72	678	.000***
	Non-ELT	430				
Overall Strategy Use	ELT	250	0.32	8.367	678	.000***
	Non-ELT	430				

Note: ****p*<.001

Table 10 also shows that students who took ELT specialization were significantly different from students who did not take ELT specialization in all strategy categories, (*p*=.000) according to the results of *t* test. It can be said that students who took ELT specialization used all six categories of language learning strategies and overall strategy more frequently than students not specialized in ELT. Moreover, students specialized in ELT used cognitive, compensation and metacognitive strategies more than students not specialized in ELT with the high use.

5. Discussions, Conclusion and Implications

The aim of this study was to investigate the English language learning strategies used by pre-service teachers in Sagaing University of Education. In studying English after class, although over half of the subjects spent less than one hour per week, only a few of them spent over 10 hours per week. Concerning the importance of being proficient in English, most of the participants accepted being proficient in English was very important and important for them. By using the cut points determined by Oxford (1990), the level of use in language learning strategies used by prospective teachers in learning English was distinguished based on the mean scores of data. The obtained results indicated that except metacognitive strategies, pre-service teachers used five categories of language learning strategies within the medium range. They used metacognitive strategies with the high use, but their mean scores were not very high. The mean for overall strategy use was moderate. Thus, according to the criteria provided by Oxford (1990) for judging the degree of strategy use, strategies were sometimes used by the participants in the current study.

In the present study, the descending order of language learning strategies used by pre-service teachers is

metacognitive strategies, compensation strategies, social strategies, cognitive strategies, affective strategies and memory strategies. This finding was contrary to the result of Jhaish's (2009) study. The researcher reported that English major students at Al-Aqsa University used language learning strategies in the descending order of metacognitive strategies, compensation strategies, cognitive strategies, memory strategies, social strategies and affective strategies. Based on the findings of the current study, the participants seemed to be relatively somehow sophisticated language learning strategies users. One possible explanation can be offered for this finding is that they studied English in an EFL setting and assumed that it was not necessary for daily survival. Thus, it was not as urgent for them to use various strategies with high level of frequencies as it was for learners in an ESL setting.

Regarding each specific category of strategies, the participants in the current study reported using metacognitive strategies more frequently than any other type of strategy. Compensation strategies were the next most frequently used, followed by social strategies, cognitive strategies and affective strategies. Surprisingly, memory strategies were reported as the least frequently used strategies. Concerned with metacognitive strategies category, it received more mean scores than remaining categories. As mentioned earlier in the literature review, metacognitive strategies are strategies that are relating to students' management of their own learning (Parr & Griffiths, 2001). These strategies helped student teachers not to lose track of things while being overwhelmed with a large amount of new information. The adequate metacognitive strategy use by the participants in the current study implies that this group of students could arrange their language learning in an effective way, notice and learn from errors and evaluate their overall progress within the medium and high level of strategy use, but they planned their language learning within the low level of use. It also conforms to the finding of a similar study conducted by Aljuaid (2010) who reported on the perceptions of female Saudi EFL learners on the language learning strategies. The results of this study showed that female Saudi EFL learners used metacognitive strategies with the highest rank.

Additionally, in comparison with other strategy categories, memory strategies category was the least frequently used strategies among the participants. Although Oxford (1990) regarded that memory strategies as a powerful mental tool, various research studies revealed that language students rarely report using memory strategies (Oxford, 1990). The results of this study were in line with these studies. The participants reported memory strategies as the least frequently used strategies. This is because it is possible that the participants in the current study were not familiar with these mnemonic or specific techniques to enhance their memory, and therefore they reported using fewer memory strategies.

The result of the study also indicated that student teachers used different strategy categories significantly. While they used metacognitive strategies at most, they employed memory strategies at least. Contrary to the finding of the present study, Hsieh (2006) reported that Junior High School students used compensation strategies at most, whereas they used memory strategies at least. Shmais (2003) also found that An-Najah English majors used metacognitive strategies with the highest rank and compensation strategies with the lowest rank. In Altunay's (2014) study, she reported that distance learners of English attended in Distance Science Programs at Anadolu University Open Education Faculty used metacognitive strategies at most, but they used affective strategies at least. However, the present study result is similar with the finding of research conducted by Dhanapala (2007) about Sri Lanka and Japanese students' language learning strategies. Sri Lanka students used metacognitive strategies at most, whereas they used memory strategies at least. However, Japanese students in her study used compensation strategies at most, but they used affective strategies at least.

According to paired sample *t* test, a significant difference was found between use of language learning strategies according to the strategy type. The participants employed indirect strategies more than direct strategies. This finding is supported by the study conducted by Özseven (1993) and the researcher found that over half of the participants reported more indirect strategies use than direct strategies. Similarly, Oo and Oo's (2018) mixed-methods study showed that students who were preparing the International English Language Testing System (IELTS) exam used more indirect strategies than direct strategies.

With regard to the strategy use based on gender, the results showed that while males used metacognitive strategies at most and affective strategies at least, females employed metacognitive as the most frequently used strategies and memory strategies as the least frequently used strategies. The descending order of language learning strategies used by male students was metacognitive strategies, social strategies, cognitive strategies, compensation strategies, memory strategies and affective strategies. In contrast, the descending order of language learning strategies used by female students was metacognitive strategies, compensation strategies, social strategies, cognitive strategies, affective strategies and memory strategies.

Additionally, the use of language learning strategies significantly varied according to gender. Female students significantly prevailed over male students in the use of language learning strategies. This finding is in consonance with the findings of Hsieh (2006), Tang and Tian (2015), Rianto (2020) and Bashir et al. (2021). They found that female students significantly used more language learning strategies in learning English than males. The result in this study, however, is contrary to the findings of Özyılmaz (2012), Khamkhien (2010) and Shmais (2003). Özyılmaz (2012) reported that male students used more strategies than female students and males applied

compensation strategies than their counterparts. Khamkhien (2010) and Shmais (2003) verified that there were no significant differences in using language learning strategies in terms of gender.

In relation to use of language learning strategies in terms of specialization, students specialized in ELT used cognitive strategies, compensation strategies and metacognitive strategies within the high level of use, but they used the remaining three strategies within the medium range. Their overall strategy use fell within the high level of use. However, students not specialized in ELT used not only six categories of language learning strategies but also overall strategy within the medium range.

The results in this study indicated that there were significant differences in using language learning strategies according to specialization. The students specialized in ELT significantly used both six strategy categories and overall strategy more than students not specialized in ELT. Furthermore, pre-service teachers specialized in ELT used cognitive, compensation and metacognitive strategies more than those who not specialized in ELT with the high use. This result was consistent with the previous research finding of Tsan (2008) and Vo et al. (2023). Tsan (2008) proposed that English major students used learning strategies more than students majoring in other subjects and found that there were significant differences among the strategies used between English and non-English education majors. Additionally, Vo et al. (2023) found that non-English majors employed language learning strategies within the medium level.

In conclusion, the results of the current study revealed that while pre-service teachers' five categories of language learning strategies use and overall strategy use were within the medium range, they used metacognitive strategies with the high use. They employed metacognitive strategies more frequently than the remaining strategy categories, but interestingly, they used memory strategies the least. In addition, they reported more indirect strategies use than direct strategies. The results showed that female student teachers significantly used more language learning strategies than male student teachers. Moreover, the findings in this study indicated that the students specialized in ELT major significantly used both six strategy categories and overall strategy more than students not specialized in ELT.

To be an effective English language teaching and learning, it is necessary for language teachers and language learners to be aware of the use of language learning strategies in learning English to improve the language learners' English language proficiency. For further studies, the influence of other factors such as age, length of study, learning style, anxiety and self-efficacy, on language learning strategies, and the relationship between them should be investigated. It is also suggested that more research needs to determine the strategy use with different educational levels. Moreover, further research on the use of language learning strategies should be done by using experimental research design to promote students' use of learning strategies and become self-regulated learners in English language learning.

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