

The Effects of Note-Taking Strategy Training on Students' Notes During Academic English Listening Tests*

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This study explored the effects of note-taking training on Korean college students' notes during academic English listening tests. A total of 61 college students were randomly assigned to two different groups: Group A that later received training in note-taking strategy and Group B that did not. 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. The two groups took listening tests before and after Group A was trained. The results showed the positive effects of the note-taking training in relation with the groups' note-taking behaviors. After training, the trained group used more and frequent notes whereas the untrained group's number of notes decreased. Individual students who drastically increased the number of notes after training (in Test II) showed more systemic framework of notes for Test II than before training (in Test I). The present study is meaningful in that it utilized the different analyzing methods on the quality of notes compared with previous studies.

Key words: note-taking, note-taking strategy training, quality of notes, students' notes, listening comprehension

1. INTRODUCTION

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.

* Abstracted in part from the author's Ph. D. dissertation, Kim (2012b). The part of her doctoral dissertation previously published (Kim, 2014). In this paper, the part of the guidelines for taking notes in Kim's (2014, p. 102) were used as it is.

Although there is a long history of note-taking, academic research on note-taking began only in the 20th century. Beginning with Corey's (1935) many studies have been carried out in learning situations (Aiken, Thomas, & Shennum, 1975; Collingwood & Hughes, 1978; DiVesta & Gray, 1972, 1973; Frank, 1984; Hartley, 1983; Hartley & Davis, 1978; Hartley & Marshall, 1974; Kiewra, 1985, 1987; Kiewra & DuBois, 1991; Ladas, 1977; McKenna, 1987; Peck & Hannafin, 1983). 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). The note-taking research was reactivated by high-stake exams such as IBT TOEFL and IELTS which began to allow taking notes while testing. However, these later studies were more concerned with note-taking in testing situations (e.g., Carrell, 2007; Carrell, Dunkel, & Mollaun, 2002, 2004; Hale & Courtney, 1994) rather than in learning situations. Most studies on note-taking in testing situations are basically based on quantitative approach whether they proved the positive effects of note-taking (Carrell et al., 2002, 2004; Dunkel, 1985; Hale & Courteny, 1994; Kilicaya & Cokal-karadas, 2009). The present study examines the effects of note-taking strategy training in academic English listening tests by comparing note-taking strategy training groups with untrained groups' notes by analyzing them quantitatively and qualitatively.

2. BACKGROUND

Regarding the training effects of note-taking skills in testing situations, most related studies were also based on quantitative approaches. Some studies did not show the effects of the training (e.g., Carrell, 2007; Kim, 2012a), but Hyati and Jalilifar's (2009) study proved the positive effect of the note-taking training. Carrell's (2007) study used a pre- and post-test experimental design in CBT (computer-based TOEFL). She found that treatment using an instructional intervention to practice note-taking strategies with written guideline had no effect since the test-takers did not use abbreviations, symbols, or paraphrasing during the test. She suggested that educators and learners should know the additional cognitive load involved in listening and note-taking in ESL contexts. Hyati and Jalilifar (2009) conducted an experiment on three different groups: UNTG (uninstructed note-takers' group), CNTG (Cornell note-takers' group), and NNTG (non-note-takers' group). The results showed a significant difference between UNTG and CNTG although the treatment (instruction) was informal through a pamphlet ($p = .034$).

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 read them or not, and Hyati, and Jalilifar (2009) distributed a pamphlet to the students without

giving any direct training and then checked their understanding of the content. As an attempt to avoid the criticism 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. On the contrary, the current study will give lectures on the types of notes and the manner of taking notes using printed guidelines distributed and samples projected on the screen.

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.

Despite more difficulty of taking notes during the test, some studies have demonstrated the usefulness of taking notes in academic listening tests (Kim, 2012a, Kim, 2014); 1) note-taking makes information easy to remember during testing, and 2) taking notes helps catch the important or main words of the lectures. In addition, Kim's (2014) study, some students noted the usefulness of using note-taking strategy after the training. After taking lessons on the note-taking strategy, they could learn and practice better ways to take notes while testing.

The significance of the present study can be claimed in two aspects. First, as mentioned above, the present study used more direct and concrete training in taking notes during the listening test. Second, the study attempted to prove the effects of note-taking training through the student groups' note-taking behaviors and notes. Especially, the current study utilized different analyzing method on the quality of notes compared with the previous studies; some notes of well-trained students were analyzed directly with hands on expressions. This can be contrasted with Song's (2008) study because she analyzed the quality of notes by classifying them with different levels of information such as main/topical ideas, supporting details, and minor details with SEM (standard error of the means) statistics.

The primary purpose of the study is to investigate the effects of the note-taking training in academic listening tests, so the students will be trained the note-taking strategies directly and concretely. To prove the training effect, the students' notes during the test will be analyzed quantitatively and qualitatively. In this regard, the following research questions are suggested.

1. What is the effect of note-taking strategy training in the student groups' notes regarding production and use of notes during the academic listening test?
2. What is the effect of note-taking strategy training in the individual students' notes regarding production and use of notes during the academic listening test?

3. METHOD

3.1. Participants

The participants of this study consisted of 13 male and 48 female students (61 in total) in two different universities. Most of them were freshmen, their ages were from 18 to 26 years old, and their English proficiency was intermediate or upper-intermediate (MATE¹: moderate high or moderate mid). The participants were taking English conversation classes (45 students) or English composition classes (16 students), so the results of the listening tests were not reflected in the students' scores. Thus, it is also possible that most students did not take the exam seriously.

There are two groups for the study: (1) an experimental group (31 students, i.e., Group A: [+TR, +NT]) that would be trained and allowed to take notes during the tests, and (2) a control group (30 students, i.e., Group B: [-TR, +NT]) that would neither be trained nor reminded about the importance or necessity of note-taking skills during the experiment, but allowed to take notes during the test. The students were randomly assigned to one of these two groups.

3.2. Instruments

The present study used two types of instruments: tests and training materials. Three listening tests were administered to assess the participants' listening comprehension before (Pretest and Test I) and after the experiment (Test II). Training materials included handouts and PowerPoint slides.

3.2.1. Pretest, Tests I and II

The test materials were adopted from an iBT TOEFL preparatory book (Neungryule Education, 2008). Both groups of the students took Pretest to check the homogeneity of the

¹ MATE (Multimedia Assisted Test of English developed by Sookmyung Women's University) is a proficiency test of assessing English speaking and writing skills.

listening abilities. Confirming the homogeneity demonstrates the fact that the study was conducted with two groups of the same English proficiency. In contrast to Tests I and II, the students were not allowed to take notes during the Pretest. The test consisted of 6 items of MC (multiple choice) with one lecture topic (i.e., *Nacre-Biology*). The test time was 5 minutes and 5 seconds. Table 1 shows the characteristics about the lecture texts in Test I and Test II in terms of the Flesch-Kincaid Grade Level² and Flesch Reading Ease³.

TABLE 1
Characteristics of the Lecture Texts for Tests I and II

		Test I		Test II	
		Gold Rush	Permafrost	K-T Extinction	Guild
Counts	Words	807	741	807	799
	Sentences	56	44	55	51
	Paragraphs	16	7	15	12
Average	Letters per Word	4.7	5.0	4.6	4.5
	Words per Sentence	14.3	16.7	14.6	15.6
	Setences per Paragraph	3.7	6.2	3.6	4.2
Readability	Passive Sentences	8%	18%	1%	9%
	Flesch Reading Ease	57.1	47.1	58.3	67.5
	F-Kincaid Grade Level	8.8	10.7	8.7	7.7

Test I was to examine the students' note-taking behaviors and their testing performance without a prior training on note-taking. The test consisted of 12 items: 10 MC (multiple-choice) items with four options, and 2 items of MSMC (multiple selection multiple choice). The test was related to two lecture topics, six items 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 that for Permafrost was 5 minutes and 21 seconds.

Test II was to examine the effects of note-taking training. The items of Test II were similar to those of Test I except for the topics of the lectures. Test II consisted of two

² "The Flesch-Kincaid Grade Level readability score analyzes and rates texts 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 eighth grader would understand the text" (<http://rfptemplates.technologyevaluation.com/readability-scores/flesch-kincaid-readability-score.html>).

³ "The Flesch Reading Ease readability score formula rates texts on a 100-point scale based on the average number of syllables per word and words per sentence. The higher the Flesch 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>).

lecture topic: K-T extinction (*Earth Science*) and Guild (*Social Science*). The lecture time for K-T extinction was 5 minutes and 42 seconds, and that for Guild was 5 minutes and 19 seconds. In general, the texts for Test II were a little easier than those for Test I.

Although the quantitative indices of the lecture texts used in Tests I and II are not very different, the difficulty of the texts may still be differently perceived by different students. The contents of the subject matters, or topics that the lectures discuss are one important factor. The lecture contents that are familiar to the students will be easier than those that are not. Here, the students' academic background 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 text 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 because of the spontaneousness of the input processing. Since the present study does not compare listening and this factor will not be discussed in the present study, either.

3.3. Training Materials

3.3.1. Handouts

The notetaking principles and skills given in the handouts and PPT slides were from the note-taking guidelines proposed in Soriclub (2004). The first handout consisted of basics of note-taking, the structure of English lectures, and specific note-taking techniques such as signal words, symbols, and abbreviations (see Appendix)⁴. Another handout was about the lecture script of *Permafrost* in Test I. This handout was used during the second and the third sessions of the training, and was also adopted for hands-on practice of note-taking skills. The students read the lecture script through this handout, and then they learn and practice the specific note-taking skills with the PPT slide as shown in Figure 1.

3.3.2. PowerPoint Slides

PowerPoint slides were to show the training contents and the examples of notes made by the researcher from one of the lecture topic texts used in Test I, that is, the lecture on

⁴ Kim (2012b, pp. 33-35) and Kim (2014, p. 102) also used the same notetaking guidelines. See Appendix.

Permafrost. They illustrated the actual examples of notes that could be made out of the lecture text. Figure 1 is one of the slides prepared for the training. After knowing the contents of the lecture through the handout, the students were taught the example of how to take notes specifically with the following PowerPoint slide.

FIGURE 1
Example of Sample Notes from the Third Training



3.4. Procedures and Training

The overall procedures of data collection had four stages: Pretest, Test I, strategy training (in three periods), and Test II. Before the full-scale experimnt, two groups took Pretest without taking notes. During Pretest, a T-test indicated that the difference was stastically insignificant with $M = 2.19$ (Group A) and $M = 2.63$ (Group B). As the significance level of $p = .344$ indicates, both groups were not different in their listening abilities. Table 2 shows the overall experimental design and the procedure for this study.

TABLE 2
The Experimental Design

Group	Pretest	Pre-experiment	Treatment	Post-experiment
Group A ($n = 31$)	Pretest (Note-taking: No)	Listening Test I (Note-taking: Yes)	Yes	Listening Test II (Note-taking: Yes)
Group B ($n = 30$)	Pretest (Note-taking: No)	Listening Test I (Note-taking: Yes)	No	Listening Test II (Note-taking: Yes)

For Tests I and II administrations, when the students were ready to take the test, the researcher distributed the test papers and told them to listen to the lectures 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. 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 told, but not forced, that they could take notes if they felt like doing so. It took 12 minutes to complete Tests I and II respectively. While practicing note-taking skills and taking the listening test, the participants were encouraged to use English, but they were also allowed to use L1 (Korean) if it was more comfortable and efficient or if they did not know the correct spelling or proper words in English. Any extra listening or reading activities were not given for the two groups to adjust the amount of input.

After the Test I administration, training sessions on note-taking (in three different occasions for about two months) began for Group A which received training three times about two months. For the first session (one week after Test I), the lectures on general note-taking strategies (e.g., the structure of English lectures) and specific note-taking strategies (i.e., abbreviations and symbols) were given to the students for 30 minutes. Students were encouraged to use these note-taking skills in their usual English conversation or composition classes. PPT slides and handouts were to help the students' understanding for each training session. The second session (five weeks after the first session) reviewed the previous treatment and taught more specific note-taking strategies for 15 minutes. Finally, the third session (five weeks after the second session) reviewed general note-taking strategies and practiced note-taking strategies with real note-taking samples from Test I for 15 minutes. Test II was administered five days after the last training session.

3.5. Data Analysis

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). The notes gathered in the present study were coded into eight different categories: (1) content words, (2) L1 words⁵, (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 shows the coding categories of the students' notes used in the current research.

⁵ 'L1 words' of this study was coded based on spacing words.

TABLE 3
Coding Categories of the Students' Notes

Measure Title	Description
Content Words (CW)	- Nouns, verbs, adjectives, adverbs, interrogatives, and demonstrative - Measure of note-taking efficacy
L1 Words (L1W)	- Native language (Korean) used in notes
Number of Test Questions Answerable from Idea Units (NTQ)	- Measure of the recognitions of important/main ideas and the student's test wiseness
Underlines, Circles, or Boxes (UCB)	- Underlines, circles or boxes used to highlight the information in notes
Symbols (Sym)	- Arrows or signs used for visualizing a lecture
Abbreviations (Abb)	- Abbreviated words
Numbers (Nrs)	- Numerical data introduced in a given lecture or dialogue
Numbering (Nmb)	- Number of letters indicating a list (e.g., "1. Definition of ... 2. Type of ... 3. Function of ...")

4. RESULTS

This section reports the numbers of students who made notes in both Tests I and II, the numbers of the notes generated by the students, and the qualitative changes of the notes.

4.1. The Effect of Note-Taking Strategy Training in Student Groups' Notes

Table 4 indicates the number of students who made the same or different numbers of notes from Tests I to II.

TABLE 4
Numbers of Students Who Made the Same or Different Numbers of Notes

Group	<i>n</i>	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, the number of students who made different numbers of notes fluctuated 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; $p = .000$).

To see the quantitative in the numbers of total notations generated before and after the training. 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 5.

Table 5 shows the totals and means of notes made by students who made notes in both Tests I and II. In Table 5, 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 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.

TABLE 5
Totals and Means of Notations Generated by Students⁶

Groups	<i>n</i>	Test I	Test II
A (Trained)	19	908 ($M = 47.79$)	1,021 ($M = 53.74$)
B (Untrained)	15	875 ($M = 58.33$)	596 ($M = 39.73$)

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 but reflected the training effect. However, this result does not explain the decrease of notes in Group B, which should not have decreased. It is probably because that the students did not participate the test seriously because the testing time of Test II was near the final exam.

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 the two groups were compared to see whether

⁶ Because of the fluctuation in the numbers of students who took notes in Tests I and II, only those who took notes in both tests were compared.

they demonstrate different patterns of increase. Table 6 shows the number of notes generated by students who increased their notes from Test I to Test II.

In Table 6, 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, the students who increased their notes, Group A generated more notes than Group B, which can be attributed to the effect of the training.

TABLE 6

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

Groups	<i>n</i>	Test I	Test II
A (Trained)	9	282 (<i>M</i> = 31.3)	639 (<i>M</i> = 71)
B (Untrained)	5	238 (<i>M</i> = 47.6)	313 (<i>M</i> = 62.6)

To see the changes in terms of the quality, the categories of notes were separately compared, and their differences are illustrated in Table 7⁷. Content words were the most frequently used in both tests. The second most frequently used note type in the two groups was symbols, and the third most frequent category was UCB (underlines, circles, or boxes). One notable difference between Groups A and B is in the number of L1 (Korean) notes; while Group A took an average number of 5.25 notes and 5.53 over the two tests, Group B took much fewer Korean notes, i.e., 2.6 notes during Test I and 1.27 notes during Test II.

TABLE 7

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

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

⁷ 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.

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 indicates that understanding and memorizing content is a key to solve the problem in listening tests.

Summing up, the results proved the positive effects of the note-taking on the student groups' behaviors. First, the percentage of students who increased the notes was greater in Group A (the trained group) than in Group B (the untrained group) while that of students who decreased notes was smaller in Group A than in Group B. Second, the average number of notes increased significantly in Group A while it decreased sharply in Group B. When the subgroups who increased their notes in Groups A and B were compared, the rate of increase was 226.6 percent in Group A whereas it was 131.5 percent in Group B. Third, while both groups made the content word type notes more than other types, Group A increased this type of notes over the two tests whereas Group B decreased this type.

4.2. The Effect of Note-Taking Training in Individual Students' Notes

For concrete example of the changes in the quantity and the quality of notes, three well-trained students' notes in the trained group (Group A) for Tests I and II were 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, over the two tests. They were identified as KK (Korean-Korean), EE (English-English), and KE (Korean-English). Table 8 illustrates the quantitative data of the three students' notes in different categories across the two tests.

TABLE 8
Changes in the Numbers of Notes Made by 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

As shown in all three students' notes, content words increased the most from Test I to Test II. The increase of symbols and abbreviation is also notable in all three students,

which was an effect of the training, as the training included the abbreviations and symbols as a technique of note-taking. These three students' actual notes and their characteristics are discussed. First, KK's notes generated during Tests I and II are given in Figures 2 and 3.

FIGURE 2
KK's Notes Made During Test I

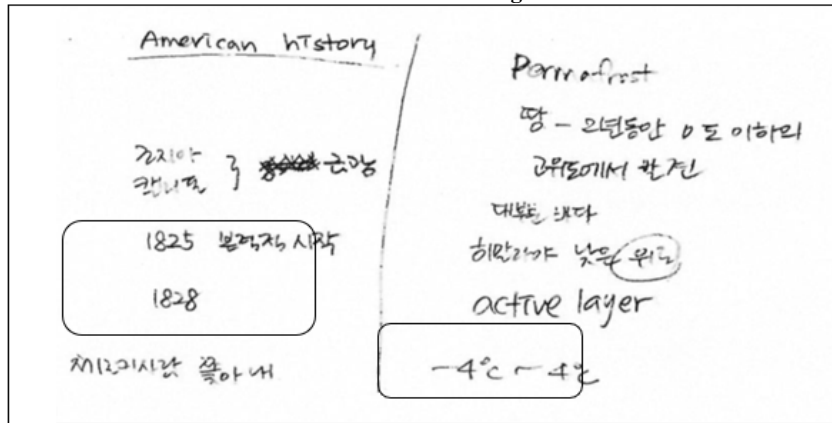
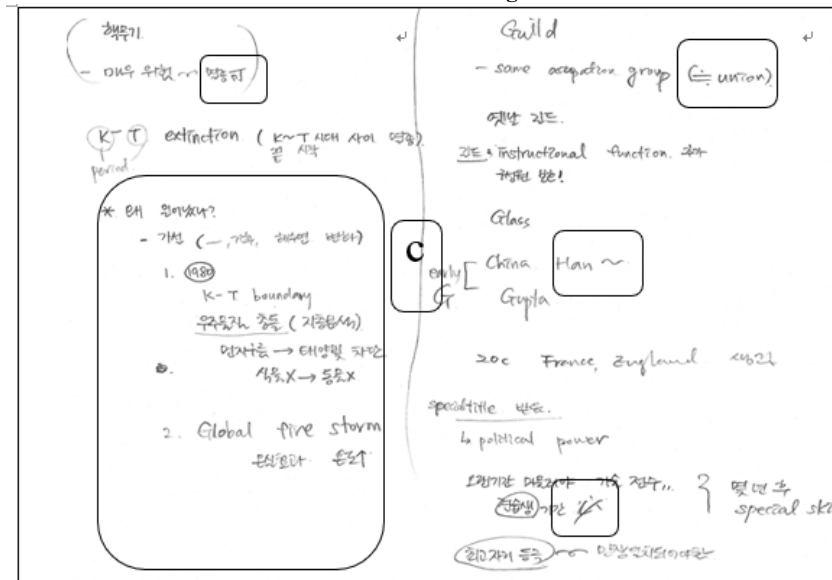


FIGURE 3
KK's Notes Made During Test II



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 notes is far greater than generally expected. This reminds us of the remarks by Barbier, Roussey, Piloat, and Olive (2006), who said that no matter what the 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 regarding its relative advantages and disadvantages against L2 use, and the optimal ratio of L1 and L2 in making notes needs to be identified.

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). Then, for Test II, she used an outline format to organize the information. In Figure 5, as shown in box (a), she gave the headline "planet history" first, and then listed events in a chronological order. Then in box (b), 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.

In Test II (i.e., Figure 5), 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. The foot note is the text of the specific part of the lecture⁸.

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.

⁸ 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 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.)

FIGURE 4
EE's Notes Made During Test I

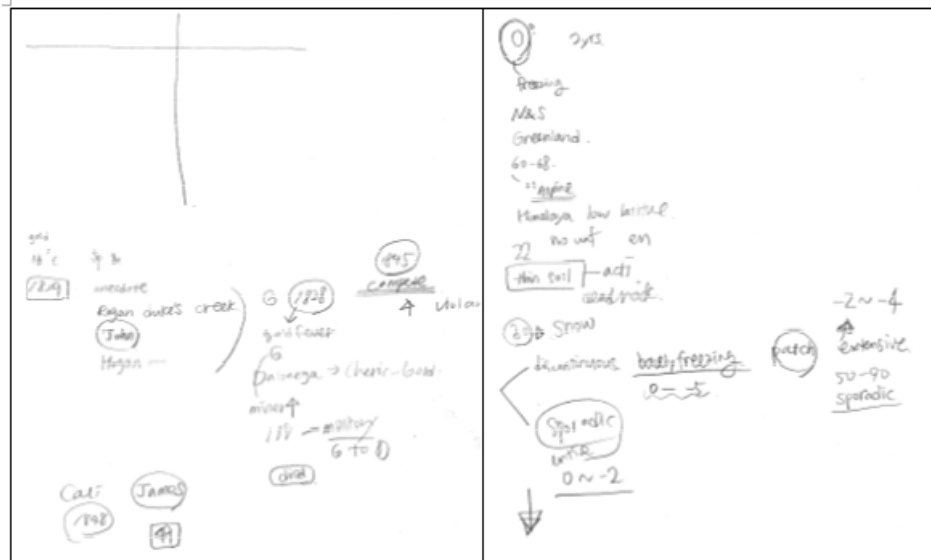
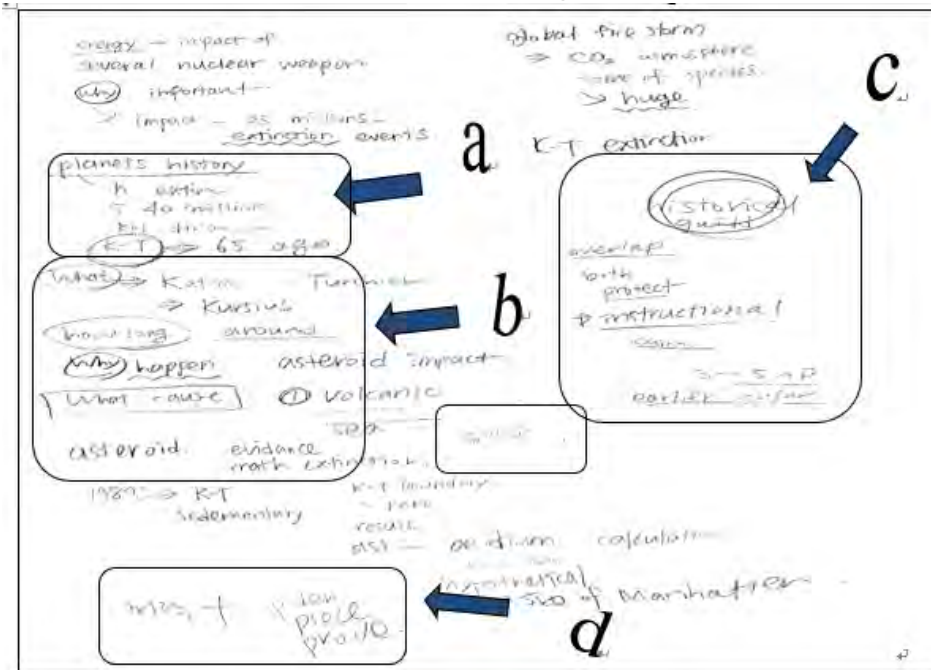


FIGURE 5
EE's Notes Made During Test II



Those 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.

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 "sedimentary" for "sedimentary". These incorrect spellings may be just simple slips or mistakes or reflect her erroneous knowledge of the words. And yet, such misspelling did not seem to have greatly affected her understanding and organizing of 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". In Figure 5, 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 (c) and (d)). This impoverished note-taking for the second lecture topic is not easily accounted for; a fatigue factor might have affected her note-taking behavior.

The third student, KE, used Korean to record certain facts or developments, while using English words for fragmentary information during Test I. For example, in Figure 6, she wrote "더 늦게 시작 1829 골드러시" ("started later, 1829, Gold Rush"), and "Cherokee people 제거 시도" ("attempted to get rid of Cherokee people") to record the factual information (See boxes (e) and (f)). 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. The first arrow in Figure 6 does not show a relationship but shows the flow of the talk (see box (g)). Then, after the training, in Figure 7, she used arrows more systematically to indicate the complex relationships among different information units, such as group and associations (See boxes (h) and (i)). She also used an outline format, starting with the heading "* history", and listing countries where early guilds existed.

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. The present study showed that the instructed

students made more notes and identified information more effectively after the training.

FIGURE 6
KE's Notes Made During Test I

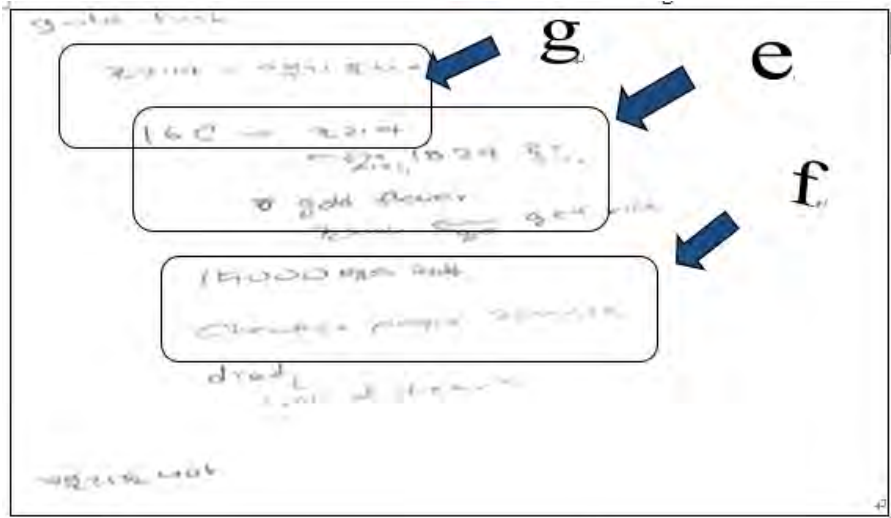
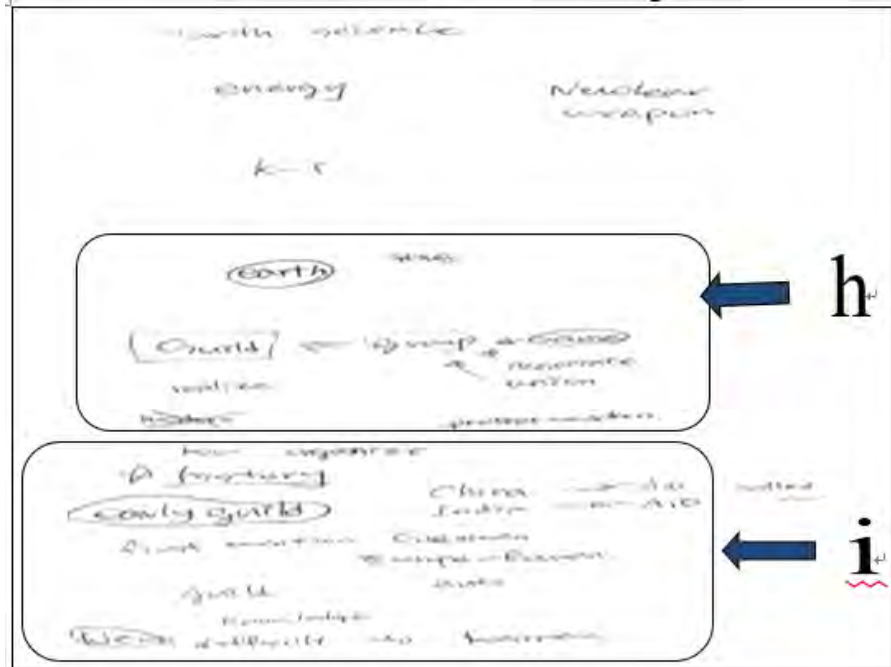


FIGURE 7
KE's Notes Made During Test II



In sum, regardless of whether student wrote notes in Korean or English, the students showed more systematic frameworks of notes for Test II than for Test I. In all three students' notes, content words and symbols increased the most from Test I to Test II. The increase of symbols and abbreviation is also remarkable as the training included the abbreviations and symbols as a technique of note-taking.

5. CONCLUSION AND DISCUSSION

This study investigated the effect of note-taking strategy training on Korean college students' production and use of notes during academic English listening tests. Note-taking training affected students' note-taking behaviors in terms of both quantity and quality, showing positive effects of the training. The present study showed that the instructed students made more notes and identified information more effectively after the training. Whether the study examined the groups' note changes or the individual students' note changes, the present study showed that the instructed students made more notes and identified information more effectively after the training.

About the effect of notetaking training in the student groups' note during the test, the percentage of students who increased the notes was greater in the trained group (Group A) than in the untrained group (Group B) while that of students who decreased notes was smaller in the trained group. The average number of notes increased significantly in Group A while it decreased sharply in Group B. The trained group increased content word type of notes over the two tests whereas the untrained group decreased this type.

For concrete example of the changes in the quantity and the quality of notes, three well-trained students' notes who increased the number of notes from Test I and Test II were chosen. All the students showed more systematic frameworks of notes for Test II than for Test I whether they used English or Korean. In all three students' notes, content words and symbols increased the most from Test I to Test II. The increase of symbols and abbreviation is noticeable as the training included the abbreviations and symbols as a technique of note-taking.

The research method and findings of the present study can provide an implication for language teaching and testing in general and in the Korean context. This study will help better understand note-taking behaviors and the training of the note-taking strategies. Some students wrote 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(Dunkel, 1988). As the main goal of L2 instruction is to encourage the students to use the target

language as much as possible. The future research should consider the measures to find the optimal proportion of L1 in their generation of notes.

There are some inherent and structural limitations in the current study even though the study tried to follow the general principles for the academic research. First, the study did not analyze some of the coding categories of notes such as summarizing or 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 for the future research. Second, 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 they were not psychologically available for sincere and serious participation in the test. Third, 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.

Even though the current study showed some inherent limitations, the significance can be claimed as follows. First, the present study used more direct and concrete training in taking notes during the listening test. Second, the present study is meaningful in that it demonstrated the positive effect of note-taking training on the students' notes by analyzing the changes of quality of the notes before and after the training through the direct elaboration of the students' notes. Finally, teaching effective note-taking strategies in the class is the one of the most essential activities for successful test performance as well as effective learning for students.

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APPENDIX

Guidelines for Taking Notes

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, important facts, numbers, names, abbreviations, symbols, shorter synonyms, paraphrases, and 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, 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.
 - √ 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 emphasize 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

- I. 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
 1. Signal words for core contents
 - √ 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...
 2. Signal words for explanation
 - √ Example: For example, For instance
 - √ Continuation: Also, 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
- 3. Symbols and abbreviations
 - = equals; to be,
 - ≠ not to be
 - + and; plus
 - > more than
 - < less than
 - ↑ increase
 - ↓ decrease
 - # number
 - ~ approximately
 - \$ money
 - % percent
 - df. compare
- √ Omission of later parts of words:
 - United Kingdom: UK
 - United States: US
 - page: p.
 - summary: sum.
- √ Omission of vowels: tomorrow: tmrw
background: bkgd
- √ Omission of some spelling: government: gov't
- √ Others: to go: 2go
for you: 4U
How are you: how r u
learning: lrng

Applicable Levels: Tertiary

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