

Effects of Note-Taking Instruction and Note-Taking Languages on College EFL Students' Listening Comprehension

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Abstract

Background: The effect of note-taking has been well-recognized by EFL educators. However, little empirical research has been done to investigate combined effects of note-taking instruction and note-taking language (whether in L1 or L2) in an acquisition-poor environment, where English is used as an instructional language yet the audience is composed of mainly non-native English speakers. Also, few studies paid attention to the effect of note-taking on different types of texts.

Aims: This study is to investigate the effects of (a) note-taking instruction (using the Cornell note-taking method) and (b) note-taking language (English vs. Chinese) on Taiwanese college students' English listening comprehension for two types of texts, specifically, short conversations and long lectures.

Sample: Taught by the same instructor, 54 students in control group and 54 in treatment group participated in this study.

Method: Detailed and explicit note-taking instruction was given to the treatment group. The language in which students took notes was decided by seat number. At the end of the study, participants were given a content-based, objective listening comprehension test. ANOVA and MANOVA analyses were performed to analyze test scores.

Results: Instruction had a significant impact on the listening comprehension of both types of texts, regardless of which language used for taking notes. Participants who took notes in English outperformed their peers, and those who received the combined effects of both instruction and taking note in English scored substantially higher than any other conditions.

Conclusion: This study reveals the value and importance of explicit, sustained note-taking instruction. It also suggests ESL students' native language (Chinese) becomes less competitive to capture information delivered in English. To help EFL learners better comprehend both short conversation and long lectures, teachers should teach how to take notes in an organized manner and encourage the use of English.

Keywords: Note-taking instruction, Note-taking language, Taiwan EFL learners

筆記教學和記錄筆記所用語言對大學生英語聽力能力的影響

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摘要

研究背景：筆記的作用早已得到英語作為外語教學工作者的公認。然而，很少有實證研究調查過，在缺乏語言環境的情況下，當英語作為教學語言而聽眾主要是非英語母語者時，筆記教學和記錄筆記所用語言（母語或第二語言）的綜合影響。此外，很少有研究注意到不同類型的文本對記筆記的影響。

研究目標：本研究旨在調查（1）筆記教學（使用康奈爾筆記法）和（2）筆記語言（英文與中文）對臺灣大學生英語聽力的影響。具體來說，聽力材料包含兩種類型的文本：短篇對話和長篇講話。

研究樣本：由同一位老師所教的54名大學生作為對照組和54名大學生作為實驗組參加了本項研究。

研究方法：老師給實驗組的被試提供了具體明確的筆記教學。被試做筆記所用語言由座位號決定。在研究結束時，所有被試參加了一項基於學習內容的客觀聽力測試。對測試成績的分析方法分別為方差分析和變異數分析。

研究結果：筆記教學對兩種聽力材料的理解能力都產生了重大影響，無論筆記是採用哪種語言來完成的。用英文做筆記的被試的成績優於用中文的。那些得到筆記教學益處並用英文做筆記的被試的成績遠遠高於任何其他被試。

研究結論：這項研究揭示了明確而重複地筆記教學的價值和重要性。它也表明學生若用母語中文做筆記，捕捉英語中資訊的效果有限。為了幫助英語學習者能更好地理解短篇對話和長篇講話，老師應該教導如何規範整齊地做筆記，並提倡英文的使用。

關鍵詞：筆記教學，記錄筆記所用語言，臺灣非英語母語學習者

EFL educators, as well as their colleagues in general education, agree on the benefits of note taking as a well-recognized, effective strategy to increase students' ability to recall (Kneale, 1998; Laidlaw, Skok, & McLaughlin, 1993), comprehend and retain subject matter delivered through lectures (Ayer & Milson, 1993; Bonner & Holliday, 2006; Davis & Hult, 1997). Studies have shown that EFL students suffer shorter short-term memories in English and experience more difficulties comprehending what they hear (Pevery et al., 2007). Therefore, the most notable advantage of taking notes for EFL students is the convenience of capturing unfamiliar names, terms and ideas in text to memorize and later comprehend (LeBauer, 2000). After studying 78 Chinese EFL students from an American university, Huang Jinyan (2006) found that the majority (80.8%) of participants agreed that the academic skill of note taking in class was beneficial with regards to improving comprehension and gaining information. Lincoln and Rademacher (2006) investigated the learning styles of EFL students in Northwest Arkansas by administering the VARK learning style questionnaire, one of the most common and widely-used questionnaires to categorize learning style. One third of the participants in a 69 student set chose note-taking as their favorite learning method.

Kiewra (1989) reviewed multiple studies and suggested that there is another important aspect, namely, the act of encoding initiated by taking notes (Chaudron, Loschky, & Cook, 1994). Researchers since the 1970s have taken notice of the mental activities stimulated by writing down words or phrases that catch the listener/reader's attention (Frase, 1970; Howe, 1976). Later in the 1980s, Dunkel (1985) proposed that the act of taking notes helps learners better attend to material, especially

after they had received a certain degree of explicit pre-training. Booner and Holliday (2006) conducted a periodic series of five interviews with 23 college students and later identified a number of cognitive activities associated with note taking, including paying attention to the subtext, differentiating the main points from the supporting material by prioritization, and understanding what is being said.

It is worth noting the effect of note taking goes far beyond the moment when the notes are taken. Helgesen, Brown, and Smith (1996) asserted that reviewing one's notes after the lecture was the key to developing and building relationships between related thoughts by mentally replaying the scene, so as to enhance both comprehension and memory of the subject matter. Davis and Hult (1997) discovered that when asked to write summaries during four-minute breaks within the lecture, the students showed significant improvement in understanding compared to other groups. A later study also revealed the cognitive effect solicited by reviewing notes not only enhances learners' long-term memory, but also produces more mature ideas and makes them feel more engaged to the subject matter (Piolat, Olive, & Kellogg, 2005).

Having been informed of the value of note-taking in listening comprehension, EFL educators are urged to find appropriate strategies to teach EFL students how to take effective, meaningful notes within the existent time constraints. On one hand, many EFL teachers who assume their students have already developed said skills and make use of them (Newell & Smith, 1999). On the other hand, teaching students how to take notes in an effective manner is a challenging task for many EFL teachers, who have come up with a number of strategies to equip students with this vital skill. Kobayashi (2006), in

a meta-analysis study, comprehensively scouted out six distinct methods as he tackled the issue back through a period of three decades utilizing 33 different studies. The methods are: (1) pre-training of note-taking skills or strategies (Spires, 1993); (2) giving verbal instructions to employ a particular note-taking strategy (Jonassen, 1984); (3) providing framework notes (e.g., outline notes, matrix notes) at the beginning of class (e.g., Kiewra, 1985; Kiewra, Benton, Kim, Risch, & Christensen, 1995; Lazarus, 1991); (4) pre-training of note-reviewing skills or strategies (e.g., King, 1992; Stahl, King, & Henk, 1991); (5) giving verbal instructions to employ a particular note-reviewing strategy (Barnett, Di Vesta, & Rogozinski, 1981; Davis & Hult, 1997); and (6) complementing personal notes with instructors' notes at the time of later review (Kiewra, 1985). In an earlier meta-analysis, Kobayashi (2005) concluded that the first three strategies only marginally affect students encoding process of deeper learning. The fourth and fifth method, however, are practical ways to promote reprocessing of information by urging students to review notes from time to time. The sixth method gives students the opportunity to benefit from more completed notes. Kobayashi's review provides a road-map on how note-taking could be taught by comprehensively enumerating studied methods and time windows to guide students in the given subject matter. It convinced the authors about the importance of pre-training and verbal instruction in employing a particular note-taking strategy, and inspired them to further investigate the issue.

As exhaustive and detailed as Kobayashi's review is, there are two issues the authors believed should be addressed directly. First, these studies on note-taking or teaching how to take notes failed to pay attention to the languages in which notes were taken.

Indeed, little empirical research has been done to investigate the effects of note-taking in classes where English is used as an instructional language, yet the audience takes notes in its native language(s) (Teng, 1996). Notes that are taken in English more likely will resemble the original message yet need another layer of effort to read, while notes written in learners' native language(s) face the danger of drifting away from the original meaning carried in English. This transition in the mind between languages has to be considered to reflect authentic note-taking conditions of EFL learning. As a result, effects of note-taking in the first or second language should better be differentiated and weighted on separate scales, especially in an acquisition-poor environment where English is only used as an instructional, classroom language. Under such conditions, the action of taking notes in English sparks the act of encoding and forces students to transform English as the language to learn into the language to use. It is worth studying how thorough this transformation can be when students are still learning the language and whether this transformation can facilitate or hinder language acquisition.

Second, the subject matter, or the content for which students are taking notes, did not receive enough attention in terms of its semantic nature and the acquisition effort involved. Students who listen to texts that are highly straightforward, such as short statements and short conversations, may take notes and respond to those notes in a different manner than those from long lectures, which require a longer attention span and higher level of thinking. Yet in the real world, these two types commonly come together and speakers use them alternatively when delivering their lectures. As a result, listening comprehension ability can be more accurately measured by differentiating them.

This urged the authors to design a between subjects study to examine how note-taking affected students listening comprehension in college EFL classes, focusing on two primary areas: The effects of explicit, sustained note-taking instruction, i.e., Cornell note-taking method, a well established method to take-note in an organized way (Longman & Atkinson, 1999); as well as languages used in note taking. Students listened to both short conversations (SC) and long lectures (LL) and were later tested for factual memory as well as abstract understanding of the subject matter. The research questions the authors tried to answers were: Are there differences in test scores for students using different note-taking methods and/or languages, and is there a significant interaction between instruction and language? Between-group hypotheses were tested (note-taking instruction, languages used) for their main effects on test scores over both SC and LL, i.e., either receiving instruction on note-taking or taking notes in English can help students better comprehend and score higher on both texts. The independent variables were note-taking instruction and language used for note taking on the test. The quantitative analysis enabled the authors (a) to assess the effect of note-taking instruction and; (b) to compare the influence of different languages (Chinese vs. English) used on both types of audio input when taking notes in English-only lectures. Based on the data analysis, the authors then set about discussing their findings, along with the pedagogical implications and directions for future research.

Method

Participants

Many colleges and universities in Taiwan have made English listening comprehension courses

mandatory for English-majors, and the material students listen to covers a wide range of topics, consisting of both short conversations (SCs) and long lectures (LLs) (Wang, 2000). This provides an ideal venue to measure effects of note-taking across text types and languages. A total of 108 freshmen English majors from a higher education institute in the central part of Taiwan took part in this study. They were from two classes (54 students from each) in the Department of Applied Foreign Languages. There were 80 females and 28 males. As English majors, their English proficiency was better than their peers in the science and engineering departments. This was proven by their English scores at the college entrance examination. Before going to college they had completed more than 8 years of English coursework, beginning in elementary school. They all had to take a listening comprehension course of two hours a week for 14 weeks a semester.

Instruments

An objective test on the subject matter was given to all participants to measure their listening comprehension at the end of this study. The test consisted of 50 listening comprehension questions (25 SCs and 25 LLs respectively), which were selectively taken from previous examinations designed by the instructor and recorded by native English speakers. In this particular test, questions were similar to those that were given to participants two or three weeks ago. For example, participants had encountered materials discussing Halloween and its related customs two weeks before the test, so a short conversation (with associated question) about the same topic, was selected. These questions imitated the well-established style of the TOEFL (Test of English as a Foreign Language) test, covering a wide range of topics from both daily and academic

life (see Appendix 1). All questions were equally weighted. Students were given opportunities to do exercises similar to the test to avoid unwanted test-anxiety, so scores would better reflect students' actual comprehension levels. Students were given only one chance to listen to the cues when taking the test.

To ensure reliability, identical tests were administered to students who took the same class in previous years. The authors then calculated Cronbach's alpha based on these students' scores to measure the internal consistency reliability of the two types of questions respectively. Reasonable Cronbach's alphas were obtained, 0.83 in SCs and 0.79 in LLs.

Procedure

English major freshmen in two different listening comprehension classes took part in this study over a 14-week period. The course mainly trained students to understand authentic English by listening, targeting the higher intermediate and lower advanced levels. The treatment group (class A) received note-taking training while control group (class B) did not. Students were taught by the same instructor although randomly assigned to different classes at the beginning of the semester.

Students in the treatment group were taught a number of note-taking techniques. For example, they learned how to take notes using the Cornell method (Darrow, 2005), a method utilizing a two-column format in which a paper is folded lengthwise. Approximately one third of the space on the left of the fold is for the recording of main ideas, and the remaining space for recording details. While listening to the audio inputs, students were taught how to transform discrete words into meaningful paragraphs in order to properly summarize the main ideas of the passage. The phase of the note-taking process was

modeled by the instructor at the beginning of the semester. A two-hour modeling/instruction session was provided in the first class. Later on, the instructor gave students weekly note-taking training sessions over the course of the 14 weeks, about 15 minutes each time. The instructor also made himself available after class to answer questions and teach hands-on techniques. Meanwhile, the control group was still required to take notes but did not receive any note-taking training.

The language in which students took notes was decided by seat number, which ran from 1 to 54 for each class, and was randomly assigned at the beginning of the semester by the instructor. Students in even-numbered seats took notes in English and those in odd-numbered seats took notes in Chinese. At the end of this study, all subjects took the listening comprehension test mentioned above. Mandated by the school's policy, the instructor of this study strictly protected the confidentiality of every participants' scores and revealed them only to the takers themselves. Informed consent form was given at the beginning of this study, telling every participant the voluntary nature of this study to ensure everyone not only was fully aware of the responsibility and conditions associated with participating, but also knew it was wholly up to them to withdraw at any time. The study did not begin until the participants issued an agreement.

Data Analysis

The overall alpha level was set at .05 for all statistical analyses in this study. Data for each group were collected in the form of individual scores on both SC and LL texts. Two 2×2 Analysis of Variance (ANOVA) were employed to study the main effects of language as well as instruction on both dependent variables, which were defined as students' scores for

SCs and LLs respectively. Following the protocol of ANOVA analysis, Levene's tests of equality for error variance were conducted to see whether the variances were equal for the four conditions. Their results decided types of follow-up tests to use to compare pairs of means of interest. In this study, the tests provided an insignificant F of 1.21 and a p -value of .31 with regard to SCs, and an insignificant F of 0.87 and a p -value of .46 with regard to LLs. When authors found the interaction of instruction and language yielded a significant effect on LL scores, they chose to conduct a contrasts analysis to compare a limited number of pairs of means by controlling the instruction as well as the language used one step at a time.

Although this study treated students' listening comprehension on SCs and LLs as two independent constructs, they are somehow related in second language acquisition and both are usually called upon in real life situations. Simply put, when EFL students attend a class taught in English, they may encounter combined SCs and LLs and the need to adequately comprehend both is obvious. For this reason, the authors then conducted a correlation test between scores of SCs and LLs to see whether these two sets of scores were correlated. The result was a small to moderate correlation with $r(106) = .16$. This result did not only confirm the presumption that SCs and LLs were independent enough that there was no unwanted redundancy in measurement; it also suggested SC scores and LL scores could be included in the same model and analyzed as two dependent variables to reliably represent participants' overall listening comprehension.

Then a two-way Multivariate Analysis of Variance (MANOVA) test was conducted for the joint effects (language \times instruction) on listening comprehension ability in general. Box's M tests

for the equality of covariance matrices turned out to be insignificant ($p > .05$) for the independent measures MANOVA. It suggests that the assumption of homogeneity of covariance was not violated, so Wilks' Lambda was used as the test statistic for MANOVA. The assumption of independence of observations and homogeneity of variance were checked and met.

Results

To better organize and present results of data analysis, the authors decided to follow the chronological order of the time those tests were performed. Descriptive data came first, followed by results of two ANOVA tests on SC and LL scores, respectively, and finally results of the MANOVA test on overall listening comprehension.

Descriptive statistics data of the participants' test scores are presented in Table 1. A 2×2 between-subjects ANOVA was conducted with SC scores as the dependent variable, instruction (with or without note-taking instruction) and language (taking notes in Chinese or English) as the independent variable (see Table 2). The interaction of instruction and language on SC was not significant, $F(1, 104) = .70$, $p = .41$. However, there was a significant influence on instruction, $F(1, 104) = 8.56$, $p < .05$, partial $\eta^2 = .08$, and the observed power was .83, with those who received instruction ($M = 17.80$, $SD = 1.73$) scoring significantly higher than those received no instruction on how to take notes ($M = 16.76$, $SD = 2.09$). There was also a significant main effect from which language was used for note taking, $F(1, 104) = 10.50$, $p < .05$, partial $\eta^2 = .09$, and the observed power was .89, with those who took notes in English ($M = 17.85$, $SD = 2.05$) scoring significantly higher than those took notes in Chinese ($M = 16.70$, $SD = 1.74$).

Taking a similar approach, a 2×2 between-subjects ANOVA was conducted with LL scores as the dependent variable, instruction and language as the independent variable (see Table 3). A significant main effect was found in instruction, $F(1, 104) = 20.05$, $p < .05$, partial $\eta^2 = .16$, and the observed power was .97, with those who received instruction ($M = 16.04$, $SD = 1.78$) scoring significantly higher than those who received no instruction ($M = 14.37$, $SD = 2.25$). There was also a significant main effect from which language was used for note taking, $F(1, 104) = 8.33$, $p < .05$, partial $\eta^2 = .07$, and the observed power was .82, with those who took notes in English ($M = 15.74$, $SD = 1.91$) scoring significantly higher than those who took notes in Chinese ($M = 14.67$, $SD = 2.33$). Moreover, the interaction of instruction and language on LL was found significant, $F(1, 104) = 4.43$, $p < .05$, partial $\eta^2 = .07$, and the observed power was .54.

A follow-up contrasts analysis on LL scores revealed that, of participants who received instruction, the language in which notes were taken did not produce a significant difference, $t(52) = .61$, $p = .55$. On the other hand, for participants who did not receive instruction, the language made a big difference, $t(52) = 3.30$, $p < .05$, with a large effect size $d = .90$. Participants who took notes in English, regardless of whether they received note-taking training or not, scored significantly higher than those who took notes in Chinese, $t(106) = 2.62$, $p < .05$, with a medium effect size $d = .50$. Overall, the participants who received the combined effect of instruction and taking notes in English scored substantially higher than other conditions.

To measure the combined effect of instruction and language on scores of both short conversations and long lectures, a 2×2 between-subjects MANOVA

was conducted. The interaction was not significant, Wilks' Lambda = .95, $F(2, 103) = 2.58$, $p = .08$, multivariate $\eta^2 = .05$. The main effect of instruction was rather significant, Wilks' Lambda = .78, $F(2, 103) = 14.69$, $p < .05$, multivariate $\eta^2 = .22$, and the observed power is .97. The main effect of language was also significant, Wilks' Lambda = .16, $F(2, 103) = 9.69$, $p < .05$, multivariate $\eta^2 = .16$, with the observed power .94. This implies that instruction and language, respectively but not jointly, yielded a significant effect on the linear composite of SC and LL scores.

In summary, in this study either language or instruction played a significant role in shaping the outcome of both SC and LL scores. Regardless of the type of texts studied, those who received instruction outperformed their peers in the control group. By the same token, those who took notes in English obtained even higher scores. When combined, however, interactions between language and instruction were often too small to be considered statistically important. The main reason for such asymmetry could be found by paying close attention at the effect size and the observed power of the tests. Taking the 2×2 ANOVA test on the SC scores as an example, although the effect size of instruction was rather small (partial $\eta^2 = .08$), the test still turned out to be significant because of a large observed power of .83. A similar case was found in the MANOVA test.

Discussions and Conclusion

Stated in the introduction, the authors of this paper were mainly interested in the effects of note-taking instruction and the effects of the language used to take notes when participants attended two types of listening comprehension texts. This is the criterion they hold when selecting the results from data

analysis for in-depth discussion and leave out all the rest. Therefore, they decided to present the effect of instruction first, followed by the effect of note-taking language, then the interaction between instruction and language on LL text. Based on these findings, they proceed to discuss pedagogical implications and the directions for future research. Finally, the limitations of the study are discussed to further ensure this study's objectivity and duplicability by delineating its scope and other relevant factors.

The data analysis revealed that students who received 14 weeks of note-taking training scored significantly higher, with a large effect size, on both SC and LL than those who did not. They were found with more capability of storing the message externally with a better recall. This is supported by findings from other studies (Kneale, 1998; Laidlaw, Skok, & McLaughlin, 1993; Peverly et al., 2007), which implies that, in reality, the above two benefits are somehow intertwined and reciprocal, namely, external storage preserves the details to help listeners develop a better, short-term memory, which in turn produces more organized and detailed notes.

Then it was evident that explicit, sustained instruction and support with note-taking were beneficial to helping students understand both short, straightforward, statement type conversations, as well as longer, more complex materials delivered through lectures in an acquisition-poor environment, where English cannot be heard or seen in a daily basis. These skills are crucial to EFL learners, because in real life situations, when attending the English-only lectures, they need to understand information flowing in chunks at a high speed. This makes the skill of note-taking a necessity and not simply a luxury. As a well-established, practical way to summarize and highlight important information for later study and

review, the Cornell method may not necessarily supersede or replace individual participants' previous note-taking strategies, but overall, it yielded an advantage. Since students in the treatment and control groups were at the same literacy levels at the beginning of the study and performed quite differently in the end, it can be inferred that many students need to learn some kinds of systematic note-taking methods to better cope with the burden of their English-only classes. This is confirmed by findings from other EFL educators (Newell & Smith, 1999).

The study also showed that the language of note-taking had a significant effect on comprehension, especially on the SCs with a medium effect size and a high observed power. The pair-wise comparison revealed that English was more helpful than Chinese in terms of helping students achieve higher scores in both SC and LL questions. This is supported by previous studies that taking notes does not only involve a quick hand but also an active mind, which is subject to the influence of language as well as the learner's level of proficiency (Chaudron, Loschky, & Cook, 1994; Piolat, Olive, & Kellogg, 2005). By taking notes in English, students had a better opportunity to make connections, organize their thoughts, and develop ideas. Working hand-in-hand, sounds echoing in the mind and notes written down on paper find their way to enhance literacy in a broader perspective. It helped students even more when they came to review their notes later. In this sense, they did not need to translate the Chinese notes back to English to connect the dots. Consequently, thinking in a target language will stimulate the growth of proficiency, especially in the situation where there is a huge volume of information flooded in as audio signals waiting to be handled, as is the case in this study.

While the interaction of language and instruction on LL questions was significant, it is worth noting that when the factor of instruction was controlled, language did not produce a significant main effect on those who received instruction. This suggests that for participants to better comprehend long lectures, note-taking skills played a bigger role than the language in which the notes were taken. There was a significant main effect with a large effect size on those who were not taught how to take notes. Echoed by other studies (Clerehan, 1995; Peverly et al., 2007), this finding not only testified to the importance of instruction, which seemed to undo the disadvantages brought up by taking notes in Chinese, but also indicated that for novice note-takers the choice of language considerably influenced the quality of notes, which was later revealed in proficiency tests.

The findings and discussions presented above give the authors of this paper reasonable certainty in answering their previously raised research questions. Both note-taking instruction and note-taking language yielded significant impact on listening comprehension tests scores, regardless of the type of text. The research hypotheses were partially supported, namely, the interaction of instruction and language only significantly impacted scores of short conversation but not those of long lectures.

Pedagogical Implications

This study proved that note-taking instruction can give ESL students an edge to better comprehend their lectures, yet such instruction is curiously absent from most curriculum. This deficiency should alert ESL educators of the necessity and urgency in finding appropriate note-taking methods to address said problem. The Cornell method adopted in this study is the choice made by the authors of this paper, but there

are also many other established note-taking methods available, such as the mapping method, the outline method, etc. ESL educators should have a good, working knowledge of their advantages as well as limitations so as to choose those most suitable to the learning objectives and the learning situation of their students. For example, the nature of Cornell method often demands students to be capable of knowing the main idea and capturing whole phrases. It is less helpful when students are still struggling with some “basics”, including the vocabulary, the sentence structure, and so on.

It is important that the teacher pay adequate attention to the amount of time spent instructing students. As a matter of fact, since the instructor of this study personally tutored many participants during the 14-week period, he had the chance to see closely how relatively undeveloped participants' note-taking skills were in the beginning, and at what rate their skills grew over time. Many participants revealed to him that at the moment when the audio started to play, they were left no time to think or organize, literally chased by the sound bites and pushed to respond simultaneously. Their experience implied that the Cornell method had to be first integrated into participants' note-taking routines to withstand the time constraint. Repetitively teaching note-taking skills, along with other contents found in a listening comprehension class, may levy extra burden on teachers. For the sake of more efficient learning, however, note-taking skills would better be included in the curriculum.

Meanwhile, the practical application of these findings should convince EFL educators to urge their students to take notes in English, regardless of how inexperienced or unfamiliar they are. Experience has shown that students sometimes involuntarily

harbor anxiety and uncertainty when it comes to writing notes in English. During tutoring sessions, participants informed the instructor that being unconfident with their note-taking skill was just one of the causes. What disturbed them more was the fear that what they scratched in a foreign language would someday become, not an incentive, but an extra hurdle to read and analyze. Therefore, note-taking skills for EFL learners should compose more than simply the skills associated with note taking in English. More importantly, the instruction should cover the vital skills of how to review and analyze notes in an organized manner at a later time. Only with such provisions can the instruction overcome the barrier of both language and cognition.

Directions for Future Research

During the course of this study, the authors found many questions that deserve dedicated research attention in the future. More studies are called for to investigate the effects of note-taking in EFL classes at different levels, not just at a post-secondary level. The general construct of "listening comprehension" should be broken down into more categories to cover its broadness, such as the ability to infer unspoken information from context, to grasp syntactically complex sentences, to overcome unknown/unfamiliar words, etc. The questions in each sub-category need to be selected for comparison across categories. Also, the issue of language used to take notes needs to receive more attention since taking notes in one's own language was most commonly observed among EFL learners. As mentioned earlier, the Cornell method adopted by this study is only one of the many note-taking methods available. Future studies can compare the effects of different note-taking methods, in order to find a better method for preparing ESL educators to teach students of different levels. Finally, a within-

subject research design should be implemented by future researchers to tackle the issue of how fast the note-taking instruction can transform participants' note-taking habits and enhance their performance.

Limitations of Study

The authors are encouraged by the results, which they believe will become even more convincing only after being conducted on a larger experimental group. On the other hand, it is premature to use this study, done on a single campus, to universalize the learning situation of ESL students in Taiwan, let alone ESL students in general. Also, due to the scope of this study, only the Cornell method was adopted and used. The effects of other note-taking methods, such as the mapping method, the outline method, etc., deserve equal attention and it will be interesting to do comparisons to further understand the role played by taking notes in ESL listening comprehension.

In conclusion, taking notes in the target language stimulates growth in literacy by urging students to think and respond without code switching between multiple languages. Note-taking skills for EFL college students are beneficial and necessary. They augment information recall, facilitate understanding, and enhance overall language growth.

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Table 1

Means and Standard Deviations, and n for test scores of short conversations as a Function of Instruction and Language

Instruction	Language	Mean	Std. Deviation	N
Yes	Chinese	17.37	1.47	27
	English	18.22	1.89	27
	Total	7.80	1.73	54
No	Chinesez	16.04	1.76	27
	English	17.48	2.17	27
	Total	16.76	2.09	54
Total	Chinese	16.70	1.74	54
	English	17.85	2.05	54
	Total	17.28	1.98	108

Table 2

Two-way Analysis of Variance for Test Scores of Short Conversations as a Function of Instruction and Language

Variable and source	df	MS	F	η^2	eta
SC scores					
Instruction	1	29.04	8.56*	.08	0.28
Language	1	35.59	10.50*	.09	0.30
Instruction * Language	1	2.37	.70	.007	0.08
Error	104	3.39			

*p < .05

Table 3

Two-way Analysis of variance for Test Scores of Long Lectures as a Function of Instruction and Language

Variable and source	df	MS	F	η^2	eta
LL scores					
Instruction	1	75.00	20.05*	.16	0.40
Language	1	31.15	8.33*	.07	0.27
Instruction * Language	1	16.33	4.37*	.04	0.20
Error	104	3.741			

*p < .05

Appendix 1 Sample Items of the Test

Short Conversations

1. Male: My physics project is in trouble. My partner and I have totally different ideas of how to proceed.
 Female: You should try to meet each other half way.
 What does the woman suggest?
 A) The man should work with somebody else.
 B) The man should meet his partner's needs.
 C) They should come to a compromise.
 D) They should find a better lab for the project.

2. Male: I am sorry I missed the football game. But, I had a terrible cold.

Female: You didn't miss anything. We couldn't have played worse.

What does the woman imply?

- A) She's never watched a better game.
 B) Football is her favorite pastime.
 C) The game has been canceled.
 D) Their team played very badly.

Long Lectures

Few people can stand for the spirit of early America as much as Benjamin Franklin. He lived through almost the whole of the 18th century: he was born 6 years after the century began and died 10 years before it ended. During this time, he saw the American colonies grow from tiny settlements into a nation, and he also contributed much to the new state. He was deeply interested in science and natural history and his experiments with electricity and lighting led directly to the invention of lightning rod. He was also interested in improving the conditions of his fellow men. He was involved in a number of projects in his native Philadelphia, including the setting up of a library, a university, a philosophical society and a fire prevention service. He worked hard to enable the American colonies to gain independence from Britain. As ambassador to France, he encouraged the French to help George Washington. After the war, he attended the American constitutional congress. This was his last contribution for he died later that year. He is still fondly remembered by Americans as one of the creators of the United States.

Questions 1 to 3 are based on the passage you have just heard.

1. What does the speaker say about Benjamin Franklin?
 - A) He set up the first university in America.
 - B) He was one of the earliest settlers in America.
 - C) He can best represent the spirit of early America.
 - D) He was the most distinguished diplomat in American history.
2. How did Franklin help George Washington?
 - A) He provided Washington with a lot of money.
 - B) He persuaded France to support Washington.
 - C) He served as a general in Washington's army.
 - D) He represented Washington in negotiations with Britain.
3. According to the passage, what is Franklin still well remembered as?
 - A) As one of the greatest American scholars.
 - B) As one of America's most ingenious inventors.
 - C) As one of the founding fathers of the United States.
 - D) As one of the most famous activists for human rights.

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