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A Study on the Relationship of English Listening Comprehension to Linguistic, Cognitive and Affective Variables among Taiwanese Elementary School Students

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ABSTRACT

The present study intended to take a close look at the relationship of Taiwanese young learners' English listening comprehension to three clusters of variables —linguistic (general English proficiency and English vocabulary knowledge), cognitive, (Chinese listening ability and metacognitive awareness), and affective (English listening anxiety and language learning motivation). The participants of the present study were 141 sixth graders from two schools in Taipei City and New Taipei City. The instruments used in this study were: (1) an English listening comprehension test, (2) an English proficiency test, (3) a Chinese listening comprehension test, (4) an English vocabulary test, (5) a metacognitive awareness questionnaire, (6) an FL listening anxiety scale, and (7) a motivation questionnaire. The collected data were analyzed mainly through multiple regression analysis procedures. The major findings were summarized as follows. First, the three clusters of variables together significantly contributed to English listening comprehension (R^2 = .39, $F(6, 134) = 14.15$, $p < .001$). Second, the cognitive variables significantly provided a unique (9%) explained variance ($R^2_{change} = .09$, $F_{change}(2,136) = 7.76$, $p < .01$) in English listening performance after the affective variables had been accounted for. Finally, the linguistic variables also significantly provided an additional (18%) explained variance ($R^2_{change} = .18$, $F_{change}(2,134) = 19.44$, $p < .001$) in English listening performance over and beyond the prediction afforded by the affective and cognitive variables. Based on the findings of the present study, some implications and recommendations for future research were provided.

Key Words: English listening comprehension, linguistic variables, cognitive variables, affective variables

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INTRODUCTION

Among the four language skills, listening comprehension seems to be the most important skill in both second and foreign language (hereafter, L2 and FL) learning. In particular, Vandergrift (2007) claimed that L2 listening comprehension is at the heart of L2 learning because its development facilitates the development of other L2 skills. To achieve L2/FL listening comprehension, listeners have to receive and assign meaning to aural input (Wolvin & Coakley, 1988). Good L2/FL listeners should be able to perceive different aspects of language rules, decode the aural input by the rules, and understand the meaning of the input. If L2/FL learners can master this process and transform the input into intake, they may improve other L2 skills as well. As such, it is believed that L2/FL learners who can control listening process and achieve better listening comprehension tend to have overall success in L2/FL learning (Vandergrift, 2007).

As L2 listening comprehension is crucial to L2/FL learning, it has received increasing attention in recent years. Specifically, many Asian countries where English is considered as an L2/FL have incorporated English listening tests in college entrance examinations. College Entrance Examination Center (CEEC) in Taiwan recently announced that, starting from 2015, every senior high school student is required to pass an English listening test conducted by CEEC before taking college entrance examinations. Likewise, in 2015, an English listening test will also be formally administered in the Comprehensive Assessment Program (CAP) for junior high school students. That is to say, every test takers' performance on English listening comprehension will be taken into consideration when applying for either colleges or senior high schools. With such an increasing emphasis on English listening comprehension, students may get into a panic over how to enhance their English listening ability. Similarly, English teachers may have to devote themselves to listening instruction and sharpen their English listening teaching skills in order to improve their students' listening comprehension test performance. Prior to making any modification of their listening instruction, however, English teachers need to get a full understanding about the construct of English listening comprehension. Specifically, English teachers may have to know the process of L2 listening and related factors influencing L2 listening comprehension. Therefore, the current study was called for in an attempt to provide for them theoretical and pedagogical foundations of L2/FL listening comprehension.

LITERATURE REVIEW

Important as it is, L2/FL listening comprehension is not easy to achieve since it is perceived to be influenced by numerous factors. In particular, Coakley and Wolvin (1986) identified six significant factors related to L2 listening comprehension, such as first language (hereafter, L1) listening ability, L2 linguistic knowledge, world knowledge, language processing styles, etc. Similarly, in her review of previous studies on L2 listening, Kurita (2012) concluded that cognitive variables (e.g., L1 listening ability and metacognitive awareness), linguistic variables, (e.g., general L2 proficiency, L2 vocabulary knowledge, and phonological modification) and affective variables (e.g., listening anxiety and motivation) were found to contribute to L2 listening comprehension performance.

Among the linguistic factors, general L2 proficiency has been identified as one of the most salient factors affecting L2 listening comprehension. For example, in his attempt to examine the relationship between eighth graders' L2 listening comprehension and other related factors, Vandergrift (2006) claimed that general L2 proficiency appeared to be the best predictor (R^2_{change} = .25, F(2,72) = 22.59, p < .0001) of listening comprehension. In line with the results of the previous research, Tsai (2010) also concluded that general English proficiency of EFL college students in Taiwan remained as the most significant predictor (R^2_{change} = .34, F(4,287) = 65.61, p < .01) of their English listening comprehension.

Along with general L2/FL proficiency, L2/FL lexical knowledge has also been found to contribute to L2 listening comprehension performance (e.g., Alderson, 2005; Ghapanchi & Taheryan, 2012; Mecartty, 2000; Stæhr, 2008, 2009; Wolvin & Coakley, 1988). For instance, in order to get a clear picture of the degree to which FL lexical knowledge affects FL reading and listening comprehension, an earlier study by Mecartty (2000) found that lexical knowledge was a strong predictor of not only FL reading comprehension (R^2 = .25, F(1,77) = 25.79, p < .0001) but also FL listening comprehension (R^2 = .14, F(1,75) = 12.68, p = .0006). Similarly, two studies by Stæhr (2008, 2009) also reported that L2 vocabulary size made a significant contribution to L2 listening comprehension, with variance contributions ranging from 38% (F(1,86) = 18.71, p < .01) to 49% (F_{change} = 106.45, p < .01). Collectively, these studies appeared to suggest that lexical knowledge plays a significant role in successful L2 listening comprehension.

In addition to the above two linguistic factors, Vandergrift (2006) has also found that L1 listening ability, which is commonly classified as a cognitive factor (Kurita, 2012), seems to play a significant role in L2/FL listening comprehension. Working with eighth graders, Vandergrift explored the relative contribution of L1 listening

ability and L2 general proficiency to L2 listening comprehension. His results indicated that both L2 proficiency (R^2_{change} = .25, F(2,72) = 23.78, p < .0001) and L1 listening ability (R^2_{change} = .14, F(2,72) = 22.59, p < .0001) contributed substantially to L2 listening comprehension. Therefore, listeners' skills of L1 listening comprehension may be transferred to L2 listening comprehension. In other words, a good L1 listener tends to be a good L2 listener and vice versa.

Another cognitive factor, metacognitive awareness, has also been identified as a crucial variable in the process of L2/FL listening comprehension. Research on listeners' strategy has revealed the significant role of metacognitive awareness in L2 listening performance (e.g., Liao, 2009; Tsai, 2010; Vandergrift, Goh, Mareschal & Tafaghodtari, 2006). Specifically, metacognitive strategies such as planning, self-evaluation and monitoring have been found to be applied by skilled listeners. With an attempt to assess L2 listeners' metacognitive awareness, Vandergrift et al. (2006) developed Metacognitive Awareness Listening Questionnaire (MALQ), which contained five distinct factors: problem-solving, planning and evaluation, mental translation, person knowledge and directed attention. Their findings further indicated that metacognitive awareness was a significant predictor (R^2 = .13, F = 65.74, p < .0001) of L2 listening performance. In accordance with Vandergrift et al's (2006) results, several similar studies (e.g., Liao, 2009; Tsai, 2010) also provided empirical support for metacognitive awareness as a significant predictor of Taiwanese college students' English listening comprehension, with variance contributions ranging from 1% (F(4,287) = 65.61, p < .01) to 8.3% (F = 7.054, p < .01).

Besides the above linguistic and cognitive factors, several affective factors have also been found to play an important role in L2/FL listening comprehension. For example, studies (Cheng, 2006; Elkhafaifi, 2005; Su, 2006; Tsai, 2010) have generally concluded that L2/FL listening anxiety impedes L2/FL listening comprehension. The first study along this line was done by Elkhafaifi (2005), who also attempted to establish the difference between general FL learning anxiety and FL listening anxiety. In particular, he developed the Foreign Language Listening Anxiety Scale (FLLAS) and obtained a negative correlation (r = -.70, p < .01) between FL listening anxiety and FL listening comprehension. That is, learners with low levels of listening anxiety outperformed those with high levels of listening anxiety in FL listening test. Likewise in Taiwan, where English is considered as an FL, senior high school or college students' English (FL) listening anxiety has also been found to be negatively related to English (FL) listening comprehension (Cheng 2006; Su, 2006; Tsai, 2010), with correlation coefficients ranging from -.29 to -.54 (p < .01).

Another affective factor, motivation, has also been investigated extensively with regard to its relationship to L2/FL listening performance. For instance, working with

EFL college students in Taiwan, Huang (2007) reported a significant but low relationship ($r = .29$, $p < .001$) between English (FL) learning motivation and English listening comprehension. Similarly, Tsai (2010) suggested that English (FL) learning motivation contributes very slightly ($R^2_{change} = .02$, $F(4,287) = 65.61$, $p < .01$) to English listening comprehension of EFL college students in Taiwan. Likewise, by examining the role of L2 learning motivation's three orientations (i.e., amotivation, extrinsic and intrinsic) in eighth graders' L2 listening performance, Vandergrift (2005) found a significant and low relationship ($r = -.34$, $p < .05$) of L2 listening comprehension to amotivation orientation. The correlations between L2 listening proficiency and the other two orientations of motivation were reported as low and not significant. Collectively, the results of the studies seemed to point to a low relationship of L2 listening comprehension to L2 learning motivation.

Taken together, a large number of studies have been done on the relationship of L2/FL listening comprehension to the above-mentioned six variables: general L2/FL proficiency (e.g., Tsai, 2010; Vandergrift, 2006), L2/FL lexical knowledge (e.g., Mecartty, 2000), L1 listening ability (e.g., Vandergrift, 2006), metacognitive awareness of listening (e.g., Liao, 2009; Tsai, 2010; Vandergrift, 2005; Vandergrift, Goh, Mareschal & Tafaghodtari, 2006), FL listening anxiety (e.g., Cheng, 2006; Elkhafaifi, 2005; Su, 2006; Tsai, 2010) and language learning motivation (e.g., Huang, 2007; Tsai, 2010; Vandergrift, 2005). However, no attempt has been made in a single study to examine the relationship of L2/FL listening comprehension to all the six factors. Furthermore, most of the previous studies reviewed mainly involved either high school or college L2/FL students. As such, their results may not be generalized to elementary school young L2/FL learners whose levels of general L2/FL proficiency, L2/FL lexical knowledge, L1 listening skills and metacognitive awareness are often perceived to be low or under-developed. As such, a need is definitely warranted to conduct further research which incorporates all the six factors as independent variables and young learners as participants.

Research Questions

By categorizing the six factors into three clusters of variables: linguistic (general English proficiency, English lexical knowledge), cognitive (Chinese listening ability, metacognitive awareness of listening), and affective (English listening anxiety, English learning motivation), the current study attempted to find out the relative contributions of the three clusters to English listening comprehension. Specifically, the research questions are as follows:

1. What is the overall contribution of the linguistic variables (e.g., general L2/FL proficiency and L2/FL lexical knowledge), cognitive variables (e.g., L1 listening ability and metacognitive awareness) and affective variables (e.g., L2/FL learning motivation and FL listening anxiety) to English listening comprehension?
2. Do the cognitive variables significantly add to the prediction of English listening comprehension scores, over and beyond the prediction afforded by the affective variables?
3. Do the linguistic variables significantly add to prediction to English listening comprehension scores, over and beyond the prediction afforded by the cognitive and affective variables?

METHOD

Participants

A total o f 197 sixth graders (about 12 years old) from two schools in Taipei City and New Taipei City were recruited as the participants of the present study. However, some of the participants did not complete all the tests and the questionnaires, so their data were excluded. Therefore, only 141 sixth graders (62 male and 79 female) remained as the participants throughout the entire study. Their length of exposure to formal EFL instruction was at least five years.

Instruments. The instruments used for data collection in the current study were: (1) an English listening comprehension test, (2) a general English proficiency test, (3) an English vocabulary test, (4) a Chinese listening comprehension test, (5) a metacognitive awareness listening questionnaire, (6) an English listening anxiety scale and (7) an English learning motivation questionnaire. Each of the instruments is described as follows.

(1) English listening comprehension (ELC) test. Two listening passages were included in the English listening test. The first listening passage, *Fancy Nancy and the Boy from Paris* (O'Connor, 2008a), was a story about Nancy's new friend in school. The other passage, *Fancy Nancy Sees Stars* (O'Connor, 2008b), was a story about Nancy's class trip to a planetarium. These two listening passages shared some similarities. First, the two passages were both authentic materials adopted from *I Can Read Book* series at level one published by HarperCollins Publishers. Second, they contained similar numbers of words and were delivered as a monologue at a similar

speed by a female native English speaker. Specifically, as shown in Table 1, the first passage contained 639 words, and the second passage had 517 words. In terms of the delivery speed measured by words per minute (wpm), passages one and two were at 95 and 100 wpm, respectively. According to Buck (2001), the average wpm of lectures for non-native speakers (NNS) is usually below 140. Hence, the delivery rates of the two passages were in an acceptable wpm range for NNS. Third, the readabilities of the two passages, measured by Flesch-Kincaid Grade Level Index, were 2.8 and 3.1, respectively. Flesch-Kincaid Grade Level index is a widely-used measure of readability based on the average number of syllables per word and the average sentence length in a passage of text (Schwarm & Ostendorf, 2005). The magnitude of the indexes for the two passages suggested that they would not be too hard for the sixth-grade participants.

After listening to each passage, the participants had to answer ten self-constructed multiple-choice items, including five literal questions and five inference questions, which were delivered by a male native speaker. According to Buck (2001), inference questions are the ones that go beyond literal meanings. Specifically, these questions asked about main ideas, connotation of words, pragmatic implications or anything that were not clearly stated. In terms of test format, the issue of testing 'pure' listening comprehension was taken into consideration in the present study. According to Vandergrift (2006), most of the questions in listening tests require test takers to read and choose from a list of answer choices. One drawback of this test format is that test takers' reading ability will become a confounding variable. That is, if test takers possess poor reading ability, their listening comprehension performance on the tests will be affected. Therefore, in the present study the options for each item were delivered not only in print but also in aural mode. For each passage, the completion of the test took about 20 minutes. Each item was worth one point. Thus, the maximum possible total score of the English listening comprehension test was 20. The internal consistency reliability estimate of this test was .69.

(2) General English proficiency (GEP) test. The participants' general English proficiency was assessed by a sample test from Flyers, the highest level of Cambridge Young Learners English (YLE) Tests designed for children aged between seven to 12. Children who pass this level are capable of dealing with everyday written and spoken English as a basic level. This test originally contained three subtests: reading/writing, listening, and speaking. However, the speaking subtest was excluded from the current study because of time and resource constraint. The reading/writing subtest contained 50 questions, including multiple-choice questions and cloze tests. The listening subtest was made up of 25 questions, where the participants were required to match and choose pictures and color after listening to a direction or conversation. Each item

of the two subtests was worth one point. Therefore, the maximum possible total score of the test was 75. The internal consistency reliability estimate of this measure was .97.

Table 1

Characteristics of two listening comprehension passages

Feature	Passage 1: *Fancy Nancy and the Boy from Paris*	Passage 2: *Fancy Nancy Sees Stars*
No. of words	639	517
Flesch Reading Ease	84.4	83.3
Flesch-Kincaid Grade Level	2.8	3.1
Duration of lecture (min, sec)	6’40’’	5’10’’
Wpm	95	100
Authenticity	Authentic text	Authentic text
Text type	Monologue	Monologue
No. of literal items	5	5
No. of inference items	5	5
Stems of items	delivered aurally	delivered aurally
Options of items	delivered in aural mode and in print	delivered in aural mode and in print
Sound effect	None	None

(3) English vocabulary (EV) test. For the purpose of estimating the participants’ lexical knowledge, a word recognition test, developed by Hong, Huang, Jhou, Liou, Lin, & Sie (2006), was used in the present study. This test intended to assess English vocabulary size of EFL learners ranging from grades three to nine. Based on 2000 high frequency words in grades one to nine English curriculum, 2000 high frequency words in Brown Corpus and 1720 high frequency words in Cobuild English Dictionary for Advanced Learners (CEDAL), Hong et al. (2006) first identified 180 high frequency English words. Then, additional 30 words were drawn randomly from high frequency English words in senior high school English curriculum issued by College Entrance Examination Center. With ITEMAN analysis (i.e., a software program designed to provide item and test analysis reports), 100 words were selected from these 210 high frequency English words. Originally, pronunciation and meanings of these 100 items were both tested. Due to time constraint, however, only word meanings were tested in the present study. Therefore, for each item, the participants were required to write down the meaning of the word in Chinese. For the scoring purpose, Hong et al. (2006) presented a list of high frequency word meanings

for reference. Hence, different wording for each word meaning was acceptable. For instance, "cat" was allowed to be translated into貓,貓科動物,像貓的女人or乖張的女人. For each item, an appropriate word meaning was awarded one point. Thus, the maximum possible total score was 100 for 100 items. The internal consistency coefficient was .99 (Hong et al., 2006).

(4) Chinese listening comprehension (CLC) test. The participants' Chinese (L1) listening ability was assessed by a listening sample test in Master level from the Test of Chinese as a Foreign Language (TOCFL) published by Steering Committee for the Test of Proficiency-Huayu (SC-TOP). TOCFL, a standardized test, aimed to measure Chinese proficiency of non-native speakers of Mandarin Chinese by utilizing authentic materials extracted from materials in daily life. According to SC-TOP, TOCFL contained four levels: Beginner, Learner, Superior and Master. In particular, the Master level of TOCFL corresponded to C1 in Common European Framework Reference for Languages (CEFR). It aimed at measuring vocabulary extent and language proficiency of learners who have learned Mandarin for more than 960 hours in Taiwan. The topics of the test involved websites, movies, business, origins of Chinese phrases, and so on. The test at the Master (highest) level was employed in the current study, as it was judged to be most appropriate for sixth graders by several consulted experienced elementary school teachers whose specialty was Mandarin instruction.

In terms of the format of TOCFL at the Master level, the items were all in the multiple-choice format, consisting of three parts: short conversations, long conversations and monologues. Similar to the ELC test, options of each item were delivered not only in print but also in aural mode. However, the stem of each item was delivered aurally only. In part one, the participants received ten short conversations and answered one item after listening to each short conversation. The second part was made up of seven long conversations and 20 items. The participants had to answer one to three items right after each long conversation. As for the last part, seven monologues and 20 items were included. The participants listened to the monologues, such as directions, weather forecasts, and anecdotes. Then, they had to answer one to four questions for each monologue. Completion of the CLC test took about 50 minutes. Each item was worth one point. Thus, the maximum possible total score was 50 for 50 items. The internal consistency reliability estimate of this test was .84.

(5) Metacognitive awareness listening questionnaire. Metacognitive Awareness Listening Questionnaire (MALQ), developed by Vandergrift, Goh, Mareschal and Tafaghodtari (2006), was utilized to measure the participants' metacognitive awareness. According to Vandergrift et al. (2006), MALQ aimed at assessing five subcomponents of metacognitive awareness, including problem-solving, planning and

evaluation, mental translation, person knowledge, and directed attention. It was a 5-point Likert scale with 21items. The response continuum was: *Strongly Disagree* (one point), *Disagree* (two points), *Neither Agree nor Disagree* (three points), *Agree* (four points), and *Strongly Agree* (five points). Listeners who got lower scores had lower metacognitive awareness, while those who got higher scores had higher metacognitive awareness. As reported by Vandergrift et al. (2006), the internal consistency reliability indexes for the five subcomponents ranged from .68 to .78, all of which were at an acceptable level of reliability. Since the participants were at a low English proficiency level, a modified Chinese version of MALQ used by Tsai (2010) was adopted. The maximum possible total score was 105.

(6) English listening anxiety scale. Foreign Language Listening Anxiety Scale (FLLAS), developed by Elkhafaifi (2005), was used in the present study to measure the participants' FL listening anxiety. FLLAS was originally made up of 20 items. However, with a careful examination, item 17 was identified as a double-barreled question. According to Ary, Jacobs and Sorensen (2010), double-barreled questions should be avoided in survey questions because they attempt to ask two questions in one, so researchers may not know whether the answerer has responded to one or both parts of the question. Thus, item 17 in FLLAS was divided into two items, and the total number of the items was 21. Like MALQ, a modified Chinese version of FLLAS used by Tsai (2010) was also employed in the present study. Lower scores indicated lower levels of FL listening anxiety, while higher scores suggested higher levels of FL listening anxiety. In addition, according to Cheng (2006), the items in FLLAS were classified into three subscales: anxiety level at different listening stages, attitude toward English listening and self-perception as a listener. With a 5-point Likert scale format, the maximum possible total score of FLLAS was 105. The internal consistency reliability indexes for the three factors ranged from .54 to .87.

(7) English learning motivation questionnaire. Language Learning Orientation Scale (LLOS), developed by Noels, Pelletier, Clement and Vallerand (2000), was used to assess the participants' language learning motivation in the present study. The 5-point Likert scale was made up of 20 randomly ordered statements with seven subscales to measure amotivation, the three subcomponents of extrinsic motivation (external regulation, introjected regulation and identified regulation) and the three subcomponents of intrinsic motivation (IM-Knowledge, IM-Accomplishment and IM-Stimulation). According to Noels et al. (2000), the internal consistency reliability estimates ranged from .67 to .88. Similar to MALQ and FLLAS, a modified Chinese version of MALQ used by Tsai (2010) was also utilized in the current study. The maximum possible total score was 100.

Procedures

In the present study, the participants were required to take all the seven instruments. Completion of the whole tests took seven periods of class, and each period of class lasted for 40 minutes. For avoiding possible fatigue effect, there was at least a three-day interval between every two sessions. In the first session, the CLC was administered to the participants. In session two, they were tested by the GEP test. Then, they took the EV test in the next session. In session four, they were required to take the ELC test on passage one and fill out FLLAS. Finally, they took the ELC test on passage two and filled out MALQ and LLOS.

Data Analysis. In an attempt to answer the research questions in the present study, the data collected were analyzed mainly through two types of multiple regression analyses with the Statistical Package for Social Science (SPSS) version 17.0. For the first research question, a standard multiple regression analysis was conducted. The independent variables were the total scores on GEP, CLC, EV, MALQ, FLLAS and LLOS, and the dependent variable was the total scores on ELC. The purpose of the standard multiple regression analysis was to find out the overall contributions of the three sets of independent (predictor) variables to English listening comprehension. For the research question two, a hierarchical multiple regression analysis, along with a forced-entry procedure, was applied. The analysis aimed to estimate the unique contribution that the two cognitive variables could add to the prediction of English listening comprehension ability, over and above the prediction accounted for by the two affective variables. Likewise, for the third research question, a hierarchical multiple regression analysis with forced-entry procedure was also applied to find out the unique contribution that the two linguistic variables could add to the prediction of English listening comprehension ability, over and above the prediction accounted for by the two affective variables and the two cognitive variables.

RESULTS

Table 2 displays the descriptive statistics of the participants' performance on the four tests (i.e., ELC, GEP, EV, and CLC) and of their responses to the three questionnaires (i.e., MALQ, FLLAS, and LLOS). As seen from Table 2, the mean percentage correct score (89%) of the CLC test was the highest among the four tests. In contrast, the mean percentage correct score (53%) of the ELC test was the lowest. Comparatively, the mean percentage correct scores of the GEP test (61%) and the EV

test (62%) appeared to be moderate. As for the three questionnaires, their responses ranged from 20 to 90.

Table 2

Summary of Descriptive Statistics (N = 141)

Test	Maximum Possible Score	*M* (%)	*SD*	Obtained Score Range (%)
ELC	20	10.53 (53%)	3.60	18 (90%) – 3 (15%)
GEP	75	45.70 (61%)	18.51	75 (100%) – 0 (0%)
EV	100	67.27 (62%)	22.52	97 (97%) – 1 (1%)
CLC	50	44.43 (89%)	5.31	50 (100%) – 18 (36%)
MALQ	105	68.67 (65%)	11.18	95 (90%) – 31 (30%)
FLLAS	105	61.93 (59%)	11.37	87 (83%) – 21 (20%)
LLOS	100	62.93 (63%)	11.21	88 (88%) – 20 (20%)

For the purpose of taking an initial look at the relationships of the participants' performance on English listening comprehension to the three clusters of variables: linguistic (i.e., general L2/FL proficiency and L2/FL lexical knowledge), cognitive (i.e., L1 listening ability and metacognitive awareness), and affective (i.e., FL listening anxiety and language learning motivation), Pearson correlation analyses were conducted, and the correlation coefficients are shown in Table 3. The six variables were all correlated significantly with English listening comprehension. In particular, the strongest correlation ($r = .60$, $p < .01$) was found between general English proficiency and English listening comprehension. The finding indicated that the participants who possess higher English proficiency tended to achieve higher English listening comprehension. Similarly, English vocabulary knowledge was found to have a significant and moderate correlation ($r = .52$, $p < .01$) with English listening comprehension. In other words, the students having higher level of English vocabulary knowledge appeared to have better performance on the English listening test. By comparison, Chinese listening ($r = .31$, $p < .01$) displayed a significant but lower correlation with English listening comprehension. Likewise, English listening anxiety ($r = -.20$, $p < .01$) was shown to have a significant but low correlation with English listening comprehension, and as expected, their relationship was negative. Finally, two of the lowest correlations were obtained between English listening comprehension and language learning motivation ($r = .18$, $p < .05$), and between English listening comprehension and metacognitive awareness ($r = .16$, $p < .05$).

Table 3

Correlation Matrix (N = 141)

Variable	1	2	3	4	5	6	7
1. ELC	1.00						
2. GEP	.60**	1.00					
3. EV	.52**	.85**	1.00				
4. CLC	.31**	.43**	.47**	1.00			
5. MALQ	.16*	.36**	.39**	.23**	1.00		
6. FLLAS	-.20**	-.18*	-.14	.10	.32**	1.00	
7. LLOS	.18*	.23**	.27**	.20**	.52**	.40**	1.00

Notes. *$p < .05$; ** $p < .01$.

In terms of the first research question concerning the overall contribution of the three clusters of variables to English listening comprehension, a simultaneous multiple regression was conducted with all the six variables as the independent variables and English listening comprehension as the dependent variable. As shown in Table 4, this model was found to explain 39% of the variance in English listening comprehension ($R^2 = .39$, $F(6, 134) = 14.15$, $p < .001$). The F value indicated that this model could make a statistically significant prediction in English listening comprehension.

Table 4

Results of Simultaneous Multiple Regression of English Listening Comprehension on the Six Variables (N = 141)

Model	*F*	*P*	*R*	R^2	Adjusted R^2	R^2 Change
1	14.15	.00	.62	.39	.36	.39

Note. General English Proficiency, English Vocabulary Knowledge, Chinese Listening, Metacognitive Awareness, English Listening Anxiety and Language Learning Motivation entered Model 1

Dependent Variable: English Listening Comprehension

With regard to the second research question, a hierarchical multiple regression was carried out to evaluate whether the cognitive variables (i.e., Chinese listening ability and metacognitive awareness) could significantly add to the prediction of English listening comprehension scores after the affective variables (i.e., English listening anxiety and language learning motivation) have been accounted for. The independent variables were the affective and the cognitive variables, and the dependent variable was English listening comprehension. Table 5 presents the results

of the hierarchical multiple regression. First, the affective variables, consisting of English listening anxiety and language learning motivation, were entered into the equation of Model 1 by using forced entry and found to explain 12% ($F_{change}(2,138) = 9.41$, $p < .001$) variance in English listening comprehension. In Model 2, however, the value of R^2 was .21 ($F_{change}(2,136) = 7.76$, $p < .01$) with the cognitive variable added to the equation by means of forced entry. That is, an additional 9% of the variance in English listening comprehension was explained by Chinese listening ability and metacognitive awareness after the affective variables have been accounted for.

Table 5

Results of Hierarchical Multiple Regression of English Listening Comprehension on the Affective and Cognitive Variables (N = 141)

Model	*F*	*P*	*R*	R^2	Adjusted R^2	R^2 Change
1	9.41	.00	.35	.12	.11	.12
2	7.76	.00	.46	.21	.19	.09

Note. English Listening Anxiety and Language Learning Motivation entered Model 1
English Listening Anxiety, Language Learning Motivation, Chinese Listening, and Metacognitive Awareness entered Model 2
Dependent Variable: English Listening Comprehension

Furthermore, for obtaining a clear picture of the unique variance contribution of Chinese listening ability to English listening comprehension, another hierarchical multiple regression was conducted with the affective and cognitive variables as independent variables and English listening comprehension as the dependent variable. Similar to the above hierarchical multiple regression, the affective variables were entered into Model 1 by means of forced entry selection. Chinese listening ability and metacognitive awareness were then entered into Model 2 using forward selection. The results showed that only Chinese listening ability was included in the equation of Model 2 ($t = 3.84$, $p < .001$) and thus contributed an additional 9% ($F_{change}(1,137) = 14.77$, $p < .001$) explained variance in English listening comprehension over and above the prediction accounted for by the affective variables. In contrast, metacognitive awareness was excluded from the equation because its addition did not show a statistically significant increase (around 0.4%) in the explained variance in English listening comprehension ($t = -.98$, $p > .05$). Based on the findings, therefore, Chinese listening ability alone could make significant prediction of English listening comprehension, whereas metacognitive awareness failed to provide a significant contribution to English listening performance.

Similar to the second research question, the third research question was examined by another hierarchical multiple regression to find out whether the linguistic variables (i.e., general English proficiency and English vocabulary knowledge) could add to the prediction of English listening comprehension after the affective and cognitive variables have been accounted for. This hierarchical multiple regression was conducted with the affective, cognitive, and linguistic variables as the independent variables and English listening comprehension as the dependent variable. The results were displayed in Table 6. With forced entry method, the affective and cognitive variables were entered into the equation of Model 1 and 2 respectively. When the set of linguistic variables (i.e., general English proficiency and English vocabulary knowledge) was entered into the equation of Model 3 using the method of forced entry, the R^2 increased to .39 ($F_{change}(2,134) = 19.44$, $p < .001$). The examination of R^2 showed that although about 21% of the variance in English listening comprehension could be accounted for by the affective and cognitive variables, an additional 18% of the variance was significantly explained by the set of linguistic variables.

Table 6

Results of Hierarchical Multiple Regression of English Listening Comprehension on the Six Variables (N = 141)

Model	*F*	*P*	*R*	R^2	Adjusted R^2	R^2 Change
1	9.41	.00	.35	.12	.11	.12
2	7.76	.00	.46	.21	.19	.09
3	19.44	.00	.62	.39	.36	.18

Note. English Listening Anxiety and Language Learning Motivation entered Model 1
English Listening Anxiety, Language Learning Motivation, Chinese Listening, and Metacognitive Awareness entered Model 2
English Listening Anxiety, Language Learning Motivation, Chinese Listening, Metacognitive Awareness, English Vocabulary Knowledge, and General English Proficiency entered Model 3
Dependent Variable: English Listening Comprehension

Moreover, for the purpose of finding out which of the linguistic variables could account for a larger amount of unique variance contribution in predicting performance on English listening comprehension, another hierarchical regression analysis was conducted with the affective, cognitive and linguistic variables as independent variables and English listening comprehension as the dependent variable. Similarly, forced entry selection was specified for blocks one and two containing the affective variables and cognitive variables respectively. In the third block, the two linguistic

variables were then entered with forward selection. The results showed that only general English proficiency was included in Model 3 ($t = 6.26$, $p < .001$). Surprisingly, the value of R^2 change in Model 3 was also .18, indicating that general English proficiency alone could explain an additional 18% (F_{change} (1,135) = 39.16, $p < .001$) of the variance in English listening comprehension beyond the contributions made by the affective and cognitive variables. On the contrary, English vocabulary knowledge ($t = .10$, $p > .05$) failed to increase the explained variance by a significant margin and was excluded from the equation of Model 3. That is, general English proficiency was revealed to be a stronger predictor of English listening comprehension than English vocabulary knowledge, which made nearly zero percent of variance contribution to prediction of English listening comprehension after general English proficiency, the affective and cognitive variables have been accounted for.

DISCUSSION AND CONCLUSIONS

With regard to the relationship of English listening comprehension to the three clusters of variables — linguistic (general English proficiency and English vocabulary knowledge), cognitive variables (Chinese listening ability and metacognitive awareness) and affective (English listening anxiety, language learning motivation), the strongest correlation ($r = .60$, $p < .01$) was found between English listening comprehension and general English proficiency. This finding is in agreement with that of Tsai's (2010) study, in which general English proficiency ($r = .58$, $p < .01$) yielded the strongest correlation with English listening comprehension. Likewise, with respect to the variance contribution of general English proficiency to English listening comprehension, general English proficiency appeared to account for the most proportion (18%) of the explained variance in English listening comprehension after the affective and cognitive variables have been accounted for. This finding was in line with that of Vandergrift's (2006) study, where general English proficiency was found to significantly explain 25% of the variance of eighth graders' English listening comprehension. Similarly, working with college students, Tsai (2010) also reported a 34% of the variance in English listening comprehension explained by general English proficiency. The amount of variance contribution by general English proficiency reported in the two previous studies was slightly larger than that obtained in the present study. However, despite the slight difference, the three studies collectively all found that among all the variables that they had examined, general English proficiency accounted for the largest amount of variance in English listening comprehension, highlighting the role of general L2 proficiency in determining L2

listening comprehension performance.

Similar to general English proficiency, a significant and moderate correlation (r = .52, p < .01) was also obtained between English listening comprehension and English vocabulary knowledge in the present study. This finding appeared to be consistent with that of previous studies (e.g., Alderson, 2005; Stæhr, 2008, 2009), with correlations ranging from .61 to .70. For instance, a correlation of similar size (r = .61) was reported between scores on an English vocabulary test and the L2 listening comprehension test in a project conducted by Alderson (2005). Likewise, in Stæhr's (2008) study, English listening comprehension had a correlation of .69 (p < .01) with English vocabulary size measured by a test of receptive vocabulary size. His subsequent study also found a similar size of correlation (r = .70, p < .01) between English vocabulary size and English listening comprehension. Taken together, the finding of these studies appeared to lend some evidence to the claim that L2 vocabulary knowledge is an important factor for successful L2 listening comprehension.

As for the amount of unique variance contribution of English vocabulary knowledge to predicting the performance on English listening comprehension, the present study failed to find the significant increase in its unique variance contribution, after general English proficiency, the affective and cognitive variables have been accounted for. In fact, its unique variance contribution was found to be close to zero. The reason for such a finding may be due to the high association (r= .85, p < .01) between general English proficiency and English vocabulary knowledge, as reported in Table 9. Such a large amount of shared variance between the two variables may be one of the main reasons held accountable for the present study's failure to find a significant amount of additional unique variance contribution of English vocabulary knowledge to English listening comprehension.

The relationship of English listening comprehension to Chinese listening comprehension ability (r = .31, p < .01) was also significant but weaker than its relationship to either general English proficiency (r = .60, p < .01) or English vocabulary knowledge (r = .52, p < .01). The finding of the present study appeared to be in agreement with that of Feyten's (1991) study, where L1 listening ability (r = .43, p < .01) was also found to have a significant relation with FL listening comprehension for the college students of Spanish. However, the correlation of Feyten's (1991) study was slightly higher than that of the present study. There are two possible reasons for such a difference. For one thing, the Chinese listening comprehension test appeared to be too easy for the participants of the present study, resulting in a small value of standard deviation (SD = 5.31) and a relatively high value of mean percentage correct

score (89%). As a result, the magnitude of correlation coefficient between English listening comprehension and Chinese listening comprehension obtained in the present study was not as large as that found in Feyten's (1991) study. For another, the participants recruited in the present study were beginning learners, whereas those in Feyten's (1991) study were advanced learners. Given the fact that reading and listening are both receptive skills, another plausible explanation for the difference in the size of correlations between these two studies could be found within the realm of L2 reading. Specifically, by categorizing 809 Korean learners of English into 10 English proficiency level groups, Lee and Schallert (1997) found that the correlations between L1 and L2 reading scores for high-English-proficiency groups were much larger than those for low-English-proficiency groups. In addition, in their study the average scores of the L1 reading comprehension test were also found to be higher for their high-English-proficiency groups than for their low-English-proficiency groups. Therefore, in their conclusion Lee and Schallert (1997) attributed the differences found in the size of L1-L2 correlations between the high-English-proficiency groups and low-English-proficiency groups to the following two causes: the learners' low L2 proficiency level and their underdeveloped L1 reading ability. As they put it, for the learners with low English (i.e., L2) proficiency level and low L1 reading comprehension, "the transfer of good L1 reading strategies to L2 reading situations seems unlikely, either because the students' low L2 proficiency levels would not allow such a transfer or because their L1 reading ability may itself have been underdeveloped" (p. 726). Since the participants involved in the present study were young learners, it is not unreasonable to assume that their English (i.e., L2) proficiency level and Chinese (i.e., L1) listening ability might still be low. Therefore, Lee and Schallert's interpretation may help explain why the correlation between L1 listening ability and L2 listening comprehension obtained in the present study was somewhat smaller than that of the Feyten's (1991) study, where the participants with a high level of L2 proficiency were involved. Thus, for such young learners recruited in the present study, a certain prerequisite level of English proficiency and/or Chinese listening skills may have to be established before they can successfully draw on their L1 listening ability to facilitate L2 listening comprehension. However, the speculation awaits further study to be confirmed because in current listening research there are no related empirical findings along the same lines as Lee and Schallert's (1997) study on reading.

With respect to the amount of unique variance contribution by Chinese (L1) listening ability to English listening comprehension, the present study obtained a significant increase of 9% in variance contribution. A comparison of the unique variance contribution found in the present study indicated that general English (FL)

proficiency appeared to account for a larger variance contribution to predicting English (FL) listening performance than Chinese (L1) listening ability. The finding is congruent with that of Vandergrift's (2006), where 25% of unique variance contribution was obtained for general English (FL) proficiency and a smaller amount of unique variance contribution (14%) was found for L1 listening ability.

Among the six variables, the weakest correlation ($r = .16$, $p < .01$) was found between metacognitive awareness and English listening comprehension. Likewise, significant but low correlations were also obtained in Liao's (2009) study ($r = .29$, $p < .01$), Tsai's (2010) study ($r = .34$, $p < .01$), and Vandergrift et al.'s (2006) study ($r = .36$, $p < .01$) for college students. In terms of variance contribution, metacognitive awareness merely accounted for less than 1% variance in English listening comprehension over and beyond the prediction afforded by the affective variables in the current study. Similarly, Tsai (2010) indicated that metacognitive awareness could predict only 1% variance in English listening comprehension. By comparison, Vandergrift et al. (2006) reported that metacognitive awareness, which was also measured by MALQ, explained 13% of the variance in English listening comprehension. The possible reasons for the difference in the amount of variance contribution accounted for by metacognitive awareness among these studies await further investigation.

With regard to the relationship between English listening anxiety and English listening comprehension, a significant but low correlation ($r = -.20$, $p < .01$) in an inverse direction was obtained in the present study. The finding seemed to be consistent with that of Cheng's (2006) study, where a significantly negative but low correlation was reported ($r = -.29$, $p < .01$). However, other previous studies (Elkhafaifi, 2005; Su, 2006; Tsai, 2010) obtained somewhat stronger correlations than those in the present study and Cheng's study. For instance, the strongest relation ($r = -.70$, $p < .01$) was reported in Elkhafaifi's study. Likewise, Su ($r = -.54$, $p < .01$) and Tsai ($r = -.49$, $p < .01$) also reported a significantly negative and moderate relationship between English listening anxiety and English listening comprehension. Collectively, the findings from the present study and previous studies appeared to converge only on the significance and the direction of relationship between listening anxiety and English listening comprehension. Hence, more research is needed to verify the magnitude of correlation coefficient between the two variables.

The other affective variable incorporated in the present study was English learning motivation. In terms of its relation with English listening comprehension, a significant but relatively low correlation ($r = .18$, $p < .05$) was obtained. The result was congruent with the findings of previous studies (Huang, 2007; Tsai, 2010). Particularly, in Huang's study a significant but small correlation ($r = .29$, $p < .001$)

was also found between English learning motivation and English listening comprehension for college students. Likewise, Tsai (2010) reported a significant but similarly weak correlation ($r = .10$, $p < .05$) between these two variables. It merits further research to explore the reasons for the surprisingly weak correlation coefficients consistently found across studies between English learning motivation and English listening comprehension.

Another noteworthy finding of the present study was that the two affective variables (i.e., English listening anxiety and English learning motivation) accounted for 12% of variance contribution to uniquely predicting the performance on English listening comprehension. The amount was slightly smaller than that found for the two linguistic variables. This is in accordance with the results obtained in Tsai's (2010) study, where English listening anxiety and English learning motivation were reported to explain a total of 13% of the variance in English listening comprehension, and 26% was obtained for general English performance. The results of the two studies appeared to suggest that the two affective variables make a significant but slightly smaller contribution to L2 listening comprehension than the linguistic variable(s).

One more point also deserving some discussion was about the unique variance contribution accounted for by factors classified as linguistic variables. In Vandergrift's (2006) study, L1 listening ability was also categorized as one of his linguistic variables. He reported that 39% of the variance in L2 listening could be accounted for by his regression model with general L2 proficiency and L1 listening ability as linguistic predictors. His review of previous studies on L2 reading and listening found that the combined variance in L2 reading comprehension explained by L1 reading ability and L2 proficiency ranged from 40% to even 72%. By comparison, the linguistic variables appeared to explain a smaller amount of the variance (with a range between 14% and 39%) in listening comprehension. He thus concluded that linguistic variables may explain a larger proportion of the variance in L2 reading than in L2 listening. However, in the present study Chinese (L1) listening ability was categorized as one of the cognitive variables. The linguistic variables included only general English proficiency and English vocabulary knowledge, together explaining 18% of the variance in English listening comprehension over and beyond the prediction afforded by the affective and cognitive variables. For the purpose of finding out whether the results of the present study could support Vandergrift's argument, the amount (9%) of unique variance contribution made by Chinese (L1) listening ability was added to 18%, which was the amount of unique explained variance accounted for by general English proficiency and English vocabulary knowledge. As such, a total amount of 27% was obtained for the three variables in the present study. This figure fell between 14% and 39%, a range reported in

Vandergrift's (2006) discussions, based on his findings and review on previous listening studies. Therefore, the results of the present study appeared to lend some support to the Vandergrift's argument that the linguistic variables (including general L2/FL proficiency, L2/FL vocabulary knowledge, and L1 listening ability) contribute less to L2/FL listening comprehension than to L2/FL reading comprehension.

Conclusions

According to the findings of the present study, the conclusions with respect to the three research questions are presented as follows. First, the three clusters of variables together significantly contributed 39% (F_{change} (3,134) = 18.69, $p < .001$) variance to English listening comprehension. Secondly, the cognitive variables significantly provided an additional unique explained variance ($R^2_{change} = .09$, F_{change} (4,136) = 9.05, $p < .001$) in English listening performance after the affective variables had been accounted for. Finally, the linguistic variables made the most significantly noticeable (18%) contribution to the prediction of scores on English listening comprehension ($R^2_{change} = .18$, F_{change} (6,134) = 14.15, $p < .001$) over and beyond the prediction afforded by the affective and the cognitive variables.

Theoretical Implications

Although some of the results are not as robust as expected, the current study is a pioneering investigation on the relative contributions of various variables to Taiwanese young learners' English listening comprehension. Specifically, the findings of the present study may shed some light on the relationship of elementary school students' English listening comprehension to the linguistic (general English proficiency and English vocabulary knowledge), cognitive (Chinese listening ability and metacognitive awareness), and affective (English listening anxiety, language learning motivation) variables. Additionally, in the present study more than 60% of the variance in English listening comprehension was not explained, lending further support to the claim that listening comprehension is a multi-dimensional construct which could be affected by a variety of factors. That is, although the current study has included six variables, there are still numerous other factors which have not been investigated. For example, Call (1985) found significant relationships of EFL learners' English listening comprehension performance to their scores on five subtests of short-term memory. Similarly, in the conclusion of Vandergrift's (2007) study, he recommended that factors such as sound-discrimination ability and working memory capacity need to be examined as individual or a cluster of variables. A most recent

review by Kurita (2012) further pointed out that the ability to distinguish speakers' stress and intonation patterns can also be a possible factor affecting performance on L2 listening comprehension. As a whole, the finding that only 39% of the variance of English (L2/FL) listening comprehension was accounted for by the six variables investigated in the present study points to a need in the future to take into account more related variables to fully capture the complex dimensions of English (L2/FL) listening comprehension.

Pedagogical Implications

As the present study showed, general English proficiency appeared to account for the most proportion of the explained variance in scores on English listening comprehension. As such, English teachers may have to allocate sufficient time to enhance students' general English proficiency. According to the Natural Approach (Krashen & Terrell, 1983), learners acquire language via comprehensible input (listening or reading) rather than conscious learning of language rules. They also posited that comprehension precedes production, which emerges after exposure to a large amount of comprehensible input. That is, listening and reading comprehension are crucial skills especially in an initial phase of language acquisition. Therefore, they suggested that an initial task for English teachers is to provide comprehensible input that is a little beyond students' current level of competence. In terms of enhancing listening skills, Hedge (2000) presented three stages for listening instruction, including pre-, while-, and posting listening stages. At the pre-listening stage, teachers have to decide an appropriate purpose for the listening text. Another important objective for this phase is to contextualize the text. For example, teachers may have to provide visual aids to help students appreciate the setting and activate related schemata. Students can also be requested to form an opinion toward the setting or topic of the text. At the while-listening stage, students are encouraged to listening to the text more extensively or intensively, that is, for gist or for specific information. A variety of activities can be involved at this stage, such as matching pictures with the text, drawing a picture, and filling in a chart. Finally, at the post-listening stage, students are taken into a relatively intensive phase where some top-down listening activities are practiced, such as summary and note-taking. Additionally, other language skills can also be integrated at the post-listening stage by developing the topic of the listening text into reading, writing or speaking activities. With respect to strengthening of reading comprehension skills, Mason and Krashen (1997) argued for the use of extensive reading to facilitate the development of general L2 proficiency. Day and Bamford (2002) further proposed some guidelines for language teachers to

implement extensive reading. Among their list of the guidelines are providing a large amount of reading materials that are easy and on a wide range of topics, allowing children to choose the books that they like, and encouraging them to read as much as possible, to name just a few.

Limitations of the Study

The generalization of the findings is limited mainly by the nature of measurements used in the present study. To begin with, the Likert scales (i.e., MALQ, FLLAS, LLOS) used in the present study for tapping metacognitive awareness, listening anxiety and learning motivation appeared to be too difficult to be understood fully and responded appropriately by the sixth graders recruited in the current study. According to Piaget's cognitive consideration (Brown, 2000), twelve-year-old children are in a beginning phase of formal operational stage. Therefore, for the participants who were around twelve years old in the present study, it might be difficult for them to not only understand the abstract statements of mental abilities and personality traits but also make fine distinctions among the five scale points. Future studies should incorporate some qualitative methods, such as interviews, in order to get a deepening and comprehensive understanding about not only the relationship of elementary school students' English listening comprehension to these three variables, but also the kinds of metacognitive listening strategies that they tend to employ.

There are also some limitations concerning the word recognition test and the general English proficiency (GEP) test used in the present study. For one thing, as previously pointed out, vocabulary knowledge has been perceived as a multi-dimensional construct, but the word recognition test used in the present study only assessed breadth of vocabulary knowledge. Future research on relation between FL listening comprehension and FL vocabulary knowledge calls for the use of tests aiming at measuring both depth and breadth of vocabulary knowledge. For another, most vocabulary assessments merely measure test takers' orthographic vocabulary knowledge, which could have a depressing effect on the relation between English listening comprehension and English vocabulary size (Stæhr, 2009). In particular, within Nation's (2001) framework of what is involved in knowing a word, knowing a word entails not only written form but also spoken form. Hence, successful listening comprehension also requires listener's phonological vocabulary knowledge (Stæhr, 2008). In other words, if the present study had had included a test of phonological vocabulary size, such as Aural Lex (Milton & Hopkins, 2006), a relatively strong correlation between English vocabulary size and English listening comprehension might have been found. As to the assessment of general English proficiency (GEP),

future studies should include one or two speaking subtests so that the English proficiency construct could be fully tapped.

Another measurement-related limitation pertains to the Chinese listening comprehension test used in the current study. With a small value of standard deviation (*SD* = 5.31) and a relatively high value of mean percentage correct score (89%), the Chinese listening comprehension test, TOCFL in Master level, appeared to be too easy for the 6th graders since it originally aimed to assess L2 learners' Chinese listening ability. Therefore, some caution has to be exercised in interpreting the results of the test. For the purpose of accurately assessing learner' Chinese (L1) listening ability, it calls for a need to develop a valid and reliable Chinese listening comprehension test specifically for native Chinese speakers rather than for learners of Chinese as an FL.

Directions for Future Research

Some recommendations can be made with regard to the research design. Since more than 60% of the variance in English listening comprehension was not explained in the present study, future endeavor can be made to incorporate and identify other variables which may also have a significant relationship with English (L2/FL) listening comprehension. For instance, learner's processing style, sound-discrimination ability, working memory capacity and prior knowledge are areas recommended for future research by Mecartty (2000) and Vandergrift (2007). Additionally, to fully understand the construct of L2/FL listening comprehension, future research can be conducted to test linguistic threshold hypothesis (Cziko, 1980), by following the research design of Lee and Schallert's (1997) study on reading. Specifically, investigations can be made to examine whether there is a threshold level of L2/FL proficiency above which L2/FL learners may be able to take full advantage of L1 listening skills when they receive L2/FL listening input. That is, if a threshold level exists, learners' with relatively low levels of L2/FL proficiency would show little relationship between L1 and L2/FL listening comprehension scores whereas learners' with relatively high levels of L2/FL proficiency would show a positive and strong relationship between L1 and L2/FL listening comprehension scores.

In addition, as far as the recommendation for instruments is concerned, future studies should include multiple measurements to tap various subcomponents of L2 vocabulary knowledge. For example, as suggest by Stæhr (2008), future studies may have to incorporate a test of phonological vocabulary size, such as Aural Lex (Milton & Hopkins, 2006), because listening comprehension is strongly dependent on learners' knowledge of phonology. As for Chinese (L1) listening tests, a need is definitely in

order for future research to develop a valid and reliable Chinese listening comprehension test with a difficulty level specifically appropriate for native Chinese speakers.

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