

Relationships between the Use of ESL Learning Strategies and English Language Proficiency of Asian Students

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The objective of the present study was to model the relationships between language learning strategy use and language proficiency among the Asian (Korean, Japanese, and Taiwanese) students studying English in the United States. The instruments were a language learning strategy questionnaire and the Institutional Testing Program Test of English as a Foreign Language (ITP TOEFL). Structural equation modeling was utilized to model the relationships between language learning strategies and language proficiency. The present study found only weak relationships between language learning strategies and language proficiency. Only 13% and 15% of variance of the listening and grammar/reading factor were explained by the language learning strategies. The metacognitive strategies appeared not to have direct relationships to the language skill factors, as was found in other studies (Purpura, 1996, 1997). The effects of the social and affective strategies were very small. They in combination could account about 1% and 4% of the variance of the listening and grammar/reading factors.

1. Introduction

Since the seminal studies by Rubin (1975) and Stern (1975), a great deal of research has been done on comparing the strategies of good and poor language learners (Chamot et al., 1988; Huang, & Van Naerssen, 1987; Mangubhai, 1991; Naiman et al, 1978; Lenon, 1989; Reiss, 1981, 1985; Rubin, 1975, 1981; Stern, 1975). Though various methods and different groups of subjects have been used, there are a number of common findings.

First, concern for language form has been emphasized in many studies (Rubin, 1975; Stern, 1975; Naiman et al, 1978; Mangubhai, 1991; Reiss, 1985.). Especially, Naiman et al (1978) noted that two of the strategies of highly proficient adult learners were analyzing target language and monitoring their target language performance.

Second, the importance of realizing language as a functional tool has been noted in almost all studies on learning strategies (Rubin, 1975; Stern, 1975; Naiman et al, 1978; Reiss 1985; Huang & Van Naerssen, 1987; Lennon, 1989). Attention to meaning has appeared to be the most crucial strategy along with attention to form. Learners seemed to use more of functional strategies especially in their later stages of language developments (Naiman et al., 1978, Lennon, 1989).

The third common characteristic is that a good language learner is not a passive receiver but an active participant in learning (Rubin, 1975; Stern, 1975; Pickett, 1978; Reiss, 1985). He or she seeks opportunities to practice and is willing to test his language ability. Reiss (1985) particularly emphasized active participation. She argued that active participation was not limited to target language production. It included acting as a silent speaker, who practices and rehearses silently while listening to others.

Along with these three main characteristics, researchers have listed

other characteristics of good language learners; preparedness to guess (Rubin, 1975), willingness to make mistakes (Rubin, 1975; Stern, 1975), using metacognitive knowledge (Chamot et al, 1988; Reiss, 1985), and management of affective demands (Naiman et al., 1978).

Though the above findings are very valuable information about language learning strategies, the research has provided only a list of strategies and failed to notice the interrelationships between language learning strategies. Recently, a few studies (OMalley and Chamot, 1985; 1990; Oxford, 1990; Purpura, 1996; 1997) attempted to provide a more systematic and comprehensive account of language learning strategies by classifying language learning strategies. OMalley and Chamot based their classification scheme on information processing theory. They grouped learning strategies into metacognitive, cognitive, and socio-affective strategies. The first two types of strategies indicate level of mental processing. Metacognitive strategies are higher order executive skills that involve thinking about or knowledge of the learning process, planning for learning, monitoring learning, or self-evaluation. Cognitive strategies are often specific to distinct learning activities and involves more direct manipulation of learning materials such as direct analysis, transformation, or synthesis of learning materials (OMalley et al, 1985; Brown 1994). Social/affective strategies involve interaction with another person or control over affect.

A similar classification was made by Purpura (1996, 1997). He also classified language learning strategies into metacognitive strategies and cognitive strategies according to mental processing level and postulated a strong hierarchical relationship between metacognitive and cognitive strategies. Based on his classification, he modeled the relationships between language learning strategies and language performance. One limitation in his attempt was that his modeling was restricted to metacognitive and cognitive strategies excluding other types of strategies

such as social and affective strategies.

Oxford (1990) has provided the most comprehensive classification. She included not only mental processing strategies, but other strategies such as affective and social strategies. She divided strategies into two major classes: direct and indirect. The direct strategy class includes dealing with the new language and is sub-divided into memory strategies for remembering and retrieving new information, cognitive strategies for understanding and producing the language, and compensation strategies for using the language despite the knowledge gaps. The indirect strategy class is used for general management of learning and sub-divided into social strategies for learning with others, affective strategies for regulating emotions and metacognitive strategies for coordinating the learning process.

Even though these strategy classification frameworks are useful to understand what types of learning strategies learners use, they do not show how those strategies were related to language performance and language development. Purpuras (1996, 1997) studies were of exceptions in this sense though his attempt to find structural relationships between language learning strategies and language performance was limited only to the metacognitive and cognitive strategies.

In this context, the present study aimed to construct a more comprehensive model that would explain the structural relationships between English language learners strategy use and language performance.

II. Method

1. Subjects and Instruments

The subjects were 596 Asian (145 Korean, 285 Japanese, 168

Taiwanese) students at English Language Institutes in North America who took the ITP TOEFL (Institutional Testing Program Test of English as a Foreign Language) and answered the language learning strategy questionnaire. The reason to choose the three nationalities was that those students constituted the majority (more than 70%) of ESL classrooms. Those students also had similar cultural backgrounds, compared to students from other countries such as Western European and Latin American countries. Their writing systems had used Chinese characters. Korea and Japan had their own writing systems, but those systems were relatively new in their history compared to the use of the Chinese writing system. Their culture was of authoritarian tradition, which had been influenced by Confucianism. (Robinson, 1990). Korean and Japanese also belonged to the same language family, Altaic.

Subjects language proficiency was measured with the ITP TOEFL. An ITP TOEFL is a version of TOEFL that was used previously as a regular TOEFL. Thus, the validity and reliability of the ITP TOEFL are at a comparable level to a regular TOEFL. Scores earned under the ITP TOEFL are also comparable to scores under the regular TOEFL program, but their use is limited to the administering institution (ETS, 1997). As in the regular TOEFL, the ITP TOEFL consists of three sections: Listening Comprehension, Structure and Written Expression, and Reading Comprehension. The mean of the 596 students ITP TOEFL scores were 477.09 and the standard deviation of the score distribution was 58.46.

A questionnaire was used to gather information of learners language learning strategy use. The questionnaire consisted of two parts: background and strategy use. The background questionnaire consisted of 10 items asking respondents native country, native language, how long they had stayed in the U.S., if they planned to study in American graduate schools, and so on. The strategy use questionnaire was designed to get the information about learners strategy use. It consisted of 46

Likert scale type items which measured the use of language learning strategies in four major strategy categories: metacognitive strategies, cognitive strategies, social strategies, and affective strategies. Most of the questionnaire items were adapted from Oxfords (1990) strategy inventory for language learning (SILL), and some items were created. Appendix A shows the questionnaire items. The strategy questionnaire part was translated into the students native languages in order to minimize the administration time and possible misunderstanding.

2. Classification of Language Learning Strategies

Language learning strategies were classified into four components: metacognitive, cognitive, affective, and social strategy components. Table 1 shows the hierarchical relationships among strategy variables for the present study and the item numbers measuring each observed strategy variables. The metacognitive component functioned as a coordinator of language learning process. The cognitive component was responsible for actual processing of linguistic information such as storing and practicing linguistic information. The affective component controlled ones attitude, emotion, and motivation. The social component comprised the strategies to promote interactions with others. Each strategy component had its substrategy factors and each strategy factor had a few indicator items. That is, strategy factors was estimated from strategy indicator variables.

Though the overall strategy classification scheme followed Oxfords (1990) scheme, a few changes were made in the direction of the scheme employed by Purpura (1996, 1997), and OMalley and his colleagues (OMalley et al., 1985; OMalley, & Chamot, 1990). As explained above, Oxfords strategy inventory consists of six major strategy groups; metacognitive, cognitive, compensation, memory, affective, and social strategies. In the present study, Oxfords memory strategies and compensation strategies were subsumed under the cognitive component.

Oxfords definition of cognitive strategies is limited only to strategies for understanding, and producing the target language. Memory strategies (retrieving and remembering new information) constituted a separate group. So did the compensation strategies. The present study expanded Oxfords (1990) definition of cognitive strategies to include memory strategies and compensation strategies. That is, the cognitive component comprised strategies for manipulating linguistic information for understanding, storing/retrieving, and producing.

Table 1
The Hierarchical Relationships among Study Variables and the Number of Corresponding Items

Strategy Components	Strategy factors	STRATEGIES (observed variables)	ITEMS.
Metacognitive Component	Goal-Setting (GOALSET)	long-term goal setting (lgoal)	1
		short-term goal setting (shtgoal)	2
Cognitive Component	Planning (PLANNING)	planning for language tasks (planlt)	3, 4
		seeking practice opportunities (seekpo)	5, 6, 7
		Evaluating (EVAL)	self-monitoring (selfmon)
		self-evaluating (selfeval)	11, 12
	Storing (STORAGE)	linking with prior knowledge (linkpk)	13
		rehearsing/repeating (rehearse)	14, 15, 16, 17
		association (assoco)	18, 19, 20
		summarizing (summary)	21, 22
		translating (translate)	31, 32
	Practicing (PRACTICE)	practice by oneself (selfprac)	23, 24, 25
exposing oneself to English (expose)		25, 27	
Comprehending (COMP)	analyzing (analysis)	28, 29, 30	

Social	Interacting	clarifying (clarify)	33, 34
Component	(INTERACT)	correcting (correct)	35, 36
		working with peers or proficient speakers (coop)	37, 38, 39
	Empathizing	cultural understanding (culture)	40, 41
	(EMPATH)	being aware of others thoughts and feelings (feeling)	42
Affective Component		suppressing anxiety (suppanx)	43, 44
		self encouraging (selfenc)	45, 46

3. Analysis Tool

To model the relationships among the strategy factors and language performance, structural equation modeling (SEM) was utilized. SEM is a very useful and powerful methodology to test hypothesized interrelationships among a number of substantively meaningful variables (Purpura, 1996). One of the main strengths of SEM is the ability to measure relationships between latent variables, that is, hypothetical constructs that can be measured only indirectly from related observed variables. Another important characteristic of SEM is that as the term structural indicates (Bollen 1989), relationships are specified to be directional or causal; One factor influences other factors. With this characteristic, SEM has often been used to provide quantitative accounts for causal relationships between factors.

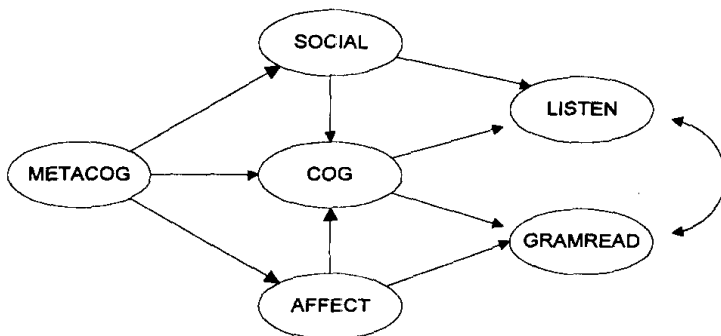
4. Proposed Relationships

Based on the above classification of language learning strategies, the present study examined the structural relationships among those 9 language strategy factors and 2 language skill factors (grammar-reading

skills and listening skills). Figure 1 shows a graphical representation of the structural model the present study examined. Instead of presenting each of strategy factors, strategy components were used. The metacognitive component represents the goal-setting, planning, and evaluating strategy factors.

Following the model of Purpuras language learning strategy processing model and Oxfords (1990) language learning strategy classification, the relationships between the metacognitive and cognitive strategy components was hypothesized to be directional. That is, the metacognitive language strategy component as a coordinating component of language learning was hypothesized to affect the cognitive strategies. Because the cognitive component was hypothesized to deal with linguistic information directly, it was assumed to have direct effects on the two language skill factors.

Figure 1
Proposed Structural Relationships Between the Language Learning Strategy and Language Skill Factors.



The arrows indicate the direction of the influence.

The curved arrow indicates the correlation between two variables.

Though the classification of the social and affective strategy components followed Oxfords (1990), the role of the two components were proposed to be slightly different. According to Oxford, the social and affective strategy components had only indirect effects on language skills through the direct strategies such as cognitive, memory, and compensation strategies that were integrated into the cognitive component of the present study. Being of heuristic nature, Oxfords strategy classification scheme did not justify why those two components had only indirect effects on language skills. The present study assumed that the two components had effects on the language skills directly as well as indirectly through the cognitive component. Though it was the cognitive strategy component that was hypothesized to be responsible for direct processing of linguistic information, there was no reason to restrict the roles of the social and affective strategy components to the indirect effects only through the cognitive component. If they had only indirect effects on the language skills, their effects should be the same on both language skills, which may hardly be justified. For instance, differences in the use of social strategy may be related to difference in listening ability but not in grammar-reading ability. The proposed model of the present study assumed that the social and affective strategy components have direct effects as well as indirect effects on language skills.

Since the metacognitive component was assumed to function as a coordinator of learning, the social and affective strategy components were affected by the metacognitive component.

Though three language skills were measured from the ITP TOEFL scores, a two language factor structure of the TOEFL performance data was proposed. The proposed relationships were based on Hale et al.s (1988) exploratory factor analysis and Hale et al.s (1989) confirmatory factor analysis on TOEFL data. In both studies, a two-factor solution

explained the TOEFL performance data very well. They found that one factor was related to the listening section and that the other factor was related to the other sections of the TOEFL. The one factor was named listening factor (LISTEN) and the other factor grammar-reading factor (GRAMREAD) in the present study. High correlation between grammar and reading factors were also found in Purpuras (1996, 1997) study where Grammar skill appeared a almost perfect indicator of Reading skill. The errors of grammar-reading and listening factors were hypothesized to be correlated because there must have been many other factors that were not included in the present model.

5. Modeling Procedure and evaluation

Since there were many factors in the model, modeling procedure was of building blocks. First, the relationships among the cognitive factors and language skill factors were modeled because the cognitive factors were hypothesized to be the strategies that dealt with linguistic information directly. Then, the metacognitive factors that must be closely related to the cognitive factors. Lastly, the social and affective factors were included in the model.

Chi-square statistics and root mean error of approximation (RMSEA) were used to examine model fitness. Chi-square measures the distance between the sample covariance matrix and the implied covariance matrix of the estimated model. It is generally accepted as a good model when chi-square is less than 2.5 times of the degrees of freedom. RMSEA is a measure of discrepancy per degrees of freedom between the observed data and estimated model. A value less than .05 indicates good fit and a value between .05 and .08 indicates reasonable fit.

III. Results and Discussion.

1. Scaling

It may not be reasonable to assume that students' responses to the questionnaire indicated the absolute amount of the strategy use because of subjective judgment involved in the questionnaire. That is, if two students answered 3 to a questionnaire item, that did not mean that both of the students used the strategy to the same degree. Taking into account students' subjective judgment, their responses indicated their relative amount of strategy use. In other words, if a student answered 1 to a summarizing strategy item and 2 to a translating strategy item, it could be said that the student used the translating strategy more than the summarizing strategy.

If this rationale is right, a reference point is needed to compare students' responses relatively, so that it is possible to make such an interpretation that student A used translating more than strategy 1 (reference strategy) whereas student B relied less on translating than strategy 1.

Since most of the variables belonged to either the cognitive or metacognitive components and many variables on both components had small r^2 , it was decided to select a reference variable from either component. To determine a reference variable, strategy variables across different strategy components were correlated and one variable that was correlated highly with other variables was selected. This would reduce a possible multicollinearity problem by reducing interdependency between different variables. Seeking practice opportunities (seekpo) in the metacognitive component was selected as a reference variable. It was highly correlated with the variables of the practicing factor.

Students' responses were scaled by subtracting the value of seekpo

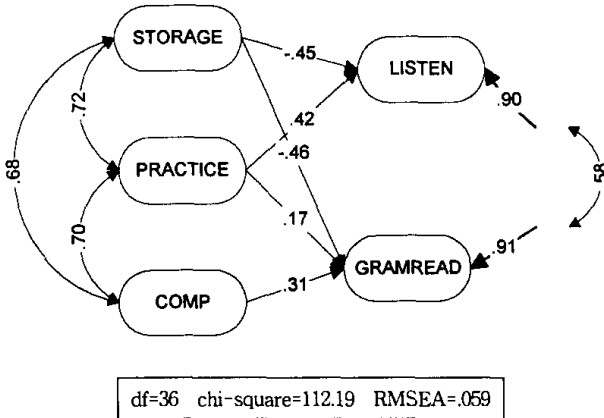
from their values. New scaling changed the way of making interpretation of the values. The values ranged -4 to 4. The original Likert-scale item ranged from 1 (never use) to 5 (always use), If the scale were roughly translated into the percentage of times, 1 would be 0% and 5 would be 100%. Likewise, 1 unit difference may be translated into a difference of 25%. The same interpretation may be applied to the new scaling. If a value of a strategy variable is 1, this should be interpreted such that the person relied 25% more on the strategy than the seeking practice opportunity (seekpo).

2. Relationships Between the Cognitive Component and Language Proficiency

The model was built by adding a component at a time. Figure 2 shows the structural relationships among latent variables and the fit indices of the model. R^2 's on the language skills were very low. R^2 's were .10 (=1-error (.90)) on the listening skill and .09 (=1- error (.91)) on the grammar-reading skill. This low R^2 's indicate that the cognitive English language learning strategies measured in the present study did not seem to have a determining role on language proficiency. It should be noted that the present research examined the effects of the language learning strategies, not the effects of students cognitive abilities on the language skills. Though the self-reported language learning strategies might be a manifestation of the psychological constructs, they may not be regarded as absolute or representative measures of those constructs.

As Purpuras (1996) studies found (the listening factor was not studied in his model), the storing strategy factor (STORAGE) appeared to have negative effects on both of the language skills. That is, students who answered to use storing strategies more than trying to practice their English (seekpo) appeared to be less proficient in both language skills. That is, low level learners appeared to put more emphasis on storing

Figure 2
Model of the Relationships Between the Cognitive Component and
Language Proficiency.



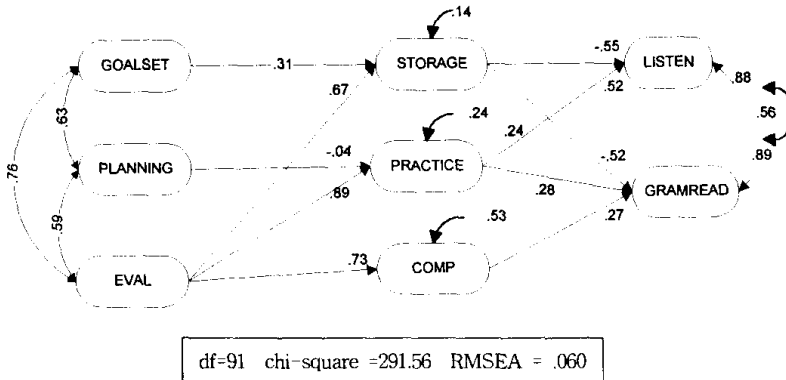
strategies than practicing strategies. This may have been because their imminent tasks may be to expand their English linguistic reservoir. On the other hand, the comprehending strategy factor and the practice strategy factor appeared to have the positive effects on the listening (LISTEN) and grammar-reading (GRAMREAD) abilities, respectively. The findings on the effects of the comprehending factor contradicted Purpuras study. He found only negligibly weak relationships between the comprehending factor and the grammar factor. Though the findings on the comprehending factor were not consistent, the outcome of the present study was easily interpretable. Though the comprehending strategy factor of the present study may not have represented students true trait since it was measured from one observation (analysis), the strategy may not be available due to their limited proficiency. To analyze linguistic information, some proficiency in English must have been required. The practice strategy factor was more related to language use rather than formal aspects as it appeared to be related to the listening factor (LISTEN).

3. Relationships Between the Metacognitive, Cognitive, and Language Proficiency Factors

The metacognitive component was added to the model. Figure 3 shows the path diagram. As proposed, the three factors of the metacognitive component appeared to have direct effects on the three factors of the cognitive components, and indirect effects on the language skill factors. The direct paths from the three metacognitive factors to the language skill factors were tested but appeared not significant. The same result was found also in Purpura (1996). Evaluating factors appeared the most influential on the cognitive factors. All of the three paths from factor EVAL to each of the three cognitive factors appeared very strong whereas the GOALSET had moderate effects on the STORAGE, and the PLANNING factor appeared very weakly related to the PRACTICE. Though PLANNING did not have any significant path to other cognitive factors, it was kept in the model because the model was still in a building-up process. It could be related to the other factors that had not been included in the model, yet. The fit statistics of the model remained about at the same level. Chi-square was about three times of the degrees of freedom and RMSEA was between .05 and .08.

Though they were negligibly small, the indirect effects on the metacognitive strategy component factors resulted in the increase in r^2 on the language skill factors. R^2 increased from .10 to .12 (=1-error(.88)) on the listening factor and from .09 to .11 on the grammar-reading factor. This amount was far below Purpura (1996, 1997) finding. He found that about 30% of the variances of the grammar factor was explained by the metacognitive and cognitive strategy factors. More evidence may have to be collected from further studies on the effect of the language learning strategies.

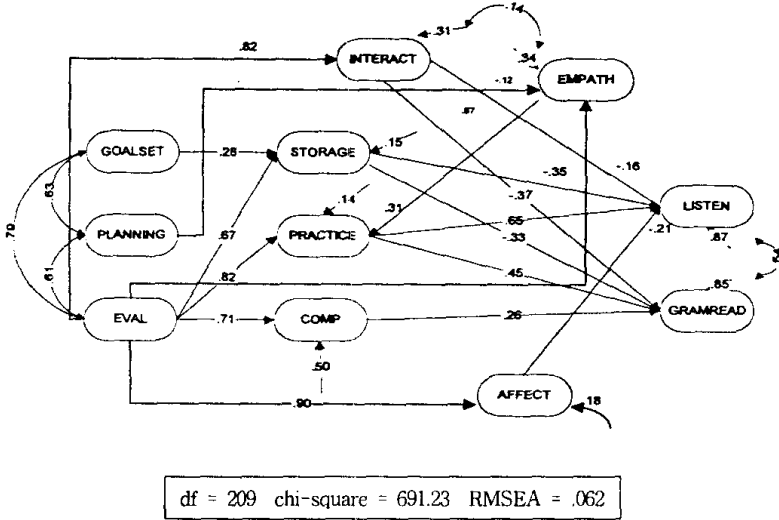
Figure 3
Model of the Relationships from the Metacognitive Component to the Cognitive Component and to the Language Skill Factors.



4. Model of the Relationships Between Language Learning Strategies and Language Proficiency

Lastly, the social and affective components were added to the model. Since the metacognitive component was hypothesized to function as a learning coordinator, it was hypothesized to influence the social and affective components, as well. Both of the components were hypothesized to have direct effects on the cognitive components and language skill factors. Figure 4 shows the model and fit indices. Appendix B shows the equations between the strategy factors and their observed variables. The errors of the interacting (INTERACT) and empathizing (EMPATH) factors were set to be correlated because they belonged to the same component, and they were assumed to share common characteristics of the social component that were not explained by the model presented in Figure 4.

Figure 4
Model of the Relationships Between the Language Learning Strategies and Language Proficiency



The fit statistics remained about at the same level of fitness as before those components were added. The chi-square is about three times of the degrees of freedom. RMSEA was about the same (.062).

The added factors increased the explanatory power of the model very slightly. R^2 on the listening and grammar-reading factor increased to .13 and .15 respectively.

All the newly added three factors seemed to be influenced by the evaluating factor (EVAL). All three path coefficients were very high. The empathizing factor appeared to be weakly related to the planning. The affective component appeared to have direct negative effects on the listening factor, which was not expected. That is, more use of the affective strategies than seeking practice opportunities strategies appeared to be related negatively to listening skill. The effects of interacting

(INTERACT) factor on both of the language skill factors were also unexpected. More use of interacting strategies appeared to be negatively related to language skills. Maybe a more plausible account for the effects of INTERACT and AFFECT on the language skills could be found if the direction of the relationships were reversed. That is, low proficient learners may have had high affective filters due to their limited language abilities, and because they may have had to try more to overcome their anxiety and encourage themselves. Likewise, less proficient learners may have had greater needs to get clarification or correction to communicate with others than more proficient learners. However, this interpretation did not conform to the proposed relationships that the affective and social strategies had influence on language skills. The effects of those strategies on the language skills may have to be examined with more refined studies. The empathizing factor (EMPATH) did not appear to have direct effects on the both language skills. Instead, it appeared to have indirect influence through the practicing factor of the cognitive component. The empathizing factor which reflected learners' intention to understand the other party may have motivated the learners to try more to speak like native speakers (item 26) or expose themselves in a target culture (expose).

IV. Conclusion

Though the explanatory power (r^2) of the model was not strong, the proposed relationships appeared to fit the data moderately. The cognitive strategy factors appeared to affect language performance most and the metacognitive factors appeared to influence the cognitive strategy factors directly and language skill factors indirectly. Though negligibly small, the social and affective strategies appeared to be affected by the metacognitive strategies and have influence on language skills.

It may be too hasty to make a conclusion about the relationships between

language learning strategies and language performance, solely based on the present research. In fact, Purpura found strong relationships between language learning strategies and grammar-reading skill. A reason of the weak findings of the present research may be due to the low reliabilities of the indicator variables, as shown in Appendix B some r^2 's of many strategy factors were very low. One solution in the future study would be to prepare a questionnaire based on large scale pilot studies with many pilot subjects and questionnaire items.

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Appendix A

Family Name _____ Given Name _____
ID number: _____ - _____ - _____
Age _____ Sex: male female
Home Country _____ Native Language _____
Other languages you speak, besides English and native language

How long have you lived in the United States? _____
Do you plan to study further in the United States? Yes No

This questionnaire is designed to find out how you try to improve your English. You will find statements about learning English. Please, read each statement and answer in terms of how well the statements describe you. Do not answer how you think you should be or what other people do. There are no right or wrong answers to these statements. Answer as quickly as you can.

Next to each statement, you will be given five numbers telling how true of you the statement is.

1. **Never or almost never** true of me
2. **Usually not** true of me
3. **Somewhat** true of me
4. **Usually** true of me
5. **Always or almost** true of me

Read each item and answer how well the statements describe you by checking a number.

Never Somewhat Always

	1 ← 3 → 5
1. When I study English, I think about the goals of English proficiency levels I want to achieve.	1 2 3 4 5
2. Each time I study English, I set goals of how much or how I am going to study or practice.	1 2 3 4 5
3. I plan my schedule so I will have enough time to study English.	1 2 3 4 5
4. I study English imagining the situations where I use English.	1 2 3 4 5
5. I pay attention when someone is speaking English	1 2 3 4 5
6. I try to find as many ways as I can to use my English.	1 2 3 4 5
7. I try to think in English	1 2 3 4 5
8. I know what mistakes I usually make in English and I try not to repeat them	1 2 3 4 5
9. When I speak English, I know when I make grammar mistakes.	1 2 3 4 5
10. I practice what I will say in my mind before I actually say it.	1 2 3 4 5
11. I think about my progress in learning English.	1 2 3 4 5
12. I evaluate my progress by checking how much more I can understand or express in English compared to before (one month ago or one year ago)	1 2 3 4 5
13. I think of relationships between what I already know and the new things I learn in English.	1 2 3 4 5
14. I practice new English words in a sentence so that I can memorize them.	1 2 3 4 5
15. I try to improve my speaking in English by repeating what I hear native speaker say.	1 2 3 4 5
16. I try to improve my English by repeating words or sentences until I can say them easily.	1 2 3 4 5
17. I try to memorize word meaning by repeating saying English words and their translated meaning together.	1 2 3 4 5
18. I connect the sound of a new English word and an image or picture of the word to help me memorize the word.	1 2 3 4 5
19. I memorize a new English word by making a mental picture of a situation in which the word might be used.	1 2 3 4 5

- | | | | | | |
|---|---|---|---|---|---|
| 20. I learn new words in English by relating the sound of the new word to the sound of a familiar word. | 1 | 2 | 3 | 4 | 5 |
| 21. I make a written summary of the new material in English classes. | 1 | 2 | 3 | 4 | 5 |
| 22. I keep a note of similar and opposite expressions to memorize. | 1 | 2 | 3 | 4 | 5 |
| 23. I try to talk like native English speakers. | 1 | 2 | 3 | 4 | 5 |
| 24. I write notes, memos, letters, or diaries in English. | 1 | 2 | 3 | 4 | 5 |
| 25. I try to use the English words I know in different ways. | 1 | 2 | 3 | 4 | 5 |
| 26. I watch English language TV shows or go to movies. | 1 | 2 | 3 | 4 | 5 |
| 27. I try to read magazines and newspapers written in English. | 1 | 2 | 3 | 4 | 5 |
| 28. When I learn new material in English, I look for similarities and differences between English and my own language. | 1 | 2 | 3 | 4 | 5 |
| 29. I find the meaning of an English words by dividing it into parts that I understand. | 1 | 2 | 3 | 4 | 5 |
| 30. I try to find patterns and rules of the English language. | 1 | 2 | 3 | 4 | 5 |
| 31. When I learn new material, I translate it into my native language. | 1 | 2 | 3 | 4 | 5 |
| 32. When I encounter a new word or expression, I look it up in a translation dictionary. | 1 | 2 | 3 | 4 | 5 |
| 33. If I do not understand, I ask the speaker to slow down, repeat, or clarify what was said. | 1 | 2 | 3 | 4 | 5 |
| 34. I ask other people to verify that I have understood or ask if they understand me. | 1 | 2 | 3 | 4 | 5 |
| 35. I ask other people to correct my pronunciation. | 1 | 2 | 3 | 4 | 5 |
| 36. I try to have another person proofread my writing. | 1 | 2 | 3 | 4 | 5 |
| 37. I work with other learners to practice, review, or share information. | 1 | 2 | 3 | 4 | 5 |
| 38. I have a regular English practice partner. | 1 | 2 | 3 | 4 | 5 |
| 39. When I am talking with a native speaker, I try to let him or her know when I need help. | 1 | 2 | 3 | 4 | 5 |
| 40. In conversation with others in English, I ask questions in order to be as involved as possible and to show I am interested. | 1 | 2 | 3 | 4 | 5 |
| 41. I try to lean about the culture of the place English is spoken. | 1 | 2 | 3 | 4 | 5 |

42. I pay close attention to the thoughts and feelings of other people with whom I interact in English.	1	2	3	4	5
43. I try to relax whenever I feel afraid of using English.	1	2	3	4	5
44. I prepare for an upcoming language task to avoid getting nervous using English.	1	2	3	4	5
45. I encourage myself to speak English even when I am afraid of making a mistake.	1	2	3	4	5
46. I give myself a reward or treat when I do well in English.	1	2	3	4	5

APPENDIX B

Equations Between the Observed Variables and the First-Order Factors of the Model for Relationships between Language Learning Strategies and Language Skills

Structural Model			
STORAGE = 0.29*GOALSET + 0.67*EVAL (0.06)	(0.07)	e= 0.15	R ² = 0.85
PRACTICE = 0.37*EMPATH + 0.58*EVAL (0.09)	(0.10)	e= 0.18	R ² = 0.82
COMP = 0.71*EVAL (0.04)		e= 0.50	R ² = 0.50
INTERACT = 0.83*EVAL (0.07)		e= 0.32	R ² = 0.68
EMPATH = - 0.13*PLANNING + 0.88*EVAL (0.04)	(0.08)	e= 0.34	R ² = 0.66
AFFECT = 0.91*EVAL (0.11)		e= 0.18	R ² = 0.82
LISTEN = - 0.38*STORAGE + 0.65*PRACTICE - 0.16*INTERACT - 0.19*AFFECT (0.09)	(0.13)	(0.08)	(0.10)
		e= 0.87	R ² = 0.13
GRAMREAD = - 0.35*STORAGE + 0.46*PRACTICE + 0.26*COMP - 0.40*INTERACT (0.10)	(0.14)	(0.04)	(0.11)
		e= 0.85	R ² = 0.14
Error Covariance for EMPATH and INTERACT = 0.14			(0.02)
Error Covariance for GRAMREAD and LISTEN = 0.54			(0.03)

Equation for each factor

Language proficiency

listen = 1.0*LISTEN (0.03)	***	R ² = 1.0	gram = 0.86*GRAMREAD (0.03)	e=0.20 (0.03)	R ² = 0.80
read = 0.85*GRAMREAD (0.04)	e= 0.26 (0.03)	R ² = 0.74			

Cognitive component

translate = 0.70*STORAGE (0.06)	e= 0.50 (0.03)	R ² = 0.50	summary = 0.78*STORAGE (0.06)	e= 0.40 (0.03)	R ² = 0.60
linkpk = 0.65*STORAGE (0.05)	e= 0.58 (0.04)	R ² = 0.42	selfprac = 0.75*PRACTICE (0.09)	e= 0.43 (0.04)	R ² = 0.57
rehearse = 0.84*STORAGE (0.06)	e= 0.29 (0.02)	R ² = 0.71	expose = 0.69*PRACTICE (0.09)	e= 0.53 (0.04)	R ² = 0.47
assoct = 0.79*STORAGE (0.06)	e= 0.37 (0.03)	R ² = 0.71	analysis = 1.00*COMP (0.03)	***	R ² = 1.0

Error Covariance for selfprac and rehearse = 0.07
(0.01)

Metacognitive component

ltgoal = 0.74*GOALSET (0.04)	e= 0.44 (0.03)	R ² = .55	selfmon = 0.80*EVAL (0.03)	e = 0.36 (0.03)	R ² = 0.64
shtgoal = 0.82*GOALSET (0.04)	e= 0.33 (0.03)	R ² = .67	selfeval = 0.74*EVAL (0.04)	e = 0.45 (0.03)	R ² = 0.55
planlt = 1.0*PLANNING (0.03)	***	R ² = 1.0			

Error Covariance for selfeval and ltgoal = 0.07
(0.02)

Social component

clarify = 0.80*INTERACT (0.05)	e=0.35 (0.03)	R ² = 0.95	culture = 0.84*EMPATH (0.05)	e= 0.29 (0.03)	R ² = 0.71
correct = 0.76*INTERACT (0.05)	e= 0.42 (0.05)	R ² = 0.58	feeling = 0.82*EMPATH (0.05)	e= 0.33 (0.03)	R ² = 0.67
coop = 0.62*INTERACT (0.05)	e= 0.60 (0.04)	R ² = 0.40			

Affective component

suppanx = 0.84*AFFECT (0.10)	e= 0.29 (0.03)	R ² = 0.71	selfenc = 0.70*AFFECT (0.08)	e= 0.50 (0.04)	R ² = 0.50
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*** the errors were fixed to 0 because the latent variable was measured with only one indicator variable.

e stands for error variance.

() numbers in the parenthesis are standard errors for the corresponding parameters.