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Notetaking Instruction for Prospective EFL Teachers: Effects on Notetaking Skills and Perceptions

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Abstract

Notetaking is a vital skill at the university level since students are responsible for their learning and notetaking is their primary method of recording and storing information. However, students may struggle with simultaneously following the lesson and taking notes, which requires systematic training. This study will contribute to the literature by focusing on the outcomes of providing prospective English as a foreign language (EFL) teachers with notetaking instruction. It is also aimed to investigate prospective EFL teachers' perceptions of notetaking and notetaking instruction. Participants of the study were 39 prospective EFL teachers (junior ELT department students) enrolled in a Listening and Notetaking course. A mixed method approach was employed in the study, in which both qualitative and quantitative data were collected through text analysis of participants' notes and semi-structured interviews (n = 10). Quantitative data were analysed through paired samples t-test, chi square test, and Wilcoxon signed rank test. Qualitative data were analysed through content analysis. The findings revealed that providing learners with notetaking instruction is beneficial in many aspects including recording more information units, having better organization, and deciding what is important. Students' perceptions of notetaking were found to be mostly positive. They consider it a useful strategy for following lectures better and for overall academic success.

Keywords: listening and notetaking, information units, notetaking instruction, language learners, English language teachers

"The faintest ink is more powerful than the strongest memory" is an old Chinese proverb on the importance of taking notes in the retention of knowledge. Even in our daily lives, people resort to notetaking when we encounter new information that is important or hard to remember.

Taking a message for someone, making a to-do list or a shopping list are some of the daily uses of notetaking. If people need to take notes about even the simplest daily tasks, it is advantageous to take notes in an academic context in which there are vast amounts of new information.

Although notetaking is important in all educational contexts, it is a vital skill at the university level (Van der Meer, 2012). In universities, students are responsible for their learning, there is less control over the learning process from parents and teachers, there is a plethora of information to catch up with and students need to carefully categorize and evaluate the information. Siegel (2020) adds that university students rely on notes for later review, therefore, notetaking is an essential practice for them.

In EFL contexts, where students have fewer speaking and listening practice opportunities, taking notes becomes a more problematic issue. Karimi et al. (2019) stated that their L2 context of Iranian students lack spoken exposure to language, little class time is given to listening practice which results in poor listening comprehension, which is highly likely to impact notetaking skill. Furthermore, in L2 contexts where English is the medium of instruction, students struggle with simultaneously following the lesson and taking notes (Faraco et al., 2002; Piolat et al., 2005). Siegel (2019a, p2) defines the notetaking process as "near-simultaneous tasks of listening, understanding, deciding what and how to record, and finally writing, while continuing to listen out for the next piece of important information" and states that considering the confusing nature of spoken language (e.g., repetitions, false starts) the notetaking process can be challenging in L2 contexts. Furthermore, Siegel (2022) adds that there are many factors affecting the process of taking notes such as the rate of speech, individuals' ability to take notes, and personal interest in the topic. In EFL contexts, students generally have inadequate notetaking strategies and poor organization of notes (Bonner & Holliday, 2006). They lack time to practice, are weak at using strategies, and need help in this matter (Robillos & Bustos, 2022).

Van der Meer (2012) states that notetaking is faultily assumed to be learned through trial and error during the learning process. Siegel (2019b) similarly warns English language teaching (ELT) educators to be aware of the assumption that learners may already know how to take notes. There are no courses at K12 levels that focus on notetaking in Turkey. Thus, learners do not receive any instruction on listening and notetaking neither in their native language nor in English. However, at university level, students are expected to take notes during classes which they use to review and study from. The Listening and Pronunciation II course that was introduced into the new program of ELT departments as a mandatory course by the Council of Higher Education of Turkey is the first course that includes listening and notetaking instruction at the university level. Thus, this study aims to examine the effects of notetaking training on students' notetaking skills in the context of an undergraduate course. It also aims to investigate student perceptions of notetaking.

Literature review

In the literature, a note is defined as "short condensations of source material that are generated by writing them down while simultaneously listening, studying, or observing" (Piolat et al., 2005, p. 292). Therefore, it is an active process that requires active participation. Ozbay (2005) defines it as a process that necessitates cognitive processing including several steps such as listening, comprehension, analysis, selection, and writing. In his study, Siegel (2018b) defines good notes as "notes that select, organize and elaborate ideas expressed by speakers so that the note-taker can learn in generative and constructive ways" (p. 87). In academic contexts,

students need to both quickly understand the message and use abbreviating procedures to take good notes (Barbier et al., 2006). Taking good notes is helpful since it boosts overall academic achievement (Song, 2012) and increases retention of knowledge (Al-Musalli, 2015).

Even though pen-and-paper notetaking is generally reported to be beneficial for learners, in some cases it is challenged by the presence of technology (Mueller & Oppenheimer, 2014), or by the presence of provided notes (Kobayashi, 2006). As a result of a series of studies, Mueller and Oppenheimer (2014) suggested that, apart from more clear drawbacks of using computers such as learners' capacity for multitasking and distraction when using them, learners' tendency to transcribe lessons verbatim when taking notes with computers may result with a shallower processing of the content. Their results indicated that learners who took notes with computers performed worse on conceptual questions than learners who took pen-and-paper notes. While the availability of PowerPoint slides may seem like a convenient alternative, actively engaging in pen-and-paper notetaking offers unique advantages such as: being more practical (inexpensive and easy-to-use) (Kobayashi, 2006), facilitating better processing of course content (Mueller & Oppenheimer, 2014), and increasing attention to the lecture, thereby enhancing retention of its content (Dunkel & Davy, 1989). Additionally, note-taking serves as a knowledge-construction tool, enabling learners to actively engage with and construct meaning from the lecture material (Castelló & Monereo, 2005).

There is a broad consensus on the effect of taking notes and the quality of these notes on comprehension and overall success both in L1 and L2 notetaking literature. Many studies have confirmed that taking notes leads to a better understanding and retention of the course content. Although what constitutes 'quality notes' is not clearly defined, learners are assumed to process different levels of information in a lecture and different comprehension subskills, such as understanding the major ideas, understanding specific details, and making inferences are required (Song, 2012). In the literature, different studies have used different criteria to assess the quality of notes, such as levels of information (Kiewra et al., 1987), information units (Faraco et al., 2002), test-related information (Dunkel & Davy, 1989), and format and organisation of notes (Tsai, 2004). Similarly, Boch and Piolat (2005) stated that note-taking instruction may include, and consequently the quality of the notes may be assessed according to: the purpose of note-taking (including necessary information, using keywords, using signs and symbols), the structure of the notes (format and organisation), and the selection of information (eliminating redundancies). In a more recent study, Park (2019) used three indexes to analyze the quality of the notes: the total number of words and notations, the number of propositional units, and test answerability. Incorporating these diverse criteria for evaluating note quality enriches our understanding of effective notetaking strategies in both L1 and L2 contexts.

In a study comparing L1 and L2 student contexts with 164 university-level American students, Dunkel and Davy (1989) established that notetaking increases attention to the lecture and retention of its content. In the study, the authors compared students of L1 and L2 contexts and found out that both groups considered notetaking to be beneficial, however, L2 students experienced more difficulties while taking notes. The reason was reported to be the linguistic disadvantage of L2 groups and the authors suggested lecturers should train students in notetaking and take into account their linguistic disadvantages. At the ELT department where this study was conducted, the medium of instruction is English for the content courses. Learners are expected to take notes in their L2 in their content courses even though having received no

such training previously. Thus, training students on notetaking would be beneficial and it seems important to determine in what aspects of listening and notetaking learners improve and in what aspects they require more help.

Focusing on the quality of notes, Park (2019) analysed 20 Korean students' notes in both their L1 (Korean) and L2 (English) according to (1) the total number of words and notations, (2) the number of propositional units, and (3) test answerability. The results revealed that there was no statistically significant difference between the quality of notes in both languages. Taking notes faster, therefore recording more information in the given time was considered to be one of the factors in the quality of the notes for the study and participants took notes at a similar pace in both languages. Conversely, Barbier and Piolat (2005) stated that for their participants, L1 (French) notetaking was faster than L2 (English) notetaking. Faraco et al. (2002) mentioned that level of L2 is a crucial factor to consider when comparing L1 – L2 notes. They reported that more competent students have different strategies and performances, therefore take better notes.

Song (2012) examined the relationship between the quality of students' notes and levels of information found in the notes in an EFL context with 257 participants. The author provided the following explanation in relation to the levels of information:

> "Students are supposed to process different levels of information presented in a lecture, and thus it is common for test developers to define the construct of academic listening in terms of different comprehension subskills or levels of understanding, such as 'understanding the major ideas', 'understanding specific details', and 'making inferences'. Accordingly, in investigating second language learners' note-taking, it is also common to evaluate the quality of notes in terms of the total numbers of different levels of information they contain, such as main ideas, supporting ideas, and specific details" (p. 68).

The author claimed that the organization of the notes and levels of information were good indicators of the quality of the notes and overall academic listening proficiency. The author also added that the quality of the notes increased when students used an outlining format since students were able to understand the hierarchical relationships between information units. Information units are defined as the smallest detached units of information that can stand as separate units such as names, concepts, examples, places, etc. (Siegel, 2015). Ramadhani et al. (2021) aimed to study the effectiveness of a particular notetaking format (Cornell Notetaking System - CNTS) with 60 first grade Indonesian EFL learners. They claimed the CNTS group's overall listening comprehension scores were significantly higher than the control group. Aiming to investigate the effects of taking notes on listening comprehension, Khavazi et al. (2018) compared three groups of Iranian EFL learners; one group taking notes while listening, one group summarizing after listening and one control group. Their results indicated that notetaking was an effective strategy in enhancing Iranian EFL learners' listening comprehension.

Concerning students' perceptions regarding notetaking instruction, Syafi'i (2019) collected qualitative data from 18 Indonesian EFL learners on their perceptions of the importance of notetaking. The author stated that students consider notetaking as a vital but difficult skill. İpek (2018) investigated 61 Turkish prospective EFL teachers' perceptions of their progress in a Listening and Notetaking course. Participants stated that the notetaking instruction was beneficial for them and that it improved their overall listening and notetaking skills.

On providing students with notetaking instruction, there are mixed results in L2 notetaking literature. Murakami (2014) mentioned that after providing a mixed group of ESL students with notetaking instruction, students realized the importance and practicality of taking notes. Siegel (2015) investigated the benefits of instruction for EFL notetaking with 87 Japanese university students. The author mentioned that after the instruction, participants wrote down more details, more information units and their notes were more acceptable in terms of organization. In 2019, Siegel designed a four-step pedagogic sequence to enhance students' notetaking skills in Swedish context with 44 students. His results revealed that intervention had positive results, especially in terms of the quantity of the notes (measured by information units). Sakurai (2018) carried out a study with 56 Japanese university students. The author found that notetaking instruction helped students to take more extensive and efficient notes when compared with the control group. Kim (2019) also provided his students with notetaking strategy instruction, which proved to be useful for notetaking behaviors. On the other hand, in a meta-analysis of 33 studies, Kobayashi (2006) reported that outcomes of notetaking intervention were only found to be modest when compared with non-intervention groups. Nevertheless, Kobayashi (2006) added that although students' notetaking/reviewing substantially improves learning without any further intervention, there still is potential for improvement in the students' spontaneous notetaking/reviewing procedures. Carrell (2007) studied the effects of instructional intervention with 216 university-level international students and claimed that notetaking instruction had no significant effect on students' notetaking strategies or their task performance.

In summary, notetaking is a useful strategy for organization (Siegel, 2015), comprehension (Ramadhani et al., 2021), and retention (Al-Musalli, 2015) of the course content. Moreover, perceptions towards notetaking are mostly positive. Students consider notetaking as a practical and beneficial tool. On the other hand, there are mixed results regarding the effects of notetaking instruction on the quality of the notes. Some researchers claim that notetaking instruction boosts overall achievement and the quality of the notes, others mention organizational and visual improvements while some others report modest to zero effects. Therefore, further research is necessary to understand the benefits and effects of notetaking instruction on students' notetaking skills. Results of such studies can also reveal what notetaking skills need further attention. To this end, this study tries to answer the following research questions:

1- What are the effects of providing prospective EFL teachers with notetaking instruction on their notetaking skills?

2- What are prospective EFL teachers' perceptions on notetaking and notetaking instruction?

Methodology

Both qualitative (student perceptions) and quantitative (student notes) data were collected for the study, therefore a mixed-method design was adopted. The mixed-method provides a better understanding of the research questions benefiting from both qualitative and quantitative paradigms (Creswell & Clark, 2007).

Context and Participants

The study was conducted at an ELT department in Turkey with prospective EFL teachers. In their freshman year, teacher candidates are provided courses to improve their language skills

such as reading, speaking, writing, and listening and pronunciation together with a course on the structure of English. These mandatory courses are conducted entirely in English and are taught in both the spring and fall terms. The teacher candidates also take courses related to education such as Introduction to Education, Introduction to Educational Sociology, Philosophy of Education, Sociology of Education, and Information Technologies which are all mandatory and are conducted in Turkish.

The data for this study was collected in the Listening & Pronunciation II course in the spring term. Participants had taken the Listening and Pronunciation I course in the fall term. The Listening and Pronunciation II course and its content was introduced into the program of ELT departments as a mandatory course by the Council of Higher Education of Turkey. The content of the Listening and Pronunciation I course focused on improving learners' listening comprehension skills and their pronunciation. The focus in the Listening & Pronunciation II course shifted to listening and note taking. Students were provided tasks where they could practise how to organise their notes, determine important information, and use abbreviations and symbols.

The study was carried out with 39 junior students (16 females and 23 males) ages 19 to 21 and at the B1 level of language proficiency. All participants voluntarily participated in the study, and they were informed that their participation would not affect their standing in the program.

In addition to the aforementioned potential benefits of note-taking instruction, prospective teachers who participate in this study might further benefit from this instruction since it might enable them to recognize the importance of notetaking and equip them with the skills to effectively teach notetaking to their future students once they become teachers.

The semi-structured interviews were carried out with 10 voluntary students (5 males and 5 females), out of a total of 39 participants. All participants were L1 users of the Turkish language. They all took the Listening and Pronunciation II course for the first time.

The participants were selected for the study through a convenience sampling technique on a voluntary basis. The reason behind choosing participants with convenience sampling was the limited number of prospective EFL teachers enrolled in a course on notetaking instruction who gave consent to participate. However, English Language Teaching departments in Turkey follow a similar framework of courses, therefore it can be assumed that the participants represent the population of prospective EFL teachers.

Procedure

In the fall term, students took the Listening and Pronunciation I course, where they were instructed to improve their listening comprehension and pronunciation skills. Notetaking instruction in the context of the study was provided within the Listening and Pronunciation II course in the spring term. The Listening and Pronunciation II course was conducted for 14 weeks. Two weeks were allocated for exams, leaving 12 weeks for instruction. In this weekly 2-hour course, which lasted for 24 hours in total, students were provided with instruction on notetaking strategies such as determining what is important, organizing the notes, omitting unnecessary words, and using abbreviations and symbols. During each lesson, participants listened to lecture recordings on various topics such as factors that make language learning challenging, African and American elephants, stage fright, Aha moments, and more. During the course, participants were first instructed on one aspect of notetaking (e.g., omitting unnecessary words when taking notes) at a time and were given ample opportunities to practice

that particular aspect. Then, they shared and discussed samples from their notes with their peers and the lecturer. This procedure enabled students to realize that it is not possible to write down every word they hear and that they need to simplify their notes to be able to record important information. This process is in line with Siegel's (2018a) three-step approach for teaching simplification in notetaking. This approach includes a warm-up phase (where the lecturer primes the easier versions of different kinds of complex input), a transition phase (where the lecturer provides students with short bursts of texts and then provides feedback), and finally a real-time phase (where the lecturer challenges students to maintain simplification strategies for longer texts).

Before the data-gathering process, participants were informed about the topic and the extent of the study. In the first week of the semester, before any notetaking instruction was provided, the participants were asked to take notes while listening to an 11-minute lecture on the placebo effect (see Appendix B), and their notes were collected by the researcher. The researchers consulted a colleague experienced in listening comprehension and listening and notetaking instruction on the appropriateness of the text for students' levels and notetaking practices. Then, the participants were instructed on notetaking strategies for 12 weeks (one semester) in the Listening and Notetaking course. Participants listened to lectures and took notes almost every week, employing notetaking strategies they were instructed. They had the opportunity to listen to lectures and take notes 12 times in the semester. In the last week of the semester (week 14), students were asked to take notes on the same lecture as in Week 1. Although in most studies in the literature, two different texts were compared before and after the implementation, in this study, the same lecture is preferred as post-test for an exact measurement of participants' use of information units (IUs), levels of information, abbreviations, symbols and numbers, etc. At the end of the implementation, participants were handed out the notes they took in the first week and were given the chance to compare the two versions of the notes to be able to evaluate and realize their progress. Lastly, participants' notes were collected for analysis.

Data collection and analysis

For this study, two sets of data were collected: students' lecture notes and semi-structured interview data. Data were collected without the involvement of the course instructor. Lecture notes consisted of the pre-instruction and post-instruction notes of students on the same lecture. The listening text was selected from the coursebook "Lecture Ready – Level 3" (Sarosy et al., 2013). These notes were evaluated using a rubric developed by the researchers based upon a rubric on evaluating students' notes in the "Listening Power – 3" coursebook (LeRoi Gilbert & Rogers, 2011). The original rubric (see Appendix A) was a self-evaluation rubric designed for students following the "Listening Power - 3" course book where learners were given the opportunity to evaluate their progress in notetaking based on their own perceptions. The rubric was modified according to the aim of the study with the contributions of two colleagues teaching the same course, based on the aspects of what makes up 'quality notes' such as understanding the major and supporting ideas, levels of information units format and organization of notes including necessary information, using keywords, using signs and symbols, format and organization (Boch & Piolat, 2005; Faraco et al., 2002; Kiewra et al., 1987; Park, 2019; Song, 2012; Tsai, 2004). The modified version of the rubric that was used in the current study is provided in Table 1.

Notes taken by the students of the same lecture before and after notetaking instruction were evaluated by the analysis of information units (IUs) and using the rubric in Table 1. While the

analysis of IUs provides an overall perspective on the participants' notes, the evaluation rubric provides more detailed data on each aspect of notetaking strategies covered in the lesson. For the text used in this study, 62 information units were specified and agreed upon by the researchers based on Siegel's (2015) definition of information units. The completeness of the notes was calculated by dividing the number of IUs in participants' notes by the total number IUs of the text. Information units of participants' initial and final notes were calculated with a paired samples t-test.

Table 1. Evaluation Rubric

Criterion	**Yes**	**No**
Formatting / Outlining		
Organizing Main Ideas & Details (indents, columns, etc.)		
Defining the Topic		
Criterion	**Frequency**	**Mean**
Writing down only the most important content words.		
Proving levels of information (main ideas, supporting ideas)		
Definition of terms		
Providing examples		
Using abbreviations, symbols & numbers		

The first three Yes – No items were used to determine the existence or absence of format, organization, and topic definition in students' notes. Comparison of these items in the initial and final notes was done through a chi squared test.

Items regarding the most important content words, levels of information, terms, examples, and abbreviations, symbols and numbers were used to count the frequency of occurrence in students' notes. Students' mean use of each was calculated via frequency analysis and a Wilcoxon signed rank test was used to compare the initial and final notes. Thirty percent of the students' notes were analysed together with an independent lecturer teaching the course to be able to reach a standard and meet interrater reliability criteria. The lecture notes of all 39 participants taken before and after notetaking instruction were analysed.

Semi-structured interview questions were prepared in line with the literature and with the guidance of an experienced colleague and finalized after a peer debriefing session with 4 colleagues. The interview questions sought to reveal students' perceived benefits of notetaking, what they paid attention to while taking notes, and the effects of formal instruction on their listening and notetaking skills and were as follows: *Do you think it is necessary to take notes? If so, why? Do you take notes during lectures? Why do you do this? What do you pay attention to when taking notes? Has the Listening & Notetaking course had any effect on your note-taking skills? If so, how? Did the Listening & Notetaking course have an effect on the way you take notes in other courses?.*

The interviews were conducted in the native language of the students. Data from semi-structured interviews were analysed using the content analysis technique. The data obtained from semi-structured interviews were transcribed verbatim by one of the researchers and translated into English and checked by the other researcher. The data were coded together with a colleague teaching the same course.

Results

Effects of notetaking instruction

Participants' pre-test and post-test notes were evaluated using non-parametric tests (chi squared test and Wilcoxon signed rank test), and the information units in participants' notes were analysed using paired samples t-test. The findings revealed that students take better notes after the notetaking instruction in terms of information units and using different notetaking strategies such as using a format, organizing the main ideas and details, defining the topic of the lecture, deciding on the importance of information, providing levels of information, defining the important terms, providing examples, and using abbreviations, symbols, and numbers.

Regarding the analysis of the information units, Table 2 below summarizes paired samples t-test results of the data. A paired-samples t-test was conducted to evaluate the impact of the notetaking instruction on learners' notes. There was a statistically significant increase in scores from the beginning of the course (M= 9.7, SD= 4.6) to the end of the course (M= 19.2, SD= 6.7, $t(38) = -9.24$, $p<.001$ (two·tailed)). The mean increase in scores was 11.59 with a 95% confidence interval ranging from 7.4 to 11.5. The eta squared statistic (.69) indicated a large effect size.

Table 2. Paired Samples T-test Results Regarding Students' Notes

Information Units (IUs) in participants' notes				
	Average IUs	Completeness	Range	SD
Pre-Test	9.7	15.5%	2-22	4.6
Post-test	19.2	30.9%	7-38	6.7

As can be seen in Table 2, the average information units students could record was 9.7 before the implementation, which equals a 15.5% completeness. After the implementation, this increased to 30.9% with 19.2 average information units recorded (significant at $p<.01$). Out of 39 participants, 36 recorded more information units on their post-implementation notes.

Tables 3 and 4 below present a detailed comparison of students' first and final notes regarding the aforementioned notetaking strategies. The analysis of the lecture text revealed 15 important content words, 9 levels of information, 5 important terms, and 2 sets of examples.

Table 3. Chi-Square Test Results of General Outlining before and after Notetaking Instruction

	Initial Notes		**Final Notes**		**Chi-Square Test**	
Criterion	**Yes**	**No**	**Yes**	**No**	**X^2**	**p**
Formatting / Outlining	12	27	21	18	4.25	.04
Organizing Main Ideas & Details (indents, columns, etc.)	11	28	28	11	14.82	<.001
Defining the Topic	25	14	33	6	4.30	.038

A chi-square test was performed to examine students' notes before and after notetaking instruction. At the beginning of the term, only 12 out of 39 students used a format while taking notes, while the remaining 27 students just tried to write a paragraph or jotted down random

words. After the instruction, the number of participants using a format went up to 21 ($X^2 = 4.25$, $p = .04$). While only 11 students were able to organize the main ideas and details before the instructions, after instructions 28 students were able to do so ($X^2 = 14.82$, $p<.001$). Most of the students, 25 out of 39, were able to define the topic of the lecture before notetaking instruction and this number increased to 33 after instruction with only 6 students not being able to define the topic of the lecture ($X^2 = 4.30$, $p = .038$).

Table 4. Students' Notes before and after Notetaking Instruction

	Initial Notes		Final Notes	
Criterion	**Frequency**	**Mean**	**Frequency**	**Mean**
Writing down only the most important content words.	198	5.1	260	6.7
Proving levels of information (main ideas, supporting ideas)	92	2.4	166	4.3
Definition of terms	28	0.7	54	1.4
Providing examples	18	0.5	33	0.8
Using abbreviations, symbols & numbers	488	12.5	681	17.5

The overall change in categories from initial to final scores for Table 4 was examined using a Wilcoxin Signed-Rank test. Due to the limited number of criteria, a W value could not be calculated, but the Z value was -2.02 with a p value of 0.031, indicating that all categories increased towards the final notes.

When the initial notes of the 39 participants were analysed, it was found that each student wrote down an average of 5.1 of the most important content words, which are one-third of the total 15 of the most important content words in the lecture text. After instruction, the average slightly increased to 6.7. Also, an average of 2.4 levels of information was provided initially, and this increased to 4.3 after instruction. A rise in the averages also occurred when defining terms where the average went up from 0.7 to 1.4 after instruction. This means that, on average, each student was able to note down the definition of at least 1 out of the defined 5 terms. While the average of providing examples was 0.5, it slightly increased to 0.8 after instruction, indicating that not every participant wrote down at least one example. Finally, an average of 12.5 abbreviations, symbols and numbers were detected in the students' initial notes, which increased to 17.5 after receiving instruction.

In summary, based on the analysis of quantitative data, it can be said that the notetaking instruction enhanced students' notes and notetaking strategy use in general. There was a statistically significant increase in the number of information units recorded. The number of students who used a format for taking notes, organized the main ideas and details, and defined the topic of the lecture increased although some seem to need further assistance in these aspects. In addition, their use of abbreviations, symbols and numbers has increased and they have started to record more information including different levels of information and important terms and examples.

Students' perceptions of notetaking and notetaking instruction

Analysis of the semi-structured interviews indicated that even though only 3 out of 10 participants claimed to take notes regularly, all participants considered notetaking as beneficial

and necessary for academic success. Figure 1 below summarizes students' perceptions of notetaking and notetaking instruction.

Benefits of taking notes. All of the 10 participants who were interviewed have stated that notetaking is particularly beneficial for revising and reinterpreting the lecture later for exams and homework. As the following responses show, notes that students took in their academic courses helped them to recall course content and also to recall easy-to-forget details.

> P2: I think taking notes in lessons is beneficial for me because that way I can scan them before exams.
>
> P7: Sometimes I forget the content of a particular lesson and my notes help me remember.
>
> P1: You can understand the topic in general but there is no way you remember each detail from each lesson. Taking notes is necessary for this reason.

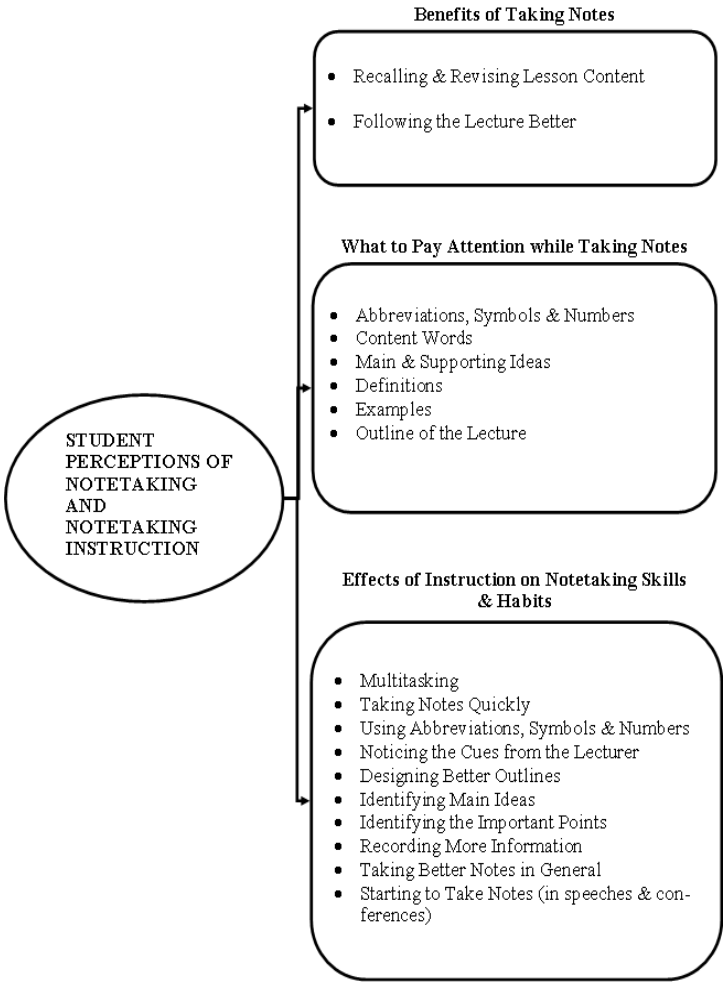

Figure 1. Perceptions of Students on Notetaking and Notetaking Instruction

What to pay attention to while taking notes. One of the most important things to pay attention to while notetaking, according to the participants, was using abbreviations, symbols, and numbers. Students asserted that the whole point of taking notes in a lecture is to have a written record of it without spending much time and cognitive effort. For similar purposes, using only

content words and eliminating function words when taking notes is another key point participants mentioned:

> P3: While taking notes during a speech, I focus on writing abbreviations, symbols, and numbers instead of whole words. That way I can spend less time on writing.

Participants also mentioned that taking notes helps them follow the lecture and stay focused during a lecture:

> P5: Taking notes during lessons keeps me focused on the topic, and I can follow the teacher better because I'm alert all the time to get the important aspects.

> P6: I used to write everything I heard. Now I know that I do not need to write all of the spoken words to understand them when I reread them, so I only use content words.

On the other hand, efforts of being practical and saving time should not prohibit the content of the notes. Paying attention to main ideas and supporting ideas is reported to be equally important while taking notes.

> P10: I try to note down the main ideas and their supporting ideas clearly, the rest is easier for me when I can identify the main ideas of a lesson.

Along with the content and important points, definitions and examples are quite important in the comprehension and retention of the content. Students also stated that they pay attention to define the key terms and provide necessary examples:

> P7: In a lesson, examples are important for me to fully understand the topic. For that reason, I try to write examples when I am taking notes.

> P9: To be able to remember them, I always write down the definitions of new terms as they come by.

Finally, to choose a better format for their notes, students reported that they also pay attention to the outline of the lecture.

> P4: While I am listening, I try to visualize the outline of the lecture to be able to design a better outline for my notes, which makes them easy to understand.

Effects of instruction on notetaking skills and habits. Participants reported that the notetaking instruction had a strong effect on their notetaking skills and habits. They stated that the instruction enhanced their multitasking skills, namely, keeping up with the spoken text while taking notes.

> P6: One of the problems with taking notes for me was missing some important points while writing. I had problems with multitasking, namely, it was hard for me to keep listening actively and take notes at the same time. With the notetaking instruction, taking notes has become much easier and now I can keep track of the lesson easily while taking notes.

Closely related to keeping up with the spoken texts while taking notes, students reported that they take notes much faster with less cognitive effort thanks to the instruction. Using abbreviations and symbols, noticing the cues from the lecturer, and having better outline formats are similar benefits participants reported to be of help when recording more information in less time.

P9: Trying to write everything is so unnecessary and tiresome. Now that I know what to write and what to leave out, I can take notes without trouble.

P1: I used to take notes rather slowly, but I have learned to make use of abbreviations and symbols. Therefore, I spend less time writing.

Designing better outlines enabled students to identify and record the main ideas and important points of the lecture, therefore recording more relevant information. The following statements are in line with this finding.

P4: I used to get lost in the process of identifying and recording the main ideas and supporting ideas of the lecture. However, when you have a good outline, it is easier to understand what to write and where to write it.

P10: If I can plan a good outline from the start, I have more time to write the necessary information for the lecture. Otherwise, it is a mayhem of trying to listen, understand the lecture, decide the importance of what I understand, and write it down.

Along with the improvements in their notetaking skills, students mentioned developing some notetaking habits that are inspired by systematic notetaking instruction. Overall, they claimed to take better notes in general, which motivates them to start taking notes in other courses, lectures, and speeches. They claimed that taking more effective notes with less effort by writing only the important points is the potential reason behind it. The following responses support these results:

P2: I am more confident with my notes, it is not as tiresome as before, so I started taking notes on some of the other courses as well.

P3: I used to write full sentences before this course and it was kind of boring for me. Writing on the important parts is more bearable, so I try doing that in other courses too.

Discussion

The literature on notetaking has stated that students experience problems while taking notes because of the speed of input, not being able to write down adequate information, and taking notes and following the lesson at the same time (Al-Musalli, 2015; Lewis & Reinders, 2003), therefore, they mostly take incomplete notes with a poor organization (Bonner & Holliday, 2006). These findings point to the importance of notetaking instruction which provides students with chances to improve their notetaking skills with rich practice, therefore, overcoming the above issues (Siegel, 2015). Research question 1 aimed at determining the effects of providing prospective EFL teachers with notetaking instruction on their notetaking skills. In parallel with the literature (Kim, 2019; Sakurai, 2018; Siegel, 2015; Song, 2012), the analyses of students' notes revealed that notetaking instruction is beneficial for students in many aspects including recording more information in the given time, having better organization, and using content words, abbreviations, symbols, and numbers.

In line with previous studies (Barbier et al., 2006; Kim, 2019; Piolat et al., 2005; Sakurai, 2018; Siegel, 2015; Song, 2012), the findings of the study revealed that after instruction on efficient notetaking, students were able to take better notes in terms of information units and using certain notetaking strategies. Completeness of the participants' notes was found to be 30.9 percent with an average of 19.2 IUs after the instruction, compared to 15.5 percent with an average of 9.7 IUs before the instruction. Siegel, in his studies (Siegel, 2015 and Siegel, 2019a),

also reported similar findings. This increase is substantial, although 30.9 percent completeness even after the implementation still requires further attention.

The number of participants using a notetaking format also increased. Similar findings were obtained by Kim (2019) and Song (2012) as well. While 21 participants reported to use a format after instruction, 18 out of 39 students seemed to be not using a format when taking notes even after instruction. It is possible that these participants are still able to comprehend and navigate through their notes and reconstruct the main points or even the details of the lecture. Thus, further research is needed to understand whether student notes that do not conform to any format still make sense to the note-takers themselves.

It seems that students have benefited highly from notetaking instruction in terms of using indents or columns to organize the main ideas and details of the lecture. Similar findings were reported by Siegel (2015) and Song (2012), who also found that notetaking instruction enables students to organize the main ideas and details of a lecture. However, 11 participants were still not able to use this strategy. This may indicate that these participants needed further training on this issue. It also may imply that participants chose not to use indents and columns and that without using indents and columns, which also contribute to the formatting of notes, students are still able to separate main ideas from details when they look at their notes.

Many students were able to recognize the topic before notetaking instruction (25 students), and the number of students increased to 33, leaving only 3 students who did not provide the topic of the lecture. However, this may not mean that they did not recognize or comprehend the topic, but they may have preferred not to include the topic in their notes.

Analysis revealed that participants either did not write down any examples or only some of the participants wrote down only 1 of the 2 examples. Thus, students were instructed that examples help them comprehend and recall concepts and ideas. Consequently, most participants may have felt no need to note down all 2 or any examples because they comprehended or believed to be able to recall the concept or idea the examples belonged to. Those who did note down examples may have done so for better comprehension or recall of the lecture content.

Finally, using abbreviations, symbols, and numbers became more frequent after the instruction. This may imply that students can record more data in less time, leaving more time to process the information.

Regarding prospective EFL teachers' perceptions of notetaking and notetaking instruction (research question 2), in general, participants' perceptions of notetaking were mostly positive. They stated that notetaking is a useful strategy for comprehension and retention of course content and a systematic way of following the lectures. They also claimed that the instruction was beneficial for them in many ways such as increasing their notetaking speed, and multitasking capacity, reducing the burden of listening and taking notes at the same time, enabling them to take more effective notes, and improving their overall notetaking habits, as also reported in the literature (İpek, 2018; Murakami, 2014; Siegel, 2019b; Syafi'i, 2019).

However, although similar benefits of listening and notetaking and its necessity for academic success were reflected by participants and by many related studies, only 3 out of 10 participants indicated taking notes regularly. A possible reason behind avoiding taking notes despite believing in its importance is the preference of focusing on the lecture with a concern of missing out on important details while taking notes.

Conclusion and Suggestions

This study aimed to find out the effects of notetaking instruction on the notetaking skills of prospective EFL teachers. It also aimed to investigate their perceptions of notetaking and notetaking instruction. The findings suggest that notetaking instruction positively impacted the participants' notetaking skills. There has been a statistically significant increase in the number of information units recorded by participants when compared to their notes before the notetaking implementation took place. There has also been an increase in the number of participants using a format when taking notes, organizing main ideas and details, and defining the topic of the lecture. In addition, there has been an increase in the use of abbreviations, symbols and numbers, the recording of different levels of information, and important terms and examples. Furthermore, they regarded notetaking as a useful strategy for comprehension and retention of course content and a systematic way of following the lectures. Participants viewed notetaking instruction as beneficial in many ways such as increasing their notetaking speed, reducing the burden of listening and taking notes at the same time, enabling them to take more effective notes, and improving their overall notetaking habits. The results of this study confirm the importance of listening and notetaking instruction in foreign language contexts. Considering its many benefits for the learners, it can be advised that educational institutes integrate notetaking instruction into language teaching programs. Furthermore, notetaking instruction would also provide benefits in EAP (English for Academic Purposes) courses. Learners aiming to improve their English for their academic studies would benefit from such training because they would be taking content courses in English and probably be required to take notes in those courses.

Several limitations to this study should be noted. Data was collected from a limited number of participants, thus, the results can be regarded as context-specific and are not generalizable. However, as related studies have also found similar results regarding the improvement in notetaking skills and positive attitudes towards notetaking and notetaking instruction, this current study supports the current literature. Furthermore, studies examining the differences between students who review their notes later and those who do not would contribute to our understanding of the role of notetaking in the retention of course content. Analysis of results revealed that not all participants used the notetaking strategies. This could be attributed to their inadequate improvement of a particular skill or their preference for not using a particular strategy, such as writing down examples. A study on what students prefer or choose to write down and why they do so when taking notes would provide a larger and more detailed picture. Finally, this study focused on the notetaking skills of the participants only. It did not concern itself with how notetaking affects learning the content. Therefore, further studies could investigate the relation between notetaking skills and content retention.

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Appendix A - Original Version of the Notetaking Rubric

(LeRoi Gilbert, T., & Rogers, B. (2011). *Listening Power 3*. Pearson Education)

Organizing Your Notes	**Excellent**	**Good**	**Needs Improvement**
Deciding which format to use (outline or column)			
Separating and organizing main ideas and details (indenting, labeling, columns, etc.)			
Leaving space for additional information			
Omitting Unnecessary Words	**Excellent**	**Good**	**Needs Improvement**
Writing down only the most important content words			
Using your own words when possible			
Keeping descriptions and examples simple and brief			
Using Abbreviations and Symbols	**Excellent**	**Good**	**Needs Improvement**
Using standard abbreviations and symbols			
Making up your own abbreviations and symbols and understanding them after the lecture			
Determining What's Important	**Excellent**	**Good**	**Needs Improvement**
Listening for signal words and expressions for:			
● review of previous topic			
● topic introduced, changed and concluded			
● definition of main topic			
● examples			
Digressions:			
● determining important or not important			
● hearing the speaker return to the topic afterward			
Listening for clarifications (signal for restated information)			
Understanding rhetorical questions (signal for important information			

Appendix B – Script of the Lecture

(Sarosy, P., Sherak, K., Frazier, L., & Leeming, S. (2013). *Lecture ready: Strategies for academic listening and speaking, Book 3*. Oxford University Press)

OK, everyone, let's get started. Today, we're going to discuss the placebo effect. First, I'll explain what the placebo effect is and how placebos have been used. Then, I'll discuss some possible causes for this effect. Finally, we'll look at some studies of the placebo effect and some questions that they've raised about the use of placebos in testing and treatment of illnesses.

So, what is a placebo? Well, basically, a placebo is a fake medical treatment, fake, not real. When most people think of placebos, they think of sugar pills, pills that don't contain any actual active ingredients, just sugar, or some harmless substance. Does everyone get that? OK. But a placebo doesn't have to be a pill. It can also be a medical therapy or even surgery. The main thing is that a placebo is always a sham treatment. What I mean is, a treatment that does not actively treat a patient's illness. Let me write that for you. Sham treatment, OK? No actual medical benefit to it. Understand? OK.

Now, the placebo effect is the often positive response that patients receive from a placebo. In other words, it's an improvement in a person's health that is due to taking a placebo, not due to any real treatment. Let me repeat that because it's a very important point. It's not medicine that is helping someone, but their belief that they are taking medicine that is helping them.

And this is a real phenomenon. Doctors have known about the placebo effect for a long time. They even use it to their advantage. In the 1930s and 1940s it was common for doctors to give patients placebos for aches and pains and other minor complaints, you know, just to give them something. Of course, they didn't tell their patients that the pills weren't real medicine. But the surprising part is that patients would often claim to feel better, even though they hadn't taken any active drug. Just the act of taking the pill often seemed to have a positive effect.

Doctors don't do that anymore, of course, but let's talk now about how placebos are currently being used. Now, have you heard the term, "clinical trial"? You know, the way researchers test new drugs? Yes? OK? Good. So, placebos are still very much in use in clinical trials of new drugs and other treatments. I'll explain.

In a blind clinical trial, volunteer patients, who all suffer from the same illness, are split into two groups. One group of volunteers receives the new drug or treatment that is being used. The other group receives a placebo, like a sugar pill or a dummy injection. Now, the researchers know which is getting... which group is getting the placebo and which one the real drug, but none of the people in either group knows. The purpose, of course, is to compare the experiences of the volunteers to see whether the group getting the real drug is actually getting the desired reaction.

Now, in a double-blind trial, even the researchers and their assistants don't know who is getting the real drug and who is getting the placebo. This is to make sure that they have no bias when analyzing the results. To make sure that their expectations don't influence the results of the trial.

In either case, the placebo shouldn't have any effect at all. But, it turns out that the placebo effect is also very common in clinical trials. In fact, in a number of studies, 30-40% of the volunteers given placebos have shown some improvement. And in a few trials, placebos have shown up to 70% effectiveness.

So why does a placebo work at all? What might be causing this phenomenon? Well, no one knows for sure, but there are a few explanations. Some believe that at least part of the placebo effect is due to an illness or an injury taking its natural course. We often will feel better if we do nothing to treat an illness or injury. It might just be that,... excuse me,... that the placebo was given during a natural improvement in the health problem.

Now, but this couldn't explain all of the improvement that takes place with placebos. There must be some, or another reason for the placebo effect, another explanation. One theory is that the placebo effect is purely psychological. It's all in the patient's mind. If patients expect to improve, they improve. They expect that the treatment will help them, and, hey, look at that, it does.

Now, this idea is supported by studies that have shown that when doctors tell their patients they expect the treatment to work, the placebo effect increases and some patients improve. But, on the other hand, if a doctor said that the treatment might not be effective, the placebo is much less likely to work again. So, again, that expectation of improvement leads to actual improvement.

Another reason that some patients improve on placebos may just be that the process of going through treatment is therapeutic. You know, that seeing a doctor who seems professional, and caring, and attentive, you know, just being treated, may make a patient feel encouraged and hopeful, which makes them feel better. OK, but even though the cause of the placebo effect may be psychological, there is empirical evidence that placebos can result in actual physiological changes, or signs of improvements in patients.

One study to document this was a study done at UCLA that involved 51 patients who were suffering from depression. One group was given a placebo. The other group was given an actual anti-depressant drug. Well, researchers weren't surprised to find that 52% of the patients taking the anti-depressant drug began to feel better, and 38% of the patients taking the placebo also began to feel better. Now, that's a pretty normal response. But what was surprising was that the researchers were able to detect an actual increase in the brain activity of the patients who improved on the placebo, which meant that their depression had actually improved.

These results have been repeated in studies treating a variety of illnesses, including heart disease, and even the common cold. So, this points to a chemical change in the brain associated with the placebo effect-associated with the belief that you're getting real medical treatment.

So why is this significant? Why does it matter? How can we use this knowledge to actually help people? Well, some researchers suggest that, since placebos do no harm and may actually help patients, doctors should be able to prescribe them. They should be able to give them a try and see whether a patient responds to them. But most doctors don't want... don't want to do this. They feel that prescribing placebos is dishonest. But this is a real debate in the medical community.

I'm curious to see what you think of this, so let's go ahead and break into discussion groups now. I'll hand out some questions to get you started.