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Language Learning Strategy Use and Language Learning Motivation of Taiwanese EFL University Students

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Abstract

This study investigates the use of language learning strategies among EFL university freshmen and its relation with English learning motivation. The findings indicate that participants with high English proficiency level displayed a significantly higher level of strategy use than their counterparts at lower and intermediate levels. Compensation strategies were used most often by students of lower English proficiency levels, while metacognitive strategies were used most by students of higher-proficiency abilities. Among the six categories of strategies, metacognitive and cognitive strategies were found to have higher correlations with motivation, while compensation strategies had lower correlations. The frequency of strategy use had a highly significant and positive correlation with motivation. Strategies involving audio and visual elements were found to be favored by the research participants. Pedagogical implications and suggestions drawn from the current study were presented to enhance the sustainability of English language learning and the effectiveness of English language teaching.

1 Introduction

Learning strategies (LSs) are actions that learners take to accomplish their learning goals. Strategic learners are able to choose learning approaches that assist their learning and also have the competence to orchestrate the strategies that best meet task demands and their own learning preferences. Language learning strategy use (LLSU) is considered a key process in SLA (Ellis, 1985; Krashen, 2013; McLaughlin, 1987) and one of the most important factors accounting for difference in language learning (Skehan, 1989), L2 proficiency (Gardner & McIntyre, 1993), and for enhancing learner autonomy (Dickinson, 1987).

In addition, research has identified the close association between LLSU and various factors such as age (Chang, 2011; Ehrman & Oxford, 1989; Lan & Oxford, 2003; Oxford & Ehrman, 1995), gender (Chang, 2012; Chang, 2011; Chang & Yeh, 2012; Green & Oxford, 1995; Oxford, 1993; Wang, 2013), proficiency level (Chamot, Barnhart, El-Dinary & Robbins, 1999; O'Malley & Chamot, 1990), and motivation (Chang, 2011; Ehrman & Oxford, 1989, 1990; Lan & Oxford, 2003; Wang, 2013; Wharton, 2000; Yeh, 2013).

The current study was designed to investigate the relationship between LLSU and the variable of motivation among university EFL learners in Taiwan where English learning motivation is rela-

tively low (Ho, 1998). It is expected that findings from the relationships between LLSU and different levels of language learning motivation among the research participants of the current study will provide specific pedagogic implications and suggestions for effective language instruction and the sustainability of language learners' autonomy for EFL instructors and learners at the research site.

2 Review of literature

2.1 Language learning strategy

Learning strategies are procedures used to facilitate learning (Chamot, 2005) and to enable learners to become more independent and autonomous lifelong learners (Allwright, 1990; Chamot, 2004; Little, 1991). Oxford (1990) defines Language learning strategies (LLSs) as specific methods/techniques employed by individual learners to facilitate their comprehension, retention, retrieval and application of information in a second or foreign language. LLSs enable learners to manage their own learning and achieve desired individual goals.

Early research conducted by Rubin (1975), Stern (1975), Naiman, Frohlich, Stern, and Todesco (1978), Rubin (1981), O'Malley, Chamot, Stewner-Manzanares, Kupper and Russo (1985) has identified good LLSs. Rubin (1981) defines strategies that contribute directly and indirectly to L2 learning. Six direct strategies include: (a) clarification/verification; (b) monitoring; (c) memorization; (d) guessing/inductive inference; (e) deductive reasoning; and (f) practice. Two indirect strategies are: (a) creating opportunities for practice; and (b) production tricks.

In addition to different ways of defining LLSs, there are also various approaches to classify LLSs. A scheme, proposed by O'Malley and Chamot (1990), includes cognitive, metacognitive, and social/affective strategies. According to O'Malley and Chamot (1990), cognitive strategies are used by learners to work with information to improve learning; metacognitive strategies are higher order executive skills that involve planning, monitoring, or evaluating a language learning activity; and, social/affective strategies are those that involve interactions with others or exert control over affect. Oxford (1990) produced a classification system known as the Strategy Inventory for Language Learning (SILL). The definitions of the six categories of learning strategies in SILL are as follows (Oxford, 1990, pp. 18–21; 2001, pp. 167–168):

(1) Cognitive strategies: processing information and structuring it, for example, analyzing, summarizing.
(2) Memory strategies: remembering information by making connections, for example, grouping, and using keywords.
(3) Metacognitive strategies: managing the learning process and dealing with the task, for example, planning, identifying and selecting resources.
(4) Compensation strategies: compensating for knowledge gaps, for example, guessing, gesturing.
(5) Affective strategies: identifying one's affective traits and knowing how to manage them, for example, reducing anxiety, encouraging one's self.
(6) Social strategies: learning from and/or with others, for example, asking for cooperation, working with peers.

Oxford's SILL, widely used by researchers from different EFL contexts, has been regarded as the most comprehensive classification of LLSs (Ellis, 1994) and has also been identified as superior in accounting for the variety of strategies reported by language learners (Hsiao & Oxford, 2002; Chamot, 2004). Oxford's SILL is a standardized instrument with different versions for language learners of a variety of languages and has been employed extensively to collect data on large numbers of language learners around the world (Chang, 2011; Cohen, Weaver & Li, 1998; Green & Oxford, 1995; Hsiao & Oxford, 2002; Lan & Oxford, 2003; Nyikos & Oxford, 1993; Olivares-Cuhat, 2002; Oxford, 1990, 1996; Oxford & Burry-Stock, 1995; Park, 1997; Wang, 2013; Wharton, 2000). It has been used in studies that correlate strategy use with variables such as gender (Chang, 2011; Green & Oxford, 1995; Oxford, 1993; Yeh, 2013; Wang, 2013), proficiency level

(Chamot, Barnhart, El-Dinary, & Robbins, 1999; O'Malley & Chamot, 1990), and culture (Bedell & Oxford, 1996; Bruen, 2001; Green & Oxford, 1995; Nyikos & Oxford, 1993; Oxford & Burry-Stock, 1995; Wharton, 2000).

2.2 Motivation in language learning

Instead of being a monolithic construct, motivation is a complicated multidimensional construct (Chen & Jang, 2010; Csizér & Dörnyei, 2005; Guay, Ratelle, & Chanal, 2008; Mori & Gobel, 2006). Extensive interest in this crucially important affect-related variable has generated numerous research studies for about five decades. Dörnyei (2005) divided the history of research on motivation into three periods: the social psychological phase (1959–1990), the cognitive-situated phase (during the 1990s), and the process-oriented period (since 2000). The social psychological phase is primarily characterized by the social-educational model postulated by Gardner, Lambert, and their associates (Gardner, 1985; Gardner & Lambert, 1959; Gardner & Smythe, 1975; Gardner & Tremblay, 1994; Masgoret & Gardner, 2003; Tremblay & Gardner, 1995). They distinguished instrumental motivation (a desire to learn a language for functional reasons such as getting a better job or passing an exam) from integrative motivation (a desire to learn a language to identify with the target language culture). In the socio-educational model, two categories of variables were posited to influence learner motivation: integrativeness and attitudes toward the learning situation (Gardner, 1985; Gardner & Smythe, 1975). Integrativeness is assessed by attitudes toward the target language group, interest in foreign languages, and integrative orientation. Attitudes toward the learning situation are measured by attitudes toward both the language course and the language teacher.

During the cognitive-situated period, various attempts were made to conceptualize motivation in terms of different components due to some limitations of the social-educational model (Crookes & Schmidt, 1991; Dörnyei, 1990; Schmidt, Boraie, & Kassabgy, 1996). For example, Eccles, Wigfield, and their colleagues (Wigfield & Eccles, 2000; Wigfield, Eccles, & Rodriguez, 1998) developed the well-recognized expectancy-value model, which considers expectations of success and subjective task value to be direct determinants of achievement-related choices. Another influential conceptualization of motivation, the self-determination theory, was developed by Deci and Ryan (1985; Noels, Pelletier, Clément, & Vallerand, 2000), who made a distinction between intrinsic and extrinsic motivation. According to Carreira (2012), the most internally self-regulated form of motivation, namely intrinsic motivation, is positively correlated with the important psychological needs of language learners, which include autonomy, competence, and relatedness. Crookes and Schmidt (1991) broadened Gardner's model by including four motivation constituents: (1) interest, (2) relevance, (3) expectancy, and (4) reward or punishment. With Gardner's concept of integrativeness as the central component, Cizér & Dörnyei (2005) postulated a theoretical model involving six other components: instrumentality, attitudes toward the target language speakers/community, cultural interest, vitality of the target language community, perceived influence of significant others, and linguistic self-confidence. They redefined integrativeness as the "Ideal L2 Self" (p. 30). Furthermore, a process-oriented conception of motivation was proposed by Dörnyei (2005) to account for the "ongoing changes of motivation over time" (p. 83). According to this model, the motivational process can be separated into three phases: preactional stage (choice motivation), action stage (executive motivation), and postactional stage (motivational retrospection). In a process-oriented qualitative study, Tsang (2012) revealed that four factors at the learning situation level are essential in maintaining learner motivation in the foreign language classroom, namely, teachers, feedback, difficulty of the coursework, and feeling of making progress.

2.3 Motivation and strategy use

There have been some empirical studies exploring the link between motivation and the use of learning strategies (Khamkhien, 2010). Okada, Oxford and Abo (1996), for example, conducted a study with two groups of college language learners, Japanese and Spanish learners, to examine the

relation of strategy use to learning motivation. The findings revealed that learners of Japanese were not only more motivated but also used a larger variety of strategies more often than their Spanish counterparts. Significant correlations were found between motivation and overall strategy use for both Japanese learners (r = .56) and Spanish learners (r = .58). Lan and Oxford (2003) conducted a study on the strategy use of elementary school students in Taiwan and reported that the degree of liking English, an indicator of learning motivation, turned out to have the most influential effect on strategy use, followed by gender and language proficiency. Similarly, Oxford and Nyikos (1989) found that motivation is the most important factor that affects the choice of learning strategies. Learners with higher levels of motivation used a variety of strategies more frequently than those with lower levels of motivation. The same conclusion about the connection between the motivation to learn and strategy use was later supported by MacIntyre and Noels (1996). In addition, MacIntyre and Noels (1996) also found that metacognitive strategies had the strongest correlation with motivation (r = .57).

Among the eight motivation factors identified by Bonney, Cortina, Smith-Darden, and Fiori (2008), both intrinsic motivation and integrative motivation were found to be significantly correlated with strategy use. While intrinsic motivation was found to have significantly stronger association with extracurricular learning strategies (r = .53), integrative motivation was more strongly associated with compensatory and collaborative strategies (r = .44 and .33, respectively). Bonney et al. concluded that both intrinsic motivation and integrative motivation can serve as primary predictors of the use of different strategies.

2.4 Research questions

Compared with the considerable amount of studies on learning strategy use, there is still rather limited research that provides comprehensive insights into the association between the use of foreign language learning strategies and motivation. In the hope of providing more useful implications for language instructors, the current research aims to increase our understanding of how the types and frequency of strategy use differ among EFL students with varying degrees of motivation. The major research questions are as follows:

(1) Do EFL students of different proficiency levels differ in their language learning strategy use?
(2) To what extent is strategy use correlated with motivation for learning English?
(3) Are there differences among EFL students with different levels of learning motivation in terms of their strategy use?

3 Method

3.1 Subjects

The sample included 163 university freshmen enrolled in different majors in central Taiwan. They were assigned to different levels of English classes to complete university-wide required English courses according to their scores on the General English Proficiency Test. The same series of teaching materials was used in all of these classes. Participants of the study included three classes of students from each ability level – basic, intermediate, and advanced. They were surveyed in September 2010, a few weeks after the start of the 2010-2011 academic year (see Table 1).

Table 1. Number and percentages of subjects of different ability levels

	Elementary	Intermediate	Advanced	Total
Male	27 (57.4%)	31 (54.4%)	17 (28.8%)	75 (46%)
Female	20 (42.6%)	26 (45.6%)	42 (71.2%)	88 (54%)
Total	47	57	59	163

3.2 Instruments

To measure learner strategy use, Oxford's (1990, version 7.0) 50-item version of SILL, a version designed for learners of English as a second or foreign language, was used in the current study. SILL has been used extensively and checked for its reliability and validity in multiple ways (Oxford & Burry-Stock, 1995). In the present study, the reliability of the strategy use questionnaire was measured at .94 using Cronbach's alpha.

The SILL used in this current study consists of 50 items which have been classified into six categories: (a) memory strategy items (items 1 to 9); (b) cognitive strategy items (items 10 to 23); (c) compensation strategy items (items 24 to 29); (d) metacognitive strategy items (items 30 to 38); (e) affective strategy items (items 39 to 44); and (f) social strategy items (items 45 to 50). They are assessed on a five-point Likert scale ranging from 1 to 5. The number indicates the frequency of strategy use, ranging from 1 for never or almost never to 5 for always or almost always.

The questionnaire used to measure student learning motivation was adapted from Gardner's (1985) Attitude/Motivation Test Battery (AMTB). It consisted of 26 items and was divided into three subscales: attitudes toward learning English; motivational intensity; and desire to learn English. All items were constructed on a 6-point Likert-type scale (1 = completely disagree; 6 = completely agree). Learners' overall motivation was assessed by computing the total of the three subscale scores. The reliabilities of the three subscales, as determined by Cronbach's alpha, were .83, .72, and .76, respectively. The internal consistency for the complete Chinese version was .90. All of the above-mentioned instruments used in the present study were modified and translated into Chinese for use in the study by the second author.

The instrument used to measure student English proficiency is the General English Proficiency Test (GEPT). It was developed by the Taiwan Language Training and Testing Center and is a test recognized and accredited by Taiwan Ministry of Education. The reading test consists of three parts: sentence completion; cloze; and reading comprehension. The listening test consists of three sections: picture descriptions; answering questions; and conversations. Students' English proficiency scores in the present study were obtained by adding their scores on both the GEPT reading and listening tests.

3.3 Data analysis

To address the first research question concerning the strategy use of students at different language proficiency levels, multivariate analysis of variance (MANOVA) was employed to analyze the data. To investigate the relation between learner's strategy use and motivation, Pearson's product-moment correlation coefficients of all the related variables were computed and analyzed for the entire group of the sample. Furthermore, the use of language learning strategies among students of different motivation levels was more closely analyzed. Before conducting statistical analyses of the data, the subjects were divided into three groups according to their scores on the motivation scale. Multivariate analysis of variance (MANOVA) was then performed on (1) the overall strategy scores, (2) the strategy category scores, and (3) the individual item scores to examine whether there were significant differences in strategy use by students at different levels of learning motivation. All the negatively worded items in the motivation scale were scored in reverse before any statistical analyses were performed.

4 Results

The means and standard deviations were computed for use of each of the six strategy categories and the overall strategy instrument for students in each proficiency level (see Table 2). Cognitive, compensation, and metacognitive strategies were found to be the top three most used strategy types, and social strategies were found to be the least used, as seen from the full sample. While

both lower-ability and intermediate groups of students used compensation strategies the most, the higher-ability group used metacognitive strategies (mean = 3.22) the most. Overall, the participants of the current study had made medium use of the strategies (mean = 2.8). Lower-ability students used strategies the least and the higher-ability students the most.

Table 2. Means and standard deviations indicating strategy use of the sample by different proficiency level

Proficiency Level / Strategy Category	Rank Order of Usage	Mean	SD
Elementary			
Compensation	1	2.69	.71
Metacognitive	2	2.53	.75
Cognitive	3	2.51	.63
Memory	4	2.46	.75
Affective	5	2.44	.74
Social	6	2.21	.79
Overall		**2.49**	.64
Intermediate			
Compensation	1	2.81	.69
Metacognitive	2	2.69	.68
Cognitive	3	2.65	.55
Affective	4	2.60	.63
Memory	5	2.57	.54
Social	6	2.42	.70
Overall		**2.63**	.54
Advanced			
Metacognitive	1	3.22	.47
Cognitive	2	3.20	.44
Compensation	3	3.16	.42
Affective	4	3.04	.52
Memory	5	3.00	.53
Social	6	2.99	.53
Overall		**3.12**	.39

Note. Overall = Overall Strategy Use

Table 3 shows the five most popular strategies used by the participants. According to Table 3, Items 10 and 15 were among the top three strategy items used by the participants of all three target language (TL) proficiency levels. Item 15 of watching English TV shows or movies provides not only TL inputs but also entertainment which gives TL learners opportunities to learn TL in a more relaxing circumstance. Another cognitive learning strategy, Item 10 of speaking or writing new English lexical items several times, gives TL learners instant practice in the newly acquired lexical items. In addition, Item 12 of practicing the pronunciation of English was the second most used strategy item by the higher TL proficiency group, which indicates that they have the preference and intent to speak out English words rather than simply know the words. It is a very different strategy from those preferred by their counterparts of lower TL proficiency ability. A significant pedagogic implication from these findings may be that teachers should provide learning materials with audio and visual elements which would match learner's learning strategy preferences. While both visual and aural stimulation are necessary, additional speaking opportunities are preferred by students of a higher TL proficiency level.

Table 3. Means and standard deviations of the three most frequently used learning strategies by students of different proficiency levels

Proficiency Level	Strategy No.	Strategy	Rank Order	Mean	SD	Strategy Category
Elementary						
	10	I say or write new English words several times.	1	3.28	1.01	cognitive
	15	I watch English language TV shows or go to movies spoken in English.	2	3.11	1.15	cognitive
	1	I think of relationships between what I already know and new things I learn in English.	3	2.87	.99	memory
Intermediate						
	15	I watch English language TV shows or go to movies spoken in English.	1	3.44	1.07	cognitive
	10	I say or write new English words several times.	2	3.35	.97	cognitive
	29	If I can't think of an English word, I use a word or phrase that means the same thing.	3	3.16	1.05	compensation
	38	I think about my progress in learning English.	3	3.16	.84	metacognitive
Advanced						
	15	I watch English language TV shows or go to movies spoken in English.	1	3.64	.87	cognitive
	12	I practice the sounds of English.	2	3.54	.79	cognitive
	10	I say or write new English words several times.	3	3.46	.73	cognitive

To determine any significant differences in strategy use among students of different proficiency levels, MANOVA was performed on the 163 students' item scores with the proficiency level as the independent variable and strategy use as the dependent variable. The findings presented in Table 4 indicate that differences in strategy use among these three ability groups were highly significant. The Scheffe test was employed to make post hoc comparisons among these group averages. For each of the six strategy categories, high-achieving students had a much higher level of strategy use than their counterparts of lower TL proficiencies. However, no significant difference was found in strategy use between the intermediate and basic levels.

Table 4. Results of multivariate analysis of variance test for strategy use by students of different proficiency levels

Dependent Variable	Source of Variation	SS	df	MS	F	Sig.
Memory						
	Level	8.91	2	4.46	12.17	.000 **
	Error	58.21	159	.37		
Cognitive						
	Level	14.40	2	7.20	24.29	.000 **
	Error	47.15	159	.30		
Compensation						
	Level	6.46	2	3.23	8.68	.000 **
	Error	59.19	159	.37		
Metacognitive						
	Level	14.28	2	7.14	17.62	.000 **
	Error	64.46	159	.41		
Affective						
	Level	10.40	2	5.20	13.02	.000 **
	Error	63.52	159	.40		
Social						
	Level	17.51	2	8.76	18.98	.000 **
	Error	73.34	59	.46		
Overall						
	Level	12.06	2	6.03	22.00	.000 **
	Error	43.58	159	.27		

** $p < .01$

Table 5. Correlations between strategy use and motivation for the full sample

Strategy category	Motivation			
	Attitudes	Intensity	Desire	Overall1
Memory	.545**	.565**	.597**	.643**
Cognitive	.629**	.583**	.665**	.710**
Compensation	.434**	.435**	.456**	.499**
Metacognitive	.700**	.571**	.714**	.755**
Affective	.589**	.524**	.607**	.651**
Social	.609**	.487**	.631**	.658**
Overall2	.675**	.611**	.707**	.754**

** $p < .01$

Note. Overall1 = Overall Motivation; Overall2 = Overall Strategy Use

To examine the relationship between strategy use and motivation, correlational analysis was performed on the full sample. As reported in Table 5, all of the related variables were significantly and positively correlated. The results establish that students with higher motivation made significantly greater use of strategies in the language learning process. While all strategies in the six categories had at least moderate levels of correlation with motivation (ranging from .499 to .658), strategies in the metacognitive and cognitive categories were highly correlated with motivation (.755 and .710, respectively). Metacognitive strategies were found to have the highest correlation with motivation, while compensation strategies had the lowest correlation (.499). The results also showed that among the three motivational components, the desire to learn the language had higher correlation (.707) with overall strategy use than the other two, attitudes toward learning the lan-

guage (.675) and motivational intensity (.611). Overall, frequency of strategy use had relatively high correlation with learning motivation (.754). The findings on the significant relationship between motivation and strategy use corroborate those of some previous studies conducted either in Taiwan (Chang, 2005; Chuang, 2007; Hsu, 2004) or the Western context (MacIntyre & Noels, 1996; Okada, Oxford, & Abo, 1996).

To more closely examine the strategy use of students who have different levels of learning motivation, the subjects were grouped into three motivation levels according to their scores on the motivation scale. Students grouped into the high or low levels accounted for approximately one-fourth of the entire score distribution, while the medium level students accounted for about half of the total score distribution. The findings are reported in Table 6. As indicated in the tables, for the highly motivated students, the learning strategy type most often used were metacognitive strategies (mean = 3.51). Cognitive and compensation strategies were the next two most frequently used strategy type. Compensation strategies were the strategy type used most often by students grouped into the medium level (mean = 2.89), followed by metacognitive and cognitive strategies. Compensation strategies were also the most frequently used strategy type by students with low motivation (mean = 2.51), followed by cognitive and affective strategies.

Table 6. Means and standard deviations indicating strategy use of the sample by motivation level

Strategy Category	Low Motivation		Medium Motivation		High Motivation	
	Rank Order	Mean	Rank Order	Mean	Rank Order	Mean
Memory	5	2.13	4	2.75	6	3.18
Cognitive	2	2.25	3	2.81	2	3.41
Compensation	1	2.51	1	2.89	3	3.35
Metacognitive	4	2.16	2	2.85	1	3.51
Affective	3	2.17	5	2.74	4	3.24
Social	6	1.91	6	2.58	5	3.21
Overall		2.19		2.78		3.33

A further multivariate analysis of variance (MANOVA) was performed on (1) the overall strategy scores, (2) the six strategy category scores, and (3) the 50 individual item scores to examine the differences in strategy use by students of different motivation levels. The findings established that there were significant differences in both the overall strategy scores and six category scores among students of different motivation levels (see Table 7).

Table 7. MANOVA test results of differences in the strategy category scores by students of different motivation levels

Source	Dependent Variable	SS	df	MS	F	Sig.
Motivation	Memory	22.50	2	11.25	40.07	.000**
	Cognitive	26.68	2	13.34	60.80	.000 **
	Compensation	14.31	2	7.16	22.17	.000**
	Metacognitive	36.54	2	18.27	68.84	.000**
	Affective	22.67	2	11.34	35.17	.000**
	Social	33.79	2	16.89	47.07	.000**
	Overall	26.04	2	13.02	69.93	.000**

** $p < .01$

Follow-up test results showed that students with high motivation used learning strategies significantly more frequently than those with medium motivation. Likewise, students with medium motivation used learning strategies significantly more often than those with low motivation. The

analysis of item scores indicated that the only strategy item that did not show significant differences among students of different motivation levels was item 26 (I make up new words if I do not know the right ones in English; $F = 1.23$, $p = .296$). Finally, the top three most used learning strategies by students of different degrees of motivation are shown in Table 8.

Table 8. Means and standard deviations of the three most frequently used learning strategies by students of different degree of motivation

Motivation Level	Strategy No.	Strategy	Rank Order	Mean	SD	Strategy Category
Low						
	15	I watch TV shows/ movies in English	1	3.17	1.24	cognitive
	10	I say or write new English words several times.	2	3.07	1.15	cognitive
	28	I try to guess what the other will say next in English.	3	2.71	1.05	compensation
Medium						
	10	I say or write new English words several times.	1	3.34	.74	cognitive
	15	I watch TV shows/ movies in English.	2	3.27	.90	cognitive
	29	If I can't think of an English word, I use a word or phrase that means the same thing.	3	3.13	.78	compensation
High						
	15	I watch TV shows/ movies in English.	1	4.00	.89	cognitive
	32	I pay attention when someone is speaking English.	2	3.90	.68	metacognitive
	10	I say or write new English words several times.	3	3.74	.82	cognitive
	12	I practice the sounds of English.	3	3.74	.88	cognitive
	38	I think about my progress in learning English.	3	3.74	.75	metacognitive

5 Discussion

The results of the current study led to three conclusions that shed light on the relationship between strategy use and motivation among EFL university students. Significant findings provide references for instructors to cope with a wide range of English proficiencies among EFL students.

First, the results indicate that low TL proficiency participants used the smallest number of strategies in each of the six strategy categories, while their high TL proficiency counterparts used the largest. This finding coincides with previous findings that good or effective language learners use more strategy items than those who are less effective, where effectiveness in language learning is assessed through tests, examinations and/or teacher ratings (Ehrman, Leaver, & Oxford, 2003; Green & Oxford, 1995; O'Malley, Chamot, Stewner-Manzanares, Kuepper, & Russo, 1985). The strategy use of the low TL proficiency groups was at the lower end of the medium-use range ($M = 2.49$ $SD = .64$), while that of the high TL proficiency group was at the higher end of the medium-use range ($M = 3.12$, $SD = .39$).

Second, social strategies were the least used in the current study, a finding that sets this study apart from previous research, in which the social strategy category was the most used, while the memory strategy category was the least used (Chang 2011; Griffiths, 2003; Oxford, 1990). The infrequent use of social strategies may be attributed to the rural setting of the research site, where there are few native-speaking English instructors, and visits from international tourists and interna-

tional scholars and students are rare. In this learning context, the participants may have had few suitable opportunities for the use of social strategies. Compensation strategies were the most used by the whole sample group, which is consistent with the findings of previous studies (Chang, 2010; Chen, 2005; Lan & Oxford, 2003; Mochizuki, 1999). Students in the lower-ability and intermediate groups used compensation strategies the most, whereas the higher-ability group used metacognitive strategies the most. Metacognitive and cognitive strategies were found to have the highest correlation with motivation, and compensation strategies the lowest.

Third, the current study reveals that the overall strategy use among the research participants was highly correlated with learning motivation. Motivation plays a crucial role in language acquisition (Crook & Schmidt, 1991; Khamkhien, 2010; MacIntyre, MacMaster & Baker, 2001; Oxford & Shearin, 1996; Pintrich & Schunk, 1996; Wigfield, Eccles & Rodriguez, 1998). As MacIntyre and Noels (1996) pointed out, "students who feel more highly motivated will be more likely to expend the effort needed to engage in strategy use" (p. 383). With higher strategy use, learners may perceive a lower level of task difficulty and learn more effectively.

6 Conclusion and implications

This study has pedagogical implications in five areas: First, since the findings reinforce existing theories stating that motivation is positively linked to LLSU (Chang, 2011; Lan & Oxford, 2003), and that it is important and helpful to acknowledge and enhance students' awareness of LLSU in accordance with their levels of motivation. Second, the fact that watching English movies and TV shows was the strategy most used by participants suggests that audio and visual teaching materials may be effective tools for stimulating learners at different proficiency levels. Third, English inputs and oral practice opportunities are essential for high proficiency students, who appeared to practice and to monitor their own learning progress more than their counterparts. Fourth, students who use compensation strategies may be more receptive than others to classroom discussion of synonyms and/or phrases of similar use. Lastly, previous research has found that, through classroom instruction, it is possible to induce learners to add new learning strategies to their repertoire and to raise their awareness of the contribution of learning strategy use to learning achievement (Chamot, 2008; Cohen & Weaver, 2006; Rubin, Chamot, Harris, & Anderson, 2007).

The current study reveals a positive link between motivation and LLSU. The Language Learning Navigation Center was recently established at the research site, providing customized English language learning consultations to students. Additionally, there has been an increase in native English language instructors on campus. Further research on the relationship between learning motivation and LLSU is necessary to understand how these contextual changes may influence students' learning motivation and LLSU. Moreover, future research based on larger samples of subject may lead to further insights.

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