Examining Generalizability of Kang's (1999) Model of Structural Relationships between ESL Learning Strategy Use and Language Proficiency

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The present study examined whether Kang's (1999) model of the relationships among language learning strategy use and language proficiency for the Asian students could be applied to a more heterogeneous group. In Kang's study, he collected information of language learning strategies of 957 foreign students learning English as a second language in American colleges through a questionnaire. He also measured the subjects' language proficiency with the Institutional Testing Program TOEFL (Test of English as a Foreign Language). This study analyzed the same data without the limitation of cultural identity. Structural equation modeling was used to model the relationships among strategy use and language proficiency, Then, the model of the present study was descriptively compared with Kang's (1999) model for the Asian students. The overall flow of the relationship paths appeared to vary very little across the two models, which would have indicated that the generalizability of Kang's (1999) model could be extended more than originally examined. (156)

I. Introduction

Language learning strategies have been a topic of great interest since SLA (second language acquisition) researchers and teachers began to realize that no

single language teaching method guaranteed success for every ESL learners (Brown, 1994). Some learners seemed to be successful no matter what teaching methods were used while others seemed to be bound to fail in reaching a high level of proficiency. This observation has been related to much research trying to explain the individual differences with differences in language learning strategies. This research on language learning strategies can be divided into three groups.

The first group of research listed a variety of good language learning strategies. A few learning strategies were commonly listed in many research studies. First, many studies have emphasized concern for language forms. Naiman et al. (1978) found that highly proficient learners analyzed the target language realizing language as a system and monitored their target language performance. Importance of attention to form was also shown in Rubin (1975), Stern (1975), Mangubhai (1991) and Reiss (1985), as well. Second, focus on function (or meaning) of language was emphasized (Huang & Van Naerssen, 1987; Naiman el al., 1978; Lennon, 1989; Reiss, 1985; Rubin, 1975). The third commonly listed characteristic was that good language learners were not passive learners but active participants in learning (Rubin, 1975; Stern, 1975; Pickett, 1978; Reiss, 1985). Good language learners seek opportunities to practice and are willing to test his language ability. Along with these main characteristics, researchers have listed other characteristics; 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).

The second group of research tried to relate language learning strategy use to language proficiency. Huang and Van Naerssen (1987) compared high level learners and low level learners with respect to three types of learning strategies: formal practice strategies, functional practice strategies, and monitoring strategies. They found that while the two groups were not different on the use of monitoring strategies and formal practice strategies, the high level group used functional strategies (speaking with other students and native speakers, listening and reading for comprehension, attending lectures, and so on.) much more than the low level group. Wong-Fillmore (1979) also emphasized the importance of functional strategies (social strategies in Wong-Fillmore's term) in her observational study of Mexican American children learning English. Some studies looked at the qualitative differences in strategy use between high level learners and low level learners. In their observation of 15 students enrolled in an Intensive English program, Vann and

Abraham (1990) found that the low level students used approximately the same range of strategies as high level students, but often failed to apply appropriate strategies to the task at hand because they lacked certain higher order processes, often called metacognitive strategies. Another emphasis on metacognitive strategies was made by O'Malley et al. (1985), noting that obtaining high level of second language proficiency depended on metacognitive strategies.

While the above mentioned studies merely provided lists of good language learning strategies, the third group of research on strategies attempted to classify language learning strategies systematically and find interrelationships among those strategies and language proficiency (Kang, 1999; O'Malley and Chamot, 1990; Oxford, 1990, Purpura, 1996, 1997). O'Malley and Chamot (1990) based their classification scheme on information processing theory. They grouped learning strategies into metacognitive, cognitive, and socio-affective strategies. The first two types indicate the 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 involve more direct manipulation of learning materials such as direct analysis, transformation, and synthesis of learning materials. Socio-affective strategies involve interaction with another person or control ones' affective aspects (for example, learners try to relax before they speak English).

A similar classification was made by Purpura (1996, 1997). He also classified language learning strategies into metacognitive and cognitive strategies according to mental processing levels 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) 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 strategies dealing with new language information 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 language despite limited linguistic knowledge. The indirect strategies were not directly related to processing linguistic information

directly, but could affect direct learning strategies. They included social strategies for learning with others, affective strategies for regulating emotions, and metacognitive strategies for coordinating the learning process.

Kang (1999) originally attempted to compare strategy use and its relationship to language proficiency between the Western European cultural group and the Asian cultural group. Since he could not find enough number of subjects of the Western European cultural group, he modeled the relationships only among the Asian cultural group. He reclassified Oxford's (1990) classification into four categories: metacognitive, cognitive, social and affective strategies (the details of strategy classification was explained later in classification of language learning strategies (III. 2)). With this classification he modeled the relationships among strategies and language proficiency. Figure 1 shows his structural model among language learning strategies and language proficiency.

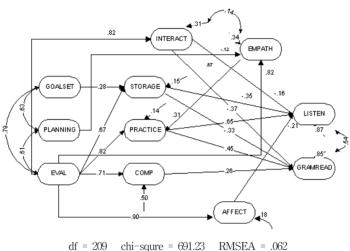
Compared to Pupura's (1996), Kang's (1999) model was more comprehensive in the sense that affective and social strategies were included in the model. Compared to O'Malley and Chamot's (1990), his model presented relationships in much more details by showing strengths of relationships with numbers. Though he tried to build more comprehensive model, he had to limit the generalizability of his model only to Asian cultural group studying in American colleges due to his study purpose. This limitation was the topic of the present study. This study aimed to build more general model with more heterogeneous subjects and compared the model with Kang's (1999) model for the Asian group. If two models appeared not to be different, this would mean that Kang's model for the Asian group was generalizable to more general learners studying English in American colleges. If two models appeared to be different, this would support his assumption that language learning strategy use might vary across different cultural groups (Kang, 1999).

II. Research Question

This study intended to examine if Kang's (1999) model would hold for the whole subjects when it applied to the whole data without limiting cultural identity. For this purpose, the present study modeled the relationships using all the data collected for Kang's study and compared it descriptively with the model for the Asian learners.

FIGURE 1

Kang's (1999) model of relationships between language learning strategies and language proficiency for the Asian cultural group students studying English in American colleges1)



III. Methods

1. Subjects and Instruments

Since this study aimed to examine the generalizability of Kang's (1999) model to the whole group, the same data set that he collected was analyzed. The subjects were ESL learners at English language institutes in North America. They answered language learning strategy questionnaire and took the Institutional Testing Program TOEFL (ITP TOEFL) between August 1998 and December 1998. Among 2,493 copies of questionnaire distributed, 1069 questionnaire was returned. A hundred

¹⁾ Explanation on how to interpret a structural model is given in III. 3. The rationale of the model is explained in III. 2 and III. 4. The fit indice indicates that the model was moderately acceptable. Though the chi-square value was about three times of the degree of freedom, the RMSEA value was less than .08. The model could explain 13% (1-.87) of the listening factor variance and 15% (1-.85) of the grammar-reading factor variance.

twelve answered questionnaires had to be discarded because they were not completed, remaining 957 subjects. About 62% (598/957) were from Korea, Japan, or Taiwan, who were the target group for Kang's study (1999). The rest of the subjects were from Latin America, Africa, and Europe.

Subjects' language proficiency was measured with the ITP TOEFL. An ITP TOEFL was a version of TOEFL that was used previously as a regular TOEFL. Thus the validity and reliability of the ITP TOEFL were at a comparable level to those of a regular TOEFL. Scores on the ITP TOEFL were also comparable to scores on the regular TOEFL, but their official use was 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 957 students was 484, and the standard deviation was 60.6. This distribution of scores was very low compared to the regular TOEFL score distribution. The 23rd percentile of the regular TOEFL examinees taking the test between July 1995 and June 1996 was 480, and the 45th percentile was 520.

Information of language learning strategy use was gathered through a questionnaire. It consisted of two parts: background and strategy use. The background part consisted of 10 items asking respondents native country, native language, gender, and so on. The strategy part consisted of 52 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 Oxford's (1990) strategy inventory for language learning (SILL), and some items were created. Appendix A shows the questionnaire. 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 hierarchical relationships among strategy variables. The metacognitive component was hypothesized to function as a coordinator or language learning process. It was responsible for goal–setting, planning, and evaluation of language learning. The cognitive component was hypothesized to deal with linguistic information directly by memorizing, practicing, and comprehending new linguistic information. The

affective component was hypothesized to control ones attitude, emotion, and motivation. The social component was hypothesized to promote interaction with others. As shown in Table 1, each strategy component consisted of a few strategy factors, and each strategy factor was measured from a few indicator (observed) variables.

Kang (1999) followed Oxford's classification scheme (1990) with a few changes in the direction of the scheme employed by Purpura (1996, 1997), and O'Malley and his colleagues (O'Malley et al., 1985; O'Malley, & Chamot, 1990). Oxford's memory strategies and compensation strategies were subsumed under the cognitive component. Oxford's definition of cognitive strategies was limited only to strategies for understanding and producing the target language. Oxford's memory strategies (retrieving and remembering new information) and compensation strategies constituted separate components. Following Kang's (1999) expansion of Oxford's cognitive strategies, the cognitive component of the present study comprised strategies of manipulating linguistic information for understanding, storing, and producing.

 ${\bf TABLE~1}$ The Hierarchical Relationships among Study Variables and the Number of Corresponding Items

Strategy Components	Strategy factors	STRATEGIES	ITEMS.
(Second-order factor)	(First-order factor)	(observed or indicator variables)	
Metacognitive		long-term goal setting (ltgoal)	1
Component		short-term goal setting (shtgoal)	2
	(GOALSET)		
	Planning	planning for language tasks (planlt)	3, 4
	(PLANNING)	seeking practice opportunities (seekpo)	5, 6, 7
	Evaluating	self-monitoring (selfmon)	8, 9, 10
	(EVAL)	self-evaluating (selfeval)	11, 12,
Cognitive	Storing	linking with prior knowledge (linkpk)	13
Component	(STORAGE)	rehearsing/repeating (rehearse)	14, 15, 16, 17,
		association (assoct)	18, 19, 20
		summarizing (summary)	21, 22
		translating (translate)	31, 32
	Practicing	practice by oneself (selfprac)	23, 24, 25
	(PRACTICE)	exposing oneself to English (expose)	26, 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	Affective	suppressing anxiety (suppanx)	43, 44
Component	(AFFECT)	self encouraging (selfenc)	45, 46

3. Analysis Tool

Structural equation modeling (SEM) was utilized to model the relationships among strategy factors and test performance. SEM is a very powerful methodology to test hypothesized interrelationships among a number of substantively meaningful variables (Purpura, 1996). SEM makes it possible to measure relationships between hypothesized latent variables, which cannot be assessed directly. Another important characteristic of SEM is that as the term 'structural' implies, relationships are specified as directional or causal (Bollen, 1989): One factor influences other factors. With this characteristic, SEM has often been used to provide quantitative accounts for causal relationships between factors.

A structural model is represented with circles, rectangles, arrows, and curved arrows. Circles and rectangles indicate latent factors and observed variables respectively. AFFECT is a latent factor. It was measured from the observed varibles, suppanx and selfenc. This relationship was explained in Table 1. Since the relationships between observed variables and latent factors were not of primary interest in this study, they were not represented nor discussed. Arrows indicate influential relationships. That is, factor A indicates factor B. The coefficients on arrows indicate the strengths of relationships. For example, if an arrow from A to

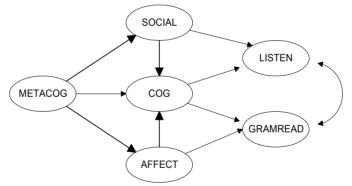
B has a coefficient is .7, it means that 1 unit change of A causes B to change by .7 units. Curved arrows indicated that two factors are correlated. In addition, arrows without influencing factors indicate amount of errors left to be unexplained.

LISREL 8.0 was used to compute structural models for this study. Chi-square and root mean square error of approximation (RMSEA) were used to evaluate model fitness. Chi-square measures the distance between sample covariance and implied covariance matrix of an estimated model. It is generally accepted as a good model if chi-square is less than 2.5 times of degrees of freedom. RMSEA is a measure of discrepancy per degrees of freedom between observed data and estimated model. A value less than .05 indicates good fit and a value between .05 and .08 indicates reasonable fit.

4. Proposed relationships

The basic influential directions between the strategy components were the same as in Kang's study (1999). Figure 2 is the graphical representation of the structural model of the proposed relationships the present study examined.

FIGURE 2
Proposed Relationships Among Strategy Components and Language Skills



Adopting Purpura's model (1996, 1997) language learning strategy processing model and Oxford's (1990) language learning strategy classification, the metacognitive strategy component as a coordinating component of language learning was hypothesized to affect the cognitive, social, and affective components. In turn, these three components were assumed to have direct effects on the two language skill factors, Listen and GramRead. The roles of the affective and social

components were assumed to be different from Oxford's scheme. She thought that the social and affective strategy component had only indirect effects on language skills through the direct strategy components such as cognitive, memory, and compensation strategies that were integrated into the cognitive component of the present study. Being of heuristic nature, Oxford's model did not justify why those two components had only indirect effects on language skills. Kang (1999) assumed that the two components had direct effects on language skills as well as indirect effects as depicted in Figure 1. Though it was the cognitive strategy component that were hypothesized to be responsible for direct processing of linguistic information, there was no reason to restrict the roles of the two components to indirect roles through the cognitive component. If they had only indirect effects, their effects should be the same on both language skills, which could be hardly justified. For instance, differences in the use of social strategy could be related to differences in listening ability but not in grammar-reading ability. If only indirect effects of social strategy on both language skills were assumed, differential effects could not be explained.

Though three language skills (reading, structure, and listening) were measured from the ITP TOEFL scores, a two language factor structure of the TOEFL performance data were 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 Reading section and the Structure and Written Expression section. Two factors were named listening factor (LISTEN) and grammar-reading factor (GRAMREAD), respectively in the present study. A high correlation between grammar and reading factors was also found in Pupura's (1996) study where grammar skill appeared to be an almost perfect indicator of reading skill. The errors of the 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

Because of the large number (11) of factors, it was not practical to find a solution for a complete model from the beginning. Modeling procedure was of building blocks. First, relationships between the cognitive factors and language skill factors

were modeled because the cognitive factors were hypothesized to deal with linguistic information directly. Then, the metacognitive strategy factors were added to the model. Lastly, the social and affective strategy factors were included in the model.

IV. Results

1) Scaling

Responses to Likert scale items may be interpreted in two ways. The first method is to interpret the responses in an absolute way. With this method, subjects' responses can be compared directly. For example, if students A and B answered 2 and 5 to questionnaire item 1, respectively, it can be said that student A used the strategy 3 units more than student B. The second method is to use relative scaling. In this method, subjects subjective judgments on the amount of their strategy use are removed by comparing responses within each subject. That is, if a student answered 2 to a summarizing strategy item, and 3 to a translating strategy item, it could be said that the student used the translating strategy more than the summarizing strategy by 1 unit. In his study, Kang (1996) realized that his subjects' responses should be interpreted in a relative way after failing to obtain a proper model under absolute scaling. Since this study analyzed the data obtained in Kang's (1996) study without limiting the subjects to the Asian group as his study did, the same scaling method was used.

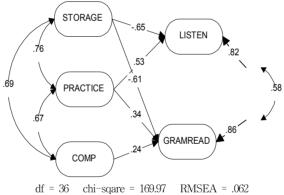
As in Kang (1999), a variable, 'seeking practice opportunities (seekpo)' from the metacognitive component, was used as a reference variable. 'Seekpo' was selected because it appeared highly correlated to other variables of the metacognitive component. Removing a variable highly correlated with other variable might have reduced multicollinearity problem by reducing interdependency between different variables. Students' responses were scaled relatively to their response to the items measuring 'seekpo.' The value of 'seekpo' of each student was subtracted from the values of other variables. The values of all relatively scaled variables ranged 4 to 4. New scaling changed the way of making interpretation of the values. The value of each variable was compared relatively to the value of 'seekpo' within a student. For example, if the value of 'selfmon' (self monitoring) was 2, this would mean that the student relied 2 units more on 'selfmon' than 'seekpo.' Since the original scale

ranged from 1 to 5, 1 unit difference could be roughly translated into a difference of 25% of times.

2) Relationships between cognitive components and language proficiency

The modeling process was done like block building by adding one component at a time to language proficiency factors as in Kang (1999). Since the cognitive component was hypothesized to deal with linguistic information directly, the relationships between the cognitive component and the language proficiency factors were modeled first. Figure 3 is the result model. Though the value of chi-square was about 5 times of the degree of freedom, RMSEA was less than 0.08, indicating the model fit was acceptable. However, the overall explanatory power of the model was very weak. It could explain 18% of LISTEN factor variance and 14% of GRAMREAD factor variance. The error variances of LISTEN and GRAMREAD were .82 and .86, respectively.

 ${\bf FIGURE~3}$ Model Between the Cognitive Strategy Component and Language Skill Factors



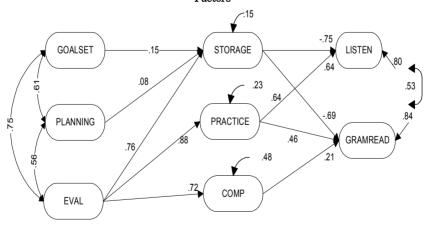
The storing strategy factor appeared to have negative effects on both of the language skills. This may have indicated that the low level learners had put more emphasis on memorization. The negative relationships between the STORAGE factor and language skill factors were also found in Purpura (1996, 1997). The comprehension and practice factors appeared to have positive effects on the

language skills. Some comprehending strategies such as 'analysis' strategy (analyzing linguistic information) may have been available only to proficient learners. However, the positive effects of the comprehending strategies were contradictory to Pupura's (1996) findings. In his research, the effects of the comprehending strategies appeared to be negative. The true nature of comprehending strategy effects may have to be confirmed with more research.

3) Relationships among the metacognitive, cognitive, and language skill factors

The metacognitive strategy component was added to the previous model. The graphic results and fit indices were shown in Figure 4. The fit indices were not affected much with the added component. The chi-square got bigger with the increased degree of freedom. The ratio of degrees of freedom to chi-square was almost the same. RMSEA was still less than .08. Though more factors were added to the model, the overall explanatory power of the model had not been increased. Twenty percent of listening skill variances and 16% of grammar-reading skill variances were explained by the model while the model without the metacognitive component could explain 18% of listening skill variances and 14% of grammar-reading skills.

 $\begin{tabular}{ll} FIGURE~4\\ Model Among the Metacognitive and Cognitive Components and Language Skill\\ Factors \end{tabular}$



As in Pupura's (1996, 1997) study, the metacognitive component appeared not to

have direct effects on language skills. Among the three metacognitive factors, the evaluating factor appeared to have strong relationships with all of three cognitive factors whereas the 'goalsetting' factor and planning factor had weak effects on the cognitive factors.

4) Model among the strategy use factors and language skill factors.

Figure 5 shows the complete model among the four language learning strategy components and the language skill factors. Though the social and affective strategy components had been added newly to the model, the overall explanatory power of the model had little increased. Only 1% more of the grammar-reading factor variance could be explained compared to the previous model. The fit indices indicated that the model was acceptable. Even though the chi-square value appeared a bit large, the RMSEA value was still less than 0.08. The explainable variance for the listening factor had not changed. The overall fit indices had not changed much, either. The ratio of degree of freedom-to-chi-square value remained about the same and RMSEA decreased slightly.

As proposed in Figure 2, the metacognitive component was hypothesized to have direct effects on the social and affective components. These two components were hypothesized to have direct relationships with the cognitive component and language skillser mong the metacognitive strategy factors, the evaluating factor was the strongest indicator for all of the newly added factors, empathizing, interacting, and affective factors. The planning factor appeared to have safetime factors. The planning factor appeared to have a direct relationships with cognitive factors and language skills. IN FERACT appeared to have a direct negative influence on the grammar reading ability and EMPATH appeared to have a positive feractive factor appeared not to affect any factors of the cognitive component but it appeared to influence on the listening skills of the cognitive component but it appeared to influence on the listening skills.

FIGURE 5

Model of the Relationships Between Learning Strategy Factors and Language Skills

V. Discussion

Since the main objective of this study was to examine if Kang's (1999) model held for more heterogeneous group of students, it would be discussed first and then the significance of the model for this study would be discussed.

The overall model for the whole group was not greatly different from Kang's (1999) model for the Asian group except the affective and social components. The overall influential paths among the metacognitive, cognitive components, and language skill factors were almost the same. Five paths were different across the two models (Figure 1 and Figure 5). The path from PLANNING to INTERACT, the path from PLANNING to STORAGE, and the path from GOALSET to EMPATH were present while they were not in Kang's (1999) model (Figure 1). The path strengths from PLANNING to INTERACT and from PLANNING to STORAGE were almost negligible (.07). However, the path coefficient from GOALSET to EMPATH was very high. Kang's (1999) model for the Asian students, instead, had a weak path from PLANNING to EMPATH (.12) and a strong path from EVAL to EMPATH (.81) while the present model for the heterogeneous group did not have those paths. The path strengths of the rest were almost the same or slightly different. Removing the weak paths from consideration, the differences across the two models could be found only in the causative factor to EMPATH. In Kang's model for the Asian group, EVAL was a strong indicator for EMPATH. In the model of this study, PLANNING was a strong indicator. It is not easy to justify

the differences by just looking at the path differences. However, it is justifiable if we look at the differences from the perspective of the components. Though the main indicator (causative) factors to EMPATH were different, both EVAL from Kang's (1999) model and PLANNING from this study belonged to the metacognitive component. In other words, though there were slight changes among internal paths, the overall relationships specified in Figure 2 generally held true.

As in Kang's (1999) model, the overall effects of the social and affective components on language skills appeared to be weak and even those effects were very difficult to explain. The direct effects of INTERACT on the grammar-reading factor appeared to be negative. More use of 'interacting' strategies were related to less proficient grammar-reading skills. AFFECT also appeared to have a similar effects on the listening ability. 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 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 true nature of the effects of the social and affective strategy components should be studied more.

The explanatory power of the present model was slightly better than the model for the Asian group. The present model could explain listening ability 7% better (20% vs. 13%) and grammar-reading ability to almost the same degree (16% vs. 15%). Since the differences in explanatory power between the two models were very small it is hard to say that one model fitted the data better than the other because this extent of difference could have occurred due to the difference in the distribution of the subject ability. The wider the variation in subject ability is, the better the explanatory power is, in general.

As in Kang's study (1999), some findings of this study were similar to previous studies and others were contradictory to other studies. The paths from the storing strategies to the language skills appeared to be similar to Pupura's (1996) findings. Use of storing strategies appeared to be negatively related to language proficiency, which may have implied that the imminent task of low proficient learners was to expand linguistic reservoir such as vocabularies and grammatical information. As in Pupura's study, the metacognitive component appeared not to have direct

influence on language skills. It appeared to have only indirect influence through cognitive strategies.

Some findings were not consistent with Pupura's study. In his study, the comprehending strategy appeared to have negligibly weak relationships to language skills whereas the path from the comprehending factor to the grammar-reading factor in the present model was easily interpretable. The comprehending factor appeared to have positive relationships. This implied that some strategies of comprehending factors such as analyzing or inferring strategies (given in Table 1) may not have been available to low level learners.

VI. Conclusion

This study examined whether the Kang's model could be applied to a more heterogeneous group. Though a measure to prove this statistically was not available, comparing the Kang's (1999) model with the model for a more heterogeneous group may have indicated that general flow of the relationship paths were the same across the two models with a few exceptions. Though this study presented the possibility of applying the Kang's (1999) model to more heterogeneous group, building a general model have to be experimented with various sets of subjects. Data collection procedure also has to be refined. The present study was confined by the limitation of students' self-report responses, which would have been affected by subjective judgment.

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Appendix A

Family Name Given Nan	ne
ID number:	
Age	Sex: male female
Home Country	Native Language
Other languages you speak, besides Eng	lish and native language
How long have you lived in the United	States?
Do you plan to study further in the Uni	ted 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

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	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 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

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28. When I learn new material in English, I look for similarities and differences between English and my own language.		2	3	4	5
29. I find the meaning of an English words by dividing it into parts that I understand.		2	3	4	5
30. I try to find patterns and rules of the English language.		2	3	4	5
31. When I learn new material, I translate it into my native language.		2	3	4	5
32. When I encounter a new word or expression, I look it up in a translation dictionary.		2	3	4	5
33. If I do not understand, I ask the speaker to slow down, repeat, or clarify what was said.		2	3	4	5
34. I ask other people to verify that I have understood or ask if they understand me.		2	3	4	5
35. I ask other people to correct my pronunciation.		2	3	4	5
36. I try to have another person proofread my writing.		2	3	4	5
37. I work with other learners to practice, review, or share information.		2	3	4	5
38. I have a regular English practice partner.		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.		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.		2	3	4	5
41. I try to lean about the culture of the place English is spoken.		2	3	4	5
42. I pay close attention to the thoughts and feelings of other people with whom I interact in English.		2	3	4	5
43. I try to relax whenever I feel afraid of using English.		2	3	4	5
44. I prepare for an upcoming language task to avoid getting nervous using English.		2	3	4	5
45. I encourage myself to speak English even when I am afraid of making a mistake.		2	3	4	5
46. I give myself a reward or treat when I do well in English.		2	3	4	5

강 성 우

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