

# Inferencing Strategy for Vocabulary Learning and Listening Comprehension\*

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Lee, Chang-in. 2008. **Inferencing Strategy for Vocabulary Learning and Listening Comprehension.** *The Linguistic Association of Korea Journal*, 16(4), 25-42. This research attempts to investigate the effect of teaching inferencing strategy in listening comprehension. The participants in the audio class studied "News & Media" class with MP3 voice files only, and the participants in the video class, on the other hand, were given the MP3 voice files and the video files related to the content of the selected news items. With these participants, two research questions were set up: 1) Is teaching inferencing strategy effective in a fifteen week period? and 2) Is there any difference in learning inferencing strategy between higher-proficiency learners and lower-proficiency learners? Regarding the first question, two kinds of measurement were given: a vocabulary test and a listening comprehension test. Generally speaking, the video class who had multimedia visual information performed better than the audio class in both tests, which implies that the better performance of the participants in the video class was due to the inferencing strategy. Regarding the second question, the finding that more proficient learners performed better than less proficient learners empirically supports the assumption that in the high cognitive load condition, which exist in treatments with visual information in this study, low-verbal ability learners did not have sufficient cognitive resources available to process the aural and visual information while high-verbal ability learners had sufficient resources. This finding positively affirms Mayer's generative theory of multimedia instruction and cognitive load theory.

**Key Words:** inferencing strategy, generative theory of multimedia instruction, cognitive load, visual aids, video files

## 1. Introduction

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It is widely known that learning strategies are divided into three main categories (Brown 2006): metacognitive, cognitive and socioaffective. Metacognitive strategies refer to an "executive" function like advance organization, directed attention, selective attention, self-monitoring, etc. Cognitive strategies are more limited to specific learning tasks. For example, various activities like repetition, resourcing (i.e. target language reference materials), translation, note taking, inferencing, etc. are involved in using cognitive strategies. Socioaffective strategies are communicative ones which are used for productive communication of information. Learners work with peers to obtain feedback or information, and they can ask questions or explanations. These strategies have to do with "socio-mediating" activity and interacting with others.

Numerous studies have been carried out on the effectiveness of learners' using a variety of strategies in their quest for language competence: listening skills through the use of monitoring, elaboration and inferencing (O'Malley, Chamot and Kupper 1985a, 1985b), reading skills through the use of translation, resourcing and transfer (Anderson 1991).

In the Information & Technology environment as in Korea, the listening skill is the one that learners are supposed to put their attention to since they can enjoy the benefits of multimedia-based learning materials. Multimedia-based materials can be more helpful and effective for the domain of comprehension rather than for the one of production.

## **2. Inferencing Listening Strategy**

This study is designed to diagnose the effect of "inferencing" in the domain of comprehension. Inference is one type of cognitive strategy used by second language learners. Inferencing is defined as the capability to use available information to guess meanings of items, predict outcomes, or fill in missing information. This ability of linking and connecting necessary information logically to achieve comprehension can be enhanced through the use of contexts, background knowledge, linguistic information and situational information.

This study aims to diagnose the effect of this linking ability with listening skill. Listening and reading skills are within the domain of comprehension. Accordingly, listening processing seems to be similar to that of reading, except that what the listener and the reader process is different between sound sequences and literary sequences. In reading, the need to use inferencing strategy is widely accepted by both researchers and practitioners. In listening, however, more research on effective strategies in listening comprehension needs to be conducted for EFL learners who have great trouble in listening.

Most Korean students of English appear to be at the stage of less effective listeners, who mainly use bottom-up strategies focussing on a local sound stream. On the one hand they should be taught to use a top-down inference strategy by activating and expanding their schema, and on the other hand they should use a bottom-up inferencing strategy by showing dynamic multimedia screens related to the content of the listening materials.

According to Rost (1990), inferential processes involve referential cohesion, case-relational links, cultural schema, analogy, speaker intention, and so forth. In other words, inference includes a number of strategies. If teachers use multimedia educational materials, they can provide the students more situational information related to the content of the listening. Learners engage in an awareness-raising activity and it should help identify good triggers to allow listeners to use inferencing strategies effectively. For example, L2 or FL learners need contexts from which they retrieve several cues to help their comprehension. Real listening comprehension means that the listener identifies context and pragmatic units as meaning. Learners also get help for comprehension from a near-authentic source with abundant contextual information, which is a video file<sup>1)</sup>. The advantages of using a video file in the FL classroom are already proven elsewhere (Secules, Herron and Tomasello 1992, Muller 1980). The advantages are: 1) students can observe native speakers' interactions in interesting and plausible settings; 2) students can experience speech at a natural speed and in different accents; 3) students can learn frequently used vocabulary and idiomatic expressions from native speakers; and 4) students can learn cross-cultural differences in behaviour,

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1) A video file in this study refers to any files which contain full-motion, digital video.

which can also enhance their listening comprehension.

This research aims to diagnose the effectiveness of inferencing strategy for the listening comprehension with CNN news files. The rationale for using CNN materials is to draw students' interest and attention due to its dynamics and current issues.

### **3. Methodology**

This research attempts to investigate the effect of teaching inferencing strategy in listening comprehension. Two research questions are examined: 1) Is teaching inferencing strategy effective in a fifteen week period? and 2) Is there any difference in learning inferencing strategy between higher-proficiency listeners and lower-proficiency listeners?

To investigate the questions above quantitatively, the following hypotheses were set up.

Hypothesis 1: There will be significant effects from teaching inferencing strategy on vocabulary learning and listening comprehension.

Hypothesis 2: There will be a significant difference on proficient students and less proficient students after fifteen weeks of instruction of the inferencing strategy.

#### **3.1. Participants**

This study has been conducted with 57 students: 21 students with audio files only and 26 students with video as well as audio files. They were enrolled in the English major at a university in Korea. This class "News and Media" was an elective course for sophomores. The participants in the audio class studied the materials with MP3 voice files, only and they were exposed only to MP3 voice files without watching video files. The participants in the video class, on the other hand, were given the MP3 voice files and the video files related to the content of the selected news items.

### 3.2. Materials

The listening materials were from CNN news items developed by Chungchy player for educational purposes. The items were about various topics as seen in the list in Figure-1.

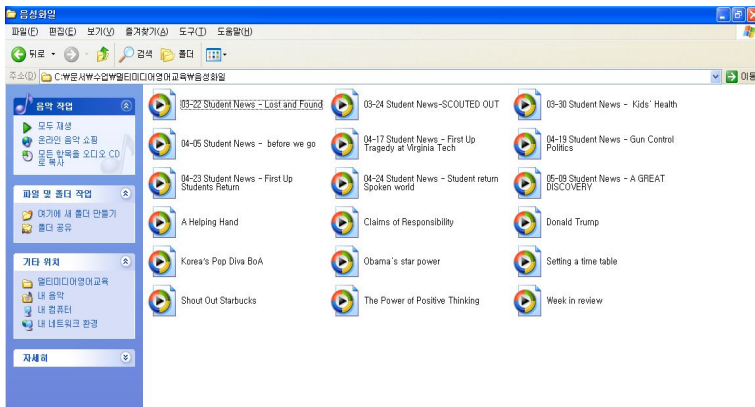


Figure 1. Listening Topics

During the Fall semester in 2007, 21 students were given MP3 voice files a week before the class with the scripts, and they studied the news items in the class with the scripts. They used only voice files without watching video files related to the content of the news items, which means they were not exposed to materials which can help the students draw some inferences such as situational information for their listening comprehension.

27 students, however, were able to access the video files as an experimental group. A week before they came to class, they watched video files uploaded on MY-CLASS which is one mode of cyber classes at the university. They could get some visual and situational aids for their inferences.

Both groups, experimental and controlled, were given the same kind of news items. Each item contains 400 words on average and vocabulary quizzes were given to students almost every other week (7 times for 15 weeks) from the content. At the end of the semester, a final exam was also given.

### **3.3. Measurement**

#### **3.3.1. Vocabulary Test**

There were seven vocabulary tests in the form of quizzes, pre-vocabulary tests and a post-vocabulary test. Both groups were given tests in the same format. Before the participants started the class, everyone took a vocabulary test (pre-vocabulary test) with 20 items. The students were supposed to write down the meaning of the words in their native language, Korean and make an example sentence and also to fill out the blanks with appropriate words. In audio class, after the participants studied the scripts with the MP3 files that had been uploaded a week in advance, they took the post-vocabulary test in which more items of a clozed format were added to the same 20 items of the writing example sentences with a Korean glossary. In video class the pre-vocabulary test format was the same: 20 items with example sentences and Korean glossary. However, the participants watched the video files with the scripts while they were studying in class, unlike the ones in audio class who just listened to voice files even in class without visual aids. After the class, the participants took the post-vocabulary test in the same format as the one in audio class: 20 items with the addition of 20 for matching English definitions. A sample of a post test is given in Appendix 1.

#### **3.3.2. Listening Comprehension Test**

After the class, the participants were given a listening comprehension test with 20 open-ended content questions including a true/false test. The group in audio class took the test after they studied only with voice files in class and the group in video class took the test after they watched the video files. Comprehension questions were particularly made mainly with a true/false test format to evaluate whether the participants correctly understood the main ideas of the listening materials and glossed words related to the context. Due to the length of the comprehension questions and the length of the news, 20 minutes were given. Scoring for the open-ended questions was measured as

follows: for the correct answer, the participants received 4 points and for the incorrect answer they received 0 points. If the participants suggested an answer, but not enough information to be considered a correct answer, they received a partial point ranging from 1 to 3 depending on the degree of accuracy. A sample of post test is given in Appendix 2

## 4. Findings and Discussion

### 4.1. Effects of Vocabulary Learning

The questions raised in the research hypothesis are discussed in light of the results of the empirical data. The first research hypothesis was whether there will be significant effects from teaching inferencing strategy on the vocabulary learning and listening comprehension for L2 learners in an EFL setting.

To diagnose the effect of vocabulary learning, the pre-vocabulary test was performed before the actual experiment to verify that there were significant differences in knowing the glossed words between the two groups. As can be seen in Figure 2 and Figure 3, slight differences between the two groups exist in terms of mean scores.

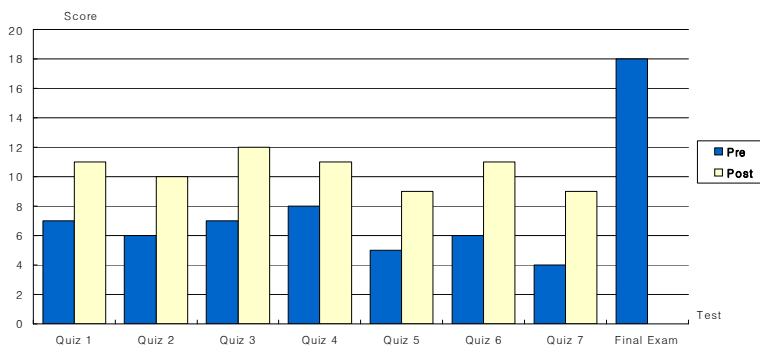


Figure 2. Vocabulary test Result in audio group

Figure 2 compares the score of a pre-vocabulary test and a post-vocabulary test. In quiz 1, the participants got 7 corrected answers out of 20 in the pre-vocabulary test and 11 in the post-vocabulary test. In quizzes 2, 6 and 10, in quiz 3, 7 and 12, in quiz 4, 8 and 11, in quiz 5, 5 and 9, in quiz 6, 6 and 11, in quiz 7, 4 and 9, respectively. They scored 18 items out of 25.

The audio participants, who studied CNN news only with MP3 files without watching video files related to the content, showed average scores 6.1 and 10.4 in 7 pre- and post-vocabulary tests, respectively. The difference was 4.3 points. The participants slightly improved after they studied in class. To compare the effect of using visual aids, we take a look at the performance of the video participants who watched video files, which is useful for their use of inferencing strategy, to enhance their listening comprehension. This result supports "incidental" learning of vocabulary (Nation 2001, Wood 1999). Incidental learning of vocabulary means to learn vocabulary words by incidental methods just like native speaker do, while most EFL students expand their vocabulary words by explicit learning. That is, the video students could understand the words in the news by using available information through the use of visual context. Accordingly, like native speakers, they could enhance their listening comprehension with incidental learning of the words.

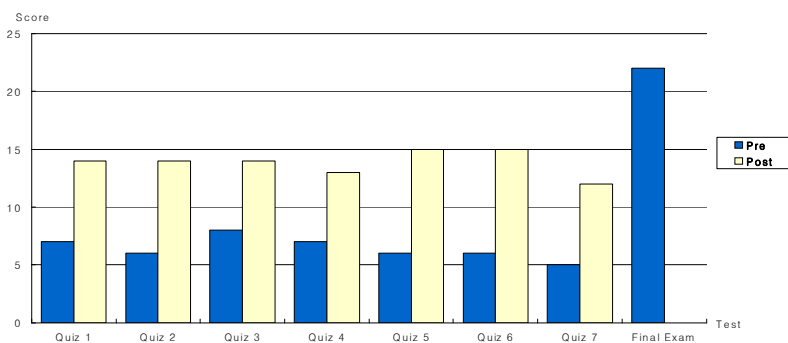


Figure 3. Vocabulary Test Result in video group



Figure 3 compares the score of a pre-vocabulary test and a post-vocabulary test. In quiz 1, the participants got 7 corrected answers out of 20 in the pre-vocabulary test and 14 on the post-vocabulary test. Comparing the score of the audio group, they achieved 3 more points on the post-vocabulary test even though the score of the pre-vocabulary test was the same. Both groups scored 7. In quiz 2, 6 and 14, in quiz 3, 8 and 14, in quiz 4, 7 and 13, in quiz 5, 6 and 15, in quiz 6, 6 and 15, in quiz 7, 5 and 12, respectively. They scored 22 items out of 25. As seen from the scores of the pre-vocabulary tests of both groups, they showed an insignificant difference. The score of the pre-vocabulary test in both groups was either the same (in quizzes 1,2 and 6) or one or two above (in quizzes 3,4,5 and 7).

Figure 3 represents the video participants, who studied CNN news with the video files in class. These students improved 7.4 points on average on 7 vocabulary tests after they studied the news in class with the visual aids. They scored on average 6.4 points on 7 pre-vocabulary tests and 13.8 points on 7 post-vocabulary tests. In relation to the results of the vocabulary tests, as represented in Figures 2 and Figure 3, the video group improved more than the audio group. The 3.4 point lag between the two groups in the result of post-vocabulary tests shows the benefit of inferencing through visual aids. While the average of the 7 pre-tests is insignificant (6.1 and 6.4 in audio and video group, respectively), the post-test average score is significant (10.4 and 13.8 in audio and video group, respectively). As mentioned in Rost (1990), the participants in video group constructed meaning with near-authentic source with abundant situational context. Through visual aids in the form of video files, they could infer the meaning of vocabulary and idiomatic expressions. By using one of the cognitive strategies, which is inferencing strategy, they could link and connect necessary information for their vocabulary understanding and enhance their listening comprehension.

We've seen how inferencing strategy affects the learning of vocabulary for L2 learners in an EFL situation. Now we turn our attention to see how this inferencing strategy affects their listening comprehension in general.

## 4.2. Effects of Listening Comprehension Test

As a part of the first research hypothesis, listening comprehension tests were conducted to see whether inferencing strategy can enhance listening materials along with the understanding of vocabulary.

The findings of the empirical research clearly indicated that participants' inferencing strategies affirmatively affected their listening comprehension.

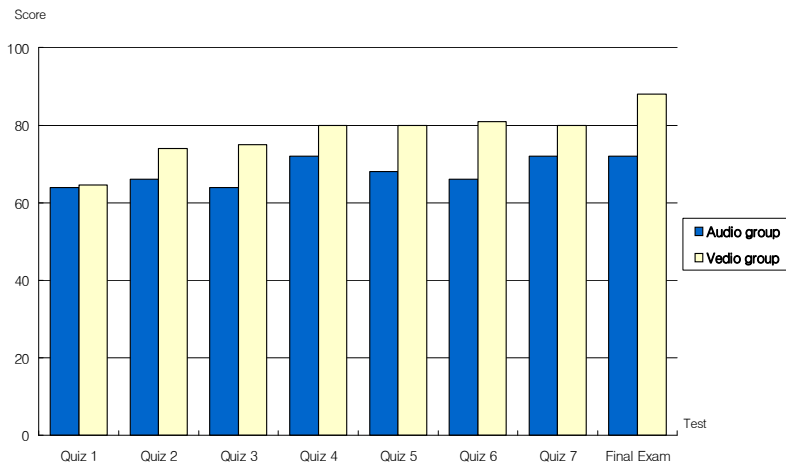


Figure 4. Listening Comprehension Test Result

As represented in Figure 4, the listening comprehension score was insignificant on the first quiz: 64 and 64.5, for groups of audio and video, respectively. While the audio group showed unpredictable scores ranging from 64 to 72, the video group revealed gradual improvement and a 16 point gap on the final: the audio group's score dropped on quizzes 3, 5 and 6 compared to the previous one. The result of the current experiment confirmed that inferencing strategy did help the video group enhance their listening comprehension. The results point out several indications regarding the present

study. First, from the video file, native speakers' interactions in interesting and plausible settings might help the group infer the answers for the listening comprehension questions. Further, some pragmatic units and situational context represented in the video file helped the participants understand the content even if they missed some idiomatic expressions. Finally, cross-cultural differences vividly represented in the behaviour of the native speakers also enhanced their listening comprehension.

#### **4.3. Comparison between Proficient and Less Proficient Students<sup>2)</sup>**

Hypothesis 2 was set up to see if there is a significant difference on proficient students and less proficient students after fifteen weeks of instruction of inferencing strategy. This hypothesis was made to check the result of multimedia information (Mayer 1997, 2001). According to Mayer's generative theory of multimedia instruction and cognitive load theory, less proficient learners are expected to result in decreased learning when they are exposed to both verbal and visual information because the resulting high cognitive load may lead to insufficient cognitive resources for the construction of referential connections between the verbal and visual information. That is, multiple representations of information in second-language learning hinder their learning. Unlike low-ability learners, proficient learners and high-ability learners obtain help from multiple representations of information. Considering Figure 5 and Figure 6, we discuss the findings in detail.

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2) The group between proficient and less proficient was divided based on their placement exam which was conducted at the beginning of the semester.

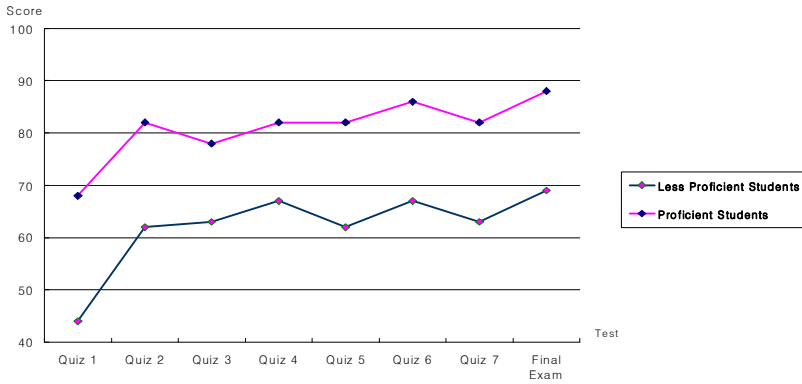


Figure 5 Comparison of Less Proficient & Proficient Students in audio group

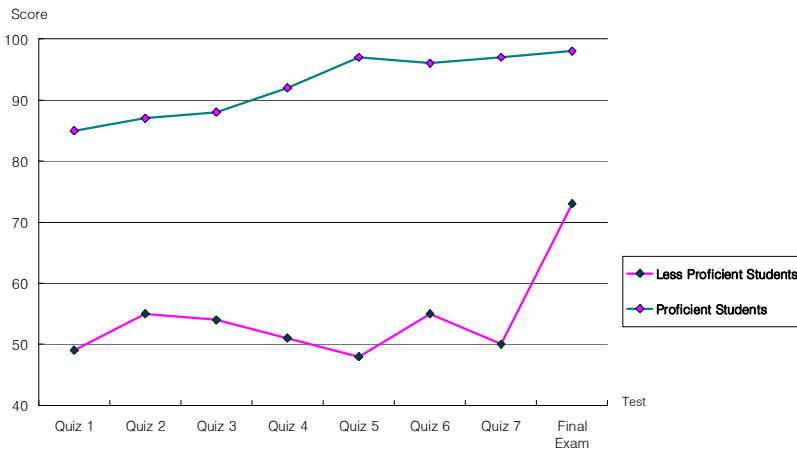


Figure 6 Comparison of Less Proficient & Proficient Students in video group

As shown in Figures 5 and 6, less proficient learners have unpredictable performance. Since their scores are fluctuating, it's hard to predict the next

score and we don't have any rational for the gigantic improvement on the final exam in Figure 5.

The finding that more proficient learners performed better than less proficient learners empirically supports the assumption: in the high cognitive load condition, which exists in treatments with visual information in this study, low-verbal ability learners did not have sufficient cognitive resources available to process the aural and visual information, while high-verbal ability learners had sufficient resources. Under low cognitive load conditions as shown in Figure 5, which existed in treatments with no visual information and only aural information (MP3 files), less proficient participants in Figure 6 performed less than these in Figure 5. Less proficient learners in Figure 5 scored above 60 except for the first one, while ones in Figure 6 scored under 60 except on the final exam. The cognitive load imposed by the requirement to process visual information is detrimental to learning for these low-verbal ability learners. Unlike them, high-verbal ability learners benefit from the integration of information from two different sources as compared in Figure 5 and Figure 6: proficient learners in Figure 5 ranged in score from high 60s to high 80s while proficient learners in Figure 6 ranged in score from low 80s to high 90s. Among the proficient learners, the ones who were exposed to multiple sources of multimedia information benefitted from dual cognitive sources, both aural and visual. This result provides evidence concentrating the moderating effect of individual differences on the learners' cognitive load in multimedia learning.

## 5. Conclusion and Limitations of the Study

This study was conducted to investigate two hypotheses: 1. if there are significant effects from teaching inferencing strategy on the vocabulary learning and listening comprehension, and 2. if there is a significant difference on proficient students and less proficient students after fifteen weeks of instruction of inferencing strategy.

Regarding the first hypothesis, the audio participants, who studied CNN news only with MP3 files without watching video files related to the content,

showed average scores 6.1 and 10.4 in 7 pre- and post-vocabulary tests, respectively. The difference was 4.3 points. However, the video participants, who studied CNN news with the video files in class, improved 7.4 points on average on 7 vocabulary tests after they studied the news in class with the visual aids. They scored on average 6.4 points on 7 pre-vocabulary tests and 13.8 points on 7 post-vocabulary tests. In relation to the results of the vocabulary tests, the 2007 group improved more than the audio group. The 3.4 point lag between the two groups in the result of post-vocabulary tests shows the benefit of inferencing through visual aids. As far as the listening comprehension is concerned, the score was insignificant on the first quiz: 64 and 64.5, for groups of audio and video, respectively. While the audio group had unpredictable scores ranging from 64 to 72, the video group represented gradual improvement and had a 16 point gap on the final: the audio group's score dropped on quizzes 3, 5 and 6 compared to the previous one. The result of the current experiment confirmed that the inferencing strategy did help the video group enhance their listening comprehension.

Regarding the second hypothesis, proficient learners in Figure 5 had a range of scores from the high 60s to the high 80s while proficient learners in Figure 6 had a range of scores from the low 80s to the high 90s. Among the proficient learners, the ones who were exposed to multiple sources of multimedia information benefitted from dual cognitive sources, both aural and visual. On the other hand, in the audio group the less proficient learners' grades fluctuated between 60 and 70 except for the first quiz, while in the video group they scored mostly under 60 except for the final. This result provides evidence concentrating the moderating effect of individual differences, on the learners' cognitive load in multimedia learning.

The results obtained in this research suggest the possibility of effectively teaching inferencing strategy in listening to students of English as a EFL. However, teachers in the field should consider individual differences as proven in J. Plass, Chun and Mayer (2003).

Current findings should be interpreted in light of some limitations. First, owing to the small sample size, these results should be made generalizable to

other populations in EFL settings. Second, the different listening topics might affect learners' interest. Some students might be more interested in topics related to entertainment and others in political issues. The background information derived from their interests might enhance a learner's listening comprehension score. Finally, the measurement and inferential questions which were prepared by the instructor/researcher were not proven in terms of the reliability and validity.

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## Appendix 1

### <Vocabulary Test(Post test)>

At \$100 a barrel, it is \_\_\_\_\_ Gulf countries have close to \$200 billion a year to invest. And they are investing. Abu Dhabi owns almost 5% of America's largest bank and a chunk of America's largest homebuilders, the Toll Brothers. Neighboring Dubai is \_\_\_\_\_ for twenty percent of the Nasdaq exchange. And no signs oil prices are coming down. One reason for all this is the \_\_\_\_\_ U.S. dollar. Oil, that's \_\_\_\_\_ in U.S. dollars, is now to more foreign investors.

Beijing has built something of a "great \_\_\_\_\_ of China," a complex system of \_\_\_\_\_ and filtering of sensitive keywords. Popular Web sites like Sohu and Sina offer reports on the protests, but as \_\_\_\_\_ by China's official Xinhua News Agency. Xinhua has been reporting a significantly lower death \_\_\_\_\_ than Tibetan exile groups, along with the government's \_\_\_\_\_ that the Dalai Lama is behind the violence. This university student and Internet user seemed to



\_\_\_\_\_ the government's official version of events. Li Fengmei says the Dalai Lama \_\_\_\_\_ the monks to demonstrate, and that when the government sent troops to stop the \_\_\_\_\_, they were attacked by monks. The Dalai Lama has denied \_\_\_\_\_ the protests and says he has never \_\_\_\_\_ violence.

\* Write Korean glossary with a sample sentence.

take a hit

grievances

inevitable

incite violence

censor

unrest

predisposition

slaughter

dismayed

restrict access

## Appendix 2

### <Listening Comprehension Test(Post test)>

\* Mark whether the statement is true or false.

1. Tuition at many public schools is more than \$23,000 for four years. (      )
2. Private lending is drying up because federal loans have been cut back. (      )

3. According to the news, students are secure customers. (        )
4. Since the government is responsible for the price of commodities, the government stepped in to control the price in Egypt. (        )
5. The price rise is driven by the local component or corruption. (        )
6. The cause of Michael's penmanship problem turned out to be "dyslexia." (        )
7. Michael could overcome his problem due to the laptop. (        )
8. Michael sent a representative from SPLAT to Vietnam and Iran because he is getting through the sixth grade. (        )
9. The children's life in one LA shelter is sometimes tumultuous. (        )
10. The U.S. government kept agreement made with the Native American. (        )
11. What types of reparations were attached to the apology by the U.S. government?
12. List some instances of violence and maltreatment inflicted on the U.S. government.
13. Name one high-profile issue which was not included in the apology to Japanese-Americans.
14. Why did the American Indian community accept the apology without any mixed feelings?

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