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교육학박사학위논문

Effects of Note-taking Strategy Training on
Korean College Students' Perceptions and
Performance on Academic English Listening
Tests

‘노트하기’ 전략 훈련이 한국 대학생들의
인식과 학문적 영어 듣기시험의 수행에
미치는 효과

2012년 8월

서울대학교 대학원

외국어교육과 영어전공

김정현

Effects of Note-taking Strategy Training on
Korean College Students' Perceptions and
Performance on Academic English
Listening Tests

by

Jung-Hyun Kim

A Dissertation Submitted to
the Department of Foreign Language Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education at the
Graduate School of Seoul National University

August 2012

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미치는 효과

지도교수 권오량

이 논문을 교육학 박사 학위논문으로 제출함
2012년 8월

서울대학교 대학원
외국어교육과 영어전공
김정현

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ABSTRACT

This study explored the effects of note-taking and note-taking strategy training in academic English listening tests on Korean college students' performance and perceptions. A total of 92 college students were randomly assigned to one of the three groups: (A) training group which was allowed to take notes during the test, (B) no-training group which was allowed to take notes during the test, and (C) no-training group which was not be allowed to take notes during the test. Then, Group A received note-taking strategy training on three separate times, totaling 60 minutes (30 minutes, 15 minutes, and 15 minutes) that spread out over two months. All three groups took listening tests before and after Group A was trained, while Groups A and B were allowed to take notes, Group C was not allowed to do so. Along with the test administration, the students were surveyed twice with questionnaires, after each test. Interviews were also conducted with 9 students.

Major findings can be summarized as follows. First, the students' language proficiency and note-taking behaviors were related; higher proficiency students took more notes than lower proficiency students. Second, note-taking training affected students' note-taking behaviors in terms of both quantity and quality, showing positive effects of the training. Third, most students perceived the necessity or importance of note-taking and its training. Finally, although note-taking and note-taking strategy training did affect the trained group's test performance, its effect was not statistically significant. In short, note-taking training had limited effects on students, as it positively affected the students' notes

and perceptions, but not their test performance.

The present study is significant in that it addressed several aspects of the effects of note-taking training in an EFL context of Korea, and in that it demonstrated the positive effects of note-taking training through quantitative and qualitative approaches. However, due to some limitations of the study, more systematic and comprehensive studies over extended periods of time are desired to answer several related questions more profoundly. The study concludes with a cautious statement about its contribution to the education and research in Korea.

Key Words: listening comprehension, note-taking, note-taking strategy training, perception, language proficiency, quality of notes

Student Number: 2007-30908

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CHAPTER 1.

INTRODUCTION

Listening seems to be the first and the last act of the human beings' language lives. A child begins their language life by listening, and the last thing a dying person can do seems to be listening. And as far as the amount of information is concerned, human beings, except the deaf people, treat the greatest amount of information through listening. As the old saying goes, "We have two ears but one mouth because we should listen twice as much as we speak," good listening is more important than good speaking.

Listening in everyday life may not require very much cognitive load as people engage in simple communicative acts with mostly routines and patterns. However, handling more cognitively demanding transactions of information require the listeners' undivided attention and cognitive commitment. Listeners should understand the spoken information, organize it in their mind, store it, and retrieve it in order to properly deal with the situation at hand or to solve problems.

Listening in an L2, be it a second or foreign language, is even more challenging and sometimes can be intimidating. L2 listeners should grapple with the challenge of decoding the unfamiliar strings of sounds, understanding its meaning, and responding properly, whether it be actually production of responses or tacit compliances to the expected behaviors.

Listening in a testing situation is more difficult than listening in a learning

situation for L2 students, as they are pressured to perform well while shouldering all the linguistic and psychological burdens. In such a situation, the availability of assistance, such as note-taking, could alleviate the test takers' burden and facilitate their performance, as the notes could help them understand the message better and retain the content with ease.

This idea of notes helping the test takers' listening test performance motivated the researcher to investigate whether students can take advantage of the knowledge of note-taking skills.

1.1. Purpose of the Study

For the past twenty-five years, many researchers who have been interested in listening comprehension strategies (e.g., Berne, 2004). Thomson and Rubin (1996) argued and empirically demonstrated that learners having received strategy instruction improved their listening comprehension. Numerous cognitive and metacognitive strategies were utilized in the training. These strategies were also associated with the learning strategies proposed by O'Mally, Chamot, and Kupper (1989). Note-taking is a concrete manifestation of cognitive strategies in listening, as notes are made and used to organize, store, and retrieve information delivered through the spoken input. It is a crucial micro-skill (Flowerdew, 1994), cognitively demanding (Kiewra, 1989). Therefore, researchers believed that it should be explicitly taught in school (Bakunas & Holley, 2001; Meyer, 2002; Orstein, 1994,

cited in Haghverdi, Biria, & Karimi, 2010; Field, 1998).

Since typical note-taking was viewed as an aid to students' learning in school achievement during the class hours, most previous studies on note-taking were conducted in learning situations, not in testing situations¹. Although previous empirical studies in learning situations yielded conflicting results in regard to the facilitating effects of note-taking, their research design and theoretical frameworks in learning situations have become the bases or models of studies in testing situations.

Few studies on the note-taking in testing situations had been conducted with non-native speakers before the early 1980's. Then studies which differentiated effects on native and non-native speakers and on different proficiency levels in ESL settings began to appear (e.g., Cushing 1991; Dunkel 1985, 1988; Dunkel & Davy, 1989). And yet, not much research has been conducted on the note-taking strategy in EFL settings like in Korea, although a handful of researchers studied the relationship between the students' language proficiency and the use of note-taking strategy (Song; 2007, 2008, 2012; Yang, Kim, & Cha, 2010).

The purpose of this study is therefore to look more closely at the effects of note-taking training in a testing situation, on students' note-taking behaviors, changes in their notes, their perceptions, and the improvement in their test performance.

¹ Learning situations of the current study mean the situations where students listen to the instructor's lectures or talks, whereas testing situations mean the ones in which the test-takers take the listening comprehension tests for evaluation.

1.2. Significance of the Study

Unlike learning in the classroom, test-taking requires different abilities such as memory to solve the internal structure of the multiple choice items (Anderson, 2009). Therefore, note-taking in the testing situations needs to be treated and studied differently from that in learning situations because there are considerable perceptual and behavioral differences (Jung-hyun Kim, 2012).

Since many academic listening tests allow test-takers to take notes during the testing sessions (e.g., iBT TOEFL and IELTS), or use note-taking as a measure of listening ability (e.g., the Occupational English Test), the relationships between second language learners' note-taking and their subsequent listening performance have been important issues in language assessment (e.g., Carrell, 2007; Carrell, Dunkel, & Mollaun, 2004; Hale & Courtney, 1994, cited in Song 2012).

With regard to the effects of note-taking training, Carrell's (2007) study, which was the first systematic study in testing situations, could not show the effects of the training. Hyati and Jalilifar (2009), however, showed positive effects of the training in an EFL setting. These two studies, however, should be treated with some reservations, as the trainings they provided to the students were rather simplistic. Carrell (2007) used written guidelines only on the computer screen for the students to read, without checking whether they actually read them or not, and Hyati and Jalilifar (2009) distributed a pamphlet and checked the students' understanding of the content, without giving any direct instruction.

As an attempt to address the issue of insufficient training both in its content

and method, as witnessed in Carrell (2007) and Hyati and Jalilifar (2009), the present study adopts a more direct and specific way of training the students in taking notes while listening. The current study will actually give lectures on the types of notes and the manner of taking notes using printed guidelines distributed and samples projected on the screen (see Chapter 3 for the detail).

The significance of the present study can be claimed in three aspects. First, it attempts to understand the effects of note-taking from more comprehensive perspectives, such as the relationship between the test-taker's linguistic proficiency and their note-taking behaviors, the changes in the test takers' note-taking behaviors, the test-takers' perceptions, and the test performance. Second, as mentioned above, the present study uses more direct and concrete training on taking notes during listening. Third, the present study provides a better understanding of the students' perceptions through an in-depth analysis of the students' perceptions with detailed descriptions of their responses to the questionnaire surveys and interviews.

1.3. Research Questions

As stated in the introduction section and thereafter, the purposes of the current study are multifold to research the effects of note-taking training on several aspects of note-taking and test performance. To this end, the following research questions are posed for the study, with an explanation and rationale for each

hypothesis.

- 1. How does the students' proficiency affect their note-taking behaviors during the listening comprehension tests?*
- 2. What is the effect of note-taking strategy training on the students' production and use of notes in listening comprehension tests?*
- 3. How do the students perceive the note-taking strategy and its training in testing situations?*
- 4. What is the effect of note-taking strategy training on the students' test performance?*

Some explanations about these research questions seem in order. First, research question 1 is about the relationship between the students' linguistic proficiency and their note-taking behaviors. Although this question is not directly related to the theme of the present study, it will be addressed in order to broaden our understanding of the nature of the issue of note-taking in listening tests. Second, research question 2 is about the training effect on students' production and use of notes in listening tests. The effect of note-taking strategy training can manifest in many different forms. One of such forms would be the changes in the production and use of notes as a result of the training. This research seeks an answer to this form of effect. The third research question examines the students' initial perceptions and the changes in their perceptions regarding note-taking and its training, as they are also an important effect of the training. Last, probably the

most significant effect of note-taking strategy training is the improvement of students' test performance, obtained with the help of making and using notes while listening and solving problems during the test.

1.4. Organization of the Dissertation

The present dissertation is composed of five chapters. Chapter 1 introduces the purpose and significance of the study and poses research questions. Chapter 2 reviews the previous literature related to the current research. After Chapter 3 explains the methodology of the study, Chapter 4 presents results of the study and discusses the results of the current study based on previous research findings. Finally, Chapter 5 provides summary, pedagogical implications, limitations of the study, suggestions for future research, and concluding remarks.

CHAPTER 2.

REVIEW OF LITERATURE

Although note-taking is an important skill to better understand lectures and better perform on testing, research on note-taking, whether in learning or testing situations, does not seem to have drawn researchers' attention as much as research on other aspects of listening activities in learning and testing situations. This is understandable, considering the relatively young stage of the research in this area, which began to draw more attention with the permission of note-taking in such major tests as iBT TOEFL and IELTS.

This chapter will review the literature on note-taking in order to position the current research in relation to previous research findings and method, although, as stated above, there is not a plethora of research in this rather narrow and specific area. The chapter will begin with the definition of note-taking, and identification of the functions of note-taking strategies in order to clarify the object of the current study. The second and third sections will review the studies on the effects of note-taking in learning situations and testing situations. Then earlier studies on effects of note-taking strategy training will be explored and discussed. The fifth section will review how notes were categorized and measured. Finally, discussion on the studies on perceptions about note-taking strategies will conclude this chapter.

2.1. Definition of Note-taking and Functions of Note-taking Strategy

Several studies have defined note-taking. In learning situations, O'Malley and Chamot (1990) defined note-taking as “writing down key words and concepts in abbreviated verbal, graphic, or numerical form to assist performance of language task” (p.130), which is similar to Oxford's (1990) definition of note-taking which is “writing down the main idea or specific points” (p.47). Piloat, Olive, and Kellog (2005) said that “taking notes implies comprehending either a written document or a lecture and recording information by writing it down” (p. 301). The website *Wiki Edutech* (2012) defines note-taking as “the practice of writing down pieces of information in a systematic way.” Based on these definitions, the current study defines note-taking as “writing down words (including both English and Korean), symbols and other signs with which note-takers recall or retrieve information to comprehend the spoken language in a systematic way during a test” (adapted from Jung-hyun Kim, 2012, p. 211).

Divesta and Gray (1972) proposed two important functions of note-taking, which were endorsed by many subsequent researchers (Biria, & Karimi; Flowerdew, 1994; Harghverdi, 2010; Kiewra, 1989). They are (1) the encoding function (i.e., the process of recording information which facilitates learning even in the absence of reviewing the notes) and (2) the storage function (i.e., the review of notes stored in a written form which facilitates retention). Note-taking helps

lecture learning by activating internal mechanisms such as encoding and remembering information, and that it could be used as an external reservoir of information and stimulate the recall of information.

These two functions of note-taking will be addressed in the current study, too, as it investigates the students' perceptions about the necessity and benefits of taking notes and using them during listening tests. It is expected that students will acknowledge both functions of note-taking.

2.2. Studies on Note-taking in Learning Situations

The history of note-taking may be as old as the history of teaching, because it is very likely that a learner jotted down the instructions and/or lessons of his or her teacher from the very beginning of human education, especially so after the writing system was invented. It is not difficult to imagine that some disciples of Confucius, Buddha, and Jesus Christ wrote or jotted down the teachings of their great teachers faithfully so that they could make full records of the teachings for preservation and transmission of the wisdom and gospels to the generations to come. In Korea, we have a long history of note-taking, as the scribes in the royal courts of Koryeo and Joseon dynasties faithfully noted down the king's instructions and orders, which became the basic data for later recordings of official history.

Although there is a long history note-taking, academic research on note-taking have only begun in the 20th century. One of the earliest studies found is that of

Corey (1935), which studied the pre-training of note-taking in learning situations. After that, more rigorous studies began to appear in the 1970s, with a variety of topics related to note-taking. For example, DiVesta and Gray (1972) studied the cognitive loads of note-taking and functions of note-taking, such as encoding devices and external storage mechanisms. Next, DiVesta and Gray (1973) and studied the relationship between note-taking behaviors and achievement. While Hartley and Marshall (1974) were interested in the content and quality of notes, Aiken, Thomas, and Shennum (1975) and Ladas (1977) investigated the effect of lecture rate on note-taking. Then, in the latter part of the 1970s, perceptions on note-taking began to draw attention of researchers (Collingwood & Hughes, 1978; Hartley & Davis, 1978).

Note-taking continued to draw researchers' attention in the 1980s, with similar or different topics from those in the 1970s. Pre-training of note-taking was the topic of research for Peck and Hannafin (1983) in the early 1980s. Then, Hartley (1983) and Kiewra (1985) became interested in the relationship between note-taking and achievement, while Kiewra later expanded his interest into the effects of note-taking with cognitive loads of note-taking (Kiewra, 1987; Kiewra, 1989; Kiewra & DuBois, 1991). Frank (1984) studied the effects of cognitive style (field dependence vs. independence) in lecture learning, whereas McKenna (1987) investigated the effects of note-taking on foreign students' listening.

Then, research on note-taking dwindled down a little in the 1990s with a few studies conducted (Kiewra, Benton, Kim, Risch, & Christensen, 1995; Weishaar & Boyle, 1999) until it was reactivated by the studies inspired by the introduction (or

allowance) of note-taking into high-stakes exams such as iBT TOEFL and IELTS. However, these later studies were more concerned with note-taking in testing situations rather than in learning situations. Studies in testing situations will be reviewed in the following section

2.3. Studies on Note-taking in Testing Situations²

Although studies on note-taking in learning situations are found as early as in the 1930's (e.g., Corey, 1935), such studies in testing situations seem to have started in the 1980's (Dunkel, 1985, 1988; Dunkel, Mishra, & Berliner, 1989;), and after a few studies in the early 1990's (Chaudron, Loschky, & Cook, 1994; Cushing, 1991; Hale & Courtney, 1991, 1994), they flourished in the 2000's, especially in the second half of the first decade of the second millennium (Carell, 2007; Carrell, Dunkel, & Mollaun, 2002, 2004; Dongkyoo Kim, 2008; Hayati & Jalilifar, 2009; Kilickaya & Cokal-karadas, 2009; Jung-hyun Kim, 2012; Song, 2007, 2008, 2010, 2012; Yang, Kim, & Cha, 2010). This renaissance of the research on note-taking can be attributed to the new policy of iBT TOEFL, which allowed note-taking in 2006. Naturally, the majority of studies on note-taking dealt with test-taking situations of iBT TOEFL, as the high-stakes test allowed note-taking during all entire test-taking sessions such as listening, speaking, reading and writing.

² The present review confines the studies on note-taking strategy in testing situations within the ones using test batteries such as TOEFL and TOEIC.

Earlier studies in testing situations produced negative or no effects of note-taking. Dunkel (1985) assessed the effects of note-taking, the quality of notes taken, and the impact of short-term memory by both native and non-native speakers of English. She found no positive effects of note-taking, and no significant relationship between test performance and the notes' quality. She discovered a considerable 'memory effect'. Listeners with good short-term memory of lecture concepts and details recalled more than those with poor short-term memory. She also found that English proficiency was strongly related with comprehension performance; native speakers of English recognized information presented in the lecture better than non-native speakers whether they took notes or not. Hale and Courtney (1991, 1994) also found no positive functions of note-taking in TOEFL minitalks. Allowing students to take notes had little effect on their performance, and urging students to take notes even impaired their performance. They proposed that taking notes could be more beneficial if the listening texts are long and presented with a slow speech rate, or the question formats are different from the current minitalks (i.e., Paper-based Test). Chaurdron, Loschky, and Cook (1994) examined the relationships between various note quality measures and L2 learners' test performance and found no significant difference between note-taking allowed and note-taking not-allowed groups³.

There are some later studies that did show positive effects of note-taking (Carrell et al., 2002, 2004; Kilicaya & Cokal-karadas, 2009; Dongkyoo Kim,

³ Their research design can be criticized because it did not have a pre-training test of the note-taking strategies.

2008). Carrell, Dunkel, and Mollaun (2002, 2004) investigated the effects of note-taking between note-taking allowed and not-allowed groups with different lecture lengths (minitalks of 2.5 or 5 minutes) and topics (arts/humanities or physical science) with 234 ESL students in TOEFL listening tests. The results indicated a positive effect of allowing note-taking in combination with listening shorter lecture. There was also a significant interaction between length and overall English proficiency: higher proficiency learners performed better on shorter lectures.

Some studies in testing situations have acknowledged the relationship between note-taking strategies and learners' language proficiency in testing situations (Cushing, 1991, Dunkel, 1985, 1989; Song, 2007, 2008, 2012; Yang, Kim, & Cha, 2010). Cushing (1991, cited in Carrell, 2007) investigated high and low proficiency L2 learners' notes when they were provided with an outline of the lecture to guide their note-taking. High proficiency learners (graduated students) tended to make more complete notes than low proficiency learners (undergraduate or noncredit students). Song (2007, 2008, 2012) investigated the effects of different note-taking formats, i.e., an outline format and a blank format⁴. L2 learners were significantly affected by their English language proficiency in making use of their notes and taking advantage of the outline format. Yang, Kim, and Cha (2010) analyzed 62 Korean students' notes to see the relative effectiveness of note-taking in English listening performance. They found no

⁴ An outline format is a note format that has underlines or spaces to list information to perceive the structures of the listening texts for taking notes. A blank format is a note format which does not present any structural cues for taking notes.

significant difference between note-taking allowed and not-allowed listening situations, but high proficiency learners made more notes than low proficiency learners. Their research will be a reference point for the current study, as it also investigates the relationship between the students' language proficiency and note-taking behaviors.

2.4. Studies on Note-taking Strategy Training

Like the studies on note-taking itself, those on the note-taking strategy training were also done in both learning and testing situations. Studies on the training in learning situations will be reviewed first, followed by those in testing situations.

2.4.1. Studies on the Training in Learning Situations

Taking notes is extensively acknowledged as a useful strategy for increasing students' attention to the lecture and retention of its content (Dunkel & Davy, 1989). Therefore, many educators said that it should be explicitly taught (Bakunas & Holley, 2001; Meyer, 2002; Orstein, 1994, cited in Haghverdi, Biria, & Karimi, 2010). Like most studies on the effects of note-taking, those on the note-taking strategy training were also conducted mostly in learning situations.

Some early studies on note-taking training, in learning situations, introduced ways or methods of training note-taking strategies. For instance, Ewer (1974) suggested the methodology of training note-taking strategies by stages:

preliminary training, the early stages (teaching the layout of notes, use of abbreviations and symbols), and the later stages (teaching unfamiliar concepts and increased complexity of language, and unaccustomed varieties of speech).

Other studies investigated the effectiveness of the training. Corey (1935) did not find effects of note-taking strategy training on college students' quality of notes, and McClendox (1958) found no difference between the effects of note-taking trainings on taking notes immediately after the training and those of delayed note-taking.

Peck and Hannafin (1983) found differential effects of note-taking strategy training related to different conditions. They set four experimental conditions: instructed note-takers, uninstructed note-takers, instructed non-note-takers, and uninstructed non-note-takers. Note-taking instruction consisted of a videotaped presentation designed to train students in concentrating, selecting main ideas, keeping pace with the rate of instruction, and personalizing presented information. Note-taking training affected the students' note-taking behaviors; trained note-takers recorded more presented information.

In Korea, Jungran Sohn (2009) investigated the effect of the note-taking strategy training on lecture comprehension by learners of the Korean language for Academic Purposes (KAP). Two groups of 17 advanced international Korean language learners with 1000 hours of formal instruction participated in the study. A significant difference was found between the note-taking trained group and the untrained group in their notes and note-taking scores, as well as in the lecture comprehension scores and learners' essay scores after training.

Note-taking strategies in testing situations have functions and roles different from those in learning situations, as the former have the extra functions of helping the students to answer the questions in addition to the functions of helping the students understand and organize the information as observed in learning situations. Therefore, studies on note-taking in testing situations need to address this different characteristic of note-taking.

2.4.2. Studies on the Training in Testing Situations

Studies on the effects of note-taking strategy training in testing situations produced mixed results. Three studies done in testing situations are reviewed here. Carrell (2007), with a pre- and post-test experimental design in computer-based TOEFL tests, found treatment such as instructional intervention on note-taking strategies with written guidelines had no effect. The test-takers made little use of abbreviations, symbols, or paraphrasing. She suggested that educators and learners should know the additional cognitive load involved in listening and note-taking in ESL contexts.

Unlike Carrell (2007), Hyati and Jalilifar (2009) showed positive effects of note-taking strategy training in an EFL context. The participants were randomly divided into three groups: an uninstructed note-takers' group (UNTG), a Cornell note-takers' group (CNTG), and a non-note-takers group (NNTG). Even though the instruction was informal through a pamphlet without any instruction within the class, the result showed a significant difference between UNTG and CNTG

($p=.034$)⁵. The first reason of showing a significant difference was that there was an achievement test with 30 multiple choice items to confirm the participants' understanding about the Cornell method⁶. The second reason was that there was a reviewing session of the students' notes between the first and the second playback of the lectures. The current study adopted pre- and post-experiment design like Carrell's (2007), but used more specific contents and design of trainings, and language samples with some interactions between the trainer and the trainees.

Carrier and Titus (1981) found differential effects of note-taking training. They studied effects of pre-training with a second variable (i.e., test mode). Subjects who had received pre-training did better than those who had not received pre-training on a multiple choice test, but essay test candidates with no pre-training scored higher than those with pre-training.

2.5. Studies on Categorizing and Measuring Notes

Many researchers analyzed or categorized students' notes with their own standards to investigate the variables or effects of the note-taking strategy quantitatively and qualitatively. How they categorized the notes is important

⁵ Insignificant differences were found between NNTG and UNTG ($p=.497$) and between NNTG and CNTG ($p=.16$).

⁶ "Cornell method was developed by Pauk (1974) to assist Cornell students in their lecture classes to improve the organization of their notes. This system provides a systematic method for recording and reviewing notes" (Hyati & Jalilifar, 2009, p.102).

because it reflects the researcher's idea of the quality of notes. A discussion about these different ways of categorization will provide a base for the present research's categorization of the notes.

Dunkel (1985) assessed the quality of notes using the totality scores, the information unit counts, the completeness scores, the efficiency ratios, and the test answerability scores. In a later study (Dunkel, 1988), she used five components: (1) the total number of words and notations, (2) the number of information units, (3) the number of test questions answerable from the notes, (4) completeness of the notes, and (5) the efficiency of the notes. At the end of her study, Dunkel discussed the predictors of note quality, which were (1) the organization of the notes, (2) the use of the idiosyncratic mnemonics in the notes, (3) the number of content versus structure words presented in the notes, (4) the number of errors of omission and commission in the notes, and (5) additional learner variables (e.g., gender, ethno-cultural affiliation, major field of study, or academic achievement).

In an experimental study similar to Dunkel's (1988), Chadron, Loschky, and Cook (1994) developed nine measures of quantity and quality of notes, which were (1) title, (2) numbering (number of letters indicating a list such as "1) Definition of P~" and "2) Type of P~"), (3) outline, (4) examples, (5) verbatim, (6) diagrams, (7) symbols, (8) abbreviations, and (9) words.

Carrell (2007) used eight different coding categories of notes, which were (1) total notations of any kind for the lecture, (2) content words from the lecture, (3) abbreviations, symbols, and paraphrases from the lecture, (4) test questions answerable from idea units found in the notes, (5) diagrams, outlining, and

indentation, (6) arrows, (7) lists, and (8) circles, boxes, and underlining. High proficiency students took more complete notes than low proficiency students. She recommended that the researchers should consider (1) content, (2) organization, (3) note-taking efficiency (i.e., abbreviation, symbols, and content versus function words), and (4) features of specific note-taking to L2 speakers (e.g., use of L1 problem with understanding content) for future analysis of notes.

Yang et al. (2010) adopted seven components of coding categories of notes: (1) L1 use, (2) numbers, (3) phrases, (4) sentences, (5) structures, (6) symbols, and (7) words. Finally, Song (2012) discussed a range of different indices of note quality: (1) the number of information units in notes, (2) the efficiency of notes, (3) test answerability, and (4) the hierarchical propositional structure of notes. Among those indices of note quality, she suggested that the hierarchical propositional structure of notes is a good indicator of note quality, so she analyzed notes by main/topical ideas, supporting/minor details, and organizations (Song, 2007, 2008, 2012). Song (2012) also suggested that note quality measures could be good indicators of test takers' second language academic listening proficiency like other kinds of listening measures.

These categories and components of notes are the base of selecting the measures of notes for the present study. For example, the coding categories of 'content words', 'abbreviations', and 'symbols' are chosen to tap into the note-taking efficiency as suggested by Carrell (2007), and 'L1 words' are adopted as an indicator of ethno cultural affiliation proposed by Dunkel (1988). A specific description of such measures are made in Chapter 3, when we introduce the

measures of analysis.

2.6. Studies on Perceptions about Note-taking Strategies

Earlier studies, in learning situations, found cultural differences in the perceptions about note-taking strategies (Dunkel & Davy, 1989; Hartley & Davies, 1978). Hartley and Davies (1978) discovered some differences between American and British students in their perceived value and practice of note-taking. Based on the results of Hartley and Davies' study (1978), Dunkel and Davy (1989) investigated perceptual differences between American students and international students. Half of the American students were satisfied with their level of note-taking skills whereas less than 10 percent of the international students felt so because of different language proficiency.

In testing situations, Hale and Courtney (1991, 1994) found a discrepancy between the perceptions about the helpfulness of note-taking strategies and actual test performance. Three-fourths of the students perceived that note-taking helped them remember the information better during the test sessions even though little benefit was actually obtained from taking notes in the TOEFL minitalks.

Carrell (2007) investigated the students' perception changes about their note-taking strategies after a training in note-taking. The training had no statistically significant effects on their perception changes; students did not indicate that they increased the use of notes after training. This result may be attributable to the weakness of the training that she provided to the students (See 1.2. Significance of

the Study for a discussion on the weakness of her training). Jung-hyun Kim (2012) found perception changes after note-taking strategy training. She also noted that the perceptions and behaviors of students in testing situations are different compared with those in learning situations. There were gaps between students' perceptions of note-taking strategies and the actual use of them. 35 students perceived that being allowed to take notes had helped them answer the questions better during the test; however only 17 students said that they had actually used notes during the test in her study. The current study used questionnaire data (surveys) like the previous studies and also used more interview data to analyzed the students' perceptions on note-taking and its training.

Studies reviewed so far generally point to the effects of the note-taking strategy training on the students' test performance, their perceptions and their notes in testing situations. They also demonstrate the strengths and weaknesses in their approach, method, and analysis of the research. The current study takes these findings as a point of departure and adapts their methods to the Korean context.

CHAPTER 3.

METHOD

Since the present study attempted to identify the effects of note-taking strategy training from several perspectives, it adopted both quantitative and qualitative approaches, using various kinds of instruments and data gathering methods, including listening tests, survey questionnaires, and interviews. The participants, the instruments, the procedures, and methods of data analysis are described in this chapter.

3.1. Participants

The participants were 92 Korean university students from two universities, one in Incheon and the other in Seoul. The students were taking English Conversation or English Composition classes during the spring semester of 2011. Of the 92 students, 22 were male and 70 female. All of the participants were freshmen. Their average age was 20.80. Their English proficiency were intermediate or upper-intermediate (MATE⁷-moderate high or moderate mid).

As for the participants' academic backgrounds, about 1/3 of the participants (i.e., 34) were from the Department of English Education, and another 1/3 (i.e, 31) were from the Department of Preschool Education. The rest were from various

⁷ MATE (Multimedia Assisted Test of English developed by Sookmyung Women's University) is an English proficiency test to assess speaking and writing abilities.

academic disciplines, as shown in Table 3.1.

Table 3.1 Participants' Majoring Disciplines

Major	N	Major	N
English Education	34	Business Administration	2
Preschool Education	31	Nano-Physics	1
Chemistry	13	Multi-Media	1
Elementary Education	3	Public Administration	1
Chinese Language and Literature	2	Law	1
Culture and Tourism	2	Total	92

3.2. Instruments

The present study used three kinds of instruments: tests, questionnaires, and training materials. Three listening tests were used to assess the participants' listening comprehension before (Pretest), during (Test I), and after the experiment (Test II). Questionnaires were used to investigate the participants' note-taking behaviors and their perceptions about note-taking strategy training and its usefulness. Training materials included handouts and PowerPoint slides.

3.2.1. Pretest

A pretest was designed to check the homogeneity of the listening abilities of the participants divided into three groups. The test material was adopted from an iBT TOEFL preparatory book (Neungryule Education, 2008). It consisted of 6 items related to one lecture topic. The lecture topic was nacre (Biology). The lecture was delivered in 5 minutes and 5 seconds, with the delivery rate of 159.1 words per minute.

The text for the lecture was in the Flesch-Kincaid Grade Level⁸ of 6.4, which was rather easy for college students. Detailed information of the lecture text is presented in Table 3.2.

⁸ “The Flesch-Kincaid Grade Level readability score analyzes and rates text on a U.S. grade-school level based on the average number of syllables per word and words per sentence. For example, a score of 8.0 means that an eight grader would understand the text” (<http://rfptemplates.technologyevaluation.com/readability-scores/flesch-kincaid-readability-score.html>)

Table 3.2 Text Characteristics of the Lecture Text for Pretest

Domains	Categories	Frequency
Counts	Words	809
	Sentences	643
	Paragraphs	11
Average	Characters Per Words	4.5
	Words Per Sentences	12.6
	Setences Per Paragraph	5.8
Readability	Passive Sentences	7%
	Flesch Reading Ease ⁹	71.
	Flesch-Kincaid Grade Level	6.4

The lecture text that the students heard was not a unilateral delivery of the professor's talk, but a recording of bilateral interactions between a professor and the students in a classroom. Part of the lectue recording is given below.

Listen to part of a talk in a biology class.

(Professor: male) Good morning, class. Let's get started. Uh, what I wanted to talk with you about today is the formation of pearls. More specifically, I'd like to compare two ways that pearls form: naturally... and with human help. Let's start by talking about how pearls from naturally. I suppose most of you already have an idea how pearls develop in oysters, but let's go over the process to clear up any misconceptions you may have and make sure we're all working with the same information. OK? Natural pearls with a nucleus.

(Student A) You mean like a grain of sand or something? I've heard that pearls form around a tiny grain of sand that gets into an oyster's shell. Is that true?

⁹ "The Flesch Reading Ease readability score formula rates text on a 100-point scale based on the average number of syllables per word and words per sentence. The higher the Flesh Reading score, the easier it is to understand the document. For most standard documents, aim for a Flesch Reading Ease score is approximately 60 to 70" (<http://rfptemplates.technologyevaluation.com/readability-scores/flesch-reading-ease-readability-score.html>)

All of the six items in the pretest were in a multiple-choice type, with four options to choose from. One of the items was about the main idea of the talk, and one was about the purpose of the talk. The other four were about the detailed information of the lecture (See Appendix 3 for the lecture text and test items).

3.2.2. Test I

Test I was designed to see the note-taking behaviors of the students as well as their testing performance without a prior training on note-taking. The test materials were adopted from the same iBT TOEFL preparatory book (Neungryule Education, 2008) from which the pretest items had been adopted.

The test consisted of 12 items related to two lecture topics, six for each topic. The lecture topics were Gold Rush (History) and Permafrost (Geology). The lecture time for Gold Rush was 5 minutes and 35 seconds, and the one for Permafrost was 5 minutes and 21 seconds. The delivery rates of each lecture were 144.5 and 138.5 words per minute. As shown below, the two lecture texts were more difficult than the pretest text, although they were not too difficult for college students. Since the purpose of Test I was to see the note-taking behaviors, it was expected that the difficult texts may induce more note-takings than easy texts. The text characteristics of the two topics are presented in Table 3.3.

Table 3.3 Text Characteristics of the Lecture Texts for Test I

		Frequency		
		Gold Rush	Permafrost	Total
Counts	Words	807	741	1546
	Sentences	56	44	100
	Paragraphs	16	7	23
Average	Characters per Words	4.7	5.0	4.8
	Words Per Sentence	14.3	16.7	15.4
	Setences Per Paragraph	3.7	6.2	4.5
Readability	Passive Sentences	8%	18%	12%
	Flesch Reading Ease	57.1	47.1	52.4
	Flesch-Kincaid Grade Level	8.8	10.7	9.7

As in the case of the pretest, the lectures that the students heard were given in a form of recordings and of bilateral interactions between a professor and the class, but in this case of Permafrost, the lectures were given in a form of recordings without any interactions. An excerpt from the lecture on permafrost is given below.

Listen to part of a lecture in a geology class.

(*Professor: male*) Today, we'll be continuing with our theme of Artic environments by discussing permafrost. I suppose you've come across this term before in your Earth science classes...but I'll provide a quick definition anyway. Permafrost is ground-like rock or soil-that remains below zero degrees Celsius, or at zero, for at least two years. Zero degree is, of course, the freezing point of water. Quite simply, the designation "permafrost" is based only on temperature. Naturally, permafrost is commonly found in the higher latitudes, um, the ones nearer to the North and South Poles-places like Greenland, for example, which stretches all the way to 84 degrees north. But elsewhere in the Northern Hemisphere, um, most permafrost lies between about 60 and 68 degrees north. See, above that, it's mainly the Artic Ocean-no land. However, there's also such a thing as "alpine" permafrost too, which can be present at much lower latitudes because it's found at high altitudes, where the temperature is colder. Um, for example, this happens in the Himalayas, which are at relatively low latitude. All totaled permafrost accounts for about 24% of the planet's landmass. Um, that's about 22.79 million square kilometers of Earth's exposed land.

Ten of the 12 items in Test I were multiple-choice, with four options to choose from. Each topic had five MC (Multiple Choice) items. The other two items were MSMC (multiple selection multiple choice), with four options that can be selected in any number from one to four. One point would be given for the item only when all correct options were checked by the students. An example of the MSMC item is given below.

1. Indicate whether each of the following is mentioned in the lecture as a feature of permafrost. Check the correct box for each phrase.		
	YES	NO
(a) May be covered by a light layer of dirt		
(b) Is relatively uniform in terms of its thickness		
(c) Is often found beneath an “active layer” that thaws in the summer		
(d) Does not exist outside of major alpine areas in higher latitudes		
(e) Tends to be patchy in areas where the temperature stays around freezing		

The item contents were similar to those of the pretest. Two items were about the main idea of the talk, and two were about the purpose of the talk. The others were about the detailed information of the lecture or inferences (See Appendix 4 for the lecture text and test items).

3.2.3. Test II

Test II was designed to see the effects of note-taking training. Test specifications of Test II were basically the same, as those for Test I except for the topics of the lectures. The lecture topics for Test II were K-T extinction (Earth

Science) and Guild (Social Science). The lecture time for K-T extinction was 5 minutes and 42 seconds, and the one for Guild was 5 minutes and 19 seconds. The deliveray rates of of each lecture were 141.6 and 150.2 words a minute. In general, the texts for Test II were a little easier than those for Test I. As shown below, one of the lecture texts was of the same difficulty level as one of the texts in Test I; the other text is easier than its counter part in Test I. The text characteristics of the two topics are presented in Table 3.4.

Table 3.4 Text Characteristics of the Lecture Texts for Test II

		Frequency		
		K-T extinction	Guild	Total
Counts	Words	807	799	1606
	Sentences	55	51	106
	Paragraphs	15	12	27
Average	Characters per Words	4.6	4.5	4.6
	Words Per Sentence	14.6	15.6	15.1
	Setences Per Paragraph	3.6	4.2	3.9
Readability	Passive Sentences	1%	9%	5%
	Flesch Reading Ease	58.3	67.5	62.9
	Flesch-Kincaid Grade Level	8.7	7.7	8.2

Althought the mathematical indices of the lecture texts used in Tests I and II can give some useful information, the difficulty of texts may still be differently perceived by different students. One important variable seems to be the contents of the subject matters, or topics, that the lectures discuss. If the students already have the content schema of certain lectures (e.g., Gold Rush or Permafrost), the lecture

contents that are familiar to the students will be easier than those that are not. Here, the students' academic background variable may intervene as a moderating variable. Due to the limited scope of the present study, however, this moderating variable will not be investigated.

Another factor in relation to the lecture texts that needs our attention is the difference between the spoken language and the written language. The indices of difficulty levels of the lecture texts that are reported here are from the analysis of written texts. When these texts are delivered to the students in a spoken language form, such variables as pronunciation, speech rates, pauses, and loudness can affect the students' comprehension of the text. It is also generally the case that listening to a text is more difficult than reading the same text because of the spontaneousness of the input processing. Since the present study is concerned with the students' note-taking behaviors, this factor will not be discussed in the present study, either.

3.2.4. Questionnaires

Two questionnaires were developed to tap into the students' perceptions and perception changes. Questionnaire I was devised to explore the students' perceptions right after Test I, and Questionnaire II was made to assess changes in the students' perceptions after Test II. The two questionnaires were patterned after the one by Hale and Courtney (1994) which was used for college students.

3.2.4.1. Questionnaire I

Questionnaire I had 11 questions, including 4 items that asked about background information such as name, major field, gender, and age. Five of the remaining 7 items used a 5-point Likert-type scale, and one was a Yes/No-question. The remaining one was an open-ended question.

The questionnaire asked about the students' habits of taking notes during class hours and testing, their perceptions and actual use of notes during Test I. An example of the questionnaire items is given below (see Appendix 1, Questionnaire I for the full items of the questionnaire).

I had enough time to take notes during the test.

1. Strongly disagree /2. Disagree/ 3. Neutral /4. Agree/ 5. Strongly agree

3.2.4.2. Questionnaire II

Questionnaire II had 17 questions, including 3 items that asked about background information. Some of the items were contingent upon the responses of the previous items. That is, for example, if a student replies "Yes" to a certain item, he/she is directed to Item X, which asks about the reason for such a response. Some of the items were identical to those used in Questionnaire I, in order to see the changes in the students' perceptions about certain aspect of note-taking (see Appendix 1, Questionnaire II for the full items).

3.2.5. Training Materials

In order to train the students in Group A on note-taking strategies, handouts and PowerPoint slides were prepared dealing with the general principles, specific techniques, and examples of note-taking.

3.2.5.1. Handouts

The notetaking principles and techniques presented in the handouts were adapted from the notetaking guidelines proposed in Soriclub (2004), and the script for hands-on practice of note-taking in the handouts was the script for the lecture on Permafrost which was used in Test I. Figure 3.1 below shows the content of the guidelines in the handout given to the students.

I. Basics of Note-taking

- A. Reasons for note-taking training.
- B. Note-taking in English or Korean?
- C. What to write down: main points, important details, and important facts, numbers, and names, abbreviations, symbols, shorter synonyms, paraphrases, content words.

II. The Structure of English Lectures

- A. Beginning the lecture:
 - * OK, is everyone ready?/* Right, let's begin./* I think we can start now
 - * Shall we start
- B. Introduction of the Topic:
 - * Today we're looking at mobile and wireless technology.
 - * Today, we'll be discussing the research paper.
- C. Outlining the Lecture:
 - * The lecture will be divided into three sections.
 - * First/ second/next/then and finally~

- * In the first part~/* in the second part~/* at the end of this lecture~
- D. The Body of the Lecture
 1. Time Sequential:
 - * Let's take a (brief) look at the data.
 - * Let me start by saying the discussion by talking about stock market.
 - * There are two steps involved. The first step is~. the second step is~
 2. Changing Topics:
 - * Let's now turn to a new topic~/* The next topic of discussion is stages of sleep.
 - * Let's move onto the next part of the lecture.
 3. Comparison and Contrast:
 - * A is similar in many ways to B.
 - * I'm going to list three things that differentiate A and B.
 - * The main point is that~/* Now please note that~/* Remember that~
 4. Stressing:
 - * The point I'd like to emphasized is that~/* The main point is that~
 - * Now please note that~/ Remember that~
 5. Citing/Quoting:
 - * A survey shows that~/ * Experts say that~/
 - * According to a recently published survey~
 6. Giving Examples:
 - * Let's take an easy example.
- E. Closing the lecture
 1. Lecture Summary:
 - * To sum up/*To summarize/* In summary/*In brief
 - *In conclusion/* To conclude/Therefore~
- F. Answering Questions:
 - * Is that clear for everyone?*
 - * Do you understand this point?
 - * Does that answer your question?
- G. Closure and Preview:
 - * OK, that's enough for today. We'll talk more about this in the next class.
 - * Next week we'll uncover~/ as well as introduce~

III. Specific Note-taking Techniques

- A. Summarize
- B. Main Points
- C. Key Words
- D. Topic and Subtopics
- E. Projecting the Whole Content with the Beginning
 e.g.,) First, I will explain the field of advertising in general terms, and then I'll talk about different types of appeals in advertising, and finally I'll discuss some specific techniques that are used in advertising.
 Advertising: 1. Advertising 2. Types of appeals 3. Techniques
- F. Supporting Points
 1. Definition 2. Examples 3. Illustration 4. Listening the Explanation
- G. Signal Words

- | |
|--|
| <p>1. Signal Words for Core Contents</p> <ul style="list-style-type: none"> * Time Sequence: There are three reasons/ Initially~, Subsequently, /Let's go back to * Change of topics: First/ Second/ Third * Conclusion or Summary: Therefore/Thus/In conclusion/To conclude/In summary * Idea of Importance: Now, this is important~/Remember that~ <p>2. Signal Words for Explanation</p> <ul style="list-style-type: none"> * Example: For example/For instance * Continuation: Also~/ And In addition~ Further~/Another~ * Contrast: On the other hand/On the contrary//In contrast/ In spite of/However/But * Comparison: Similarity~/Likewise~ In comparison~/ Both~ * Cause and Effect: So~/Consequently~ /Accordingly~ /As a result~ <p>3. Symbols and Abbreviations</p> <ul style="list-style-type: none"> = equals; to be, ≠ not to be, + and; plus, > more than / < less than/↑increase/↓decrease # number/~approximately/\$ money /% percent/Cf. compare * Omission later parts of words: United Kingdom : UK/ United States : US / page: p. /summary : sum. * Omission vowels: tomorrow : tmrw / background :bkgd * Omission some spelling: government :gov't * Others: to go : 2go/ for you: 4U/ How are you: how r u / learning : lrng |
|--|

Figure 3.1 Guidelines for Taking Notes

3.2.5.2. PowerPoint Slides

PowerPoint slides were the examples of notes made by the researcher from one of the lecture topic texts used in Test I, that is, the lecture on Permafrost. They illustrated the actual examples of notes that could be made out of the lecture text. Figure 3.2 is one of the slides prepared for the training.

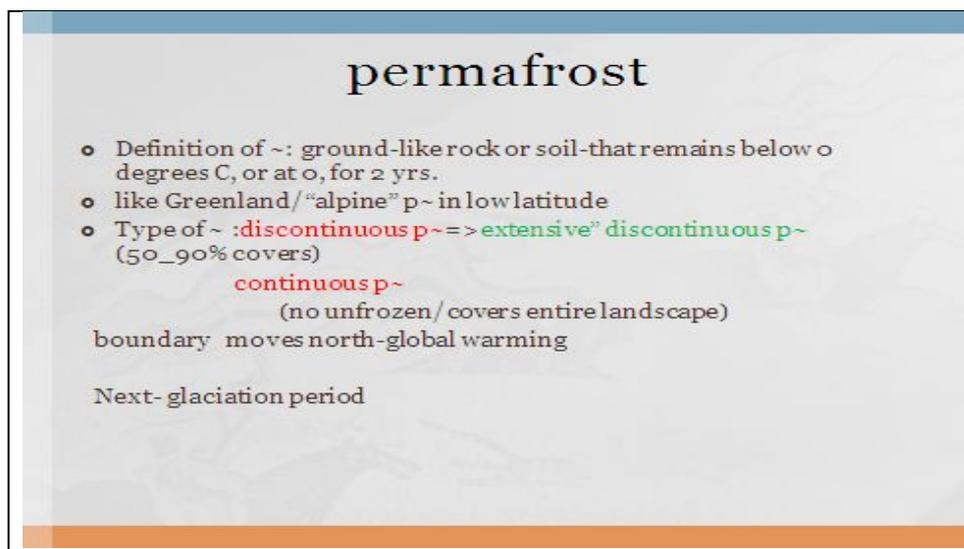


Figure 3.2 Example of Sample Notes from the Third Training

3.3. Procedures

The overall procedures of data collection were composed of seven different activities: (1) pretest, (2) Test I, (3) questionnaire survey I, (4) strategy training (in three periods), (5) Test II, (6) interviews, and (7) questionnaire survey II. Although these activities were conducted in sequence, interviews overlapped with some other activities, as they were conducted over an extended period of time.

Before the research started, the participants were first divided into three different groups. The participants were randomly assigned to one of the three groups: (1) an experimental group that would be trained and allowed to take notes during the listening tests (i.e., Group A: [+TR, +NT]), (2) an experimental group that would not be trained but allowed to take notes during the tests (i.e., Group B: [-TR, +NT]), and (3) a control group that would be neither trained nor allowed to

take notes (i.e., Group C: [-TR, -NT]). Figure 3.3 and Table 3.5 show the overall experimental design and the procedure for this study.

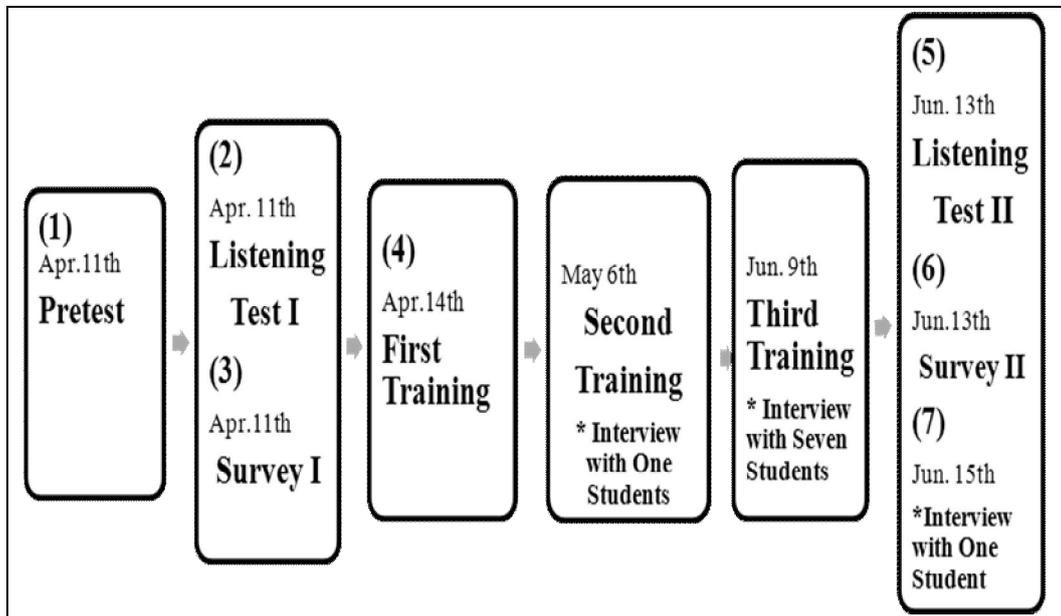


Figure 3.3 Overview of the Research Procedure

Table 3.5 The Experimental Design

Group	Pretest	Pre-experiment	Treatment	Post-experiment
Group A (32 Students)	Yes (Note-taking: No)	Listening Test I (Note-taking: Yes)	Yes	Listening Test II (Note-taking: Yes)
		Survey I		Survey II
Group B (30 Students)	Yes (Note-taking: No)	Listening Test I (Note-taking: Yes)	No	Listening Test II (Note-taking: Yes)
		Survey I		Survey II
Group C (30 Students)	Yes (Note-taking: No)	Listening Test I (Note-taking: No)	No	Listening Test II (Note-taking: No)
		Survey I		No Survey

3.3.1. Pretest Administration

As stated earlier, the purpose of the pretest was to confirm the homogeneity of the listening abilities of the three groups. The pretest was administered to 92 college students. At this stage, note-taking was not our concern, and thus was not introduced.

When the students were ready to take the test, the researcher distributed the test papers and told them to listen to the lecture and answer the questions. Then the lecture recording, an MP3 audio file was played on the computer, which was transmitted to the students through loud speakers in the classroom. Since the test items were all in MC format, there were no technical or administrative difficulties

with the test. It took seven minutes to complete the 6-item test.

Then the scores of the three groups were compared in order to check the homogeneity of their listening skills. Table 3.6 shows the descriptive statistics and ANOVA result of the Pretest scores. As the significance level of $p=.344$ indicates, the three groups were not different in their listening abilities. In fact, Groups A and C had the same means.

Table 3.6 Descriptive Statistics of the Pretest

	Group	N of Students	Mean	SD	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Pretest	A	32	2.13	1.66	1.53	2.72	0	6
	B	30	2.63	1.67	2.01	3.26	0	6
	C	30	2.13	1.25	1.67	2.60	0	4
	Total	92	2.29	1.54	1.97	2.61	0	6

Table 3.7 ANOVA of the Pretest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.143	2	2.571	1.080	.344
Within Groups	211.933	89	2.381		
Total	217.076	91			

3.3.2. Test I Administration

The administration procedure of Test I was basically the same as that of the pretest, except that there were two lectures to listen to and more items to answer. One important difference was that, this time, the students in Groups A and B were allowed to take notes while they listened to the lectures. One blank sheet of paper was distributed to each student for them to write any notes on. The students were explicitly told, but not forced, that they could take notes if they felt like doing so. The students in Group C were not allowed to take notes. In fact, they were not given any piece of paper, and were explicitly told not to take notes. It took 12 minutes to complete the test.

3.3.3. Survey I

Right after the administration of Test I, all three groups were given Questionnaire I and asked to complete it. The researcher assured the students that their responses to the questionnaire will not affect their academic records and there were no right or wrong answers to the questions. The students cooperated kindly and most of them completed the questionnaire faithfully.

3.3.4. Note-taking Training

One week after Test I, training sessions on note-taking started. The training

was given to Group A on three occasions over two months, with about one-month intervals between the sessions. The first session, which was the most important in our research, lasted for 30 minutes. In the first session, the researcher distributed the written guidelines of some basic, general, and specific strategies of note-taking. The content of the list was also presented to the students with a PowerPoint projection, and explanations of the items were given by the researcher. The students were also provided with the script of one of the lectures that was used in Test I (i.e., the lecture on the Permafrost), with which they could practice note-taking on their own.

The second session of training was held about three weeks after the first session. The second session lasted for 15 minutes. The researcher reviewed the content of the first session training, and added explanations on certain points that the students felt difficult to understand. The PowerPoint slides that were used in the first session were printed out and distributed among the students so that they could refer to them for clearer understanding and memorization.

The third session of note-taking training was held five weeks after the second session. In this session, the lecture which was used in Test I was used as an illustration of note samples that could be made out of the lecture (see Figure 3.1). Although the students did not have hands-on practice, the students could have clearer ideas about what to write and how to write when taking notes. The third session also lasted for 15 minutes. Although the actual time for note-taking strategy training amounted to only one hour, the effects of the three sessions should be different from those of a one-session, one-hour training because the

students were exposed to the content of the note-taking strategies repeatedly three times for an extended period of time of two months. Besides, in the intervals of the training sessions, students were advised to practice specific note-taking strategies in class, while taking lessons from the researcher, and outside of the classroom individually using the handouts if necessary. Students were generally encouraged to use English while practicing note-taking strategies and taking tests, but they were also allowed to use L1 (Korean) if it was more efficient or if the students did not know the correct spelling or proper words in English. To control the amount of language input for each group, students in the instructed group were not given extra listening or reading activities.

3.3.5. Test II Administration

Five days after the last training session, Groups A and B were tested with Test II, and Group C was tested two days later. Both Groups A and Group B were allowed to take notes while taking the test, but Group C was not. The overall procedure of the test administration was the same as that for Test I, and it took 12 minutes to complete the test.

3.3.6. Survey II

Survey II was conducted right after the administration of Test II, in the same place where the test was administered. Questionnaire II was given to Groups A

and B only, with Group C excluded. Since Questionnaire II mostly was concerned with the use of notes and perceptions about note-taking, the questionnaire was considered irrelevant to Group C. All students from Groups A and B, who took Test II, responded to the questionnaire. It took 3 to 10 minutes, depending on individual students' time spending in responding to the open-ended questions.

3.3.7. Interviews

Interviews were meant to elicit more in-depth insights about the students' perceptions regarding note-taking strategies, their use, and their training. Due to the time constraints with the interviewees, the interviews were not conducted at the same time with the group of selected interviewees but spread out over an extended period of time; different students were interviewed at different times.

In all, 9 students were interviewed: 2 students from Group C, 2 from Group B, and 5 from Group A. The interviews were semi-structured, with some questions adopted from Questionnaire II, in order to elicit more detailed explanations from the students. Some other questions addressed the students' perceptions about the usefulness of notes or difficulties in taking notes. Some questions were tailored for the students' specific note-taking behaviors or responses. For example, the researcher asked one student, who had not taken notes, why she had not taken notes.

Finally, Table 3.8 presents the schedule of the procedures of the present study

Table 3.8 The Experimental Schedule in 2011

Date	Descriptions
Mar. 25 th	- Obtained permissions for the experiment from a native speaking English teacher at a university in Incheon and a Korean English teacher at a university in Seoul.
Apr. 11 th - Apr. 14 th	- Administered the Pretest, Listening Test I, and Survey I to all groups. - Trained Group A (+TR, +NT) on general note-taking strategies (e.g., the structure of English lectures) and specific note-taking strategies (i.e., abbreviations and symbols) for about 30 minutes. Encouraged students to use the note-taking strategies with writing and speaking skills during usual English classes. Used handouts to help the students' understanding.
May 6 th	- Trained, for the second time, Group A (+TR, +NT) for about 15 minutes. Reviewed the previous treatment and taught more specific note-taking strategies. Used PPT slides and handouts to increase students' understanding. - Interviewed one student.
Jun. 9 th	- Trained, for the third time, Group A (+TR, +NT) for about 15 minutes using PPT slides. Reviewed general note-taking strategies and practiced note-taking strategies with a real language sample from Listening Test I. - Interviewed seven students.
Jun. 13 th -Jun. 15 th	- Administered Listening Test II, and Survey II to Groups A (+TR, +NT) and B (-TR, +NT). - Administered Listening Test II to Group C (-TR, -NT). - Interviewed one student.

3.4. Data Analysis

Different analyses were conducted for different research questions. Since the data collected for the present study were both quantitative and qualitative, statistical analysis and qualitative accounts of the data were attempted. For example, data gathered for research questions 1, 2, and 4 were analyzed quantitatively, while the survey questionnaire responses and interview responses were analyzed both quantitatively and qualitatively.

In order to see the effects of note-taking strategy training in terms of the use of notes and the quality changes, it was necessary to devise coding categories of notes. The coding categories and measures used in the present study were selectively adapted from the models proposed by Carrell (2007), Chaudron, Loschky, and Cook (1994) and Yang, Kim and Cha (2010) (see their models in 2.4, Studies on Categorizing and Measuring Notes of Chapter 2). The notes gathered in the present study were coded into eight different categories, which were (1) content words, (2) L1 words¹⁰, (3) test questions answerable from idea units (IUs), (4) underlines, circles or boxes, (5) symbols, (6) abbreviations, (7) numbers (numerical data introduced in a given lecture or dialog, and (8) numbering (numbers of letters indicating a list). Table 3.9 shows the coding categories of the students' notes obtained in the current research.

Interviews were recorded and transcribed, and selectively translated into

¹⁰ 'L1 words' of this study was coded based on spacing words.

English (for inclusion in the results section). Statistical analysis were done using SPSS version 15.0.

Table 3.9 Coding Categories of the Students' Notes

Measure Title	Description
Content Words	- Nouns; verbs; adjectives; adverbs; interrogatives; demonstrative. - Measure of note-taking efficacy.
L1 Words	- Native language (Korean) used in notes
Number of Test Questions Answerable from Idea Units	- Measure of the recognitions of important/main ideas and the student's test wiseness
Underlines, Circles, or Boxes	- Underlines, circles or boxes used to highlight the information in notes
Symbols	- Arrows or signs used for visualizing a lecture
Abbreviations	- Abbreviated words
Numbers	- Numerical data introduced in a given lecture or dialogue
Numbering	- Number of letters indicating a list (e.g., "1. Definition of ~ 2. Type of ~ 3. Function of ~")

CHAPTER 4.

RESULTS AND DISCUSSION

The present chapter presents the results of the data analyses and their discussions. The results of the analyses will be presented in the order of the four research questions stated in Chapter 1.

4.1. Language Proficiency and Note-taking Behaviors

The first research question was whether language proficiency affects students' note-taking behaviors. To answer this question, the students' proficiency levels were first classified into high and low levels, and then sees whether the two levels differed in their production of notes during the test.

The students' proficiency levels¹¹ were classified into three levels, i.e., high, middle, and low. The criterion for such classification was the scores obtained in the pretest. As the maximum score of the pretest was 6, the students with their scores of 4 and above were classified into the high-proficiency group. The students with the scores of 2 and 3 were classified into the middle group, and the

¹¹ The criterion scores here do not seem to be equally divided. This is because the criterion used here was obtained from the low and upper bounds of the means. In the present study, the lower bound means of Groups A and B were 1.53 and 2.01, and the upper bound means of Groups A and B were 2.72 and 3.26. Thus, the criterion score for the low proficiency group was 1, and that for the high proficiency group, 4 (See Table 3.6).

students with the scores of 0 and 1 were put in the low-proficiency group. In order to see the differences across the proficiency levels more clearly, only high-level students and low-level students were compared. Table 4.1 shows the number of the students who took notes in both Listening Tests I and II between the high and low proficiency groups.

Table 4.1 Numbers of Note-generators in High and Low Proficiency Groups in Both Tests I and II

Proficiency	N	Note-generators (%)
High	16	12 (75%)
Low	20	7 (35%)

In Table 4.1, 75 % of the students of the high proficiency group generated notes both in Tests I and II, while only 35% of the students of the low proficiency group did so both in Tests I and II.

This result is also supported by the qualitative accounts of the students who did not take notes. In an interview, which will be discussed later, one student said that she could not take notes during the test because of the lack of proficiency to take notes. So, we can see that the higher proficiency students are more likely to take notes than the low proficiency students. It seems that students need to have language proficiency high enough to take notes during the tests. Then, further research is necessary to identify how much proficiency is minimally required to take notes during the test.

4.2. Effects of Training on Note-taking Behaviors

The second research question was whether training on note-taking strategies have effects. In this section, quantitative and qualitative answers will be sought, by comparing the numbers of students who made notes in both Tests I and II, the numbers of the notes generated by the students, describing the qualitative changes of the notes, and analyzing individual students' notes.

The first and simplest way is to count the number of students who made notes in the two tests. Table 4.2 shows the number of students who increased or decreased their notes from Test I to Test II.

Table 4.2 Numbers of Students Who Made the Same or Different Numbers of Notes from Test I to Test II.

Group	N	Those Who Increased Notes	Those Who Decreased Notes	Those Who Made the Same Number of Notes
A	19	9 (47.4%)	8 (42.1%)	2 (10.5%)
B	15	5 (33.3%)	10 (66.6%)	0 (0%)
Total	34	14 (41.2%)	18 (52.9%)	2 (5.9%)

As shown in Table 4.2, the number of students who made different numbers of notes fluctuated differently between Groups A and B. At a quick glance, there were more students in Group A than in Group B who increased notes from Test I to Test II, and fewer students in Group A than in Group B who decreased notes. A

Chi-square test showed that the difference was statistically significant (Chi-square value = 28.110; $p = .000$).

Another way to see the quantitative change as a result of the note-taking strategy training would be to see the differences in the numbers of total notations generated before and after the training. In order to see the differences, the students in Groups A and B who generated notes during both Test I and Test II were selected and their total notations were compared. The result indicated there indeed was an effect of note-taking strategy training on the number of notes, as shown in Table 4.3.

Table 4.3 Totals and Means of Notations Generated by Students Who Made Notes in Both Tests I and II¹²

Groups	n	Test I	Test II
A (Trained)	19	908 (Mean=47.79)	1,021 (Mean=53.74)
B (Untrained)	15	875 (Mean=58.33)	596 (Mean=39.73)

In Table 4.3, the number of the total notations of Group A increased from 908 to 1,021, while that of Group B decreased from 875 to 596. One remarkable thing is the drastic changes in their mean numbers. During Test I, Group B generated a

¹² Because of the fluctuation in the numbers of the students who took notes in Tests I and II, only those who took notes in both tests were compared.

mean number (M=58.33) of notes greater than Group A (M=47.79); however, during Test II, which was administered after the training, the mean numbers of the two groups drastically reversed, with M=39.73 (Group B) and M=53.74 (Group A). In short, while the untrained group showed -18.6 in the means, the trained group marked +5.95 in the means.

There is one thing to discuss in relation to the increase in the number of notes made by Group A. Since the total length of lectures given in Test II (i.e., 1,606 words) was longer than that of lectures in Test I (i.e., 1,546 words), it should be natural that Test II would produce more notes than Test I. Then, the question is whether the increase was proportional, commensurate with the length of the texts. A computation of the average notes per 100 words would reveal whether the increase was a natural increase. The result was that Test I produced 58.73 notes per 100 words, while Test II produced 63.57 words per 100 words, indicating that the increase was not a natural one and thus reflected the training effect. However, this result does not explain the decrease of notes in Group B, which should not have decreased.

Since the total number of notes hides some specific, and probably more important, information about the students' note-taking behaviors, the students were further divided according to their changes in the number of notes they made. First, the students who increased their notes from Test I to Test II in both groups were compared, in order to see whether they demonstrate different patterns of increase. Table 4.4 shows the number of notes generated by students who increased their notes from Test I to Test II.

Table 4.4 Numbers of Notes by the Students Who Increased Their Notes from Test I to Test II.

Groups	N	Test I	Test II
A (Trained)	9	282 (Mean=31.3)	639 (Mean=71)
B (Untrained)	5	238 (Mean=47.6)	313 (Mean=62.6)

As shown in Table 4.4, the mean number of notes for each student in Group A increased from 31.3 to 71, showing an increase by 226.6 percent. In contrast, the mean of group B increased from 47.6 to 62.6, an increase by 131.5 percent. So, even among the students who increased their notes, Group A generated more notes than Group B, which can be attributed to the effect of the training.

In order to see the changes in detail in terms of the quality, the categories of notes were separately compared, and their differences are illustrated in Table 4.5, Figures 4.1 and 4.2¹³.

¹³ According to Chaudron et al. (1994) and Cushing (1991), while the number of the total notations is an index of the quantity of notes, 8 categories of notes used for this study can be considered as indices of the quality of notes.

Table 4.5 Group Means of Notes by Category Before (T1) and After the Training (T2)

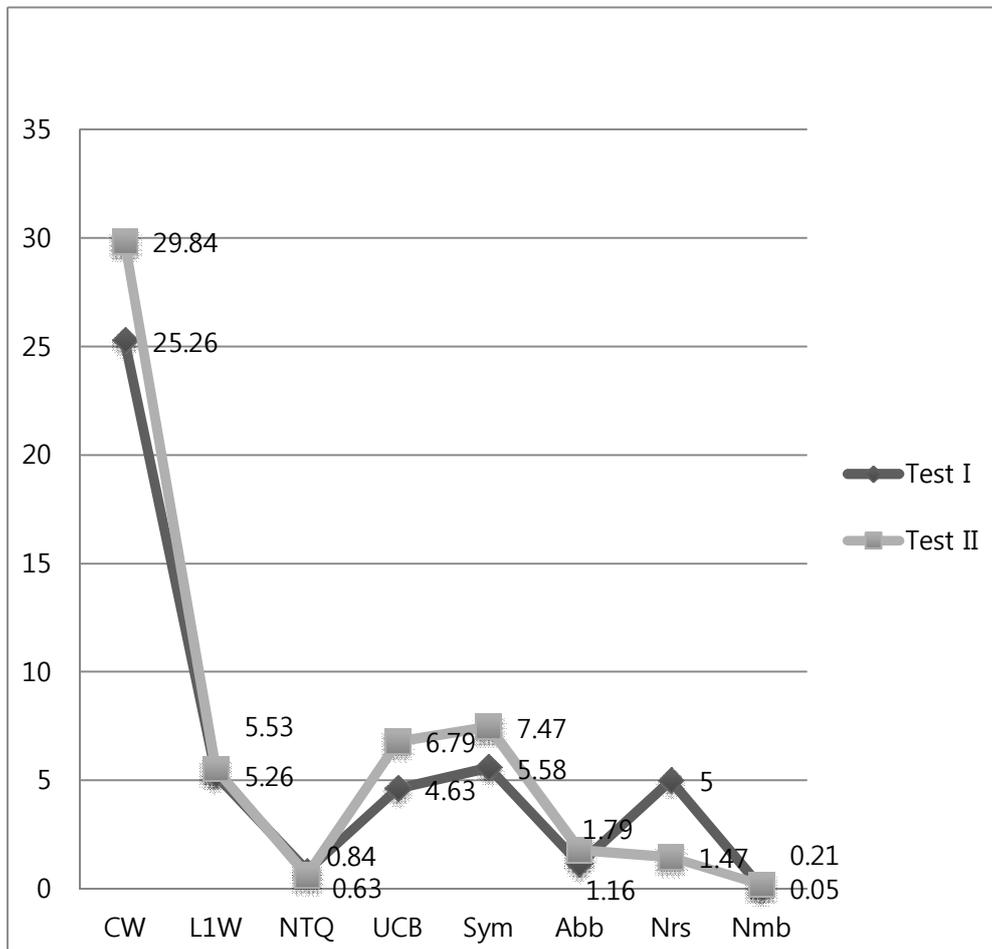
	Group A			Group B		
	Test I	Test II	Test II-Test I	Test I	Test II	Test II-Test I
CW	25.26	29.84	4.579	36.87	26.33	-10.533
L1W	5.26	5.53	.263	2.60	1.27	-1.333
NTQ	.84	.63	-.211	.67	.33	-.333
UCB	4.63	6.79	2.158	5.73	6.27	.533
Sym	5.58	7.47	1.895	6.93	3.67	-3.267
Abb	1.16	1.79	.632	1.00	.60	-.400
Nrs	5.00	1.47	-3.526	4.40	1.20	-3.200
Nmb	.05	.21	.158	.13	.07	-.067

CW=content words, L1W=L1 Words,
 NTQ= number of test questions answerable from idea units,
 UCB= underline, circles or boxes, Sym= symbols, Abb=abbreviations, Nrs=numbers,
 Nmb=numbering

As can be seen in the table, there was a greater number of content words included in the notes in both tests. The second most frequently used category in the two groups is symbols, and the third most frequent category is UCB (underlines, circles, and boxes). One notable difference between Groups A and B is in the number of L1 (Korean) words used for note-taking; while Group A used an average number of 5.25 notes and 5.53 over the two tests, Group B used much fewer notes made in Korean words, i.e., 2.6 notes during Test I and 1.27 notes during Test II. The graphic representations of the two groups' notes by categories

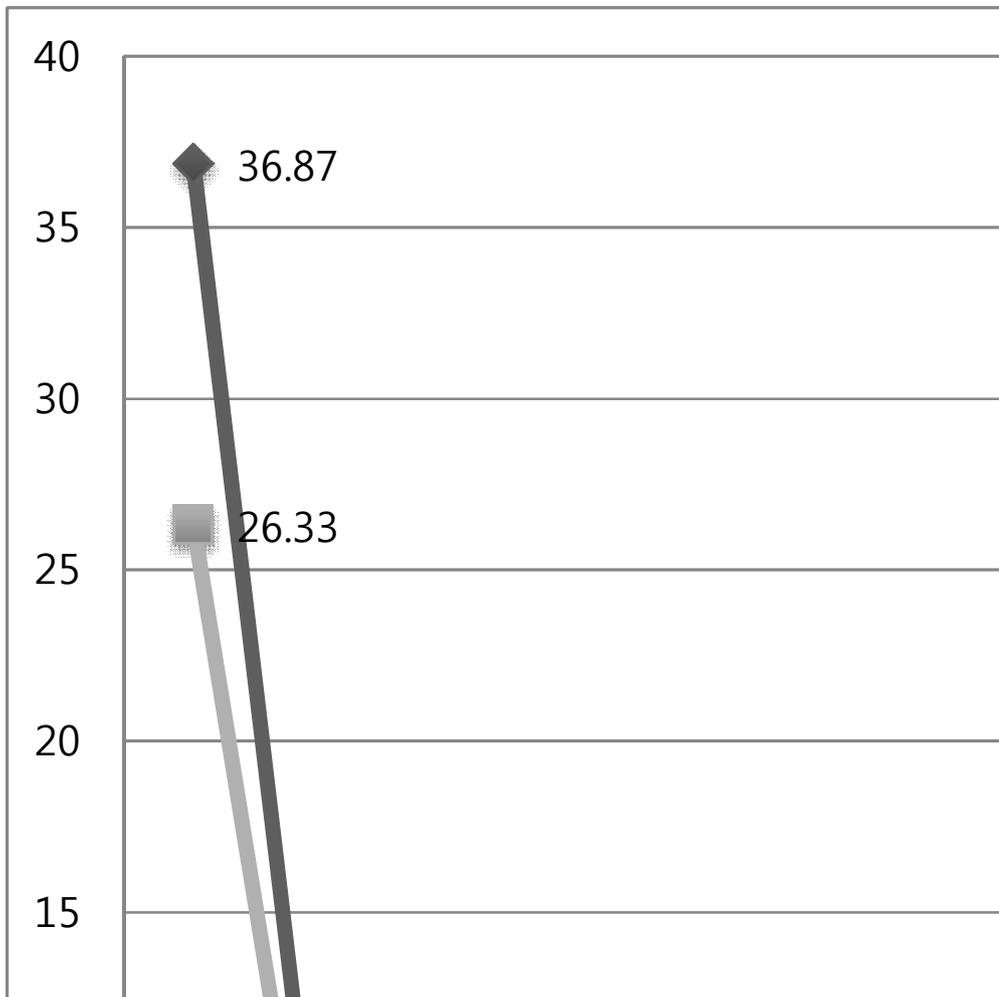
are shown in Figures 4.1 and 4.2.

Figure 4.1 Category Distributions of Notes by Group A



CW=content words, L1W=L1 Words,
 NTQ= number of test questions answerable from idea units,
 UCB=underline, circles or boxes, Sym=symbols, Abb=abbreviations, Nrs=numbers,
 Nmb=numbering

Figure 4.2 Category Distributions of Notes by Group B



CW=content words, L1W=L1 Words,
NTQ= number of test questions answerable from idea units,
UCB=underline, circles or boxes, Sym=symbols, Abb=abbreviations, Nrs=numbers,
Nmb=numbering

In Figure 4.1, for the trained group (Group A), the graph for Test II (the grey line) runs above the graph for Test I (the black line) most of the time. That is, all categories of notes increased in the number after the note-taking strategy training

except for NTQ (i.e., number of test questions answerable from idea units) and NBS (i.e., numbers). This seems to indicate that through the training, the students might have realized that the test questions answerable from idea units and numbers do not require note-taking for a better test performance.

On the other hand, Figure 4.2, for the untrained group (Group B), the graph for Test II (the grey line) runs below the graph for Test I (the black line) most of the time. That is, all categories of notes decreased except for UCB (i.e., underlines, circles, and boxes). To the untrained group, such mechanical notes as underlines, circles, and boxes seem to be something that they cannot ignore. This may indicate that the untrained students did not have clear ideas about what types of notes are more important and what are not.

One thing to note is the relatively great change in the category of content words (CW). While other categories demonstrated small changes, the content words (CW) either increased (in Group A) or decreased (in Group B) conspicuously. This sheds light on our understanding about the students' thought about their notes: to them, content understanding and memorization seem to be a key to solve the problem in listening tests.

The survey also reveals students' improvement in their notes during the test in Survey II. 10 students of the trained group (out of 32 students in total) said that the quantity and quality of notes improved after taking instructions on the note-taking strategies.

For a concrete illustration of the changes in the quantity and quality of notes, three student's notes for Tests I and II will be examined. These students were

selected because they drastically increased the number of notes from Test I to Test II. Another reason for their selection was because they represented three types of language use in their notes, i.e., Korean – Korean, English - English, and Korean – English, during the two tests. So, these three students will be given a pseudonym such as KK (Korean – Korean), EE (English – English), and KE (Korean – English), respectively.

Table 4.6 illustrates the quantitative data of the three students' notes in different categories across the two tests.

Table 4.6 Changes in the Numbers of Notes Made by Students KK, EE, and KE across Tests I and II

	KK		EE		KE	
	Test I	Test II	Test I	Test II	Test I	Test II
CW	28	69	21	73	26	36
L1W	19	47	1	2	14	1
NTQ	3	5	2	2	1	1
UCB	2	8	10	20	0	8
Sym	5	16	12	18	5	8
Abb	0	4	3	6	0	3
Nrs	6	2	14	6	3	0
Nmb	0	1	0	1	0	0
Total	63	152	73	128	36	57

CW=content words, L1W=L1 Words,

NTQ= number of test questions answerable from idea units,

UCB=underline, circles or boxes, Sym=symbols, Abb=abbreviations, Nrs=numbers,

Nmb=numbering

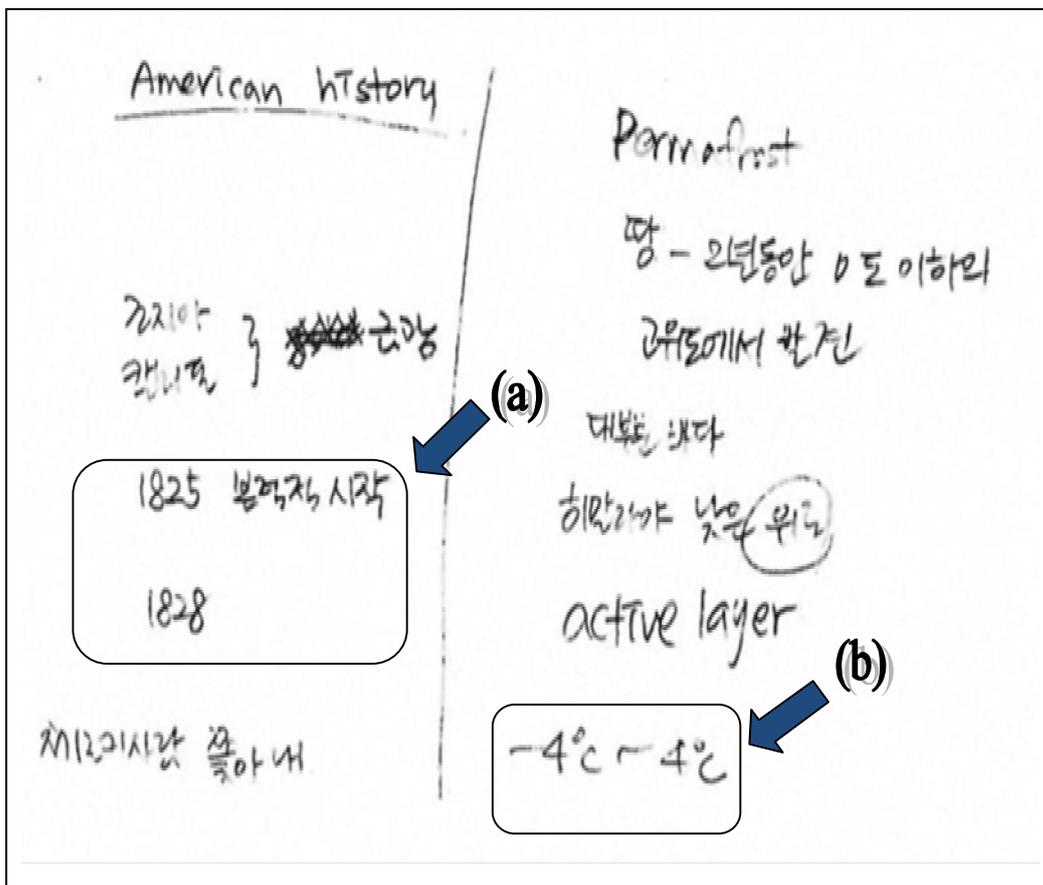
As shown in all three students' notes, content words increased the most from Test I to Test II. Then the increase of symbols and abbreviation is also notable in all three students, which was definitely an effect of the training, as the training included the abbreviations and symbols as a technique of note-taking.

These three students' actual notes will be presented and their characteristics will be discussed below. First, student KK's notes generated during Tests I and II are given in Figure 4.3.

In KK's notes for Tests I and II, the first thing that draws our attention is the change in the basic framework of the notes from Test I to Test II. The notes for Test I were mostly jotted down in a non-systematic, unstructured format. Except for the numbers for the two years (i.e., 1825 and 1828, see box (a) in Figure 4.3) and the temperatures (i.e., -4°C $\sim 4^{\circ}\text{C}$, see box (b) in Figure 4.3), the pieces of information were rather scattered and discretely presented. In contrast, the notes for Test II demonstrate that she was trying to organize the information in a more systematic outline format. For example, in box (c) of Figure 4.4, KK wrote an outline of the pieces of information by writing down a why-question and then lists the answers to the question using the numbers 1, and 2. In box (d) of Figure 4.4, she used the symbol “ \rightleftharpoons ” to mean that the information on the right and left sides of the symbol is about the same. This type of symbol had been explicitly given in the handout during the training. Similarly, she used “ \sim ” as in “Han \sim ” (see box (e) of Figure 4.4) to mean “Han Dynasty” that was mentioned in the lecture. This “ \sim ” symbol had also been explicitly taught through the handout and the PowerPoint slides during the training (see Figures 3.1 and 3.2). Another characteristic of her

abbreviation symbol is that she used Chinese characters to quickly record certain meanings. For example, she used “可” to mean that “something is possible” and “必” to mean that “something is necessary” (see boxes (f) and (g)). This use of Chinese characters reveals her creativity in using abbreviations; she used these Chinese characters as effective and efficient symbols to mean certain things.

Figure 4.3 Student KK's Notes Made during Test I¹⁴



¹⁴ Rectangle boxes with rounded corners, thick arrows pointing to the boxes, and alphabet letters (a),(b) were inserted by the researcher for reference purposes. The same is true with the similar symbols in all subsequent notes scanned and included in this paper.

Figure 4.4 Student KK's Notes Made during Test II

(행복기)
- 매우 위험한 상황

(f) Guild
- same occupation group (union)

옛날 길드.
길드 = instructional function. 국가
지원 함!

Glass (e)
China Han ~
Gupta

20c France, England 등
special title 받음.
↳ political power

대형 기계 다루어야 기술 전수... } 몇년 후
special skill 전수

(g) (기술) 기계

(c) K-T extinction (K-T 시대 사이 멸종)
period.
* 왜 일어났나?
- 가뭄 (-, 가뭄, 해빙 변화)
1. (1980)
K-T boundary
우주먼지 충돌 (지름 10km)
암자름 → 태양빛 차단
식물 X → 동물 X
2. Global fire storm
온실효과 온난화

As was already mentioned, most of KK's notes were written in Korean, except for some proper nouns in English. As the present research allowed the students to make notes in Korean if they were not sure about certain words or their correct spelling, her use of Korean was not unexpected. However, the proportion of the Korean language in her notes is far greater than generally expected. This reminds us of the remarks by Babier, Roussey, Piloat, and Olive (2006), who said that no matter what students' first language was, the students perceived that using L2 was more difficult than using L1. In Dunkel's (1988) study, the students who used both L1 and L2 scored high on the recognition measure and in the post-lecture quiz. Then, this use of L1 in making notes may require more attention for research with regard to its relative advantages and disadvantages against L2 use, and the optimal ratio of L1 and L2 in making notes needs to be identified.

Unlike KK, EE wrote notes mostly in English for the two tests. As such, she attempted to jot down what English words she could pick up from the lecture without bothering to translate them into Korean. Since she scored 5 point out of 6 on the pretest, and 9 points out of 12 on Test I, her high proficiency in English might have made it possible to write the notes in English. This might have also helped her produce more notes than other students during Test I.

Like KK, EE also showed a more systematic framework of notes for Test II than for Test I. Like KK, EE's notes for Test I were mostly discrete words jotted down, with some loose structural connections among them (see Figure 4.5). Then, for Test II, she used an outline format to organize the information. As shown in box (h), she gave the headline "planet history" first, and then listed events in

chronological order. Then in box (i), she used an outline format using the wh-questions (e.g, what, how long, what cause) and key word answers. This framework of outlining the lecture was also explicitly taught during the training.

EE made two notes in Korean, i.e., “유카탄” (“Yucatan”) and “허락” (“permission”). The reason for “유카탄” seems to be that she was not sure of the spelling of Yucatan given in “Yucatan coast” and thus used the Korean alphabet to transcribe the proper name. Then why did she use “허락”? She added a “+” symbol after the Korean word, like “허락+”. If we examine the lecture text and her notes written on the right side of this Korean word and “+” symbol, we can guess why she used the Korean word. There is a paragraph which states that some type of approval from the masters is required for a journeyman to become a master. Below is the text of the particular section of the lecture.

After a couple of years, promising apprentices would get promoted to the position of journeyman. Remember? You wanted to know what this was. Well, uh, journeymen were actually certified with official papers, um, and they could take these papers to other towns and study with different masters. Sometimes they would travel quite far... perhaps to the other side of Europe. Hence the origin of the term. Then, after gaining a couple of years of experience as a journeyman, a person was eligible to become a master craftsman. Of course, this was a promotion that had to be approved by all the masters of the guild. Plus, the, um, the potential master had to produce a masterpiece as proof of their skills. (Underlines were added by the researcher.)

So, EE used “허락 +” to mean “obtained permission” or “obtained approval”. Then, she wrote “poten” to mean “potential”, “prove” to remember “approved”, (see the underlined words in the text above) and “plece” to mean

“place”, which should be interpreted as “other towns” in the text.

These two cases of using Korean words reflect the researcher’s advice to the students that they could use Korean if they were not sure of the spelling of the English words or they were unsure of the meaning of certain words. Thus, EE used Korean words when she was unsure of the spelling of “Yucatan” and when she could not instantly come up with the word “permission” although she got the idea of permission or approval.

Talking about the uncertainty of spelling, EE demonstrates another interesting characteristic of using English words. She wrote several English words even when she did not know correct spelling. For example, for Test II, she wrote “evidance” for “evidence”, “math extinction” for “mass extinction”, and “sedementary” for “sedimentary”. These incorrect spellings may be just simple slips or mistakes, or actually reflect her erroneous knowledge of the words. And yet, such misspelling did not seem to have greatly affected her understanding and organizing the content of the lecture, for the test was mostly given in a multiple-choice format, which did not require any spelling knowledge. The important thing for the present study is that she tried to make notes as she was trained.

One thing unusual about EE’s notes for Test II is that she made very few notes for the lecture “Guild”. While she made almost one page of notes (102 notes) for the lecture “K-T extinction”, she made only 26 notes for Guild (see boxes (j) and (k)). This impoverished note-taking for the second lecture topic is not easily accounted for; a fatigue factor might have affected her note-taking behavior.

Figure 4.5 Student EE's Notes Made during Test I

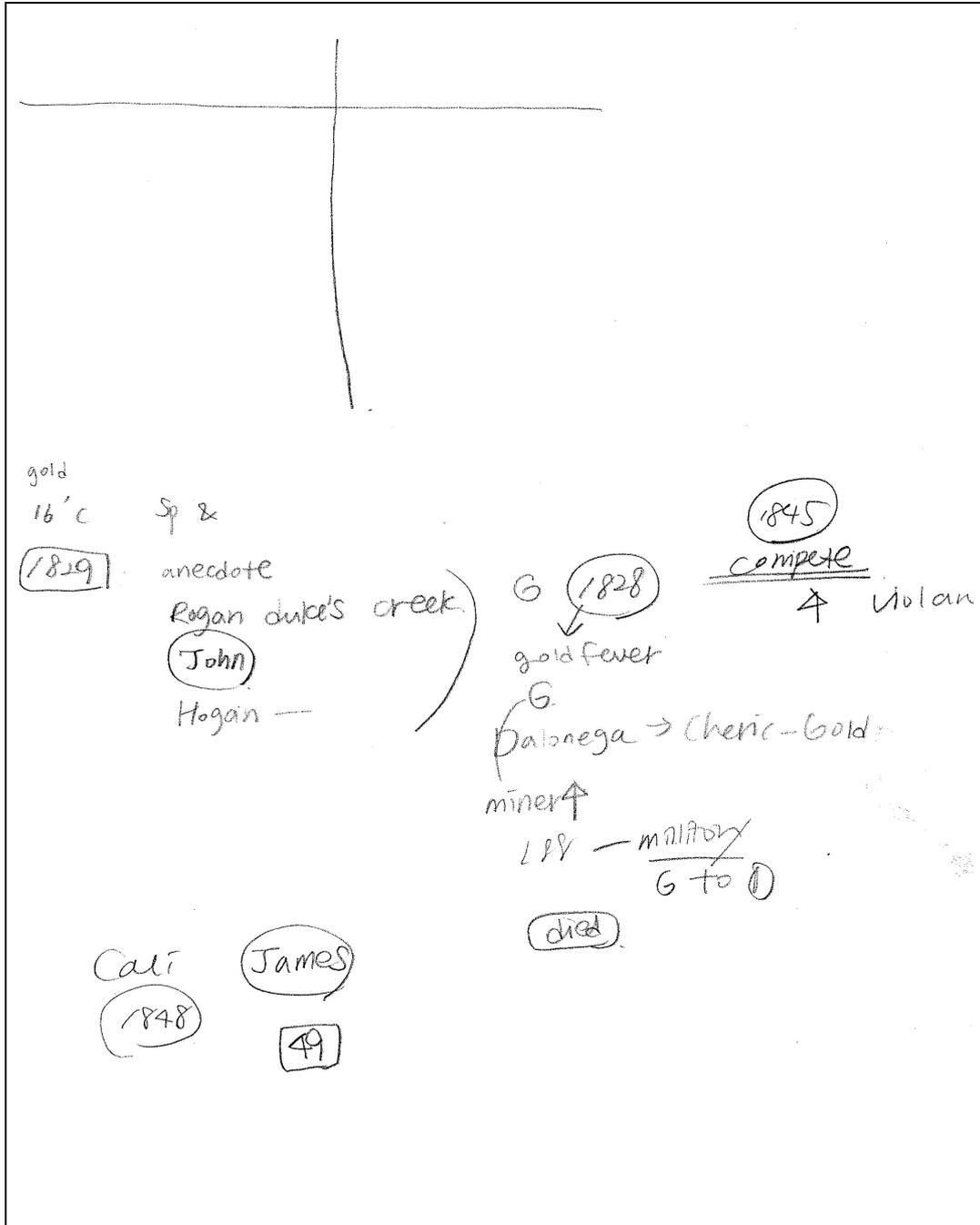


Figure 4.6 Student EE's Notes Made during Test I (continued)

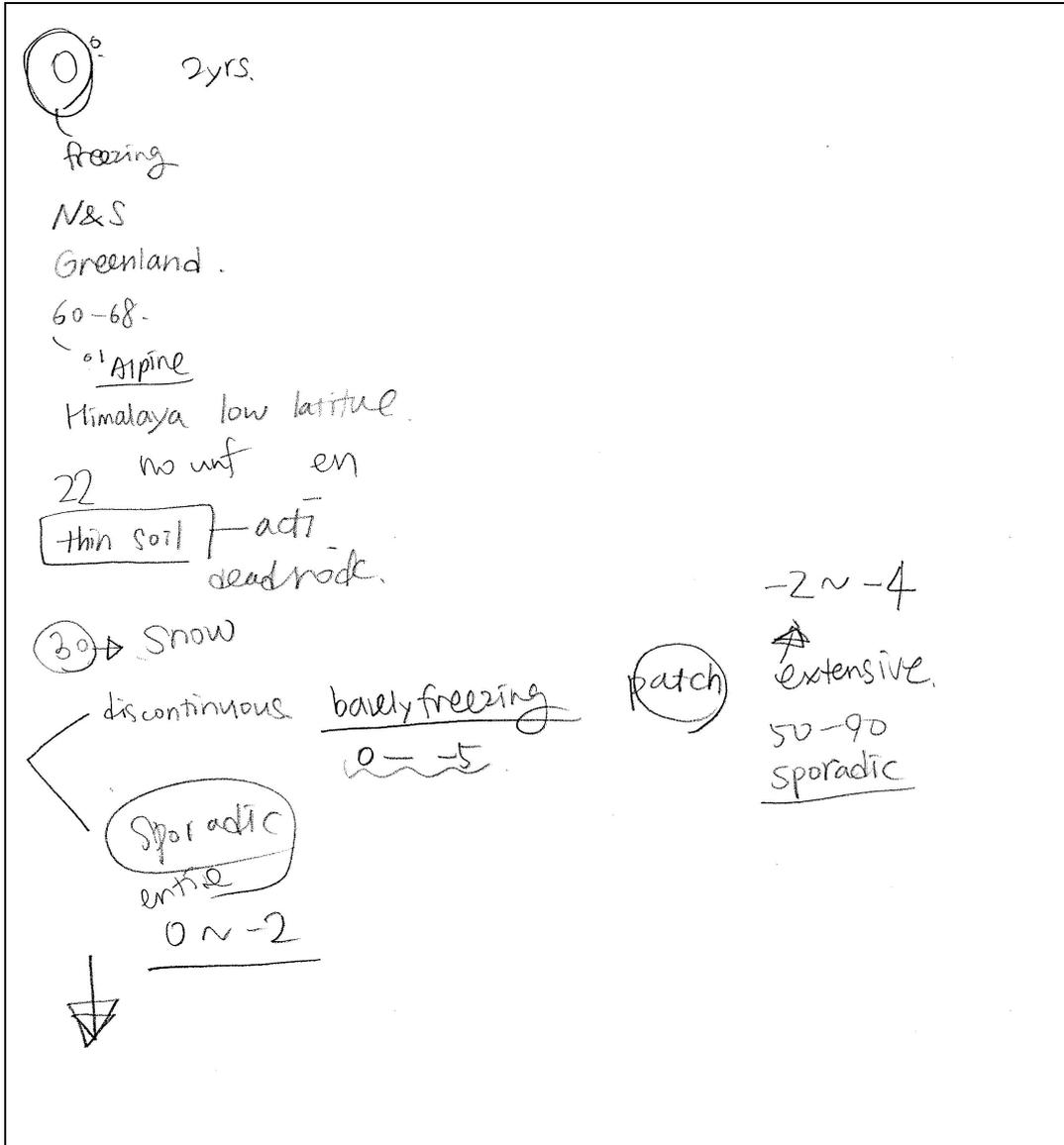
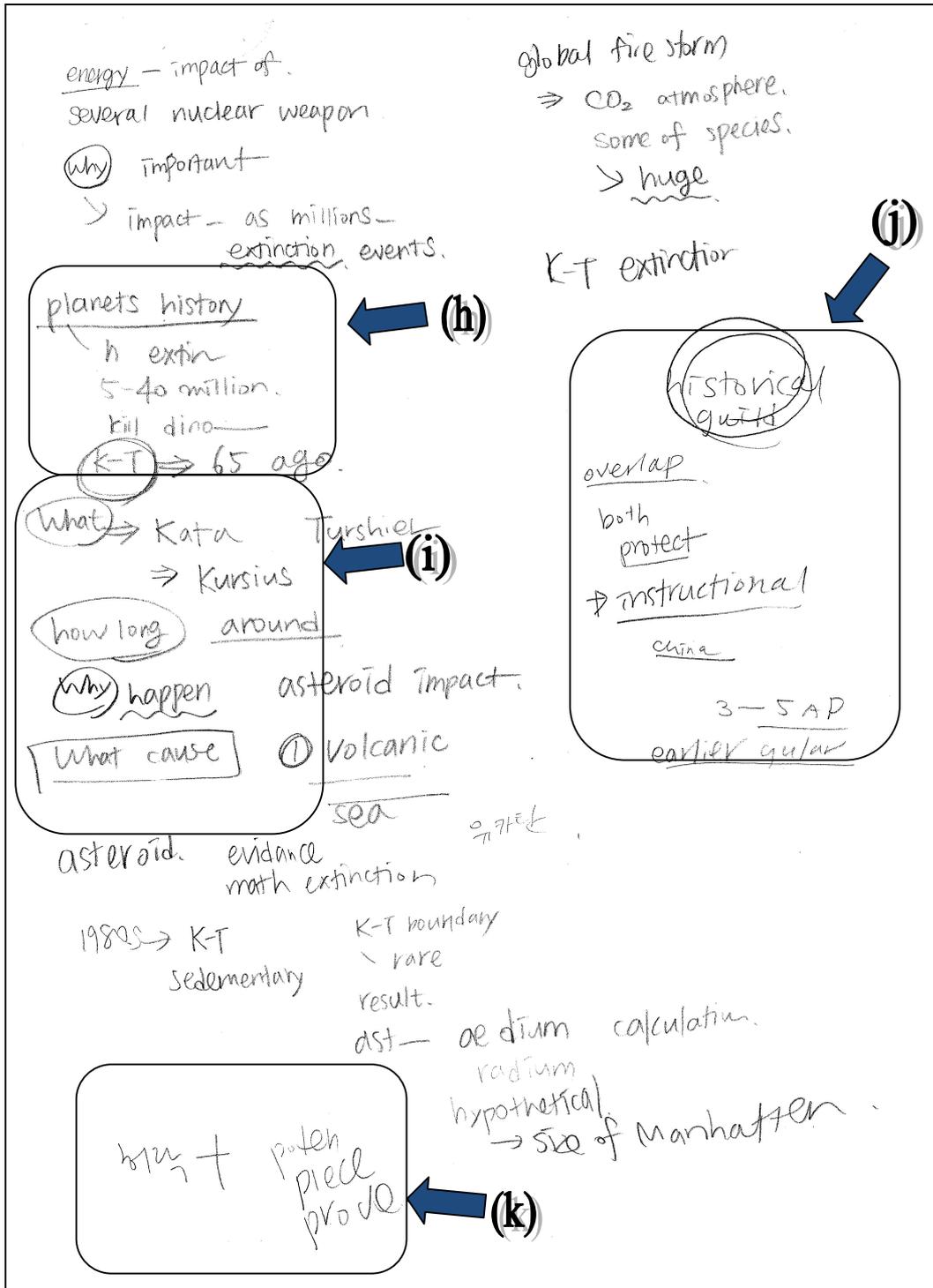


Figure 4.7 Student EE's Notes Made during Test II



The third student, KE, used Korean to record certain facts or developments, while using English words for fragmentary information during Test I. For example, she wrote “더 늦게 시작 1829 골드러시” (“started later, 1929, Gold Rush”), and “Cherokee people 제거 시도” (“attempted to get rid of Cherokee people”) to record the factual information (see boxes (m) and (n)). Then, she wrote English words or phrases separately, like “gold fever”, “get rich”, “died”, and “trail of tears”. Then, she switched to English for Test II (except the word “유카탄” (“Yucatan”)).

Like KK and EE, KE also made more systematic notes for Test II, not mentioning the increase in the total notations during Test II. For example, for Test I, she used only two arrows to indicate the relationship of two words or concepts. Actually, the first arrow in Figure 4. 8 does not show a relationship but shows the flow of the talk (see box (o)). Then, after the training, she used arrows more systematically to indicate the complex relationships among different information units, such as group and associations (see boxes (p) and (q)). She also used an outline format, starting with the heading “* history”, and listing countries where early guilds existed.

Figure 4.8 Student KE's Notes Made during Test I

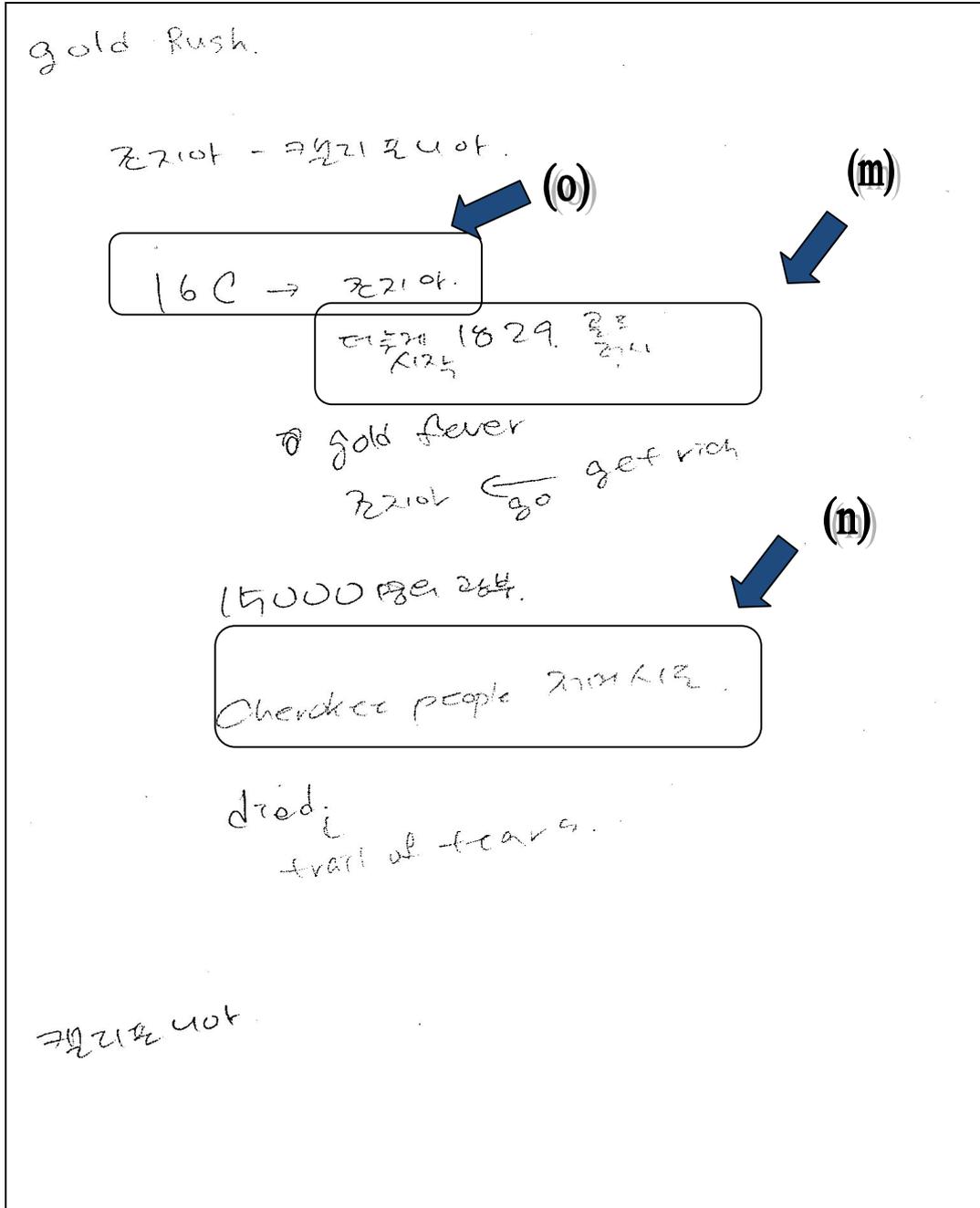
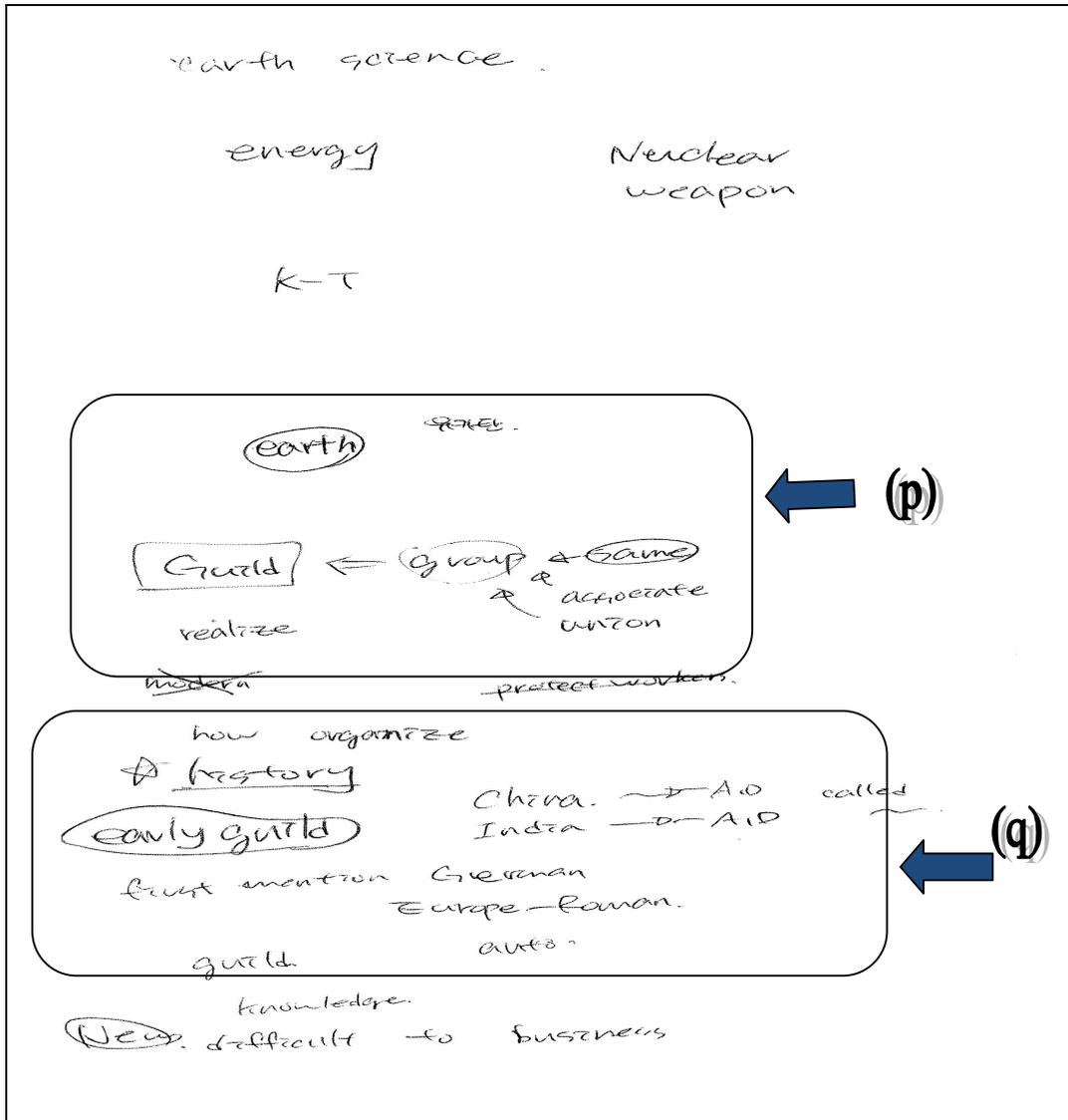


Figure 4.9 Student KE's Notes Made during Test II



In this subsection, students' notes were quantitatively and qualitatively examined to see the changes that the training might have brought forth. In summary, note-taking strategy training did affect the students' note-taking behaviors in a positive way. This result reminds us of the study by Peck and

Hannafin (1983), who reported that the note-taking instructed group generated quantitatively more detailed notes than the uninstructed group, although they did not necessarily identify the important information more effectively than the uninstructed group. Unlike Peck and Hannafin's study, the present study showed that the instructed students made more notes and identified information more effectively after the training than before.

4.3. Perceptions on Note-taking and Its Training

The third research question probed the psychological dimension of the effect of note-taking strategy training, that is, the students' perceptions regarding note-taking strategies and the strategy training. Results of the questionnaire survey and interview will be reported in this section.

4.3.1. Questionnaire Survey Results on the Perceptions on Note-taking and Its Training

Before we start to probe into students' perceptions on note-taking, it would be helpful to see their current status of making and using notes in learning and testing. In Survey I, before the training, the questionnaire asked the students if they usually take notes during the class hour or testing. As Table 4.7 shows, students seem to

be on the positive side of the scale as far as note-taking is concerned. If we compare the positive side and the negative side of the scale, while 36.9% of the students indicated that they take notes during the class, only 18.5% responded that they do not. In testing situations, while 43.4% of the students said that they take notes, 22.9% said no. It is notable that more students tend to take notes in testing situations than in learning situations (43.4% vs. 36.9%).

Table 4.7 Students’ Use of Notes in School (Before the Training)

	N	SD	D	N	A	SA	Mean
		(%)	(%)	(%)	(%)	(%)	(Std.)
<u>1. Usually take notes during the class.</u>							
	91	3	14	40	28	6	3.22
	(100%)	(3.3)	(15.4)	(44)	(30.8)	(6.6)	(.90)
<u>2. Usually take notes during the test.</u>							
	91	3	18	30	28	12	3.31
	(100%)	(3.3)	(19.8)	(33)	(30.8)	(13.2)	(1.04)

SD= strongly disagree, D= disagree, N=neutral, A=agree, SA=strongly agree

Did the perceptions change after the training and the second testing? We will first seek an answer with quantitative data. The quantitative data indicate that the answer seems to be positive. In Table 4.8, students’ responses to three questions over the two surveys are presented. The values under “Q2-Q1” are the mean differences between Q2 and Q1. A positive value indicates that the students’ perceptions changed in a positive way. All three values under “Q2-Q1” are positive, signifying that the perceptions improved after the training.

If we look at the response pattern for each question, the effects look more

evident. For question 1, the percentage of positive response increased from 0 (Q1) to 5.9% (Q2). For question 2, the positive response increased from 19.4% to 41.2%. For question 3, it increased from 35.5% to 58.8%.

Table 4.8 Perception Changes between Surveys I and II¹⁵

	N	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean (Std.)	Q2-Q1
<u>1. Had sufficient time to take notes during the test.</u>								
Q 1	31 (100%)	8 (25.8)	13 (41.9)	10 (32.3)	0 (0)	0 (0)	2.06 (.772)	
Q 2	17 (100%)	1 (5.9)	7 (41.2)	8 (47.1)	1 (5.9)	0 (0)	2.53 (.717)	.47
<u>2. Actually used notes during the test.</u>								
Q 1	31 (100%)	7 (22.6)	9 (29.0)	9 (29.0)	6 (19.4)	0 (0)	2.45 (1.060)	
Q 2	17 (100%)	2 (11.8)	1 (5.9)	7 (41.2)	7 (41.2)	0 (0)	3.12 (.993)	.67
<u>3. Being allowed to take notes helped remember better during the actual testing time.</u>								
Q 1	31 (100%)	2 (6.5)	7 (22.6)	11 (35.5)	11 (35.5)	0 (0)	3.00 (.931)	
Q 2	17 (100%)	1 (5.9)	2 (11.8)	4 (23.5)	10 (58.8)	0 (0)	3.35 (.931)	.35

SD= strongly disagree, D= disagree, N=neutral, A=agree, SA=strongly agree

As for the qualitative data, the students' responses to two questions will be reported here: (1) perceptions of note-taking itself and (2) those of the note-

¹⁵ Since the questionnaire items listed in the table were irrelevant to Group C, the respondents were only from Groups A and B. The number of respondents dropped from 31 for Q1 to 17 for Q2, as many failed to respond to the questionnaire survey.

taking strategy training. The following are some of the positive comments on taking notes during the test. In essence, the students saw the benefits of taking notes in terms of assistance with identifying the main ideas and important parts, storing and retaining the information, recalling, and solving problems.

- 1) *Taking notes helped me remember longer.*
- 2) *Taking notes during the test was helpful to solve the questions.*
- 3) *Taking notes helped find important parts or key words of lectures.*
- 4) *I could find necessary information from the notes later.*
- 5) *Taking notes helped recall during the test.*
- 6) *Reviewing notes helped recall what was said during the test.*
- 7) *By taking notes, I could reify the themes of the lectures.*
- 8) *Taking notes gave me the sense of stability during the test.*

These perceptions of the students are reminiscent of the comments made by the students in Haghverdi, Biria, and Karimi's (2010) study, who reported that note-taking can extend attention spans, help them to keep focusing on the subjects, remember what they read or heard, organize ideas, record, and write to increase their understanding.

However, the picture is not absolutely in favor of note-taking in testing situations. As in some studies showed the negative effects of note-taking (see Hale & Courtney, 1991, 1994, for example), some students in the present study, although a minority, also expressed a negative side of taking notes during test

taking. Their complaints are listed below.

- 1) I missed the important parts while taking notes during the test.*
- 2) I was not accustomed to taking notes.*
- 3) I felt uneasy about taking notes during the test because I might miss the contents of lectures.*
- 4) It was difficult to understand the lectures because the talks were too fast or difficult.*

One thing to note is that there was some discrepancy between the students' perception of note-taking and actual act of note-taking. In short, they did not take notes even though they praised the virtue of taking notes. Of the students in the note-taking allowed groups (i.e., A and B), about 30% answered that they did not take any notes during the tests (in Test I, 32 students (32.5%); in Test II, 27 students (29.7%)). Considering the fact that most students in the current study admitted the benefits of taking notes during the test, this discrepancy seems to be a good example of people not practicing what they preach.

In this respect, it seems necessary to think about the reasons why the students did not take notes during the testing. One of the important reasons may be the lack of skills in taking proper notes. Although the students in the trained group were aware of the techniques of making notes, they may not have been fully equipped with the automatized, or semi-automatized skills to make notes quickly and effectively under the pressure of listening, comprehending, and solving the

problems.

Another reason for the reluctance of generating notes in the testing situation may have to do with the nature of the tests. Majority of the test items in the present study were in a MC format, with four options. In ordinary situations of listening tests, students usually try to quickly go over the printed options before or while listening to the message in order to spot or focus on the piece of information that they should pay attention to in the message. Then, busy with the scanning act over the options, the students may not have time or cognitive energy to make notes. More research is needed to exactly pinpoint this kind of obstacle to taking notes in testing situations.

As for the usefulness of the training, many students in Group A (the trained group) acknowledged its benefit. In Survey II, out of 26 students who responded to Questionnaire II, 20 students (76.9%) commented positively on the benefits of note-taking strategy training.

- 1) After taking classes on note-taking strategies, I could remember better during the test.*
- 2) After taking lessons on note-taking strategies, I could learn and practice specific note-taking skills such as abbreviations.*
- 3) After taking lessons on note-taking strategies, I could learn more effective ways of finding necessary information to answer the questions.*

4.3.2. Interview Results on the Perceptions on Note-taking and Its Training

The purpose of conducting interviews in addition to the questionnaire surveys was to obtain more in-depth information and insights about the students' perceptions. In fact, most of the opinions about the notes, note-taking, and the training were expressed through the students' responses to the questionnaires. Here, the students' voices and reasons behind their opinions are explored.

The characteristics of the 9 interviewees are summarized in Table 4.10. Since the interviewees were selected with several factors taken into consideration, such as their pretest score, generation and use of notes, and test performance on Tests I, their perceptions varied in their orientation and preference. These perceptions are categorized, introduced, and interpreted below.

Table 4.9 Characteristics of the Interviewees¹⁶

Group	Student	PreT Score	Test I # notes	Test II # notes	Characteristics
C	C1 (female)	4	6	5	- Perceived the necessity or desire to take notes if the listening texts are long.
	C2 (female)	0	7	4	- Felt uneasy when note-taking was not allowed.
B	B1 (female)	0	6 79	2 10	- Performed better under a note-taking allowed condition. - Performed better when taking more notes.
	B2 (female)	4	7 0	6 2	- Took few notes because talks were too fast and the listening texts were too difficult.
A	A1 (male)	1	8 0	7 21	- Showed relatively good test scores regardless of the quantity of notes.
	A2 (female)	2	5 15	7 1	- Gave up taking notes in the middle of the test. - Took notes when the topic was familiar to her, but did not when she needed to concentrate more.
	A3 (male)	2	7 27	3 0	- Performed better taking many notes. - Talked about uselessness of the note-taking strategy training without sufficient proficiency.
	A4 (female)	5	11 98	7 9	- Had experience of living in English speaking countries. - Prepared iBT TOEFL before. - Did not take notes in Listening Test II.
	A5 (female)	0	6 3	5 31	- Had positive perceptions after the note-taking strategy training. - Showed personal efforts to practice specific note-taking strategies.

¹⁶ Interviewees were selected after Test I according to the students' test results in Test I and their note-taking behaviors.

4.3.2.1. Perceptions about Note-taking

First we will see how the students felt about making and using notes. Then, their perceptions about the training of note-taking strategies will be examined. In order to show their perceptions more succinctly, the titles of the subsections here will use short expressions with some emotion-laden words and phrases.

a. “It’s good!”

Like many students in all the groups, many of the interviewees perceived the necessity of taking notes during the test, whether they were allowed to take them or not. Some of their varying thoughts are introduced in the following subsections.

(1) “ I felt bad because I couldn’t...”

We will first discuss the responses of the students who were not allowed to take notes. Two were selected from Group C. During the interviews, the two students from Group C learned that there were groups that had been taught and allowed to take notes during the tests. Both Students C1 and C2 said that they had felt bad because they had not been allowed to take notes. They felt that they would do better if note-taking was allowed. The following are excerpts from the interviews with C1 and C2, who were interviewed separately.

C1: *Yes, I felt frustrated since the lecture was about science. Because I am not a native speaker, it was difficult to catch the main ideas immediately. If taking notes were allowed, I could understand the lectures. And then I can find the answers for the questions easily. However, I could not take notes during the test, so it was hard for me to recollect the contents of lectures. I felt uneasy. I could not even perceive what the lecture was about.*

Researcher: *Do you think that you would get better test results if you took the two sets of listening comprehension tests under the note-taking allowed condition?*

C2: *For me, taking notes during the listening test is more comfortable. Otherwise, I tend to translate English into Korean during the test. When I began to translate something, I forgot what was said during the test.*

Researcher: *How did you feel because you could not take notes during the test this time?*

C2: *I felt choky. Then I could not think anymore. Without taking notes, it was difficult to concentrate on the listening texts. It was like just listening to popular songs without understanding.*

(2) “I felt good because I could...”

Unlike the students from Group C, students who had been allowed to take notes felt good about it. Student B1 indicated that she feels uncomfortable if taking

notes is not allowed in class. Thus, she felt uncomfortable during the Pretest, but comfortable during Tests I, as she was allowed to take notes. To her, notes were helpful because she could use the information in the notes to solve problems. An excerpt from her interview illustrates this.

***B1:** I can not concentrate on the tests when taking notes is not allowed. Then, I have a tendency to answer the questions thoughtlessly as I did during the Pretest. The test I took recently (i.e., Test I) made me comfortable, because I could take notes. I could refer to the information to answer the questions later. Therefore, taking notes was more comfortable and better for me to answer the questions rather than not taking notes.*

(3) “It actually helped ...”

Two students reported that they could do better on the test when note-taking was allowed. Their beliefs were confirmed by their scores. B1 scored 0 point (out of 6) on the Pretest, when note-taking was not allowed. She scored 6 (out of 12) on Test I, when she could take notes. Likewise, A5 scored 0 point on the Pretest, but scored 6 and 5 on Tests I and II, respectively. A2 was not trained, but A5 was in note-taking strategies. A5’s testimony on the usefulness of training will be introduced later.

b. “It’s good, but...”

Although many students admitted that taking notes is useful, there were some students who had some reservations about it. Some of them expressed their inability to take notes, and others saw the limited usefulness of note-taking.

(1) “It’s good, but I couldn’t ...”

Three students reported they couldn’t take notes because of their inability to take notes. Student B2 said that she could not take notes because the lecture was too fast for her to take notes. Student A1 said that listening and writing at the same time was too difficult for her. Student A3 confessed that insufficient language proficiency was the obstacle to her note-taking acts.

B2: *When I was in high school, I could understand the words and had enough time to take notes while testing. However, today I could not take notes because the listening texts were too fast. I did not have enough time to take notes during the test. Because I am not good at English, I need time to translate English into Korean to understand the lectures. It was impossible for me to do it this time because the listening texts were too fast to understand.*

A1: *It was impossible for me to take notes during the test. I was so busy listening to what was said. Listening and writing at the same time was hard and uneasy, so I did not take any notes during the test.*

A3: *At first, I think, I need to be more accustomed to listening. I might miss the important information to answer the questions if I did not have sufficient language proficiency to take notes. In that case, taking notes is not necessary.*

(2) “ It’s good if ...”

There were some students who endorsed note-taking conditionally. Student C1, who had felt frustrated at the science topic lecture, thought that note-taking would be especially helpful when the texts were long. A similar opinion was expressed by Student A2, who felt that note-taking would be helpful for this iBT TOEFL type of test, which had long lectures. She also said, however, when the lecture was difficult, she gave up taking notes. Student A4 indicated that her past experience of the iBT TOEFL note-taking during her preparation efforts for the real iBT TOEFL helped her in the present study. Excerpts from the interviews with A2 and A4 follow.

Researcher: *You just listened to what was said?*

A2: *Yes, because the second part of Test I was difficult; it had many difficult*

words and signs, and the listening texts were too fast. For those reasons, I gave up taking notes, and just listened to what was said.

A2: *I take notes if the themes of the subjects are easier. If not, I try to concentrate on listening itself without taking notes.*

Researcher: *You don't take any notes when you concentrate on listening? What do you think of taking notes during the test? Do you think note-taking during the test is helpful, or not?*

A2: *I think that this test (i.e., iBT TOEFL) is somewhat different from TOEIC. It was necessary to take notes for this kind of test. The listening texts were too long, so it was difficult for me to recollect the main points during the test.*

A4: *When I studied for iBT TOEFL, I learned note-taking skills such as abbreviations. Therefore, the lessons this time were not new to me. If I did not know those things, the practice on the note-taking strategies would have been helpful and effective.*

4.3.2.2. Perceptions about the Training

As many students endorsed the benefits of notes and note-taking, students usually agreed that the training of such skills is also helpful. However, there were also some students who had a slightly different idea.

a. “It’s good!”

Three interviewed students, B1, A1, and A4, thought that the training on note-taking was necessary. The statements of B1 and A5 are quoted below.

B1: *You mean, listening training like that? I think that it is necessary. Right now, note-taking means that I jot down something when I hear it and I only catch main ideas without any strategies. Those were about all note-taking skills I was using. Therefore, I am not always confident in listening. For me, taking lessons on note-taking strategies is good.*

A5: *You mean the training about the note-taking strategies? I read the handout about permafrost you gave me. I had practiced continuously some signs and abbreviations such as “=” or “↔” since then. Using “ex” instead of “for example” was also useful during the test. I also used some abbreviations. The skills you taught me were very helpful.*

b. “Is it necessary?”

One of the interviewees expressed her doubt about the necessity of formal strategy training. She had lived in an English speaking country (i.e., Canada) for more than one and a half year during the fifth and the sixth grades and scored the highest on Test I. During her high-school days, she studied for iBT TOEFL. She

thought that a quick, brief introduction to the tips of note-taking would be better than formal training. This is what she said:

A4: For me, I did not take official classes on note-taking skills. I was taught those skills right after completing iBT TOEFL listening as tips for just one minute. I think that kind of practice is better than taking official lessons on the note-taking strategies.

As was expected, students in general saw the usefulness of notes and note-taking strategy training. What was additionally revealed in the interviews was that the students can have different hidden reasons for their preference or reluctance to use notes or like the training. More extensive research on this psychological aspect of note-taking and its training would shed more light upon our understanding of the issue.

4.4. Effects of Note-taking Strategy Training on Test Performance

Although the effects of strategy training on note-taking behaviors and perceptions are important, it is the effect of the training on test performance itself that attracts our attention the most, because both the students and teachers are

mostly concerned with good performance on the test. If anything helps with test performance, then it should be studied, applied, and evaluated in testing. In that sense, the result of the research reported in this section will be a culminating part of the research.

Two results draw our attention. One is about the effect of note-taking; the other is about the effect of the training. First, with regard to the effect of note-taking, Table 4.10 shows the results of descriptive statistics of the scores for Tests I.

Table 4.10 Descriptive Statistics of the Scores of Test I

	Group	N of Students	Mean	SD	Min.	Max.
Test I	A	32	6.09	2.190	1	11
	B	30	6.27	2.377	1	11
	C	30	5.27	1.929	2	9
	Total	92	5.88	2.193	1	11

In Test I, the note-taking allowed groups, i.e., A and B, performed a little better than the group which was not allowed to take notes, i.e., C. Since Test I was administered before any training was given to Group A, the only condition that separates Groups A and B from Group C was the freedom of taking notes while taking the test. Thus, it is suspected that the condition of note-taking may have something to do with the relatively low score of Group C. (In Pretest, the mean of Group C was the same as that of Group A, which was 2.13.). In order to confirm this, a one-way ANOVA was conducted, whose result is shown in Table 4.11.

Table 4.11 ANOVA Summary Table of the Scores for Test I

		Sum of Squares	df	Mean Square	F	Sig.
Test I	Between Groups	17.233	2	8.616	1.824	.167
	Within Groups	420.452	89	4.724		
Total		437.685	91			

Table 4.11 shows that the differences among the three groups were not statistically significant. Therefore, it should be concluded that the act of note-taking did not have any significant effect on students' performance in the English listening test in the present study.

The effect of the strategy training was not tested with the test scores for Test II. Table 4.12 shows the descriptive statistics of the three groups' scores for Test II.

Table 4.12 Descriptive Statistics of the Scores for Test II

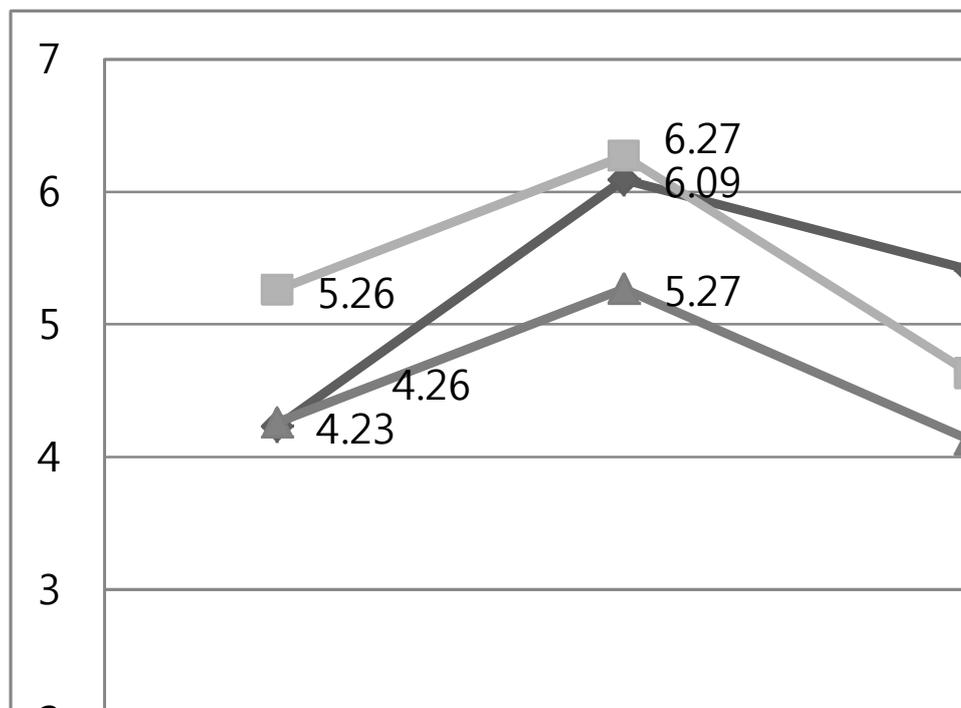
	Group	N of Students	Mean	SD	Min.	Max.
Test II	A	32	5.41	1.898	3	10
	B	30	4.63	1.790	0	8
	C	30	4.13	1.548	1	7
	Total	92	4.74	1.815	0	10

In Test II, the effect of note-taking manifested itself in the difference of scores between Groups A and B since Group A and B differed only in the treatment of note-taking training. In Table 4.13, Group A (M=5.41) did score higher than Groups B (M=4.63) and C (M=4.13). This difference is graphically represented in

Figure 4.10.

An interesting trend of score change is seen in the figure. That is, the group rank of scores changed from the Pretest to Test I, and to Test II. On the Pretest, Group B (M=2.63) scored higher than Group A (M=2.13), which scored the same as Group C. This superior performance of Group B continued in Test I, on which Group B (M=6.27) once again scored higher than Group A (M=6.09) and Group C (M=5.27), although the ANOVA indicated that the difference was not significant. So, the initial state of Group B, before the training, was slightly higher than Group A.

Figure 4.10 Trends of Score Changes on the Pretest, Test I, and Test II



Then, on Test II, the superiority of Group B over A was reversed. Group A (M=5.41) scored higher than Group B (M=4.63) by 0.773 points on the 12-point maximum score test. Then, the question is whether this difference was statistically significant. An ANOVA summary is given in Table 4.13.

Table 4.13 ANOVA Summary Table of the Scores for Test II

		Sum of Squares	df	Mean Square	F	Sig.
Test II	Between Groups	25.587	2	12.794	4.153	.019*
	Within Groups	274.152	89	3.080		
	Total	299.739	91			

*. The mean difference is significant at the .05 level.

Since Table 4.13 indicated that the score difference among the three groups was significant, a post-hoc test was run to see where the significant difference lies. Table 4.14 is the result of the LSD test.

Table 4.14 LSD Results

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Test II	1	2	.773	.446	.087
		3	1.273*	.446	.005*
	2	3	.500	.453	.273

The difference, according to Table 4.15, is significant only between Groups A and C ($p=.005$), not between Groups A and B ($p=.087$). Although the significance level ($p=.087$) between Groups A and B was fairly low, it did not satisfy the significance level of $p=.05$ set for the present study. In other words, the trained group outperformed the untrained group only when the group was not allowed to take notes. Therefore, it should be concluded that the note-taking strategy training alone did not have a meaningful effect on the students' performance in the present study.

What can account for this lack of training effect in the present study? One possible reason may lie in the relatively poor performances of all three groups on Test II compared to Test I. The overall mean for the entire groups on Test I was 5.88 out of 12; however, it dropped to 4.74 on Test II, a drop by 0.86 on the 12 point test. The fact that the students' performance did not elicit their full potential proficiency on Test II might have confounded any meaningful results that the training could have produced. In other words, the result might have been different if the students had scored about the same on Test II as they had done on Test I. A future study may need to explore this possibility.

Then a question rises as to why there were sharp declines of scores, in all three groups, from Test I to Test II. As has been already described in Chapter 3 (see Tables 3.3 and 3.4), the lecture texts for Test II were easier than those for Test I. In a normal condition, students should have scored higher on Test II than on Test I, especially with some practice effects gained from two previous tests (i.e., the Pretest and Test I), but they did not.

A couple of reasons can be offered to explain this result. First, it might be the sincerity condition of the participants that demotivated them in their test performance. As Table 4.14 demonstrates, all three groups scored higher on Test I than on Test II. Considering the fact that the lecture texts used in Test I were more difficult than those used in Test II (see Tables 3.3 and 3.4), the overall low scores on Test II imply that the students did not take the test as seriously as they had done on Test I. When they took Test I, they might have taken it with the usual seriousness that people generally have for any type of test. However, by the time they took Test II, they might have realized that this particular test was not in the least related to their school work or evaluation and therefore took it rather haphazardly. Besides, a fatigue factor might have played a role, too.

Another possible reason can be found in the special situation in which the participants were put at the time of Test II administration. Test II was administered to Groups A and B on June 13th, and to Group C on June 15th. This was the time of final examinations for college students. The students were occupied with the ongoing or imminent school examinations and term papers as well. In such a tight and stressful situation, taking a test that had nothing to do with their school grades might have been a nuisance and an unwelcome burden. Then the students might have decided to exert minimal effort to this task of test taking. Thus, this inappropriate timing seems to be a critical weakness of the present research. If Test II had been administered at some other time when the students were free of the agonies and toils of the semester-end exams and papers and could take the test in a more peaceful state of mind, the result might have been different, showing an

improvement in their scores. Future research could take this issue into consideration.

CHAPTER 5.

CONCLUSION

This paper has reported on a study on the effect of note-taking strategy training on Korean college students' perceptions and performance on academic English listening tests. Some of the research questions were positively answered, but others were not. This chapter will conclude the study with a summary of major findings, suggestions for pedagogical implications, discussions of the limitations of the study, suggestions for future research, and concluding remarks.

5.1. Summary of Major Findings

Major findings of the present study can be summarized as follows. First, the students' language proficiency and note-taking behaviors were related; higher proficiency students took more notes than lower proficiency students. Second, note-taking training affected students' note-taking behaviors in terms of both quantity and quality, showing positive effects of the training. Third, most students perceived the necessity or importance of note-taking and its training. Finally, although note-taking and note-taking strategy training did affect the trained group's test performance, its effect was not statistically significant. In short, note-taking training had limited effects on students, as it positively affected the students' notes and perceptions, but not their test performance.

5.2. Pedagogical Implications

The research method and findings of the present study, although limited in its design and findings, can provide some implications for language teaching and testing in general and in the Korean context. Some of such implications are outlined and discussed below.

First, the content of the note-taking strategy training includes such general and specific principles and techniques that are important to better understand spoken or written texts. By learning such principles and techniques, students know what to pay attention to, what to focus on, and what to remember. For example, among the guidelines, there were expressions that are typically used when the speaker introduces a new topic, such as, “Today, we’re looking at ...” and “Today, we’ll be discussing the ...” By explicitly instructing such expressions, the teacher can cultivate in the students the readiness to understand a new topic that would ensue such introductions. When a speaker changes his/her topic, he or she uses expressions such as “Let’s now turn to ...” Then, the listeners will be ready to prepare their mind set to shift their attention to a new, changed topic. Thus, after completing the instruction of the note-taking strategies, the students will have a wide range of resources that can be used not only when listening, but also when reading and even when speaking and writing.

Second, the issue about the effect of note-taking strategy training on teaching and learning is analogous to the issue about the effect of learning strategy training

on teaching and learning. Although the controversy over the effect of learning strategy training has not yet been completely subsided, it is generally accepted that the learning strategy training can be beneficial, and thus the training becomes a part of educational syllabi. Likewise, the training of note-taking strategies need to find its place in educational syllabi and in testing. As Korea is now anticipating a new national test, called the National English Ability Test (NEAT), which includes speaking and writing as well as listening and reading, students' awareness of the note-taking strategies will certainly make them more prepared.

Third, the current study also shed some light on English testing and testing research. As such high-stakes tests as iBT TOEFL and IELTS have already allowed the test takers to take notes, training in note-taking strategies will deepen the test developers' understanding of the test characteristics and enable them to develop better tests. A teacher who has experience in training students in taking notes will be able to anticipate the problems that his/her students may encounter while they take listening (or reading) tests. Testing researchers will also learn more about the students' testing behaviors through the research on note-taking in testing situations.

Fourth, the examination of the students' notes generated during the present research revealed that some students write much more notes in L1 (Korean) than in L2 (English) even at the college level. This may have to do with their lack of knowledge of L2 and ability to handle new information in a language that is still unfamiliar to them. As previous studies already noted, these students feel more comfortable when they make notes in L1. And yet, the main goal of L2 instruction

is to encourage the students to use the target as much as possible. Then, measures should be taken to find the optimal proportion of L1 in their generation of notes.

Fifth, the content and level of note-taking training need to be adjusted to the level of the students' linguistic proficiency. As the students' ability to make and use notes during learning or testing is directly related to their language proficiency, the trainers should take this into consideration when planning and implementing such a training.

5.3. Limitations of the Study and Suggestions for Future Research

Although the current study tried to comply with the general principles and rules for academic research, there are some inherent and structural limitations that need to be identified for future research.

First, the small number of test items might have been insufficient to find any significant relationships or differences. The pretest had only 6 items, and Listening Tests I and II had only 12 items each. Such small numbers may not establish the reliability of the tests, which is prerequisite to the validity of the tests. The test results might have been quite different if there had been more than 20 or 30 items in each test.

Second, the practicing time was relatively short even though there were three sessions of note-taking strategy training. For a successful acquisition of the note-taking strategies, the training should be long and continuous. Winne and Mark

(1980) proposed that increased instructional time and increased practicing time for note-taking strategies might make treatments powerful. Thus, many ESL programs in universities in the U.S. allow more than one week of practicing time for note-taking strategy training. Therefore, future research with additional practice time is desired to confirm this effect.

Third, the test materials used for the current study were three different sets of iBT TOEFL listening tests from a single preparation book. Therefore, the question items used for the test materials of this study might not guarantee the reliability, validity, and difficulties. For the future research, the items from more reliable and valid tests are needed for the test materials.

Fourth, the current study did not analyze some of the coding categories of notes such as summarizing and using symbols and abbreviations although they were included in the training materials. To exactly identify the effects of the note-taking strategy training, the coding categories of the students' notes should include these in the analysis.

Fifth, the number of the participants who took notes during Listening Tests I and II fluctuated in this study. As was discussed in the preceding chapter, the students' seriousness about the testing decreased by the time they took Test II, and they did not care much about complying with the researcher's suggestions to take notes. More control of this aspect is desired in the future research.

Finally, as was discussed in the preceding chapter, the timing of Test II administration was very unfavorable to collect meaningful data. The students were psychologically pressed with their final exams and term papers at that time, and

were not psychologically available for sincere and serious participation in the test and the survey.

5.4. Concluding Remarks

Through this study, the researcher has tried to understand the effects of strategy training on the students' note-taking behaviors, their perceptions, and test performance. The research questions posed for the research were mostly answered with a positive yes. As for the question regarding the effect on test performance, although the data appeared to point to a positive direction, it could not be statistically supported. Thus, it is cautiously claimed that the present study, as a whole, did contribute to our understanding of the theme, especially in the Korean context. And the in-depth analysis of the students' responses to questionnaire surveys and interview will deepen our understanding of the students' perceptions about the important activity of taking notes during listening tests.

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APPENDICES

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APPENDIX 1.

Questionnaire I

문제지 번호:

학번:

1. 이름:

2. 전공

3. 성별

4. 나이

5. 평소에 수업을 할 때 note-taking 을 한다.	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다
6. 평소에 영어듣기 시험을 볼 때 note-taking 을 한다.	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다

7. note-taking 전반에 관한 개인적인 의견이 있다면 간단하게 기술해 주세요.

8. 오늘 시험에서 실제로 note-taking 을 했다.	1. 그렇다	2. 그렇지 않다.
8-1. 오늘 시험에서 note-taking 을 하지 않았다면 그 이유는 무엇입니까? 구체적으로 기술해 주세요.		

9. 실제 시험을 보면서, note-taking 을 하는 시간이 충분했다	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다
10. 실제 시험을 보면서, note-taking 자료를 사용했다.	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다
11. 실제 시험 보면서, note-taking 을 허용하는 것이 기억하기 좋게 했다.	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다

Questionnaire II

문제지 번호:

학번:

1. 이름:

2. 전공:

3. 나이:

4. 이전에 note-taking 에 관련된 강의를 들은 적이 있습니까?	1. 있다.	2. 없다			
5. 시험을 하면서 note-taking 하는 것은 도움이 된다.	1. 도움이 된다.	2. 도움이 되지 않는다.			
6. 오늘 시험에서 실제로 note-taking 을 했다.	1. 그렇다	2. 그렇지 않다.			
다음은 오늘 시험을 볼 때 note-taking 을 한 경우에만 답하세요.					
6-1. 오늘 실제 시험을 보면서, note-taking 을 하는 시간이 충분했다	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다
6-2. 오늘 실제 시험을 보면서, note-taking 자료를 사용했다.	1. 전혀 그렇지 않다	2. 그렇지 않다	3. 보통이다	4. 그렇다	5. 매우 그렇다
6-3. 오늘 실제 시험 보면서, note-taking 을	1. 전혀	2. 그렇지	3. 보통이다	4. 그렇다	5. 매우

허용하는 것이 기억하기 좋게 했다.	그렇지 않다	않다			그렇다
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5-1. 도움이 된다면, 어떤 면에서 도움이 된다고 생각하십니까?
구체적인 이유를 기술하세요.

5-2. 도움이 되지 않는다면 그 이유는 무엇입니까? 구체적으로
기술하세요.

아래 사항은 Note-taking 강의를 들은 경우에만 답하세요.

7. Note-taking 전략에 관한 강의를 들은 이후에 시험을 보는 것은	1. 도움이 된다.	2. 도움이 되지 않는다.
8. Note-taking 전략에 관한 강의를 들은 후 실제 나의 노트의 내용과 양은	1. 향상되었다.	2. 향상이 되지 않았다.

7-1. 도움이 된다면, 어떤 면에서 도움이 된다고 생각하십니까?
구체적인 이유를 기술하세요.

7-2. 도움이 되지 않는다면 그 이유는 무엇입니까? 구체적으로
기술하세요.

8-1. 노트의 내용이 향상되었다면 그 이유는 무엇이라고
생각하십니까? 구체적인 이유와 예들을 기술하세요.

8-2. 노트의 내용이 향상이 되지 않았다면 그 이유는 무엇입니까?
구체적으로 이유와 예들을 기술하세요.

APPENDIX 2.

Note-taking Strategy Training

(1) 노트필기의 기본 사항

I. 노트필기 또는 훈련을 하는 이유

:노트 필기를 꾸준히 하면 핵심을 파악하고 요약하는 능력, 정보를 체계적으로 정리하는 능력이 길러져서 효율적으로 학습을 할 수 있게 됩니다.

II. 영어 수업시간이나 시험시간에는 되도록 영어로 필기합니다. 한국말 표현이 더 짧거나 효율적인 경우에, 또는 영어로 그 단어가 생각나지 않은 경우에는 한국말을 사용합니다.

III. main points, important details, and important facts, numbers, and names 는 기록하도록 노력합니다. 하지만 중요하지 않은 부분은 기록하지 않습니다.

IV. abbreviations, symbols, shorter synonyms 와 paraphrase, 그리고 content words 를 기록합니다. (functions words 나 과장된 말들은 기록하지 않습니다.)

(2) 영어 강의의 구조

1. Beginning the lecture

수업의 시작을 알리는 표현들

* OK, is everyone ready?

* Right, let's begin.

* I think we can start now

* Shall we start?

강의의 주제 제시(Introduction of the Topic)

* Today we're looking at mobile and wireless technology.

* Today, we'll be discussing the research paper.

강의 내용 개요(Outlining the lecture)

* The lecture will be divided into three sections.

- * First/ second/next/then and finally~~
- * In the first part... in the second part...
at the end of this lecture~~

2. The body of the lecture

논지 전개(Time Sequential)

- * Let me start by saying the discussion by talking about stock market.
- * Let's take a (brief) look at the data.
- * There are two steps involved. The first step is... the second step is...

새로운 논지를 전개할 때 (Changing Topics)

- * The next topic of discussion is stages of sleep.
- * Let's now turn to a new topic.
- * Let's move onto the next part of the lecture.

비교, 대조할 때

- * I'm going to list three things that differentiate A and B.
- * A is similar in many ways to B.

강조할 때(Stressing)

- * The point I'd like to emphasized is that~~
- * The main point is that~~
- * Now please note that~/ Remember that~~

인용할 때(Citing/Quoting)

- * Experts say that~~
- * A survey shows that~~
- * According to a recently published survey~~

예를 들 때(Giving Examples)

- * Let's take an easy example.

3. Closing the lecture

요약할 때 (Lecture Summary):

- * To sum up/To summarize/ In summary/ In brief
- * In conclusion~/ To conclude~/ Therefore~/

질문 받을 때 (Questions):

- * Is that clear for everyone?
- * Do you understand this point?
- * Does that answer your question?

끝맺음(Closure and Preview):

- * OK, that's enough for today. We'll talk more about this in the next class.
- * Next week we'll uncover~~ as well as introduce~~

(3) 구체적인 노트테이킹 기술

요약하기 (Summarize)

- * 자기만의 말로 요약한다. (summarize in your own words)- 강의 시간에는 핵심(main idea) 만 적고

제목달기 (Main Points)

- * 핵심 단어만 적는다.
- * 주제와 소주제로 분류한다.-강의는 보통 하나의 주제(main topic) 아래 부제(subjects) 로 연결되어 있다. 부연 설명할 공간을 남겨 나중에 보충 설명
- *서두에서 전체를 짐작한다.

e.g.) First, I will explain the field of advertising in general terms, and then I'll talk about different types of appeals in advertising, and finally I'll discuss some specific techniques that are used in advertising.

Advertising

1. Advertising
2. Types of appeals
3. Techniques

설명 붙이기 (Supporting Points)

- * 정의를 내린다.
- * 예를 든다.
- * 세부사항을 열거한다.
- * 설명을 듣는다.- 부연 설명은 나중에도 보충가능

표시어 (Signal Words)

- * 중심 내용을 알리는 표시어

Time Sequence: There are three reasons

Change of topics: First/ Second/ Third

Initially...

Subsequently

Let's go back to

Conclusion or Summary:

Therefore/Thus

In conclusion

To conclude

In summary

Idea of Importance:
Now, this is important..
Remember that...

* 부연 설명을 알리는 표시어
Example: For example/For instance
Continuation: Also../ And In addition.. Further.../Another...
Contrast: On the other hand/On the contrary
/In contrast/ In spite of
However/But Whereas..
Comparison: Similarity.../Likewise.. In comparison... Both....
Cause and Effect:
So/Consequently... Accordingly... As a result...

부호와 약자

* 부호
= equals; to be
≠ not to be
+ and;plus
> more than / < less than
↑increase/↓decrease
number
~approximately
\$ money
% percent
Cf. compare
* 뒷부분 생략하는 경우
United Kingdom : UK/ United States : US / page: p. /summary : sum.
* 모음 생략하는 경우
tomorrow : tmrw / background :bkgd
* 중간 철자 생략하는 경우
government :gov't
* 그 외 기호와 약자 (Symbols and Abbreviations)

to go : 2go/ for you: 4U/ How are you: how r u / learning : lrng

(4) 실전 연습

다음의 지문은 이전에 여러분이 영어청취시험에서 들었던 내용입니다.

여러분은 어떻게 여러분의 말로 노트테이킹 하겠습니까?

Listen to part of a lecture in a geology class.

Today, we'll be continuing with our theme of Arctic environments by discussing permafrost. I suppose you've come across this term before in your Earth science classes. But I'll provide a quick definition anyway. Permafrost is ground-like rock or soil that remains below zero degrees Celsius, or at zero, for at least two years. Zero degree is, of course, the freezing point of water. Quite simply, the designation "permafrost" is based only on temperature.

Naturally, permafrost is commonly found in the higher latitudes, um the ones near to the North and South Poles like Greenland, for example, which stretches all the way to 84 degrees north, but elsewhere in the Northern Hemisphere, um, most permafrost lies between about 60 and 68 degrees north. See, above that, it's mainly the Arctic Ocean-no land. However, there's also such a thing as "alpine" permafrost too, which can be present at much lower latitudes because it's found at high altitudes, where the temperature is colder. Um, for example, this happens in the Himalayas, which are at relatively low latitude. All totaled permafrost accounts for about 24% of the planet's landmass. Um, that's about 22.79 million square kilometers of Earth's exposed land. (An omission of interior parts)

Permafrost can be divided into two main categories. First, there's discontinuous permafrost. This is the kind of permafrost you'd find in a region where the temperature barely stays below freezing throughout the year. If the annual surface temperature averages between 0 and -5 degrees Celsius, permafrost is

only intermittent. It's discontinuous, Now since this makes for the broad category- I mean, in some places you could have just tiny little patches of permafrost, with most of the land unfrozen.. and in other places there might be mainly permafrost with tiny patches of unfrozen ground. To account for these differences, the category of discontinuous permafrost is further divided into "extensive" discontinuous permafrost-where permafrost covers between half and ninety percent of the land- and "sporadic" permafrost... where permafrost covers less than half of the landscape. Um the extensive discontinuous permafrost zone generally has temperatures that averages between -2 degrees Celsius and -4 degrees Celsius. Sporadic permafrost makes up the warmer zones of discontinuous permafrost, where average temperatures are between zero and - 2 degrees Celsius.

The other main category of permafrost... um, as opposed to discontinuous. The category is continuous permafrost. By now, you must've guessed that this refers to places where there's no unfrozen ground where permafrost covers the entire landscape. Yep- you're right. The boundary between continuous permafrost and discontinuous permafrost has actually moved north in recent years as a result of global warming. (An omission of interior parts) We'll talk more about the last major glaciation period in our next class.

APPENDIX 3.

Pretest

The Script of Pretest

Question1-6: Nacre

Total # of words spoken: 809

Lecture Time: 5 minutes, 5 seconds

Delivery Rate: 159.1 words per minutes

Listen to part of a talk in a biology class.

(Professor: male) Good morning, class. Let's get started. Uh, what I wanted to talk with you about today is the formation of pearls. More specifically, I'd like to compare two ways that pearls form: naturally... and with human help. Let's start by talking about how pearls form naturally. I suppose most of you already have an idea how pearls develop in oysters, but let's go over the process to clear up any misconceptions you may have and make sure we're all working with the same information. OK? Natural pearls with a nucleus.

(Student A) You mean like a grain of sand or something? I've heard that pearls form around a tiny grain of sand that gets into an oyster's shell. Is that true?

(Professor) Well, the nucleus could be a grain of sand.. a tiny parasite.. a particle of plant material- just something that finds its way into an oyster's shell when it's open for the purpose of feeding or respiration. But the thing is.. this nucleus, whatever it is, it irritates the oyster. When this foreign particle becomes lodged between the oyster's shell and its mantle -um, which is the membrane that surrounds its soft body-when this happens, the oyster responds to protect itself from the particle. So what it does is coat the particle in nacre. And what's nacre? Nacre is that calcium carbonate material that covers the inside of an oyster shell. You know... the shiny stuff. Over and over, the original nucleus gets covered in layers of nacre. And when these layers build up enough, they form what we recognize as a pearl. If you looked at a cross section of a natural pearl, you'd see

a series of concentric, like the growth rings of a tree. And it all started with that tiny foreign particle that got inside the oyster's shell.

(Student B: female) So...natural pearls are formed just by accident, really? I mean, the oyster doesn't intentionally create the pearls for any reason?

(Professor) That's right. Pretty interesting, huh? The creation of natural pearls is just a response to an irritating particle. Um.. also, since they form under such specific circumstances, natural pearls are very rare, as you can imagine. But what's even rarer is a natural pearls that's perfectly round. And since a perfectly round pearl is nicer to look at than an irregular one, um...round natural pearls tend to be really expensive.

(Student B) But nowadays pearls are more affordable in general... because we have the ability to manufacture them, right? And it's easy to make them perfectly round.

(Professor) Well, yes. Pearls that form with help from humans are known as cultured pearls. But, uh, manufacture probably isn't the right term. It's not like we're building them in a factory. Cultured pearls form in much the same way as natural pearls- I mean, we still rely on oysters to create them.

(Student A) So how does the process work... the process of making a cultured pearl? Do people actually, um, insert nuclei into oysters?

(Professor) That's right. The technology to create cultured pearls was developed during the beginning of the twenties century. And it basically works just like you describe it. A nucleus is surgically implanted inside an oyster's shell. Um, this nucleus... they're usually made from a piece of the shell of an oyster... or another shelled mollusk. And... well, once the nucleus is in, the oyster pretty much takes over from there. The process is essentially the same as natural pearl formation. Nacre coats the nucleus and a pearl forms.

Uh, aside from the fact that cultured pearls formation involves humans inserting a nucleus, the main difference between natural and cultured pearl formation is the size of the nucleus. Natural pearls begin with a rather tiny particle, and the bulk of the pearl is made of nacre-layers and layers of it. Well, in cultured pearls the opposite is true. Most of a cultured pearl's mass is made up of the artificial nucleus, and the nacre coating on the outside is just a thin layer. Because of this, the nuclei of cultured pearls are really more like beads than tiny particles. They're nearly the same size and shape as the final pearl. If you looked at a cross section of a cultured pearl, it'd seem pretty different from the cross section of a natural pearl. As I said before, natural pearls have tiny growth rings. You know,

just like a tree has growth rings every year as it gets bigger, or uh, shells get growth rings as they develop. But, uh, if you looked at the cross section of a cultured pearl, you wouldn't see any growth rings, just a thin layer section of a cultured pearl, you wouldn't see any growth rings, just a thin layer around the nucleus. Most of the interior would just be solid nucleus bead. Got it?

Pretest

Part 1 [1~6] Listen to part of a talk in a biology class.



Nacre

1. What is the talk mainly about?
 - (a) The processes by which natural and cultured pearls are created
 - (b) Some common misconceptions about the formation of pearls
 - (c) The development of a technology to produce artificial pearls
 - (d) A biological explanation of why pearls form in oysters

2. What role does nacre play in the formation of pearls?
 - (a) It provides the nucleus around which a natural pearl develops.
 - (b) It is a calcium coating that protects the outside of the oyster's shell.
 - (c) It penetrates the membrane covering the oyster's soft body.
 - (d) It is the luminous substance that forms the pearl's outer layers.

3. Why does the professor mention growth rings in trees?
 - (a) To compare natural pearl development to something the students are familiar with
 - (b) To show the contrast between growth rings in pearls and those in living organisms
 - (c) To highlight a process that occurs more frequently in cultured pearls than natural pearls
 - (d) To explain why it is easy for scientists to determine the age of natural pearls

4. What does the professor say about round natural pearls?
 - (a) They do not look as attractive as they used to.

- ⒃ They have become more common than they once were.
- ⒄ People are willing to pay large amounts of money for them.
- ⒅ No one is entirely sure how they are formed.

5. What is usually used as the nucleus for a cultured pearl?

- ⒆ A fragment of mollusk shell
- ⒇ A large grain of sand
- ⒈ A particle of plant material
- ⒉ A tiny parasite

Listen again to part of the talk. Then answer the question. 🎧

6. Why does the professor say this:

- ⒆ To make sure the woman does not misunderstand how cultured pearls are made
- ⒇ To indicate that the manufacture of cultured pearls is still an inexact science
- ⒈ To express uncertainty about the process used to manufacture cultured pearls
- ⒉ To define the technical differences in the formation of natural and cultured pearls

APPENDIX 4.

Test I

The Scrip of Listening Test I

Question 1-6: Gold Rush

Total # of words spoken: 807

Lecture Time: 5 minutes and , seconds

Delivery Rate: 144.5 words per minute

Listen to a part of talk in an American history class.

(Professor: female) Is everyone ready to begin? Well, let me start by saying it all started in Daholngega, Georgia.

(Student A: male) Huh? What started there?

(Professor) I'm getting to that. But first, does anyone have any idea what I'm talking about? Dahlongega, Georgia, is known for somethi-

(Student B: male) [interrupting] Oh, I know! Dahlongega, is where the gold rush started!

(Student A) Wasn't that in California?

(Professor) You're both right. Georgia was the site of a gold rush... and California was too. That's actually what I want to talk about today: there two North American gold rushes.

I guess you could say that a zeal for gold has, um, long been a part of the national psyche of the United States. If you think about it, the prospect of gold was basically what brought colonists here in the first place. As early as the sixteenth century, the Spanish and French may have been mining gold in Georgia, but the real gold rush didn't begin until much later. Um, 1829, to be more precise.

So how did the gold rush officially start? Well we don't quite know for certain... and there're couple of different, um anecdotes about it. One suggests that someone named Frank Logan discovered some gold in Dukes Creek. A similar story indicates that gold found in Dukes Creek was actually discovered by a guy named John Witheroods. Yet another tale credits the discovery of gold to Jesse Hogan, who found gold near Dahlona. Whatever the case may be, gold was discovered in Georgia in 1828... tales of riches spread quickly throughout the nation, and soon prospectors from all over the country were suffering from "gold fever".. packing up their belongings and heading to Georgia to get rich.

Dahlonega was the center of it all. Actually, the name "Dahlonega" is from the Cherokee word for gold. Within a couple of years, the population of Dahlonega selled to 15,000 miners-um, according to the 2000 census, it has a population of less than 4,000 people today.

(Student B) When you mentioned that Dahlonega comes from the Cherokee language, it reminded me of something I studied last year in American history: the Trail of Tears. Is that in any way related to the, um, the gold rush in Georgia?

(Professor) That's an excellent question. You're absolutely right. It's important to remember that the land where all of this gold was being discovered was actually Cherokee territory. The miners' obsession with gold led to a lot of trespassing in Cherokee tribal lands, and this caused tensions to increase between the U.S. national government and the Cherokee nation. Eventually, the U.S. government became so desperate for the resources possessed by the Cherokee nation-I'm talking about the gold- that they actually seized the land. The government sent in the military in 1838 to forcibly remove the Cherokee people. But it was more than that... the Cherokees were actually forced to walk all the way from Georgia to Oklahoma. Four thousand of the 15,000 people who were made to take this journey died. For that reason, it is referred to as the, um, the Trail of Tears.

OK. I don't want to run out of time without discussing the California gold rush, so I'm afraid we have to move on now. The California gold rush began in much the same way as the Georgia gold rush- with someone finding gold...and madness ensuing. It was 1848, and the person who made the discovery was James Marshall. Three hundred thousand people caught gold fever this time around, coming from all over the world: Latin America, Asia, Europe, Australia... These people earned the nickname "forty-niners," because they arrived in 1849 after hearing the news.

(Student A) Professor.. were there any negative effects of this gold rush? You know... like you mentioned about the one in Georgia.

(*Professor*) Well, yes, but first let me mention that some of the effects of the California gold rush were relatively beneficial, I mean, the state underwent a lot of growth, and new roads, churches, and schools were created to serve the new population. In addition, transportation was constantly improving, as people traveled west in steamships and by railroad.

But, as I think you're suggesting, some of the things that happened in Georgia occurred in California as well. I mean, the gold rush in California had a severely and negative impact on the local Native American population. Disease, starvation, and violent attacks resulting from the gold rush caused their population to drop from 150,000 people in 1845 to 30,000 in 1870. The gold rush made many victims of other minorities as well. People from all kinds of different backgrounds were forced to compete for limited resources... and turned some people against each other. Unfortunately, gold-rush boom towns were a lawless frontier, where racial tensions often escalated to violence. And there was not one to maintain order.

Question 7-12: Permafrost

Total # of words spoken: 741
Lecture Time: 5 minutes, 21 seconds
Delivery Rate: 138.5 words per minutes

Listen to part of a lecture in a geology class.

(*Professor: male*) Today, we'll be continuing with our theme of Artic environments by discussing permafrost. I suppose you've come across this term before in your Earth science classes...but I'll provide a quick definition anyway. Permafrost is ground-like rock or soil-that remains below zero degrees Celsius, or at zero, for at least two years. Zero degree is, of course, the freezing point of water. Quite simply, the designation "permafrost" is based only on temperature.

Naturally, permafrost is commonly found in the higher latitudes, um, the ones nearer to the North and South Poles-places like Greenland, for example, which stretches all the way to 84 degrees north. But else where in the Northern Hemisphere, um, most permafrost lies between about 60 and 68 degrees north. See, above that, it's mainly the Artic Ocean-no land. However, there's also such a

thing as “alpine” permafrost too, which can be present at much lower latitudes because it’s found at high altitudes, where the temperature is colder. Um, for example, this happens in the Himalayas, which are at relatively low latitude. All totaled permafrost accounts for about 24% of the planet’s landmass. Um, that’s about 22.79 million square kilometers of Earth’s exposed land.

In many areas, permafrost is covered by a thin layer of soil that’s subject to thawing during warmer months and refreezing during the winter. This layer is known as the active layer. It’s usually about 0.6 to 4 meters thick; the depth depends a lot on the region and the conditions there. The characteristics of the permafrost layer itself can vary a little bit. Sometimes-if it’s composed of a nonporous material like bedrock- it won’t contain any ice at all. In other cases, it’ll contain up to 30% ice. Sometimes, permafrost may be covered by snow... and sometimes it isn’t. There’s a huge range of thickness, too. It may be just a meter in thickness, too. It may be just a meter in thickness, but at its thickest, permafrost can be 1,000 meters deep.

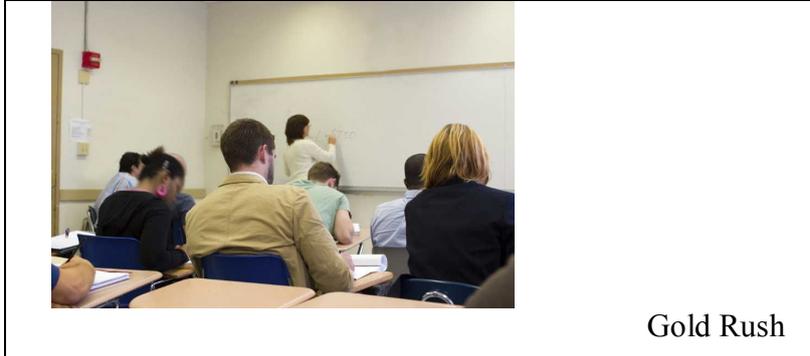
Interestingly enough, even though it’s relatively easy to classify permafrost-the ground surface has to be at zero degrees or less for two years, remember-its not so easy to exactly map its distribution. Common sense might tell us that permafrost should be found in places where the air temperature remains below freezing for most of the year, and that’s generally true... but, as it turns out, it’s not entirely that simple. Permafrost doesn’t always exist where air temperatures remain below freezing. Even beneath glaciers, where the air temperature is certainly very cold, there’s no guarantee that there’ll be permafrost.

Permafrost can be divided into two main categories. First, there’s discontinuous permafrost. This is the kind of permafrost you’d find in a region where the temperature barely stays below freezing throughout the year. If the annual surface temperature averages between 0 and -5 degrees Celsius, permafrost is only intermittent. It’s discontinuous, Now since this makes for the broad category- I mean, in some places you could have just tiny little patches of permafrost, with most of the land unfrozen.. and in other places there might be mainly permafrost with tiny patches of unfrozen ground. To account for these differences, the category of discontinuous permafrost is further divided into “extensive” discontinuous permafrost-where permafrost covers between half and ninety percent of the land- and “sporadic” permafrost... where permafrost covers less than half of the landscape. Um, the extensive discontinuous permafrost zone generally has temperatures that averages between -2 degrees Celsius and -4 degrees Celsius. Sporadic permafrost makes up the warmer zones of discontinuous permafrost, where average temperatures are between zero and - 2 degrees Celsius.

The other main category of permafrost...um, as opposed to discontinuous...the other category is continuous permafrost. By now, you must've guessed that this refers to places where there's no unfrozen ground where permafrost covers the entire landscape. Yep- you're right. The boundary between continuous permafrost and discontinuous permafrost has actually moved north in recent years as a result of global warming. In the Yukon in Canada, the boundary has receded by about 100 kilometers in the past century or so. On the other hand, during the Earth's last major period of glaciation, permafrost could be found a lot farther south than it is now. Back then, continuous permafrost extended as far south as Beijing, China. We'll talk more about the last major glaciation period in our next class.

Test I

Part I [1~6] Listen to part of a talk in an American history class.



1. What is the talk mainly about?
 - (a) The gold mining operations among the Native Americans
 - (b) The gold-mining frenzies in Georgia and California
 - (c) The westward movement across the United States
 - (d) The mistreatment of the Native Americans in Georgia

2. How does the professor explain the commencement of the rush for gold in Georgia?
 - (a) By discussing the relationship between the U.S. government and the Cherokee people
 - (b) By explaining the term used to label miners who moved to Dahlonega in 1828
 - (c) By indicating how much money a miner could make in Dahlonega
 - (d) By telling several accounts of the discovery of gold there in 1828

3. What does the professor say about the Trail of Tears?
 - (a) It was the U.S. government's way of enforcing law in a lawless territory.
 - (b) It caused the death of thousands of Cherokee people who were forced to relocate.
 - (c) It was the route many miners followed when they left Georgia for California.
 - (d) It occurred when the collapse of the gold rush left many people impoverished.

4. The professor discusses two cases of the gold rush that occurred in Georgia and California. Indicate the features of each event. Check in the correct box for each phrase.

	Georgia	California
(a) Became the first gold rush to occur in the United States		

ⓑ Led to improvements in overland transportation		
ⓒ Resulted in the U.S. government seizing Cherokee territory		
ⓓ Encouraged the development of regional infrastructure		

Listen again to part of the talk. Then answer the question. 📞

5. What can be inferred about the man when he say this:
- ⓐ He is ashamed of his misconception about the gold rush.
 - ⓑ He is uncertain of the validity of his information.
 - ⓒ He is confused about the chronology of events in the lecture.
 - ⓓ He disagrees with the other student’s statement about the gold rush.

Listen again to part of the talk. Then answer the question. 📞

6. Why does the professor say this:
- ⓐ To indicate that Dahlonega has changed little in the decades since the gold rush
 - ⓑ To provide background detail about a city that figured prominently in the gold rush
 - ⓒ To emphasize the effect that the gold rush had on the population of Dahlonega
 - ⓓ To suggest that gold rush cities continued to prosper long after the initial rush ended

Part 1 [7~12] Listen to part of a lecture in a geology class.



Permafrost

7. What is the lecture mainly about?
- ⓐ The role of permafrost in Artic environments
 - ⓑ The characteristics and classification of permafrost
 - ⓒ The natural process by which permafrost forms

- ④ Two main categories of permafrost
8. Why does the professor mention permafrost in the Himalayas?
- ① To explain that certain conditions are necessary for the formation of permafrost
 - ② To suggest that permafrost is more common than many people believe
 - ③ To emphasize the change in permafrost that have occurred due to global warming
 - ④ To illustrate that alpine permafrost can be found at low latitudes
9. What does the professor say about discontinuous permafrost?
- ① It is subcategorized as either extensive or sporadic.
 - ② It is an early indicator of periods of global warming or glaciation.
 - ③ It covers approximately 24% of Earth's land area.
 - ④ It is the most common form of permafrost.
10. Indicate whether each of the following is mentioned in the lecture as a feature of permafrost. Check the correct box for each phrase.

	YES	NO
① May be covered by a light layer of dirt		
② Is relatively uniform in terms of its thickness		
③ Is often found beneath an "active layer" that thaws in the summer		
④ Does not exist outside of major alpine areas in higher latitudes		
⑤ Tends to be patchy in areas where the temperature stays around freezing		

Listen again to part of the lecture. Then answer the question. 🎧

11. Why does the professor say this:
- ① To test whether the students can remember what they have learned
 - ② To add something he forgot to mention in his introduction
 - ③ To remind the students of some facts that he mentioned before
 - ④ To let the students know that an important detail is coming up

Listen again to part of the lecture. Then answer the question. 🎧

12. Why does the professor mean when he say this:
- ① He does not want to waste time on something the students already know.
 - ② He wants the students to feel comfortable about speaking up in class.

- © He does not think he needs to go over the topic because it is not critical.
- Ⓓ He thinks the students have made a correct assumption about the topic.

APPENDIX 5.

Test II

The Script of Listening Test II

Question 1-6: K-T extinction

Total # of words spoken: 807

Lecture Time: 5 minutes, 42 seconds

Delivery Rate: 141.6 words per minute

Listen to part of a lecture in an earth science class.

(Professor: female) Class, let's jump right into the lecture for today. Let me start by telling you an interesting fact that's relevant to the rest of the lecture: the energy released by the impact of a large asteroid on our planet is equivalent to several million nuclear weapons. Tell me, why is this information important from a historical perspective?

(Student A: male) Well, if an impact like that can release as much energy as millions of nuclear weapons... well, that's catastrophic enough to explain extinction events in Earth's history.

(Professor) Exactly. Now by "extinction events" we're referring to periods in the planet's history when there's a very.. a very.. marked decrease in the number of species. Um, and it happens within a relatively short period of time- at least on a geological timescale. There've been a handful of extinction events during the past 540 million years, but- but the one that's, um, generated the most interest- because it killed the dinosaurs-um, it's the most recent one, the K-T extinction event... which happened 65 million years ago.

(Student B: male) Professor, what does "K-T" mean?

(Professor) Oh, "K-T" Well, "K" is a standard abbreviation for the Cretaceous Period. And "T" is the standard abbreviation for the Tertiary Period. Does anyone want to take a guess, then, about the meaning of the name "K-T"?

(Student A) Does it mean the extinction event occurred, um, during the

Cretaceous and Tertiary Periods?

(Professor) Sort of. Of course, we aren't exactly sure how long the K-T extinction event lasted. Could've been a few years.. could've been a few thousand years... or could've been even longer. But for a general figure, we date the K-T extinction event to around the end of the Cretaceous Period and the beginning of the Tertiary Period. It's basically seen as the dividing line between the two. And what we're going to talk about today is the reason why this extinction event happened. Which goes back to what I mentioned earlier-asteroid impacts can be extremely destructive.

Uh, before I go on, I just want to emphasize that no one knows what caused the K-T extinction event.. and there're many hypotheses. The asteroid hypothesis is of course just one of many. Could've been volcanic activity, climate change, or sea-level changes...just to name a few theories.

But, anyway, let's get back to the asteroid hypothesis, OK, Now even before there was any, um evidence for an asteroid impact causing mass extinctions, um, people were talking about the possibility. In 1980, though, we got our first glimpse of evidence that really backed the idea of an asteroid causing- causing the K-T extinction event. A group of researchers led by Luis Alvarez discovered an interesting, um, stripe.. uh, in the sedimentary layers of Earth's crust that date back to the end of the Cretaceous Period and the beginning of Tertiary Period. At the boundary of these two, um, layers - we call it the K-T boundary - there were deposits of a very rare element: iridium. Alvarez and his team discovered that, um the stripe of iridium was global... it appeared at the K-T boundary in sedimentary layers all over the world. Alvarez and his team wondered about the cause of the iridium deposits and, um, suggested that the iridium might have been the result of an asteroid impact that occurred around that time.

The theory was based on the fact that, uh, that certain types of asteroids contain a percentage of, um, iridium. So the Alvarez team made some calculations... assuming that the K-T asteroid had the, um, the usual amount of iridium. They came up with a size of Manhattan. An asteroid that size would've hit Earth with a force about 2 million times greater than the most powerful bomb ever tested by humans! Unimaginable.

(Student B) That blast would've immediately killed life all over the planet?

(Professor) Well, not exactly like that. There'd be a huge dust cloud that would actually – it would actually block out sunlight and prevent photosynthesis from happening on the surface of the planet. Bad news for plants...and for everything that eats plants... and for everything that eats things that eat plants. There also might've been, um, global firestorms. Produced by- by flaming debris from the

blast. And if there were widespread fires, well, there would've been a lot of CO₂ in the atmosphere... um, and as a result- a temporary greenhouse effect. So, um, some of the species that survived the initial blast would've been killed of by all that.

(Student A) An asteroid impact like that would've made a pretty huge dent in the Earth. Wouldn't it? I mean, is there any evidence of a crater from the K-T asteroid?

(Professor) Actually, there is. It's on Mexico's Yucatan coast. So there's certainly a lot of evidence supporting the asteroid theory of the K-T extinctions. Still - no one knows for sure.

Question 7-12: Guild

Total # of words spoken: 799

Lecture Time: 5minutes, 19 seconds

Delivery Rate: 150.2 words per minutes

Listen to part of a talk in a social science class.

(Professor: male) Class, what I want to talk about today is guilds. Um, so I was wondering if someone could start us off with a...a definition.

(Student A: male) Yeah, A guild is...um, it's like a group of people who have the same kind of occupation. I think it's generally used in a historical sense. I mean, I wouldn't call an association of, um, autoworkers a guild-I'd call them a union. But if I were talking about an association of medieval European potters, I think the word "guild" would be appropriate.

(Professor) Good. You raised some good points. Now, um, I want you to realize that guilds certainly still exist today- ever heard of the Screen Actors Guild or the Writers Guild of America? But the fact is I do want to focus today on historical guilds... not modern guilds. Um, like you pointed out, guilds and workers' union do overlap in some ways, but I suppose it would be an oversimplification to say they're the same thing. They both exist to... to protect workers, but guilds have an additional, um, instructional function: they help craftspeople master the skills of their trade, promoting them from apprentices to journeymen to master

craftspeople.

(Student B: male) Um...journeymen? Are we supposed to know these terms already?

(Professor) Well, I assumed that some of you had probably heard of them, but if you're not familiar with these terms, don't worry about it because we're going to go over their meaning in today's class. I'll, um, I'll get to that when I start talking about how guilds are organized. But for now, I'd like to discuss the history of guilds.

So, early guilds- this was a long time ago- they were essentially associations of craftspeople who worked in the same trade, such as masons, glass workers, or carpenters. There's a history of guilds all over the world. There were probably guilds in China as early as the Han Dynasty, which was between 206 BC and 220 AD. In India, guilds of the Gupta Empire-320 AD to 550 AD- were called shreni, and they may have been based on earlier guild- like organizations. The first mention of German guilds appeared in the 10th century, and um, by the 12th century, there were guilds in France and England too.

These European guilds were likely inspired by earlier Roman guilds.

In some cities in Europe, guilds tightly controlled the way things ran - how goods were produced, the way people worked... that sort of thing. In fact, sometimes they received special, um entitlements... directly from monarchs or head of state. These might grant a guild the right to monopolize a certain industry. Actually, these letters from political leaders formed the basis for the patent and trademark systems, which developed later on. With this kind of power, guilds could influence local authorities... and sometimes uprisings occurred if people thought the guilds had a little too much power.

But guilds did more than control labor and production. They controlled knowledge about their trade as well. Actually, in places where guilds were in control, it could be quite difficult for new people to get into business... because guilds made it tough for them to get the raw materials and training they needed. Anyone who wanted to learn the trade of a certain guild was subject to a long period of apprenticeship, where they would learn about a craft by working- as cheap labor- for a master craftsperson in the guild.

(Student B) OK. So someone new to a craft would start out as an apprentice, then become a journeyman, and then become a master craftsperson? Just like working your way up the corporate ladder?

(Professor) Yeah, you've got the right idea. Apprentices performed tasks for a

master for several years, all the while refining their skills in the trade. Um, but they typically would only learn the most basic stuff- you know, none of the trade secrets. Not yet. After a couple of years, promising apprentices would get promoted to the position of journeyman. Remember? You wanted to know what this was. Well, uh, journeymen were actually certified with official papers, um, and they could take these papers to other towns and study with different masters. Sometimes they would travel quite far... perhaps to the other side of Europe. Hence the origin of the term. Then, after gaining a couple of years of experience as a journeyman, a person was eligible to become a master craftsman. Of course, this was a promotion that had to be approved by all the masters of the guild. Plus, the, um, the potential master had to produce a masterpiece as proof of their skills. OK. Next time we'll talk more about the decline of the guild system and, um, what modern guilds are like.

Test II Part1 [1~6] Listen to part of a talk in an earth science class.



1. What aspect of the K-T extinction event does the professor mainly discuss?
 - (a) The scientists who first discovered it
 - (b) A phenomenon that could have caused it
 - (c) Its similarities with prior extinction events
 - (d) Its long-term effects on the planet
2. Why does the professor begin the lecture by describing the destructive forces of an asteroid impact?
 - (a) To illustrate the violent conditions present on the early Earth
 - (b) To support an explanation for mass extinctions in Earth's history
 - (c) To imply that human activities are threatening the planet
 - (d) To emphasize the short timeframe of extinction events
3. What does the professor say about the name of K-T extinction event?
 - (a) It is based on the number of years the vent lasted.
 - (b) It refers to the kinds of species that were affected by it.
 - (c) It gives information about when the event occurred.
 - (d) It was created from an incorrect understanding of the event.
4. The professor explained many direct causes of the mass extinctions that were supposedly produced by the K-T asteroid impact. Indicate which causes are mentioned in the lecture. Check in the correct box for each phrase.

	YES	NO
Ⓐ An increase in greenhouse gas levels		
Ⓑ Debris covering the whole surface of the Earth		
Ⓒ A massive cloud of dust that blocked sunlight		
Ⓓ Intense blaze across the world		
Ⓔ A lack of oxygen in the atmosphere		

Listen again to part of the lecture. Then answer the question. 📞

5. Why does the professor say this:

- Ⓐ To emphasize the deadlines of a huge dust cloud
- Ⓑ To show students the importance of the food chain
- Ⓒ To describe the process of photosynthesis
- Ⓓ To explain the sequence the extinctions occurred in

Listen again to part of the lecture. Then answer the question. 📞

6. What does the professor imply about the asteroid impact?

- Ⓐ It is a widely accepted theory, but not scientifically proven yet.
- Ⓑ Scientists disagree about the size of the asteroid that hit the planet.
- Ⓒ It is something which he does not believe in personally.
- Ⓓ It is less fully researched than other theories.

Part1 [7~12] Listen to part of a talk in a social science class.



Guild

7. What is the talk mainly about?

- Ⓐ The guild systems of ancient China and India

- Ⓒ The differences between early and modern guilds
- Ⓓ The function and organization of early guilds
- Ⓔ The method of advancement for guild members

8. Why does the professor mention workers' unions?

- Ⓐ To give an example of the instructional role of guilds
- Ⓑ To correct a common misconception about guilds
- Ⓒ To explain that guilds still exist in the modern world
- Ⓓ To acknowledge that they share limited similarities with guilds

9. What does the professor say about the Han Dynasty and Gupta Empire?

- Ⓐ They prohibited the formation of guilds by their citizens.
- Ⓑ They are credited with influencing the guilds of Europe.
- Ⓒ They had guild systems inspired by the European model.
- Ⓓ They likely witnessed the formation of the earliest guilds.

10. In the lecture, the professor describes characteristics of European guilds. Indicate whether each of the following is a characteristic of these guilds. Check in the correct box of each phrase.

	YES	NO
Ⓐ Were often opposed by heads of state		
Ⓑ Were based on a model devised earlier by the Romans		
Ⓒ Restricted possession of knowledge about particular trades		
Ⓓ Were sometimes able to completely dominate their industries		
Ⓔ Made professional training available to the general public		

11. What was a journeyman required to do in order to become a master craftsman?

- Ⓐ Create a high-quality work for inspection by other masters
- Ⓑ Travel to distant regions to learn more about a trade
- Ⓒ Pass a standardized written exam given to all guild members
- Ⓓ Help to train junior apprentices in their trade

Listen again to part of the lecture. Then answer the question. 🎧

12. Why does the professor say this?

- Ⓐ To make sure the students remember important information from earlier
- Ⓑ To encourage one of the students to expand on his explanation
- Ⓒ To point out to a student that he is answering a previous question
- Ⓓ To remind the students of a crucial point from the class

국 문 초 록

본 연구는 ‘노트하기’ 전략 훈련이 한국 대학생들의 인식과 학문적 영어 청취 듣기시험의 수행에 미치는 효과를 알아보려고 하였다. 총 92 명의 대학생들이 임의로 3개 집단에 배정되었다. A 집단은 전략 훈련을 받았으며 시험 중에 노트하도록 허락되었고, B 집단은 전략 훈련은 없었으나 시험중에 노트하게 하였고, C 집단은 전략훈련도 없었고 시험중에 노트하기도 금지되었다. A 집단의 훈련은 2 개월에 걸쳐 총 60 분간 (30 분, 15 분, 15 분) 노트하기 전략에 대한 훈련을 받았다. A 집단이 훈련을 받기 전과 후에 세 집단 모두 듣기 시험을 쳤는데 A, B 집단은 노트하기가 허용되었으나 C 집단은 허용되지 않았다. 시험 실시와 더불어 설문지 조사를 하였고, 9 명을 대상으로 인터뷰도 하였다.

본 연구의 주요한 결과는 다음과 같다. 첫째, 학생들의 영어 능숙도와 노트하기 행동은 관련이 있었다. 영어를 잘 하는 학생들이 못하는 학생들보다 노트를 더 많이 작성했다. 둘째, 노트하기 전략 훈련은 학생들이 작성한 노트의 양과 질에 영향을 미쳤다. 셋째, 대부분의 학생들은 노트하기와 그 훈련의 필요성과 중요성을 인식하였다. 넷째, 노트하기와 노트하기 전략훈련이 훈련 받은 집단에게 영향을 주기는 했으나, 그 효과는 통계적으로 입증하지 못했다. 결론적으로, 노트하기 전략훈련은 학생들의 노트와 인식에는 영향을 미쳤으나 학생들의 영어 능숙도에 영향을 미치지 못하는 제한적인 효과를 가진 것으로 입증되었다.

본 연구는 외국어로 영어를 배우는 한국적 상황에서, 노트하기 전략 훈련의 여러 국면을 다루었으며, 그 훈련의 긍정적인 효과를 양적, 질적으로 제시

하였다는 점에 의의가 있다. 그러나 연구의 한계 때문에 앞으로 더 체계적이고 종합적인 연구가 있어야 관련 문제들에 좀 더 명확한 답을 얻을 수 있을 것이다. 본 연구가 한국의 영어교육과 연구에 기여하는 바가 있음을 조심스럽게 언급하면서 결론을 맺는다.

주요어: 영어청취력, 노트하기, 노트하기 전략훈련, 인식, 언어능속도,
노트의 질

학 번: 2007-30908

ACKNOWLEDGMENTS

I would like to acknowledge my sincere gratitude to the following special individuals. Though I cannot list all of their names here, their warm and grateful hearts will never be forgotten in my life.

First and foremost, my deepest appreciation goes to Professor Orayng Kown, my dissertation supervisor and graduate advisor, who was such a knowledgeable scholar and also a valued mentor. His endless encouragement and supportive advice was the root of the completion of the dissertation.

Besides, I would like to express my respect and admiration to the other dissertation committee members, Professor Jin-Wan Kim, who provided valuable comments about the organization of the dissertation. I also owe my heartfelt gratitude to Professor Byungmin, Lee, who always had creative ideas and advised both my master's thesis and doctoral dissertation. I am also indebted to Professor Hyunkee Ahn, who meticulously edited and provided sincere and honest feedback. My appreciation also goes to Min-Young Song who offered refined ideas which I incorporated into my dissertation.

I also want to extend my appreciation to Professor Moonsu Shin, Professor Hyun-Kwon Yang, and Professor Sun-Young Oh for teaching and guiding me at Seoul National University.

To my colleagues in the English Education department at SNU, Young-Mi Kim, Bi-Ya Han, Mi-Kyung Shin, Yang-On Na, Hyun-Woo Kim, Enyoung Kho, Ji-Yeon Jang, Jin Lan, Soo-Jin An, Min-Chang Sung, Jong-Mi Lee, Jae-hee Kim,

In-Young Yang, and Ji-Young Choi, I would like to say thank you. They shared, taught, guided, and helped me throughout my dissertation process.

A very special gratitude is also given my family members: my parents, mother-in-law, sister-in-law, and brothers, who spent their time and energy taking care of my children. Without their sacrifice and supportive hearts, studying at SNU and completing my dissertation might not be possible.

Lastly, my deepest love and utmost appreciation go to my husband, Suk-Hwan Han whose understanding, love, and sacrifice was the source of continuing and refreshing my dissertation work. I also give warm thanks to my children, Jae-Eun and Jae-Suk. I dedicate this dissertation to them.

Above all, my final grateful heart goes to the Lord, who has cared and led my whole life with unfailing love.