The Development and Validation of a Listening Practice Strategy Questionnaire

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Abstract

Listening comprehension is a critical first step toward communicative competence and language acquisition. Nevertheless, second/foreign language listening comprehension is probably the least explicit and the most difficult skill to learn among the four language skills (Vandergrift, 2004). Although the most general language learning strategy is “practicing” (Bialystok, 1981), it remains unclear exactly how English as a foreign language (EFL) learners practice listening and how often they do it. The two main purposes of the present study were to develop a valid and reliable questionnaire to assess EFL students’ listening practice strategies and to examine practice frequency. A total of 306 Taiwanese English majors from nine universities participated in this study. An exploratory factor analysis yielded five valid factors: problem-solving, deliberate practice, language processing, aural immersion, and English-comprehension practice. The analysis showed high reliability with a Cronbach’s alpha of .92. The five practice factors received moderately low to medium usage. Aural immersion practice was used most often, while English-comprehension practice was used the least. The findings suggest that this scale is a useful tool for both listening strategy training and future research on the relationship between practice strategies and listening proficiency.

Key Words: EFL/L2 listening comprehension, language learning strategies, practice strategies
INTRODUCTION

It seems to be common sense that practice makes perfect or at least facilitates skill acquisition. In the literature on expert performance, practice is the most critical determinant (Ericsson & Charness, 1994). However, in the area of second language acquisition (SLA), student practice behavior is still a black box. Most listening strategy elicitation is primarily concerned with listeners’ unobservable thought processes through a think-aloud procedure (Goh, 2002a; O’Malley, Chamot, & Küpper, 1989; Vandergrift, 1997, 2003) or immediate retrospection (Bacon, 1992) in specific task-completion settings, where listeners are asked to report on strategy use while listening to some passages. Few studies have explored listening strategies in general learning situations—in class and/or at home (Goh, 2002b; Lee, 1996, 1997; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006). Even fewer studies have investigated EFL learners’ listening practice strategies outside of class (Lee, 2001, 2007). It also remains unclear how learners practice listening comprehension and how often they practice listening. In particular, there is a lack of a reliable and valid survey instrument to assess listeners’ practice behaviors. Consequently, the two primary purposes of this study were to develop and validate a questionnaire to measure EFL listening practice strategies and to investigate listeners’ use of practice strategies outside of class.

The proficiency movement of the 1980s and the priority of developing communicative competence in L2 learning have placed greater importance on listening comprehension as a critical first step toward communication and language acquisition. Second/foreign
language listening comprehension, however, is probably the least known and the most difficult skill to learn among the four language skills (Vandergrift, 2004). Most foreign language learners seem to face problems when listening to the target language (Goh, 2000). Major problems tend to arise from vocabulary (Kelly, 1991; Lee, 1996), fast speech rate (Griffiths, 1992; Teng, 2002), unfamiliar phonological features (Henrichsen, 1984), and a lack of background knowledge (Schmidt-Rinehart, 1994).

In view of these various comprehension problems, the literature on expertise and learning strategies might shed light on problem solving for EFL listening comprehension. In the field of cognitive psychology, Ericsson and Charness (1994) have reviewed the literature on outstanding performance and concluded that practice is the most vital determinant of expert performance. Specifically, a study by Ericsson, Krampe, and Tesch-Römer (1993) found that the amount and distribution of deliberate practice was closely related to the performance levels of adult musicians. Furthermore, in second language acquisition, Bialystok (1981) examined the role of strategies in language proficiency and found that functional practice was the most important predictor of achievement on all four tasks (i.e., listening, reading, writing, and grammar).

The findings of Bialystok (1981), nevertheless, seem to raise one main question about the effortful component of deliberate practice. Ericsson et al. (1993) noted that practice alone is the most important activity for improving performance and requires effort. Bialystok’s functional practice, however, focuses on the meaning and use of the language in communicative situations, such as going to movies. Hence functional practice seems not to be characterized by a
great deal of conscious effort. In fact, deliberate practice appears to be more like Bialystok’s formal practice, which is concerned with the language code and involves drills and exercises so as to automatize explicit knowledge to implicit knowledge. Formal practice, however, failed to have any significant effect on all tasks in Bialystok’s study.

In EFL environments like Taiwan, Bialystok’s functional practice has been further challenged in terms of effort constraint. One of the major sources of authentic and interesting aural input is English media such as films or shows on TV, DVD, VCD, video, or in a movie theater. However, owing to the preference for entertainment rather than serious learning, the convenience of reading Chinese captions, and the difficulty in comprehending authentic oral English, aspects of learners’ efforts in watching films or shows remain unknown.

With these problems in mind, this exploratory study aims to design a valid and reliable listening practice strategy questionnaire and identify EFL listener practice strategies used in outside-of-class learning situations. The two major research questions are as follows:

1. What are the factor categories of listening practice strategies of Taiwanese university English majors?

2. How often do these EFL listeners use the listening practice strategies?
LITERATURE REVIEW

Theoretical Foundations of Listening Comprehension

Lundsteen (1971) defined listening as "the process by which spoken language is converted to meaning in the mind" (Lundsteen, 1971, p. 297). Similar to one prevalent view of L1 reading, listening comprehension might also be identified as a meaning-construction process served by lower-level linguistic processing, such as sound discrimination and word decoding, and by higher-level knowledge-based processing in a given context (Lee & Schallert, 1997; McLaughlin & Heredia, 1996).

Many have acknowledged that L2 listening comprehension involves active and complex problem-solving processes (Byrnes, 1984; Clark, 1978). The most influential model appears to be Anderson’s (1995) three interrelated and recursive stages of language comprehension: perceptual processing, parsing, and utilization. In perceptual processing, the acoustic message in echoic memory is initially encoded. In the parsing process, the words in the message are transformed into meaningful mental representations in short-term memory. There are three characteristics at this stage. First, to understand a language, listeners need to recognize various phrases and then concatenate the phrase meanings into a meaningful representation of a full sentence. Second, using syntactic cues, such as word order and function words, the meanings of individual words can be combined to arrive at the meaning of the full sentence. Third, listeners integrate both syntactic and semantic cues to interpret sentences. At the utilization stage, listeners relate mental representations of text meanings to prior knowledge, actually use the
mental representations of the aural input, and infer the unstated by means of existing schemata. The overall comprehension process is guided by the principle of "immediacy of interpretation," in which listeners do not wait until the ends of sentences or phrases to interpret words but instead, they process phrases and sentences immediately for meaningful representations.

There are three major kinds of listening processing: bottom-up, top-down, and interactive processing. Based on the linguistic characteristics of a text, bottom-up processing refers to constructing meaning by aggregating upwards to increasingly larger units of meaning (e.g., from the smallest units of sounds/phonemes to discourse features). Top-down processing concerns the use of background knowledge stored in memory for aiding comprehension. Interactive processing, as developed by Rumelhart (1975), synthesizes both bottom-up and top-down processing skills, which interact in some form of parallel distributed processing skills rather than a serial or hierarchical process. One of the advantages of the interactive model is that it is sensitive to individual variation in terms of the degree to which listeners may rely on one process more than the other, depending on the purpose for listening, different contexts, and learner variables (e.g., learning styles, listening proficiency, etc.) (Flowerdew & Miller, 2005; Vandergrift, 2004).

Theoretical Foundations of Practice

Development of expert performance: Acquiring skills with extensive practice. With respect to the development of expert performance, Anderson (1983) described the general characteristics of skill acquisition in terms of three stages: the cognitive, the associative,
and the autonomous stages. The cognitive stage involves a learner’s controlled performance because a declarative representation of the skill is developed. The performance at this stage is very deliberate and tends to be laden with errors. During the associative stage, the declarative knowledge is turned into procedural knowledge. Errors in the initial declarative form are gradually detected and eliminated. Moreover, connections among various components of skilled performance are strengthened. Finally, at the autonomous stage, errors that inhibit the successful execution of the skill disappear. In fact, the skill can often be performed effortlessly and requires few attentional resources or little conscious processing.

According to Newell and Rosenbloom’s (1981) power law of practice, or log-log linear learning law, performance improves as a power function of practice. The power law of practice shows that plotting the logarithm of speed (the time to perform a task) against the logarithm of the amount of practice (the number of trials to perform a task) always results in a straight line. One of the main reasons for the practice effects involves successful attempts to find and incorporate improvements in the current method. In addition, Newell and Rosenbloom argued that the ubiquitous law of practice holds for all kinds of learning.

Some research has examined the mechanism underlying the development of expertise. Since the mid-1970s, there has been a great deal of research examining the nature of expertise in a wide range of domains, such as chess, mathematics, and physics. More typically, such studies have compared differences between experts and novices. One of the major dimensions of the nature of expertise concerns the amount of practice. The acquisition of cognitive skills tends to be
facilitated by extensive practice. Ericsson and Charness (1994) reviewed the literature on expert performance and concluded that practice or "extended intense training" (p. 730) is the most important determinant. Furthermore, Ericsson et al. (1993) claimed that deliberate practice is the most effective way of improving the current level of performance. They characterized deliberate practice in terms of six conditions for learners' optimal practice: motivation and effort to improve performance, comprehensible tasks, immediate informative feedback and information about the results of their performance, repeatedly performing the same or similar tasks, actively searching for effective strategies, and explicit instructions about the most effective strategies.

**Practice as a learning strategy in SLA and second language (L2) listening comprehension.** From a conceptual standpoint, current studies on learning strategies have classified practice as a cognitive strategy. In terms of the parameter of purpose, Bialystok (1978) categorized two kinds of practice to increase language exposure. The first is formal practice, which refers to learners' attempts to increase their explicit knowledge of the language code. The primary function of formal practice is to automatize explicit linguistic knowledge and to transfer it into implicit linguistic knowledge for spontaneous responses. The second is functional practice, which involves increased exposure to the language so as to use the language for communication, such as going to movies or talking to native speakers.

From an information-processing perspective, McLaughlin, Rossman, and McLeod (1983) characterized the routinization of cognitive skills as a function of practice. The distinction between controlled and automatic processes depends on the degree to which
skills have been routinized for the transfer of information to long-term memory. The mechanism to make language routine is through extended practice or overlearning. Moreover, McLaughlin and Heredia (1996) claimed that practice, repetition, and time spent on a task seem to be the crucial variables for successful second language acquisition. In addition, Nagle and Sanders' (1986) model of adult L2 listening comprehension concerns fostering retention through practice or rehearsal. Effective listening comprehension is characterized by more automatic and less controlled processing of lower-level linguistic decoding so that the limited capacity of short-term memory could be available for higher-level meaning-based processing. Indeed, the role of practice is to facilitate progress from controlled to automatic processing in L2 listening comprehension.

**Empirical Research on Practice**

Ericsson et al. (1993) compared current and past levels of deliberate practice in three main groups of adult violinists to examine the effects of deliberate practice on performance. Subjects included thirty young students (i.e., ten “best violinists,” ten “good violinists,” and ten future music teachers), and ten outstanding middle-aged violinists. Instruments for assessing deliberate practice involved interviews, rating activities, and keeping week-long diaries. In particular, the daily-activity diary sheet divided the 24-hour day into ninety-six 15-minute intervals to ensure that the whole 24-hour day was covered by nearly exhaustive and mutually exclusive categories. The results indicated that the subjects in all four groups rated practice alone as the most important activity to improve their violin performance. Next, the findings of the diary analyses yielded
significant differences in the amount and distribution of practice between the two best groups and the music teachers, but there was no difference between the two best groups. Moreover, there was no significant difference between the best young violinists and professional middle-aged violinists in terms of the amount of practice alone by age eighteen. In addition, practice alone required effort. Finally, Ericsson et al. concluded that the amount and distribution of deliberate practice were related to the violinists’ performance levels.

In L2/EFL learning, a seminal study was conducted by Bialystok (1981) to measure language learning strategies and the effects of strategy use on language achievement. The working definition of the practice strategy in this study was restricted to learners’ attempts to increase language exposure beyond formal classroom settings. Bialystok employed questionnaires with a 4-point scale to assess the language learning strategies of 157 high school students learning French as a second language. Bialystok concluded that functional practice was the most important strategy for achievement on listening, reading, writing, and grammar tasks.

Furthermore, Yang (1992, 1999) reported a study to investigate 505 Taiwanese EFL university students’ beliefs about language learning and their use of language learning strategies. The instrument used for measuring language learning strategies was Oxford’s (1990) Strategy Inventory for Language Learning (SILL). According to the results, many students recognized the importance of practice and formal structural studies. Also, formal oral-practice strategies and compensation strategies were used most frequently. In addition, there were two significant relationships between the composite belief and strategy variables. First, the learners’ self-efficacy beliefs about
English learning were strongly related to all types of learning strategy use, particularly functional practice strategies. Second, the learners’ beliefs about the value and nature of spoken language closely correlated with their use of formal oral-practice strategies. The findings suggested cyclical relationships between language learners’ beliefs and their use of learning strategies. In another study, working with 904 Taiwanese EFL students from junior high school, senior high school, and college, Ku (1995) investigated language learning strategies associated with proficiency and ranked predictors of strategy use. Oxford’s (1990) SILL version 7.0 was used to assess the subjects’ strategy use. One of the major findings showed that cognitive strategies, specifically practice, and compensation strategies, such as guessing, were positively related to English proficiency.

In sum, the critical effects of practice on expert performance have been supported by the reviewed empirical research in the area of cognitive psychology. In the field of second/foreign language learning, the practice strategy, especially the functional practice strategy, tends to be an important determinant of second language proficiency. With respect to EFL listening research, there is a lack of empirical research on the role of practice in the acquisition of EFL listening skill. Thus, the present study attempts to explore EFL listeners’ practice behavior by developing a valid and reliable questionnaire and by measuring the frequency of their listening practice strategy use.
METHOD

Subjects

The participants in this study consisted of 306 university students in Taiwan (244 females and 62 males) ranging in age from eighteen to twenty-six. Cluster sampling was employed with the classroom as the unit of sampling. As shown in Tables 1 and 2, eleven classes were selected from nine universities. The eleven listening classes were taught by eleven different English teachers employed at the nine universities. There were two missing cells: no private university of science and technology (UST) for freshmen and no national UST for sophomores. The subjects included 128 freshmen from three schools and 178 sophomores from six schools. Of the total number of subjects, 176 students came from six regular universities and 130 hailed from three USTs. Furthermore, 141 students represented five national universities while 165 represented four private universities. Geographically, universities U#1, 2, and 3 are located in northern Taiwan, university U#6 is in central Taiwan, university UST#1 is in south-central Taiwan, and universities U#4 and 5, as well as UST#2 and 3 are in southern Taiwan.

Table 1
Division of Freshmen by University Type

<table>
<thead>
<tr>
<th>University Type</th>
<th>Technical Univ. (UST)</th>
<th>Regular Univ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>UST#1 = 2 classes</td>
<td>(n = 49)</td>
<td>U#1 = 1 class</td>
</tr>
<tr>
<td>(n = 22)</td>
<td></td>
<td>(n = 22)</td>
</tr>
<tr>
<td>Subtotal n = 71</td>
<td>Subtotal n = 79</td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>Subtotal n = 49</td>
<td></td>
</tr>
<tr>
<td>Private Univ.</td>
<td></td>
<td>Total N = 128</td>
</tr>
<tr>
<td>U#2 = 1 class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal n = 57</td>
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</tbody>
</table>

Total N = 128
Instrumentation and Data Collection Procedures

The instruments for the study included the Listening Practice Strategy Questionnaire (LPSQ) (see Appendix A) and the Marlowe-Crowne Social Desirability Scale (M-CSDS) (Reynolds, 1982; Yang, 1992). The LPSQ was developed and then translated into Chinese by the researcher (see Appendix B). Regarding the data collection of this study, the researcher administered both of these surveys in the subjects’ regular listening classes for pilot and formal studies.

The LPSQ aims to assess the frequency with which students use various listening practice strategies. The development of the questionnaire involved three phases of a pilot study before being used in the formal study. During the first phase of the pilot study, eight successful and eight less successful English majors from three
colleges in southern Taiwan were recruited for exploratory interviews. The audio-taped interviews were transcribed and analyzed to formulate the items to be used in the LPSQ. Moreover, the listening comprehension items were also derived from the Listening Comprehension Strategy Questionnaire in the researcher's thesis (Lee, 1996, 1997). The initial English and Chinese questionnaires of the LPSQ were examined and verified by three translation professionals. First, an associate professor teaching at a national university in southern Taiwan and a lecturer teaching at a national university of technology and science in northern Taiwan examined the English and Chinese questionnaire items independently for readability. Revisions were made based on their suggestions. Second, the lecturer in the first stage and an associate professor teaching at a graduate institute of translation and interpretation in northern Taiwan verified the compatibility of the two language versions through back translation from Chinese into English. Their results indicated the accuracy of translation.

The original questionnaire was comprised of fifty-one items categorized into five main types of practice strategies. According to Bialystok (1978), practice, the most general strategy, refers to learners' attempt to increase their exposure to the target language. Thus, the feature “exposure to language” characterized the following types of practice. First, there were two main sources of exposure—media and human interaction. Media, the primary focus of this study, was further classified into replayable and non-replayable/on-line exposure according to the controllability of the oral input. From the perspective of cognitive processing, practice was divided into problem-solving activities (i.e., practice in making sense
of texts) and language learning activities (i.e., practice in learning linguistic components after comprehending texts). The latter involves "listening to learn" (Vandergrift, 2004) activities, such as learning new vocabulary, phrases, slang, or grammar from the text. From the perspective of the affective or motivational dimension, practice involves making a deliberate effort to learn. Moreover, aural immersion practice refers to the amount of language exposure students have. Finally, practice in the dimension of human interaction refers to social practice. The classification scheme of these practice strategies is presented in Figure 1 as follows:

![Diagram](image)

**Figure 1**
Classification Scheme of Hypothetical Listening Practice Strategies
The second phase of the pilot study attempted to assess the clarity and compatibility between the original English version and the Chinese version of the LPSQ. Ten English majors from the previous interview were chosen again and were randomly assigned to two equal groups. Group A answered the English version of the LPSQ and then worked on the Chinese one, whereas Group B worked on the Chinese version before doing the English one. After the questionnaires were completed, the researcher discussed with the students their opinions on the scales. The results were used to modify the items.

Regarding the validity and reliability of the LPSQ, the third phase of the pilot study was conducted with forty-nine sophomores from the Department of English at a regular private university (U#6) in central Taiwan and forty-five juniors from the College of Management at a technical university (UST#4) in southern Taiwan. U#6 was recruited for both the pilot and formal studies. After all of the invalid data were discarded, the final sample consisted of responses from eighty-five students—forty-three from U#6 and forty-two from UST#4. Students were encouraged to ask questions about the questionnaire during the administration process.

The formal study was conducted at the beginning of the spring semester 2001. Thus, the scale was intended to examine students’ listening practice behavior in the previous semester. Considering the assumption of a normal distribution of the variables, the questionnaire used a 10-point scale rather than a 5-point Likert scale so as to capture an underlying continuous construct.
Data Analysis

Pilot data. All the quantitative data analyses were computed using version 16.0 of SPSS to address the second and third stages of the pilot study. First, an intraclass correlation was employed to examine the relationships between the English and Chinese versions of the questionnaires. Specifically, a “single measure” test was used because only one language was used for the rating scores. In addition, the “absolute agreement” was chosen to resolve any systematic differences between the two languages. Second, to assess the validity of the LPSQ, the Pearson product-moment correlation was employed to explore the correlations between the LPSQ items and the M-CSDS. Third, Cronbach’s alpha was used to examine the LPSQ’s internal consistency reliability.

The results of the pilot study showed that there seemed to be adequate clarity and compatibility between the English and Chinese versions of the LPSQ. The LPSQ tended to be valid and reliable in examining the students’ listening practice behaviors. Finally, the findings of the pilot study and discussions with the first two translation professionals and the subjects were used to modify the LPSQ for the formal study.

Formal study. Exploratory factor analysis using principal component analysis (PCA) with oblique Promax rotation with Kaiser Normalization was performed using SPSS to identify underlying constructs for the fifty-one practice strategy items on the LPSQ. According to Stevens (1996), the absolute values of the loadings should be greater than $2(\cdot149) = .298$ for a sample size of 300 subjects. Factor scores were computed by selecting items that had at least a 0.1 difference in factor loading on multiple factors. Regarding how to
eliminate unsatisfactory items, one variable was removed at a time, and then the remaining items underwent subsequent PCA analysis before deciding which item should be deleted next. First, a corrected item-total correlation analysis was used to remove items with correlation coefficients of 0.1 or less. If there were several undesirable items, the item with the lowest coefficient was eliminated first. Second, items with main loadings having absolute values of less than $|0.30|$ were deleted. If there was more than one item containing main loadings in absolute values of less than $|0.30|$, the item with the lowest loading was eliminated first. Third, crossloading items with differences in factor loading of less than 0.1 were dropped. If there were several crossloaders, the item with the smallest difference was eliminated first. Moreover, Cronbach's alpha was used to examine the reliability of the scale. Finally, descriptive statistics were computed using SPSS to summarize the students' responses to the questionnaires.

RESULTS

This section is composed of two main parts: (1) factor analysis of the fifty-one listening practice strategy items on the LPSQ to verify the validity of the questionnaire; and (2) descriptive analysis of the LPSQ items to explore students' use of listening practice strategies outside the classroom. Regarding the initial validity and reliability of the fifty-one items on the LPSQ, the correlation between the M-CSDS and the fifty-one strategy items was only $0.096 (p = 0.094)$. Therefore, the LPSQ appeared not to be confounded by subjects' tendencies
toward social desirability. Moreover, Cronbach's alpha yielded .92 for the fifty-one items, indicating the reliability of the LPSQ in assessing students' listening practice strategies.

**Exploratory Factor Analysis**

Based on the results of the corrected item-total correlation analysis, Items 22, 41, 20, and 44 were dropped one at a time from the analysis. The results of Bartlett's test of sphericity for the remaining forty-seven items indicated that the null hypothesis could be rejected at the 0.001 level, and therefore a conclusion was made that that a correlation exists among the variables in the population correlation matrix. Furthermore, the "eigenvalue greater than 1" criterion (Kaiser, 1960) was used for the initial solution. The findings yielded thirteen factors that accounted for 65.5% of the total variance. According to the scree test, however, only five factors should be retained. In order to better summarize the underlying constructs of the forty-seven items, a solution based on five factors was specified. The results yielded seven eliminated variables, including Item 25, which had a factor loading of less than 1.30 I, and six crossloaders (Items 12, 6, 31, 38, 27, and 7).

Furthermore, the loadings of the remaining 40 items were all approximately .40 or greater and were used for interpretation because they were large enough to be considered practically significant or important (Stevens, 1996). The Kaiser-Meyer-Olkin measure of sampling adequacy of the final analysis was .88, indicating the meritorious adequacy of this sample for conducting factor analysis because of the strong relationships among the variables.
The rotated pattern matrix is presented in Table 3. As can be seen, the five-factor solution accounted for 46.9% of the total variance. Broken down by factor, this translated into 25.8% of the variance from factor 1, 8.1% from factor 2, 5.0% from factor 3, 4.3% from factor 4, and 3.8% from factor 5. Furthermore, as shown in Table 4, except for the relationship between deliberate practice and aural immersion practice, the other factors correlated significantly among each other at the .01 and .001 levels, varying between .17 (deliberate practice and English-comprehension) and .46 (problem-solving and language processing). Cronbach’s alphas of internal consistency reliability were high for the total forty items (.92) as well as for the problem-solving (.88) and deliberate practice (.84) factors, and respectable for the language processing (.73), aural immersion (.75), and English-comprehension (.74) factors.

As can be seen in Table 3, except for two individual items, the first factor (problem-solving) included two main clusters of items. The first cluster involved five compensation strategies for dealing with unknown vocabulary, grammar, etc. When encountering unclear segments, learners infer meaning from context or intonation (Item 28), listen closely to the following text to try to understand what was previously missed (Item 23), listen to unclear segments a couple more times (Item 24), refer to scripts only when they still fail to understand (Item 21), and ask speakers to repeat or paraphrase (Item 30). The second cluster included seven items concerned with cognitive processing for comprehending aural input. Cognitive strategies consisted of elaborating or relating new information to personal experience or one’s prior knowledge (Item 18), imagining pictures in order to make associations (Item 17), chunking (Item 10),
summarizing main ideas (Item 19), and thinking only in English (Item 16). Other cognitive strategies included trying to understand each word and clarifying any unclear items (Item 11) and comprehending the gist of the text first and then sentence by sentence and paragraph by paragraph (Item 8). Listening attentively (Item 14), the only metacognitive strategy, is concerned with monitoring directed attention (Oxford, 1990). Talking to native English speakers (Item 29) is the only social strategy.

### Table 3
Pattern Matrix, Eigenvalues, and Factor Variance for the Five-Factor Model for the Final Principal Component Analysis with Promax Rotation

<table>
<thead>
<tr>
<th>Item #</th>
<th>Descriptions</th>
<th>Factors</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Factor 1: Problem-Solving Practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Guessing</td>
<td>0.74</td>
</tr>
<tr>
<td>23</td>
<td>Listening closely to the following text to understand what I missed</td>
<td>0.73</td>
</tr>
<tr>
<td>18</td>
<td>Relating new information to my background knowledge</td>
<td>0.73</td>
</tr>
<tr>
<td>17</td>
<td>Imagining a picture</td>
<td>0.64</td>
</tr>
<tr>
<td>10</td>
<td>Chunking</td>
<td>0.63</td>
</tr>
<tr>
<td>19</td>
<td>Summarizing</td>
<td>0.59</td>
</tr>
<tr>
<td>14</td>
<td>Listening attentively</td>
<td>0.59</td>
</tr>
<tr>
<td>16</td>
<td>Thinking only in English</td>
<td>0.58</td>
</tr>
<tr>
<td>24</td>
<td>Repeatedly listening to unknown segments</td>
<td>0.56</td>
</tr>
<tr>
<td>11</td>
<td>Trying to understand each word</td>
<td>0.50</td>
</tr>
<tr>
<td>29</td>
<td>Talking to native English speakers</td>
<td>0.45</td>
</tr>
<tr>
<td>30</td>
<td>Asking speakers to repeat or paraphrase</td>
<td>0.45</td>
</tr>
<tr>
<td>21</td>
<td>Referring to scripts only when repeatedly listening to unclear items still fails</td>
<td>0.43</td>
</tr>
<tr>
<td>8</td>
<td>Understanding main ideas first and then sentence by sentence</td>
<td>0.42</td>
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### Factor 2: Deliberate Practice

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
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<tbody>
<tr>
<td>36</td>
<td>Seriously listening to replayable English instructional radio programs</td>
<td>-0.33</td>
</tr>
<tr>
<td>37</td>
<td>Repeatedly listening to or watching replayable texts, especially for difficult segments</td>
<td>0.06</td>
</tr>
<tr>
<td>34</td>
<td>Seriously practicing all listening tasks assigned by the teacher</td>
<td>0.19</td>
</tr>
<tr>
<td>33</td>
<td>Seriously listening to textbook-based CDs</td>
<td>0.20</td>
</tr>
<tr>
<td>35</td>
<td>Seriously listening to on-line English instructional radio programs</td>
<td>-0.29</td>
</tr>
<tr>
<td>39</td>
<td>Seriously practicing until completing tasks, even when materials are dull or uninteresting</td>
<td>0.22</td>
</tr>
<tr>
<td>42</td>
<td>Practicing regularly</td>
<td>-0.17</td>
</tr>
<tr>
<td>40</td>
<td>Trying my best to understand difficult items</td>
<td>0.42</td>
</tr>
<tr>
<td>26</td>
<td>Spelling out possible words and then looking them up in the dictionary</td>
<td>0.23</td>
</tr>
<tr>
<td>32</td>
<td>Working with classmates by checking comprehension with each other</td>
<td>-0.12</td>
</tr>
</tbody>
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### Factor 3: Language Processing Practice

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Writing down each word for future review</td>
<td>-0.15</td>
</tr>
<tr>
<td>3</td>
<td>Imitating native speakers in the media</td>
<td>0.08</td>
</tr>
<tr>
<td>4</td>
<td>Reading texts out loud</td>
<td>0.04</td>
</tr>
<tr>
<td>13</td>
<td>Writing down each word to get main ideas</td>
<td>0.00</td>
</tr>
<tr>
<td>9</td>
<td>Understanding sentence by sentence to get main ideas</td>
<td>-0.11</td>
</tr>
<tr>
<td>2</td>
<td>Learning vocabulary or grammar by encountering them in oral exposure</td>
<td>0.09</td>
</tr>
<tr>
<td>1</td>
<td>Learning new language items from texts</td>
<td>0.12</td>
</tr>
</tbody>
</table>

### Factor 4: Aural Immersion Practice

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Playing English songs continuously</td>
<td>0.03</td>
</tr>
<tr>
<td>49</td>
<td>Listening to English songs</td>
<td>0.18</td>
</tr>
<tr>
<td>51</td>
<td>Playing English texts continuously</td>
<td>-0.01</td>
</tr>
</tbody>
</table>
Factor 5: English-Comprehension Practice

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening to English without reading Chinese captions</td>
<td>0.13</td>
<td>0.19</td>
<td>-0.07</td>
<td>0.07</td>
<td>0.70</td>
</tr>
<tr>
<td>Primarily listening to English first and referring to Chinese captions only for unknown items</td>
<td>0.21</td>
<td>0.03</td>
<td>-0.07</td>
<td>0.01</td>
<td>0.70</td>
</tr>
<tr>
<td>Reading English captions</td>
<td>-0.09</td>
<td>0.08</td>
<td>0.08</td>
<td>0.01</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Eigenvalues: 10.33, 3.23, 1.99, 1.70, 1.51
% of variance: 25.80, 8.10, 5.00, 4.30, 3.80
Cumulative %: 25.80, 33.90, 38.80, 43.10, 46.90

Table 4
LPSQ Factor Correlations for the Exploratory Factor Analysis and Cronbach’s Alphas (on Diagonal)

<table>
<thead>
<tr>
<th>Factors</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Problem-Solving Practice</td>
<td>.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Deliberate Practice</td>
<td></td>
<td>.37***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Language Processing Practice</td>
<td></td>
<td></td>
<td>.46***</td>
<td></td>
<td>.73</td>
</tr>
<tr>
<td>4. Aural Immersion Practice</td>
<td></td>
<td></td>
<td></td>
<td>.32***</td>
<td></td>
</tr>
<tr>
<td>5. English-Comprehension Practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.38***</td>
</tr>
</tbody>
</table>

Note. ** p < .01  *** p < .001

The second factor (deliberate practice) tended to capture a motivational construct, which centered around seriousness, rehearsal, regularity, and effort. Seriousness involved listening carefully to replayable materials (Item 36), on-line (Item 35) English instructional
radio programs, and textbook-based materials (Item 33). Seriousness also included practicing all listening tasks assigned by the teacher (Item 34) and practicing until the tasks were completed, even when the materials were dull or uninteresting (Item 39). Rehearsal concerned listening to or watching replayable texts, especially those with difficult segments, over and over again (Item 37). Regularity referred to practicing listening according to a self-regulated schedule (Item 42). Finally, effort was demonstrated when students tried their best to solve comprehension problems (Item 40), spelled out possible or similar words and looked them up in the dictionary if they still could not understand after listening several times (Item 26), and wrote down what they could comprehend, and checked or supplemented their comprehension with classmates (Item 32).

The third factor (language processing) concerned bottom-up processing for comprehending the meaning of texts and acquiring the L2 through oral input and included four items of bottom-up processing and four items of the language learning component. Bottom-up processing involved writing down each word or what one could understand word by word for future review (Item 5) and getting the main ideas of the text (Item 13), understanding sentence by sentence and paragraph by paragraph to get the main ideas of the whole text (Item 9), and repeating words or phrases quietly or mentally (Item 15). In addition to comprehension, L2 learning through listening materials involved repeating after native speakers in the media to imitate their pronunciation, intonation, or accent (Item 3), reading the text out loud segment by segment, sentence by sentence, or paragraph by paragraph (Item 4), learning vocabulary words or grammar structures primarily by encountering them in oral exposure.
rather than by reading vocabulary or grammar books (Item 2), and learning or memorizing new language components from oral texts (Item 1).

The fourth factor (aural immersion) was characterized by creating environments of English aural immersion. Students created aural immersion by playing English songs (Item 50) and other English materials (Item 51) continuously while doing other tasks, and by listening to English songs (Item 49). Moreover, students' aural exposure could be supported by visual information, such as watching English movies or TV programs (Item 43), as well as supplemented by Chinese texts, such as listening to English and reading Chinese captions almost simultaneously (Item 47). Finally, the fifth factor (English-comprehension) was concerned with the use of captions while watching English films or TV programs. This factor represented practice strategies of English listening and reading comprehension, including listening to English without reading Chinese captions or trying not to read Chinese captions (Item 46), primarily listening to English first and referring to Chinese captions only for unknown items or for checking comprehension (Item 48), and reading English captions (Item 45).

Descriptive Analysis

The means of the 40 items ranged from 2.90 (SD = 2.16) to 7.08 (SD = 2.56). Adapted from Oxford’s (1990, p. 300) Strategy Inventory for Language Learning (SILL) Profile of Results for interpreting averages, the values of averages were doubled since a 10-point scale was used in the present study rather than a 5-point scale. The criteria for the averages are presented in Table 5.
Table 5
Criteria for the Averages of Practice Strategy Use

<table>
<thead>
<tr>
<th>Usage</th>
<th>Descriptions</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>High usage</td>
<td>Always or almost always used</td>
<td>≥ 9.00</td>
</tr>
<tr>
<td>Moderately high usage</td>
<td>Usually used</td>
<td>7.00 – 8.99</td>
</tr>
<tr>
<td>Medium usage</td>
<td>Sometimes used</td>
<td>5.00 – 6.99</td>
</tr>
<tr>
<td>Moderately low usage</td>
<td>Generally not used</td>
<td>3.00 – 4.99</td>
</tr>
<tr>
<td>Low usage</td>
<td>Never or almost never used</td>
<td>≤ 2.99</td>
</tr>
</tbody>
</table>

The use of five listening practice strategy factors. To summarize the listening practice strategies used by the 306 subjects, the frequencies of strategy use by the five main factors are presented in Table 6.

Table 6
Ranks and Average Frequencies of the Five Listening Practice Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>Rank</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aural Immersion Practice</td>
<td>1</td>
<td>6.27</td>
<td>1.92</td>
</tr>
<tr>
<td>Problem-Solving Practice</td>
<td>2</td>
<td>5.77</td>
<td>1.55</td>
</tr>
<tr>
<td>Deliberate Practice</td>
<td>3</td>
<td>4.46</td>
<td>1.59</td>
</tr>
<tr>
<td>Language Processing Practice</td>
<td>4</td>
<td>4.41</td>
<td>1.38</td>
</tr>
<tr>
<td>English-Comprehension Practice</td>
<td>5</td>
<td>4.20</td>
<td>2.04</td>
</tr>
</tbody>
</table>

This finding indicated that two listening practice factors had medium usage and three factors had moderately low usage. The aural immersion factor with medium usage was sometimes used and ranked first among the five factors, followed by the problem-solving factor, which was also sometimes used. The following three factors were deliberate practice, language processing, and English-comprehension, which all had moderately low usage and were generally not used. Of
the five practice factors, English-comprehension practice was used the least.

To have a better understanding of the indicators for the factors, the use of forty individual items was examined. The results showed that two of the items were characterized by moderately high usage, nineteen items by medium usage, eighteen items by moderately low usage, and only one item by low usage. Table 7 shows the top ten practice strategies (all with means above 6.00), while Table 8 shows the bottom six items (with means below 4.00).

### Table 7
Factors, Ranks, Means, and Standard Deviations of the Top Ten Practice Strategies

<table>
<thead>
<tr>
<th>Factors</th>
<th>Item #</th>
<th>Content</th>
<th>Rank</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>49</td>
<td>Listening to English songs</td>
<td>1</td>
<td>7.08</td>
<td>2.56</td>
</tr>
<tr>
<td>PS</td>
<td>23</td>
<td>Listening closely to the following text to understand what I missed</td>
<td>2</td>
<td>7.05</td>
<td>1.98</td>
</tr>
<tr>
<td>PS</td>
<td>14</td>
<td>Listening attentively</td>
<td>3</td>
<td>6.78</td>
<td>2.32</td>
</tr>
<tr>
<td>PS</td>
<td>24</td>
<td>Repeatedly listening to unknown segments</td>
<td>4</td>
<td>6.64</td>
<td>2.26</td>
</tr>
<tr>
<td>AI</td>
<td>47</td>
<td>Listening to English and reading Chinese captions almost simultaneously</td>
<td>5</td>
<td>6.48</td>
<td>2.48</td>
</tr>
<tr>
<td>AI</td>
<td>43</td>
<td>Watching English movies or TV programs</td>
<td>6</td>
<td>6.28</td>
<td>2.75</td>
</tr>
<tr>
<td>PS</td>
<td>28</td>
<td>Guessing</td>
<td>7</td>
<td>6.22</td>
<td>2.54</td>
</tr>
<tr>
<td>PS</td>
<td>30</td>
<td>Asking speakers to repeat or paraphrase</td>
<td>8</td>
<td>6.21</td>
<td>2.51</td>
</tr>
<tr>
<td>AI</td>
<td>50</td>
<td>Playing English songs continuously</td>
<td>9</td>
<td>6.18</td>
<td>2.88</td>
</tr>
<tr>
<td>PS</td>
<td>10</td>
<td>Chunking</td>
<td>10</td>
<td>6.16</td>
<td>2.30</td>
</tr>
</tbody>
</table>

*Note. AI = Aural Immersion  PS = Problem-Solving*

As indicated in Table 7, the top ten practice strategies included six items from the problem-solving factor and four items from the aural immersion factor. Items 49 and 23, with moderately high usage,
were usually used, while the remaining eight items with medium usage were sometimes used. The problem-solving factor primarily dealt with four compensation strategies when students encountered unknown items: listening closely to the following text (Item 23), listening to unknown segments a couple of times (Item 24), guessing (Item 28), and asking speakers for help (Item 30). The only metacognitive item (attention monitoring; Item 14) and cognitive item (chunking; Item 10) were also included in the problem-solving factor. The four aural immersion items included listening to English songs (Item 49), watching English movies or TV programs (Item 43), listening to English and reading Chinese captions almost simultaneously (Item 47), and playing English songs continuously while doing other tasks (Item 50). Of these, listening to English songs ranked first in terms of strategy use.

Table 8
Factors, Ranks, Means, and Standard Deviations of the Bottom Six Practice Strategies

<table>
<thead>
<tr>
<th>Factors Item #</th>
<th>Content</th>
<th>Rank</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 35</td>
<td>Seriously listening to on-line English instructional radio programs</td>
<td>35</td>
<td>3.86</td>
<td>2.29</td>
</tr>
<tr>
<td>LP 2</td>
<td>Learning vocabulary or grammar by encountering them in oral exposure</td>
<td>36</td>
<td>3.80</td>
<td>2.26</td>
</tr>
<tr>
<td>D 36</td>
<td>Seriously listening to replayable English instructional radio programs</td>
<td>37</td>
<td>3.63</td>
<td>2.48</td>
</tr>
<tr>
<td>LP 5</td>
<td>Writing down each word for future review</td>
<td>38</td>
<td>3.39</td>
<td>2.16</td>
</tr>
<tr>
<td>EC 45</td>
<td>Reading English captions</td>
<td>39</td>
<td>3.18</td>
<td>2.24</td>
</tr>
<tr>
<td>D 42</td>
<td>Practicing regularly</td>
<td>40</td>
<td>2.90</td>
<td>2.16</td>
</tr>
</tbody>
</table>

*Note. D = Deliberate Practice, LP = Language Processing, EC = English-Comprehension.*
As shown in Table 8, the bottom six practice strategies involved three deliberate practice items, two language processing items, and one English-comprehension item. Five items with moderately low usage were generally not used and the last item with low usage was never or almost never used. The least-used deliberate practice strategy was regular practice (Item 42), followed by seriously listening to replayable (Item 36) and on-line (Item 35) English instructional radio programs. The two language processing items generally not used by listeners primarily included learning vocabulary words or grammar structures by encountering them in oral exposure (Item 2), and writing down comprehensible material word by word for future review (Item 5). Finally, reading English captions (Item 45) was the only English-comprehension item among the bottom six items, and it was also generally not used.

**DISCUSSION**

The aims of this study were to develop and validate the Listening Practice Strategies Questionnaire (LPSQ) for assessing students’ practice behavior in general learning situations (i.e., outside of class) and to measure the frequency of listening practice strategy use. This section addresses the validity and reliability of the LPSQ, followed by a discussion of the results of this study in light of the original hypothetical classification scheme of practice strategies and in comparison to other relevant studies.

The Listening Practice Strategies Questionnaire (LPSQ) was first developed to assess the listening practice strategies of Taiwanese
university English majors. The results of the analyses suggest that students' listening practice strategies can be validly and reliably assessed by the forty items on the LPSQ (see Appendix B for the validated version). In Lee’s (2007) study, the LPSQ was also used to explore the listening practice strategies of 206 non-English major freshmen at a regular national university in southern Taiwan. In fact, Lee used a different extraction method (i.e., maximum likelihood) to identify underlying constructs of the original fifty-one items. Except for the problem-avoidance factor, which was replaced by the language processing factor in the current study, the results of Lee’s exploratory factor analysis validated the four robust factors of the present study—problem-solving, deliberate practice, aural immersion, and English-comprehension. The Cronbach’s alpha index of internal consistency reliability for the reduced thirty-five items in Lee’s research yielded .88 and .92 in this study, suggesting the questionnaire’s high reliability.

Problem-solving practice primarily involved the use of compensation and cognitive strategies in solving comprehension problems. First, the findings support the hypothetical problem-solving construct of practice strategies. In fact, Clark (1978) claims that “comprehension, in short, calls on people’s general capacity to think—to use information and solve problems” (p. 320). Byrnes (1984) contends that the conceptualization of listening comprehension as a highly complex problem-solving activity is a challenge to the traditional concept of listening as a passive, mechanical skill in language learning. In addition, the problem-solving factor is in line with the cognitive (e.g., using one’s experience and knowledge for comprehension) and compensation (e.g., using known words to guess

Second, top-down processing often characterized the cognitive strategies of elaborating (Item 18), creating mental pictures (Item 17), chunking (Item 10), summarizing (Item 19), thinking only in English (Item 16), and comprehending the gist of the text first and then details (Item 8). Regarding metacognitive strategies, since the LPSQ included only one metacognitive item—attention monitoring (Item 5)—the metacognitive strategy construct is one of the major limitations of this study and is a factor that needs more exploration. In fact, in light of the importance and complexity of metacognition in L2 listening and learning in general (Brown, 1987; Flavell, 1979), some independent and comprehensive research on L2 listeners’ metacognitive awareness has been conducted (Vandergrift et al., 2006; Liao, 2009).

In addition to validating the second hypothetical category of cognitive processing (language learning practice), the language processing factor included listening comprehension that is text-based and involves bottom-up processing. This is in contrast to top-down processing, which is a characteristic of the problem-solving factor. In fact, L2 listening involves both kinds of information processing. According to Rumelhart’s (1975) interactive model, language is processed simultaneously at several levels, in which phonological, lexical, syntactic, semantic, and pragmatic systems interact. Furthermore, the language learning component is concerned with “listening to learn” elements (e.g., new vocabulary, expressions, and grammar) after comprehending texts. Rost (2002) has claimed that
there are two interwoven processes in L2 listening development: (1) "learning to listen" (comprehending input in the L2); and (2) "listening to learn" (learning the L2 through listening). Both Rost and Vandergrift (2004) agree that "learning to listen" is an essential means of "listening to learn."

Concerning the motivational construct of practice strategies, hypothetical deliberate practice has been verified and identified as the second major factor. Although the literature shows that deliberate practice is critical in determining expert performance, contrary to what was expected, Taiwanese English majors in the current study generally did not use it. Among the five listening practice factors, deliberate practice received moderately low usage. Specifically, regular practice (Item 42) was the least-used strategy among the 40 items and the only "low usage" item that was never or almost never used by English majors. Nevertheless, this finding was in accord with the results of Lee's (2007) study, in which regular practice with moderately low usage was generally not used by non-English majors. In Goh's (2002b) study, following a plan also had low usage because only 17.8% of the Chinese college students could follow a listening practice plan closely. In fact, given that deliberate practice is demanding in terms of regularity, rehearsal, seriousness, effort, and perseverance, the findings of low to moderately low usage are not surprising. The learners in this study may lack the awareness of the importance of deliberate practice, or perhaps would still experience difficulty practicing deliberately even if they acknowledged the value of doing it.

Regarding the amount of exposure to aural input, this factor was in line with hypothetical aural immersion practice. The factor
with medium usage was sometimes employed by the subjects and top-ranked among the five practice factors. To create an aural environment, listeners played English songs (Item 50) and audio English texts (Item 51) continuously while doing other tasks, listened to English songs (Item 49), watched English films or TV programs (Item 43), and listened to English while reading Chinese captions at about the same time (Item 45). In contrast to deliberate practice, this kind of practice is likely to be viewed as being easy, effortless, and time-saving, and might therefore be one of the reasons why the students used these strategies more frequently than the others. Specifically, listening to English songs ($M = 7.08$) with moderately high usage was usually employed and was the most frequently used among the forty items. Similarly, in Lee’s (1997) study of junior college English majors, one of the main findings from the subjects’ responses to open-ended question items was that listening to English songs was also the most frequently used strategy. Moreover, this supports Lee’s (2001) findings regarding time spent on listening practice in that the subjects in her study tended to spend most of their time listening to English songs on CDs, radio programs, or MTV.

Hypothetical social practice was replaced by another cluster dealing with the amount of exposure received (i.e., English-comprehension practice). This factor represents the priority of comprehending English aural and written input from English films and TV programs. Regarding the use of captions, learners listened to English without reading Chinese captions (Item 46), read Chinese captions only for unclear parts (Item 48), and read English captions
(Item 45). In fact, according to the researcher’s personal teaching experience, most students really enjoy watching English films and TV programs (e.g., the sitcom *Friends*). The learning challenge, however, is whether students can resist the “temptation” of just reading Chinese captions and instead focus on English listening and reading comprehension. For the English majors participating in this study, this factor with moderately low usage was generally not employed and ranked last among the five factors. For non-English majors in Lee’s (2007) study, this kind of practice was also generally not used.

Except for the weak relationship between deliberate practice and aural immersion practice, the other practice factors were significantly inter-correlated. Anderson’s (1995) three interrelated stages of language comprehension involving perceptual processing, parsing, and utilization might help to explain such interconnectedness in the present study. Strategy application is not a serial process, but rather a parallel and simultaneous process with multiple levels of strategy interconnection. This is described by Vandergrift (2003) as “orchestration.” In particular, problem-solving practice (primarily including compensation and cognitive strategies) were correlated with language processing practice and the affective domain of strategy application (i.e., deliberate practice). The results suggest the overlapping of comprehending input and L2 learning processes, and a parallel distribution between top-down and bottom-up processing. Moreover, McCombs (1988) claimed that one of the most important purposes of training in learning strategy use is to facilitate self-controlled or self-directed learning, and that being “centrally involved in the self-control of learning is the motivation to learn” (p. 141). Because strategic deployment of practice behaviors involves
intentionality and self-control, *skills* and *will* both are required to reach a goal (Paris, Newman, & Jacobs, 1985). Thus, the findings of this study suggest the connection between problem-solving practice and deliberate practice.

**CONCLUSION**

This study has presented the development and validation of a listening practice strategy questionnaire to investigate EFL English majors’ practice behaviors in out-of-class learning situations. Exploratory factor analysis yielded five robust factors, including problem-solving, language processing, deliberate practice, aural immersion, and English-comprehension practice. The five-factor model accounted for 46.9% of the total variance. A Cronbach’s alpha of .92 indicated high reliability. Regarding the frequency of strategy use, the five listening practice factors had moderately low to medium usage. The aural immersion factor was sometimes used and ranked first among the five factors, followed by the problem-solving factor, which was also sometimes used. Deliberate practice, language processing, and English-comprehension factors were all generally not used, while English-comprehension practice was least used among the five constructs. Finally, the adequate validity and reliability of the questionnaire could make it a useful tool for listening strategy training and further research on the relationships among practice strategies, listening proficiency, and other relevant factors, such as motivational orientations.
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APPENDIX A

Listening Practice Strategy Questionnaire (LPSQ)

(almost) never do this seldom do this sometimes do this usually do this always do this
1--------2---- 一-- 3 --------4 -- --- -- -5- -- 6------7----- 8----------9--------10
≤9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% ≥90%

Factor 1: Problem-Solving Practice
28. I guess unknown items by context or intonation.
23. When the script is unavailable, I let the unclear items go, but still listen closely to the following text to see if it provides additional information I can use to understand what I missed.
18. I relate new information to my personal experiences or prior knowledge.
17. While listening, I imagine a picture or make associations in order to comprehend texts.
10. I listen for chunks or segments rather than for every individual word.
19. After listening to the whole text, I summarize the main ideas mentally or in written form.
14. I attentively listen to texts, or I am aware of my inattention and refocus.
16. While practicing listening, I think only in English.
24. When the script is unavailable, I repeat listening to unknown segments a couple of times.
11. I try to understand each word and clarify any unclear items.
29. I talk to native English speakers.
30. When I come across unclear items, I ask speakers for repetition or paraphrasing.

21. Although a script is available, I repeat listening to unclear items a couple of times before referring to the script if I still fail to comprehend.

8. I understand the general or main ideas of the whole text first and then comprehend sentence by sentence and paragraph by paragraph.

**Factor 2: Deliberate Practice**

36. I seriously listen to replayable English instructional radio programs, such as *Studio Classroom*.

37. I repeatedly listen to or watch replayable texts (e.g., MP3s, CDs, or DVDs), especially for difficult segments.

34. I seriously practice all listening tasks assigned by the teacher.

33. I seriously listen to textbook-based CDs.

35. I seriously listen to on-line English instructional radio programs, such as *Studio Classroom*.

39. I seriously practice until completing the tasks, even when the materials are dull or uninteresting.

42. I practice listening according to a self-regulated schedule.

40. When I find something difficult to understand, I try my best to understand it or to solve the comprehension problem (Note: Your effort counts while the results of your effort do not matter).

26. When the script is unavailable, and I still cannot understand after repeating listening several times, I spell out possible or similar words and then look them up in the dictionary.

32. I work with my classmates by writing down what we comprehend, checking, or supplementing our comprehension with each other.
Factor 3: Language Processing Practice

5. I write down each word or what I can understand word by word for future review.

3. In addition to comprehension, I repeat after the native speaker on the media outlet (e.g., MP3s or CDs) segment by segment, sentence by sentence, or paragraph by paragraph to imitate the speaker's pronunciation, intonation, or accent.

4. While practicing listening, in addition to comprehension, I read out loud the text segment by segment, sentence by sentence, or paragraph by paragraph.

15. While practicing listening, I repeat words or phrases quietly or mentally.

13. I write down each word or what I can understand word by word as much as possible so as to get the main ideas of the text.

9. I understand sentence by sentence and paragraph by paragraph to get the main ideas of the whole text.

2. I primarily learn vocabulary or grammar by encountering them in oral exposure rather than by reading vocabulary or grammar books.

1. When practicing English listening, in addition to comprehending the meaning of texts, I learn or memorize new vocabulary, idioms/slang, phrases/expressions, or grammar from the text.

Factor 4: Aural Immersion Practice

50. To create an aural English environment, I play English songs continuously while doing other tasks to immerse myself in the English environment.

49. I listen to English songs.
51. To create an aural English environment, I play English texts (e.g., the ICRT radio station or other listening materials) continuously while doing other tasks to immerse myself in the English environment.

47. I listen to English and read Chinese captions almost simultaneously.

43. I watch English movies (at home or in a theater) or English TV programs (e.g., the sitcom* Friends* or *Discovery* channel).

**Factor 5: English-Comprehension Practice**

46. I listen to English without reading Chinese captions or try not to read Chinese captions.

48. I primarily listen to English first and refer to Chinese captions only for unknown or difficult items or for checking comprehension.

45. I read English captions (e.g., DVDs).
APPENDIX B

英語聽力練習策略問卷

(幾乎) 从来不用 一般比較少用 有时有，有时没有用 通常有用 纔是用

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

≤9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% ≥90%

因素一：解決問題式練習

28. 我會從上下文或音調，來猜測聽不懂的地方。
23. 沒有稿子時，雖然聽不懂的地方讓他過去，但我會注意繼續聽，
    看接下來有沒有訊息，可以幫助我把先前聽不懂的地方理解清楚。
18. 我會把新聽到的內容連接到個人的經驗，或原有的知識背景。
17. 聽英文的時候，我會想像有關的情景、畫面，或用聯想的方式來
    理解內容。
10. 我一節一節的聽，而不是逐字一個字一個字的聽。
19. 聽完整個內容後，我會在心裡摘要全文的重點，或把要點寫下來。
14. 我專心的聽，或分心時會有所警覺，然後重新集中注意力。
16. 練英聽的時候，我只用英文思考。
24. 沒有稿子時，我會把聽不懂的地方重複聽好幾遍。
11. 我儘量把每個字都聽懂，也把每個不懂的地方想辦法理解清楚。
29. 我會跟講英語的外國人交談。
30. 聽不懂的時候，我會請對方重復或換句話說。
21. 即使有稿子，我還是會先重複聽那些不清楚的地方，試了幾遍，
    如果還是聽不懂才看稿子。

8. 我先把整個內容或重點瞭解後，再一句一句、一段一段的聽內容。
因素二：刻意練習

36. 我認真聽可重複播放的英語教學性廣播節目，如「空中英語教室」。
37. 我重複聽或看可重複播放的內容，如 MP3、CD、DVD 等，特別是困難的部份。
34. 我認真練習老師指定的所有聽力作業。
33. 我認真聽跟上課教材有關的內容。
35. 我認真聽不能重複播放的英語教學性廣播節目，如「空中英語教室」。
39. 即使內容枯燥無趣，我還是認真的把內容聽完。
42. 我依照自訂的時間表練習聽力。
40. 遇到困難聽不懂的地方，我會努力想辦法聽懂，或解決理解上的問題。(註：重要的是你的努力，至於努力的結果並不重要)。
26. 沒有稿子時，不懂的地方重複聽好幾遍後還是聽不懂，我會把可能或類似的音拼出來，然後查字典。
32. 我跟同學合作，把能聽懂的先各自寫下來，然後彼此核對或互補內容。

因素三：語言處理式練習

5. 我把聽到的每個字或聽懂的內容逐字的寫下來，來幫助以後的複習。
3. 除了聽懂內容外，我會跟著媒體（如 MP3 或 CD）上的外國人唸，一節一節、一句一句、或一段一段的，來模仿外國人的發音、語調或腔調。
4. 練習英聽時，除了聽懂內容外，我會把內容讀出聲音來，一節一節、一句一句、或一段一段的。
15. 練英聽的時候，我會嘴巴跟著輕聲的重複字詞，或心中默唸聽到的字詞。
13. 我儘量把每個字或聽懂的內容，逐字寫下來，來瞭解重點。
9. 我是一句一句、一段一段的聽內容，來瞭解全文的要點。
2. 我主要是透過口語式的接觸來學英文單字或文法，而不是讀單字或文法書。
1. 練習英語聽力時，除了聽懂內容外，我會把新的單字、片語、成語、俚語或文法等學起來或記起來。

因素四：聽覺沉浸式練習
50. 為製造口語英文的環境，我一邊不斷的放英文歌曲，一邊做其它事情，讓自己沉浸在英文的環境中。
49. 我聽英文歌曲。
51. 為製造口語英文的環境，我一邊不斷的放英文，如收聽ICRT電台或其它聽力教材，一邊做其它事情，讓自己沉浸在英文的環境中。
47. 我幾乎是同時聽英語和看中文字幕。
43. 我看英文影片(在家或去戲院)，或看英語電視節目，如情境喜劇「六人行」或 Discovery 頻道。

因素五：英語理解式練習
46. 我是聽英語，不看中文字幕，或儘量不看中文字幕。
48. 我主要是先聽英文，只有困難聽不懂或核對所聽的內容時，才看中文字幕。
45. 我是看英文字幕，如看DVD。
聴力練習策略問卷之編製與驗證

摘要
聴力為溝通能力及語言習得之關鍵第一步，然而第二語言/外語聽力卻可能是四種語言技能中最不為人知，也最難學習的技能(Vandergrift, 2004)。雖然練習是最普遍的語言學習策略(Bialystok, 1981)，但究竟英語學習者如何練習聽力及練習頻率卻無從知曉。故本研究之兩大目的為編製一份具有信效度的問卷來調查學生有哪些英語聽力練習策略及檢視練習策略之使用頻率。研究對象為台灣九所大學的306位英語系學生。探索性因素分析的結果顯示五個有效的因素，包括：解決問題、刻意、語言處理、聽覺沉浸及英語理解式練習。Cronbach’s alpha係數為高信度的.92。五個練習因素的運用情形有通常不用的到有時候會用，其中聽覺沉浸式練習使用的最多，而英語理解式練習使用的最少。本研究結果建議此問卷可為聰力策略訓練及進一步有關練習策略與聽力程度相關研究之有用測量工具。

關鍵詞：英語聽力 語言學習策略 練習策略