

Investigation of Turkish Teacher Candidates' Listening Comprehension Skills

# Using the Cornell Note-Taking Technique

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## Abstract

The main purpose of this research is to determine the listening comprehension skills of Turkish teacher candidates using the Cornell Note-Taking Technique. The study group of the research based on case design consists of 29 students studying in the third grade of the Department of Turkish Language Teaching at the Faculty of Education at Mus Alparslan University. In the study, semi-structured interview forms and documents regarding student activities were used as data collection tools. In the study, 12 training sessions were given to the participants using the Cornell note-taking technique. At the end of the training, the participants' opinions about the Cornell Note-Taking Technique were obtained with a semi-structured interview form. These opinions of the participants were subjected to content analysis. As a result of the study, the participants expressed the Cornell Note-Taking Technique as a technique for planned study, meaningful learning and listening skills. With this technique, the participants' effective listening, distinguishing information, using time effectively, critical thinking, creative thinking and problem-solving skills were developed. The participants experienced problems in the recording step, abbreviation step, reflection step and summarization step during the Cornell note-taking technique training process. In solving the problem, the participants offered suggestions such as carrying out activities aimed at application, associating new information with previous information, using time effectively and selecting appropriate texts. Participants explained that environmental and individual factors affected their listening skills during the implementation of the Cornell note-taking technique.

Keywords: Listening Skills, Note Taking, Cornell Note Taking Technique

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# Türkçe Öğretmen Adaylarının Cornell Not Alma Tekniği ile Dinlediğini Anlama Becerilerinin İncelenmesi

# Özet

Bu araştırmanın temel amacı, Cornell Not Alma Tekniği ile Türkçe Öğretmen adaylarının dinlediğini anlama becerilerini belirlemektir. Durum desenine dayalı araştırmanın çalışma grubunu, Muş Alparslan Üniversitesi Eğitim Fakültesi Türkçe Öğretmenliği üçüncü sınıfta öğrenim gören 29 öğrenci oluşturmaktadır. Araştırmada veri toplama araçları olarak yarı yapılandırılmış görüşme formu ve öğrenci etkinliklerine yönelik dokümanlar kullanılmıştır. Araştırmada katılımcılara Cornell Not Alma Tekniği kullanılarak 12 oturumluk eğitim verilmiştir. Eğitim sonunda yarı yapılandırılmış görüşme formuyla katılımcıların Cornell Not Alma Tekniğine ilişkin görüşleri alınmıştır. Katılımcılara ait bu görüşler içerik analizine tabi tutulmuştur. Araştırma sonucunda katılımcılar, Cornell Not Alma Tekniğini planlı çalışma, anlamlı öğrenme ve dinleme becerilerine yönelik bir teknik olarak ifade etmiştir. Bu teknikle katılımcıların etkili dinleme, bilgiyi ayırt etme, zamanı etkili kullanma, eleştirel düşünme, yaratıcı düşünme ve problem çözme becerileri gelişmiştir. Katılımcılar, Cornell not alma tekniği eğitimi sürecinde kaydetme basamağı, kısaltma basamağı, yansıtma basamağı ve özetleme basamağında problemler yaşamıştır. Problemin çözümünde katılımcılar, uygulamaya yönelik etkinliklerin yapılması, yeni bilgilerin önceki bilgilerle ilişkilendirilmesi, zamanın etkili kullanılması ve uygun metinlerin seçilmesi önerilerini sunmuştur. Katılımcılar, Cornell not alma tekniğinin uygulanması sürecinde çevresel ve bireysel faktörlerin dinleme becerilerine etki ettiğini açıklamıştır.

Anahtar Kelimeler: Dinleme Becerisi, Not Alma, Cornell Not Alma Tekniği

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#### 1. Introduction

Since the day they came into being, people have transferred their knowledge and experiences to each other through language for generations. The Turkish Language Association (2023) defines the concept of language as people expressing their feelings and thoughts through words or some signs and conveying them to the other person. Language is the most effective tool that provides communication between people (Demir, 2020). Human beings have been trying to realize their dreams by using this tool since their existence until today (Çalıcı, 2019). While doing this, they use voice, writing, body language, and express their values, thoughts, and feelings in individual and social areas (Oruç, 2016). Language is a social phenomenon and is based on the principle of causality. It constitutes the common denominator of individuals who make up society. It is a systematic and national institution used by individuals living together to form a healthy society (Sevimli, 2015). Here, the individual tries to use listening, speaking, reading, and writing skills (Köprü, 2020). The aim is to acquire new information based on basic language skills. For example, the individual acquires the skill of understanding through listening, seeing and reading. The messages are tried to be understood through the texts read and listening exercises (Calp, 2010). In this skill, which the individual uses from a young age, it is important to understand and interpret verbal language (Hagtvet, 1998). In listening, which has a different place among other skills, the individual tries to understand what he/she hears from the moment he/she is born (Özbay, 2013).

The listening skill presented to the individual during the prenatal process becomes meaningful with the active use of sensory organs (Demir, 2020). The individual uses listening skills to improve his/her vocabulary at school, at home, and in his/her immediate environment and to solve problems encountered in human relations (Bulut, 2013). In other words, listening is an "indispensable" skill for the preservation of social order and continuity (Okur & Beyce, 2013). Certain stages should not be overlooked in this skill, which should be used in lifelong learning. These are perceiving the sounds occurring in the environment through the auditory organs, that is, hearing, decoding and interpreting the message heard, understanding the sounds selected and of interest, remembering previously learned information, evaluating messages, and responding to the speaker (Gürel et al., 2018). All these stages are offered to the individual in schools, which start in the family environment and have a formal education framework. Listening, which is among the basic learning tools in the school period, constitutes the priority

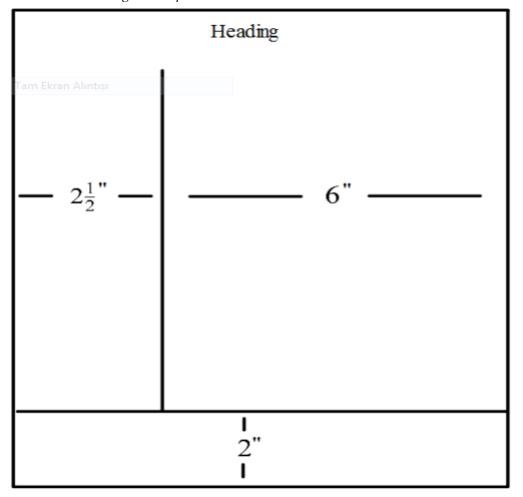
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of language education (Çelenk, 2005). In fact, the most used word by teachers in in-class practices is "listen" (Özbay, 2013). Because one of the primary problems of classroom discipline is students' failure to listen. There may be many reasons for this. One of the reasons for not listening is that children have acquired this skill informally in the family environment before starting school. Since children create a flexible learning environment in their immediate environment, they continue to use this skill in daily life in a more formal environment. Another reason is that teachers are reluctant to use listening strategies. They think that listening skills will take time (Doğan, 2011; Tayşi, 2014; Tüzel & Keleş, 2013). In order to avoid such situations in teaching activities in and outside the classroom, teachers are expected to use certain techniques. One of these techniques is the Cornell Note-Taking Technique, which is involved in quantum learning.

Note taking is a very useful practice in terms of remembering and not forgetting information (Kardaş, 2018). Note taking is writing down the parts of the verbal expression in a text that are deemed appropriate for the purpose. It is summarizing the information and noting it for future use (Tabak & Karadüz, 2016). It is the meaningful coding of mental information (Simonet and Simonet, 1995). Note-taking, which should not be confused with taking notes, is summarizing the information and drawing attention to the parts listened to. In taking notes, the individual transfers all the information he/she listens to and reads to writing. In note taking, not all of the information listened to and read is written, but only the important parts (Türk, 2016). For this reason, not taking prevents distraction during the listening process. It helps the individual study in exams. It ensures that important information is repeated and not forgotten. It gives the individual the habit of writing. It helps the subject to be understandable (Özbay, 2012; Özçakmak, 2015).

Cornell, which is among the note-taking techniques, improves the individual's critical reading and increases academic success (Ahmad, 2019; Quintus et al., 2012). It was developed by Walter and Pauk in 1949 to support the comprehension skills of students at Cornell University. The technique, which provides more effective results than traditional note-taking methods, includes a specific worksheet (Sholikhah, et al., 2019).

#### Figure 1.



Cornell Note-Taking Technique Worksheet (Pauk, 2001; 239)

As seen in Figure 1, in the Cornell Note-Taking Technique, the left column constitutes one-third of the page and the right column constitutes two-thirds of the page (Faber et al., 2000). Notes are taken in the right column, and attempts are made to capture the narrator's ideas and facts. What is to be noted during the note-taking phase may vary from student to student. For this reason, the student includes his/her own sentences in the right column. The main points and keywords are in the left column. The aim is to benefit from clues in learning. The meanings of questions/keywords are clarified, relationships emerge, continuity is provided and the connection between the diagrams is strengthened, with clues. In the lower section, a summary is made about the subject. The student repeats with the summarized information. The student can more easily see their shortcomings and success points (Quintus et al., 2012). In short, the Cornell Note-Taking Technique page structure consists of four sections. The subject/title is written at the top. Notes are taken on the right. The left side is the marking column. A summary is made about the subject at the bottom (Broe, 2013; Saputri, 2020).

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The Cornell Note-Taking Technique, which consists of three sections, has certain stages. These are recording, reducing, reciting, reflecting, reviewing and sampling (Kardaş, 2018; Maulidia et al., 2021; Saputri, 2020). In the recording stage, special and effective information is addressed. Here, not every word heard is written. In the reducing stage, short notes are kept. In reciting, detailed notes are associated with keywords. In reflecting, new ideas are examined and written. It is the stage where creative thinking skills are used. In reviewing, statements representing all information are written. In the sampling stage, information is reinforced with different examples (Akçay, 2018). In other words, meaningful learning occurs with the Cornell Note-Taking Technique. Apart from meaningful learning, many scientific studies mention the effect of the Cornell Note-Taking Technique on the learning-teaching process. These studies examined the Cornell Note-Taking Technique's development of text summarization skills (Karatay et al., 2020), listening comprehension (Kurudayıoğlu & Soysal, 2016), its effect on listening comprehension and recall (Sahin et al., 2011), text reading (Kalb, 2003), achievements (Williams, 2004), active participation in the lesson (Boelter, 2010), grammar learning (Davoudi et al., 2015), and reading instruction (Saputri, 2020; Sholikhah et al., 2019). Studies were conducted on secondary school, high school, English language learning students and university students. In this study, the listening comprehension skills using the Cornell note-taking technique of Turkish teacher candidates, who are future teachers, were tried to examine. It is thought that the study will contribute to the literature due to the lack of domestic research. In this regard, answers are sought to the following questions:

What are the opinions of Turkish teacher candidates about the Cornell note-taking technique?
 What are the opinions of Turkish teacher candidates about the contribution of the Cornell note-taking technique to listening skills?

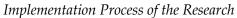
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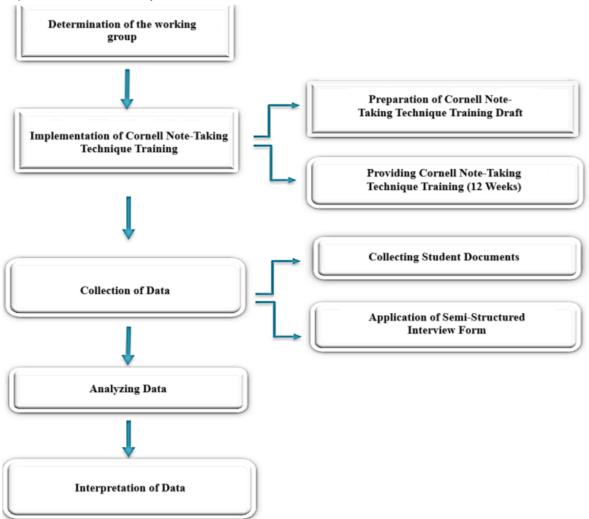
# 2. Method

# 2.1. Research Model

The case study method, one of the qualitative research designs, was used in the study. A case study is the examination of the subject in a natural environment without any control or intervention. In the examination conducted in the case study, data is systematically collected and analyzed (Aytaçlı, 2012) (See Figure 2). Different case designs can be used in the analysis process. Since the Cornell Note-Taking Technique was handled with a holistic approach in this study, a holistic single case design was used. The single case design examines unusual or unique situations where there is a single unit of analysis and contributes to the testing of a well-formulated theory (Subaşı & Okumuş, 2017).

## Figure 2.





As seen in Figure 2, the case design was used in the study by considering five stages. In the first stage, the study group was determined. The research was conducted with 29 students studying in the 3rd grade of Turkish Language Teaching. In the second stage, the implementation of the Cornell Note-Taking Technique training was started. Here, student and expert opinions were taken to create the training content. Afterwards, the text types were determined. Then, the training draft was presented to expert opinion and took its final form. Finally, the students were given a 12-week Cornell Note-Taking Technique Training. In the third stage, data were collected. In this stage, the worksheets that the students worked on during the Cornell Note-Taking Technique training process were collected. Then, a semi-structured interview form was applied as a result of expert opinions. In the fourth stage, the data were analysed. In the last stage, the data were interpreted.

#### 2.2. Study Group

The study group of the research consists of 29 teacher candidates who are studying in the third grade of Department of Turkish Language Teaching at Faculty of Education at Mus Alparslan University and were determined by easily accessible case sampling. In the easily accessible case sampling, which provides speed and practicality to the research, the researcher selects a group that is easy to reach (Yıldırım & Şimşek, 2016). The participants consist of a total of 29 people, 23 (79.3%) of whom are girls and 6 (20.7%) of whom are boys. While 7 (24.1%) of the participants read books regularly on a daily basis, 22 (75.9%) of whom sometimes read. It was observed that there were no participants who never read books. 5 (17.2%) of the participants stated that they read 10-20 pages, 7 (24.1%) of whom read 21-30 pages, 6 (20.7%) of whom read 31-40 pages, 4 (13.8%) of whom read 41-50 pages, and 7 (24.1%) of whom read 51 or more pages. While 23 (79.3%) of the participants listened to articles, stories, books, etc. that were voiced, 6 (20.7%) did not. While 16 (55.2%) of the participants received training on developing listening skills, 13 (44.8%) did not. 13 (44.8%) of the participants preferred the critical listening type the most among the listening types. The factor affecting the listening process of the participants was the physical environment with 41.4%. The text type that the participants listened to the most was poetry with 48.3%.

#### 2.3. Data Collection Tools

In the study, data were collected through semi-structured interview form and document analysis. A literature review was conducted for the semi-structured interview form. A draft form was created after the literature review. The draft interview form was presented to expert faculty members working at Gazi University and Muş Alparslan University. One of these experts is an expert in Measurement and Evaluation, two in Curriculum and Instruction, and one in Turkish Education. A pilot application was conducted with a group of five prospective teachers in line with the expert opinions. After the pilot application, final corrections were made in line with the suggestions of the prospective teachers and the interview form was created. There are six questions in the interview form. Document analysis is materials that contain information about the subject being researched (Yıldırım & Şimşek, 2013). It is used to examine and evaluate all documents, including printed and electronic materials (Kiral, 2020). It consists of the following stages: (1) Accessing documents, (2) Checking originality, (3) Understanding documents, (4) Analyzing data, (5) Using data. In the study, while the listening skills of the participants were determined with the Cornell Note-Taking Technique, firstly the opinions of experts and students were taken on the texts (such as jokes, essays, stories, articles, novels). Attention was paid to the texts being between 5-10 minutes. While selecting the subjects of the texts, the opinions of 71 undergraduate students were sought via Google Forms. Later, the opinions on the Cornell note-taking worksheet and the visual texts they wanted to tell were reevaluated by the researcher and interpreted in the findings section.

#### 2.4. Analysis of Data

The data obtained in the study were subjected to content analysis. Content analysis, which addresses the relationships between concepts in the interpretation of data (Yıldırım & Şimşek, 2013), analyzes many forms of communication such as documents, papers, books, case studies, photographs, web pages, surveys and answers to interview questions (Sallan Gül & Kâhya Nizam, 2021). In the analysis, stages such as coding the data, finding themes, coding the data and organizing it according to themes, and interpreting the findings are taken into consideration. While coding the data in the study, the answers given by the participants to the interview questions were transferred to the computer and organized. In the first stage, the answers to all questions were read several times and codes were created. The codes were then

collected under certain themes. The themes were separated according to their similarities and differences, and the data obtained from here are shown in tables in the findings section. The code "K1, K2...K29" was used when quoting participant opinions under the tables.

#### 2.5. Validity and Reliability

In qualitative studies, detailed explanation of the data and process are among the important criteria of validity. Validity of data can be ensured by fulfilling the criteria of credibility, transferability, consistency and confirmability (Yıldırım & Şimşek, 2013). It is recommended to have a long interaction with the study group for credibility. In the study, data were collected from the participants in the classroom where they were educated and after a long interaction process of 12 sessions. For the transferability criterion, the data should be presented to the reader without any comments in the findings section (Yıldırım & Şimşek, 2013). In addition, the method suggested by Miles and Huberman was used to calculate the reliability of the data in order to fulfill the transferability criterion. According to this method, the aim is for the agreement between the coders to be over 70% (Miles & Huberman, 1994). In this respect, the opinion forms of 29 participants were examined by a second researcher and it was seen that the agreement between the researchers was at an acceptable level (82%>70%). Since it is difficult to replicate the research in qualitative studies, the concept of consistency is used instead. In this study, the researcher(s) implemented each session regularly in accordance with the purpose of the study. After the sessions, documents were distributed to the participants, the texts were read and the data were analyzed. The analysis of the documents collected with the participants was repeated in accordance with the confirmability criterion.

# 3. Findings

#### 3.1. Opinions of Turkish Teacher Candidates About the Cornell Note-Taking Technique

Participants' opinions about the Cornell Note-Taking Technique were examined under the headings of definitions, problems, solution suggestions for problems, and factors affecting listening skills during the implementation process.

# Table 1.

Question	Theme	Codes		Coding Density
		Enables practical note-taking (f=12)	K1, K2, K5, K6, K7, K8, K12, K13, K15, K18, K26, K27	f
	A technique for planned	Creating a page layout within the framework of certain criteria (f=15)	K2, K5, K6, K8, K12, K14, K16, K17, K19, K20, K21, K24, K26, K27, K29	
	study	Provides concise and clear information (f=1)	K14	-
		Prevents writing every sentence and ensures important information is recorded (f=5)	K1, K7, K13, K25, K27	
		Effective use of time (f=3)	K9, K13, K28	-
iique?		Ensuring long-term learning (f=18)	K1, K2, K3, K5, K6, K7, K8, K9, K11, K12, K13, K14, K15, K16, K20, K26, K28, K29	- 30
; techn	A technique	Keywords are recorded (f=5)	K21, K24, K25, K27, K29	
taking	for meaningful	Facilitates distinguishing key concepts (f=1)	К3	
l note-	learning	Engages students actively in the learning process (f=1)	K11	
nel		Ensures analytical thinking (f=2)	K10, K11	_
How do you define the Cornell note-taking technique?		Enables distinguishing information (f=3)	K13, K21, K27	-
	A technique	Summarizes what the speaker says with short notes and keywords (f=3)	K4, K21, K22	9
	for listening skills	Listens to the speaker while taking notes (f=4)	K7, K9, K13, K20	
		Understands what is read and heard (f=2)	K16, K17	

Participants' Opinions on the Description of the Cornell Note-Taking Technique

As seen in Table 1, three themes were created based on the participants' opinions about the definition of the Cornell Note-Taking Technique: "a technique for planned study, a technique for meaningful learning, and a technique for listening skills". The most emphasized codes among these themes are, respectively, creating the page layout within the framework of certain criteria (f=15), ensuring long-term learning (f=18), listens to the speaker while taking notes (f=4). Some quotes from the participants' views on the codes are given below.

It is the process of drawing a line on the left side of a page by the listener about a topic being explained, taking notes on the right side, writing key words, questions and symbols to remind the notes on the left side and writing a summary of the topic at the bottom (K14).

K14's opinion is supported by his/her activity below.

#### Figure 3.

K14 Participant's Cornell Note-Taking Worksheet Example

Adı Soyadı:	K14	
Konu: Kendimia Ton	inal III	
Tarih: 08,06, 2022		· ·
Bana yaron olon bir->	Ben sodece lendime ders verjuorum. Bilditlerini de ekologia poylogimonda bir sakurskyck. Olinky bova rom olon bu kin bokosno da yoror olobilir.	
sey bostosing do yord log	skabryla poylosmanab, bir sakinca yok Cinky bara	
soptopolitir.	rori olon bu trin borlasna da yorari Olabilir.	
>Yormak nasil bir	Butumuran ele auco senapri akizini godenlande, turlu	
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A line is drawn on the left side of the paper. Notes are taken on the right side of the paper. Key words, questions and words that represent these notes are written on the left side. The subject is summarized in the person's own sentences at the bottom (K17).

K17's opinion is supported by his/her activity below.

# Figure 4.

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	e qok oeddogu iqin aglu adına bir comir yaptırdı. Bu ca- otı. Comir Hismor Sinon'ın qıratlık eseri. 1548 yılında, comide Li kubbe vor her kubbe 18,42 metre.

K17 Participant's Cornell Note-Taking Worksheet Example

Thanks to this technique, we provide permanent learning (K1).

*Thanks to this technique, information becomes permanent. This technique allows us to be practical in remembering information (K2).* 

# Figure 5.

K2 Participant's Cornell Note-Taking Worksheet Example

CORNELL NOT	Adi Soyadi: NZ Konu: II., kutuses Tarih: 21.03. 2022
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This technique allows for effective note-taking by capturing what the narrator means (K9).

K9's opinion is supported by his/her activity below.

# Figure 6.

K9 Participant'	s Cornell Note-Taking	Worksheet Example	
			-

Konu: Gloomiz 04 Tarih: 28-03,2022	estani K9
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# Table 2.

Question	Theme	Codes		Coding Intensity
				f
of	Recording	Difficulty focusing on the given texts during the recording stage (f=7)	K2, K6, K7, K8, K9, K14, K16	- 19
the steps	Information	Inability to keep up with what is heard during the recording stage (f=11)	K5, K6, K7, K8, K11, K13, K14, K18, K19, K26, K28	- 18
What problems do you encounter in the steps of Cornell note-taking?	Reducing Information	Difficulty placing abstract information (f=6) Problems forming questions, keywords, and clues related to paragraphs during the reducing step (f=15)	K1, K3, K7, K9, K12, K13 K1, K3, K4, K9, K10, K12, K16, K17, K18, K20, K21, K23, K24, K27, K29	21
What problems do ye Cornell note-taking?	Reflecting Step	Difficulty evaluating the text based on personal views using keywords and abbreviations (f=3)	K19, K22, K25	3
What Corne	Summarizing	Writing the topic using personal expressions (f=3)	K15, K17, K29	3
			TOTAL	45

Participants' Opinions on the Problems They Encountered in the Cornell Note-Taking Steps

As seen in Table 2, four themes were created based on the participants' opinions about the problems they encountered while using the Cornell Note-Taking Technique: "recording

information, reducing information, reflection step and summarizing". The most emphasized codes among these themes are, respectively, Inability to keep up with what is heard during the recording step (f=11), Problems forming questions, keywords, and clues related to paragraphs during the reducing step (f=15), Difficulty evaluating the text based on personal views using keywords and abbreviations (f=3), and writing the topic using personal expressions (f=3). Some excerpts from the participants' views on the codes are given below.

The part I had the most difficulty with was the reducing step. Because of reductions are not explanatory and comprehensive enough, they will not be effective. (K17).

I had difficulty in reducing information and choosing keywords. Because sometimes the reduced information had more content than it should have. I was undecided about how to reduce the information to be shortened or the subject of the text (K18).

*I had difficulty finding abbreviations and symbols that fit the sentence. This may be due to the fact that I read few books (K23).* 

*While taking notes, I had difficulty finding keywords, symbols, and questions that fit the sentence (K24).* 

K24's opinion is supported by his/her activity below.

## Figure 7.

	11 3 7 4 77 1 4	TAT 1 1 AT 1
K24 Participant's Con	rnell Note-Taking	Worksheet Example

	Adi Soyadi
	Tarih 04/04/22
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	giber and graded bir daka getner
	Jean and Print

Tabl	e 3.
------	------

Question	Theme	Codes		Coding Intensity f
		Conducting listening exercises (f=7)	K6, K8, K11, K12, K19, K21, K22	
What are your solution suggestions for these problems?	Practice-oriented activity	Practicing more (f=15)	K1, K4, K5, K8, K9, K12, K15, K17, K19, K22, K23, K24, K25, K27, K29	26 
uggestion		Writing the reducing section immediately after recording (f=4)	K2, K3, K10, K13	
ution s	Connecting old and new information Using time effectively	Coming to class prepared (f=2)	K5, K8	
ur solı		Being aware of the subject (f=1)	K5	
are you ams?		Not choosing very long texts (f=5)	K14, K17, K26, K28, K29	
What are y problems?	and text selection	Paying attention to text selection (f=3)	K7, K14, K16	- 8
			TOTAL	37

Solution Suggestions	for the Problems I	Encountered by	the Participants

As seen in Table 3, based on the participants' views on proposing solutions to the problems they encountered while using the Cornell Note-Taking Technique, three themes were created: "practice-oriented activity, connecting old and new information, using time effectively, and text selection." The most emphasized codes among these themes are, respectively, practicing more (f=15), coming to class prepared (f=2), and not choosing very long texts (f=5). Some excerpts from the participants' views on the codes are given below.

*By starting education at an early age, more experience and success are gained. In this way, more practice is done (K23).* 

Education should be given at an early age so that the technique can be developed by providing more practice (K24).

I think that the problems can be minimized by constantly applying the technique (K25).

The number of pages can be chosen depending on the length of the topics (K14).

The texts should be clearer and more concise, away from figures of speech, simple and short, and free from details (K18).

#### Table 4.

Participants' Opinions on the Factors Affecting Listening Skills During the Implementation of the Cornell Note-Taking Technique

Question	Theme	Codes		Coding Intensit y f
g the	Environmental Factors	Temperature of the classroom, the amount of light in the classroom, the ventilation of the classroom/the amount of oxygen per student (f=16)	K3, K5, K6, K7, K9, K11, K16, K17, K18, K19, K20, K21, K25, K27, K28, K29	_
s duri ique?		Class being crowded and noisy (f=9)	K1, K2, K10, K16, K18, K21, K24, K25, K29	_
g your listening skills ell note-taking techni		Teaching method and technique (f=2)	K4, K5	- 44 - -
		Teacher/speaker's attitude during the lesson (f=5)	K2, K5, K12, K13, K22	
		Speaker's tone of voice (f=10)	K1, K3, K4, K7, K9, K13, K15, K20, K25, K26	
orn		Text type (f=2)	K1, K18	
What are the factors affecting your listening skills during the implementation of the Cornell note-taking technique?	Individual Factors	Student's interest in the lesson (f=1)	K29	- 17 -
		Students' psychological state (f=10)	K2, K8, K10, K11, K14, K19, K22, K23, K27, K28	
		Students' readiness level (f=2)	K18, K20	
		Motivation (f=1)	K7	
W imj		Health problems (f=3)	K5, K15, K20	
			TOTAL	61

As seen in Table 4, based on the participants' views on the factors affecting listening skills during the application process of the Cornell Note-Taking Technique, two themes were created as "environmental and individual factors". The most emphasized codes within these themes are, respectively, the temperature of the classroom, the amount of light in the classroom, the ventilation of the classroom/the amount of oxygen per student (f=16), and students' psychological state (f=10). Some excerpts from the participants' opinions on the codes are given below.

*The physical environment of the classroom, the amount of light, the correct adjustment of the light, the temperature of the classroom and the fact that it is crowded affect me (K16).* 

The environment is very important for me when listening. I pay a lot of attention to heat, light, sound or noise. The attention factor, where note-taking and attention are done

together, is very important. When these factors are not present, listening and note-taking are insufficient. Or they are disconnected (K17).

It is very important for the classroom to be clean and sufficiently ventilated. There should be no objects that distract attention. The comfort of the seat and the noise in the environment affect me (K18).

The most important thing is that when my psychological state is not comfortable, I cannot focus on the lesson no matter how good the speaker is. My mind needs to be very relaxed. If my body is in the classroom and my mind is wandering in different realms, this psychological factor affects me a lot (K2).

If the student is not in a good psychology, he/she will not listen to the lesson. The most important factor that affects me is the student's psychology. If the student's psychology is not good, his/her physical presence in the classroom is not important (K8).

The factors that affect listening are my mood, absent-mindedness, thinking about other issues and not being able to focus on the text. As a result, the text I listen to affects my taking wrong notes (K10).

# 3.2. Opinions of Turkish Teacher Candidates on the Contribution of Cornell Note-Taking Technique to Listening Skills

In the second sub-problem of the research, the participants' suggestions regarding the contribution of the Cornell Note-Taking Technique to listening skills and the skills developed by the technique will be examined.

Questi on	Theme	Codes		Coding Intensity f
My at is the contribution to Effective Listening skills; Contribution to distinguishing information Using time effectively	Contribution	Both listening and note- taking (f=11)	K1, K3, K5, K6, K7, K8, K12, K13, K19, K28, K29	22
	to Effective	Contributing to finding the main idea (f=8)	K3, K5, K7, K8, K13, K15, K17, K25	
	Listening	Providing visualization of information (f=3)	K25, K26, K29	
		Concentrating on information during the listening process (f=13)	K2, K9, K10, K14, K17, K19, K20, K21, K22, K23, K24, K26, K29	- 43
		Understanding selected information and thoughts (f=12)	K1, K3, K4, K9, K15, K16, K17, K20, K21, K26, K27, K29	
	0 0	Establishing connections between information (f=1)	K2	
		Organizing and evaluating information (f=5)	K2, K9, K11, K16, K22	_
		Processing what is heard mentally (f=12)	K2, K5, K8, K9, K14, K16, K21, K23, K24, K25, K28, K29	
	0	Not wasting time taking notes (f=4)	K6, K7, K8, K28	4
	_		TOTAL	69

#### Table 5.

Participants' Opinions on the Contribution of Cornell Note-Taking Technique to Listening Skills

As seen in Table 5, based on the participants' opinions about the contribution of the Cornell Note-Taking Technique to listening skills, three themes were created: "contribution to effective listening, contribution to distinguishing information and using time effectively". As seen in Table 5, based on the participants' opinions about the contribution of the Cornell Note-Taking Technique to listening skills, three themes were created: "contribution to effective listening, contribution to distinguishing information and using time effectively". Taking Technique to listening skills, three themes were created: "contribution to effective listening, contribution to distinguishing information and using time effectively". The most emphasized codes within these themes are, respectively, both listening and note-taking (f=11), concentrating on information during the listening process (f=13), and not wasting time taking notes (f=4). Some excerpts from the participants' opinions on the codes are given below.

With the Cornell note-taking technique, we can both listen and take notes (K1).

It contributed to the skill of taking notes while listening (K3).

We can also take notes of the information we listen to (K5).

It allows the information listened to to be taken notes at the same time (K6).

We can also take notes of the information we listen to (K7).

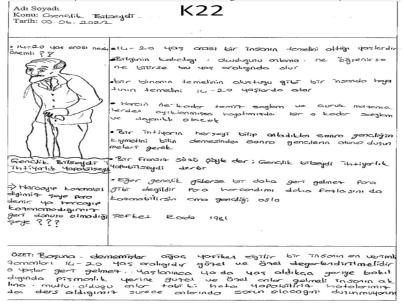
The individual focuses on the conversations according to his/her preference, interest and attention. This technique strengthens attention and focus. During the listening process, attention is focused on the selected information (K21).

It develops the skill of receiving important information, listening more carefully and selectively (K22).

K22's opinion is supported by the activity below.

#### Figure 8.

K22 Participant's Cornell Note-Taking Worksheet Example



.....It is useful for taking quick notes (K6).

*K7's opinion is supported by the following activity.* 

# Figure 9.

CORNELL NOT	Adı Soyadı: K7 Konu: Could'an Tarihi (106):2022
Kurollor agenerment	Entities sortaprok onloro yemek yeme oliz- Kanlığı kaşan diri lamaş.
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Participant K7's Cornell Note-Taking Worksheet Example

# Table 6.

Participants' Opinions on the Skills Developed by the Cornell Note-Taking Technique

Question	Theme	Codes		Coding Intensity
	Critical Thinking	Commenting by listening (f=8)	K3, K12, K17, K18, K19, K20, K25, K28	f 
n you?		Establishing logical connections between information (f=3)	K3, K16, K19	
elop ii		Interpreting the text through clues (f=9)	K4, K9, K12, K14, K16, K17, K20, K21, K29	
ue dev		Getting rid of unnecessary details (f=4)	K5, K10, K21, K28	
Which skills did the Cornell note-taking technique develop in you?		Learning to take correct notes (f=13)	K5, K6, K7, K8, K11, K18, K19, K20, K21, K22, K25, K27, K29	
		Not getting caught up in unnecessary details (f=12)	K6, K7, K8, K10, K16, K17, K18, K19, K20, K21, K22, K29	
		Thinking deeply (f=5)	K10, K11, K18, K26, K29	
	Creative Thinking	Developing creative ideas (f=9)	K3, K12, K14, K16, K18, K20, K23, K26, K27	17
10		Taking creative notes (f=1)	K2	
Which skills did the C		Explaining the listened text with original expressions (f=7)	K1, K3, K9, K13, K19, K20, K29	
	Problem Solving	Solving complex problems (f=4)	K2, K12, K18, K29	_ _ 14
		Organizing complex information (f=4)	K2, K9, K19, K24	
		Producing solutions to encountered problems (f=6)	K9, K15, K17, K19, K20, K29	
			TOTAL	85

As seen in Table 6, three themes were created based on the participants' opinions about the skills developed by the Cornell Note-Taking Technique: "critical thinking, creative thinking and problem solving". The most emphasized codes within these themes are learning to take correct notes (f=13), developing creative feelings (f=9), and producing solutions to encountered problems (f=6). Some excerpts from the participants' opinions on the codes are given below.

*I can also take notes while listening (K5).* 

K5's opinion is supported by the following activity..

#### Figure 10.

Adı Soyadı:	K5
Konu: Kendimizi Tanıma	ela.
Tarih: 11/06/ 2022	
© ← ders	& Hertes kendisi icin bir derstir.
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@ + bahsetmel > Ovenmel	o Osrendiklerim benim igin yeterli olmuzor.
Saulis	& Kendimi ablatistan säsekli kendime aetidüzen verigorum.
©→ bahsetnek	& Kendinden sözetmek kendini õumek gibi gördaör.
Jasaklan haziri	* Kendindon söz atmonin yasaklanmaması gerekir.
KUSUr @ = SUG internel	* Kusur korkusundan dalamı suc isleriz.
5-11-1	* Kendinden söz etmek yanlış dezildir fakat toplum hala yapacağından
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Tanri - rahibe - kendini	to sokiates en col kandisinden söz eder.
-> babsetmele	a Tanriga ve lahibe kendinizden bahsederiz.
Oncelile = distace	& Ben her seyden önce düsänce lerimi anlatirim.
Kendim= yalin= bahsetmer	k Kendimi yalın bir sekilde gösteriyorum.
Gurur : insan ve distance	* Yaptıklarından aok kendimi, öz benliğimi anlatiyorum.
	" însan iyi ve koto tarafier bilip buna sone davianmali.
Bilge = Solvates	& Gurur insann düsöncesidir.
	& Kimilerine oba kendisiste bazbasa balan insan vakite öldörür.
	* Sokiates kendini tanıyıp böbörlenmediği icin bilge olmayı hak elmişti
	& Onenti olan insanın kendisini tanımasıdır.
	L
	ain bir sinaudir ve kendi sinavini başlalarına anlatırım. Ancak bu zor
bir istir. son zamanlard	la kendimi sık sık sorguya Cekiyorum ve bu bana yeterli gelmiyor.

Cornell Note-Taking Worksheet Example for Participant K5

It enabled me to produce more aesthetic products by thinking about abstract concepts (K3).

Farat kendinden behselmer loplum larafınden kendimi öumer gibi görünebilir, bu yanlışlır,

kendimi anlatirlen objektif hir schilde davranyorum.

*My creative thinking skills improved. We were able to produce new ideas on the subject (K12).* 

*My creative thinking skills improved. I learned to derive completely different meanings from different words (K14).* 

I was able to produce more effective solutions to problems... (K15).

*My problem solving, analysis and solution development skills improved... (K17).* 

My problem understanding and solution development skills improved (K19).

K19's view is supported by the activity below.

#### Figure 11.

K19 Participant's Cornell Note-Taking Worksheet Example

Adı Soyadı: Konu: Sehraz bası Comii K19 Tarih: 13/06/2022		
Po tát	Schoodebasi Camii fatih'tedir.	
Yil 1561 hongi paduah?	Schadebasi Canii minar Sinon in ciraldit eastail. Vil 1511 tanuninin Hürremder ille golu	
FT>Hanialdilg that	Schade M. 19 winds Monie yoursidic	
	Sanater ruhlu, bedenen zayrf, zarif biridir,	
23 Jaht	Kanuni 23 vilder tahta aturdu.	
	S. Mehanet abisinin yeine Manisaya Vali darch gritmistir.	
A stages	S. Mehmed Blur.	
And Comi bitti	1549 S. bosi camii bilmijtir.	
Lubely AISW2	Li bayah varin tukkeye saslanmi 18.62m2 lit kubbe	
11111111111111-25-den 166abbe	12 rots 16 hullede duran radician, 2 minures Los serifadir. 2 eya 3 xoriles ancar Sultantar yaptim.	
	Caniti nin imarethanesi; yolau baking muhtaclara aya	
A A A maje	5. Mehmotin turbesinin soginda si Changir, solunda tizi húmosa Sulton	
K/ C	Mihr: gûreş mah:ay	
	2	
	-	
ÖZET: I vilnda Karunitnin Hörren den ill oglu S. Mehmet Abderinin geine		
ÖZET: Manija ja 19 jojinda vali olarak gitmijtir. S. Mehmet blinnager bir reder		
der vefat eder ve babasi onun adına Fatihi'de Schoode bare Cominis yapıtır. 1548 relenda comi yapıme biter. S. Mehmetin fürbesinin yenında S. cinenpir		
John da Viz. Adments and table verder.		
Minriman suitern dan arenden deley Miner sinen bit cerri		
Laphric. Mihr & gines denetici i mak: ay denetici.		

As can be seen, the participants have positive opinions about the Cornell Note-Taking Technique. It was observed that their high-level skills regarding the technique improved and they explained the factors affecting their listening skills.

## 4. Discussion and Conclusion

In the study, the participants' opinions about the Cornell Note-Taking Technique were obtained. The opinions were examined under the titles of definitions, problems, solution suggestions for problems and factors affecting listening skills in the application process. When the participants defined the Cornell Note-Taking Technique, the concepts they used most were

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seen as "a planned technique", "a technique for learning" and "a technique that prioritizes listening". As it is known, the technique presents all the concepts to the individual together. While learning the concepts, the individual structures his/her knowledge in an organized manner by taking into account the page structure of the technique. According to Faber, Morris and Lieberman (2000), the Cornell Note-Taking Technique consists of two columns. The left column of the technique covers one third of the page and the right column covers two thirds of the page. Pauk (2001) defined this technique as a note column, a hint column and a summary area for taking notes and reviewing. Learning is constantly reviewed in this way, and every piece of information listened to is analyzed conceptually. With the analyses made, the information is encoded into long-term memory. There are studies in the literature supporting this idea. For example, Maulidia and Silviyanti (2021) stated in their study that with the Cornell Note-Taking Technique, note-takers interpret new materials and encode information in the text. Custer (2014), stating that the Cornell Note-Taking Technique is not a technique in which students only record notes, emphasized that with the technique, students think deeply, use cognitive processes well, and focus on application studies. Williams (2004) explained in his/her study that the technique provides rapid learning. Students prepare better for exams by taking notes. As Meydan (2018) stated, the aim here is to ensure that the concepts are understandable. The keywords learned and conceptually internalized are used in solving problems encountered in the learning process. In other words, unlike traditional methods, problems are solved with scientific processes (Şahin et al. 2011).

According to the participants, some problems are encountered in the process of using the Cornell Note-Taking Technique. These problems are recording the information, reducing the information and summarizing it. In the recording phase, the participants could not complete the information they listened to, could not prepare questions for the paragraph in the reducing phase, encountered different problems in creating keyword-clues and writing the subject with personal expressions. Since writing and listening are carried out together, the participants stated that they could not use the technique effectively in structuring the correct information and writing the appropriate keywords. The study by Karatay and colleagues (2020) supports this result. The study concluded that the Cornell Note-Taking Technique is time-consuming, cannot always be used in complex texts, the individual misses the main meaning of the text when reading and taking notes at the same time, sticking to a template for summarizing the

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text will limit the individual, teacher candidates who finish summarizing the text early have to wait for other candidates who summarize, and they have difficulty choosing the keywords of important parts of the text. Eggen and Kauchak (1999) drew attention to the fact that the biggest problem students experience when taking notes on a subject is not being able to see the difference between the information. The participants had some suggestions regarding these problems they encountered in the use of the technique. These are; carrying out activities aimed at practice, connecting with old information, using time effectively, and selecting appropriate texts. The teaching processes that are effective in using the technique are the simple and understandable texts in selecting the activities, making preparations before coming to the lesson, having prior knowledge about the subject, including little information, using visual materials and focusing on the notes to be taken in the lesson (Safran & Kiriş, 2011). According to Syafii (2019), the teacher factor is also effective in applying the technique. The teacher is a guide in all these processes. He/she is the person who gives feedback to the student about the texts listened to. He/she is the educational element that knows the student most closely.

Another result obtained in the study is that environmental and individual factors affect the listening skills of the participants in the Cornell Note-Taking Technique. For example, it was concluded that the temperature of the classroom, the amount of light, ventilation and the psychological state of the participants affect their listening skills. Indeed, it is a known fact that psychological, physical and biological factors affect an individual's learning. This result is supported by the study conducted by Çiftçi (2001). According to Çiftçi, the negative factors affecting listening include physiological (reasons arising from the person's possible health disabilities), physical (the crowdedness of the educational environment and the seating arrangement of the students, etc.), mental (the individual's cognitive memory not being kept alive, the individual being distant from education, etc.), social (the individual being pushed to passive listening by receiving negative feedback from his/her social environment), and psychological (the negative mood of the students, uninteresting topics and negativities originating from the speaker, etc.) variables. According to Kargın (2013), the physical environment affects learning. In this environment, the temperature, amount of light, color, noise level, size, accessibility, seating arrangement and amount of stimulation of the classroom directly affect children's learning. In addition to the elements mentioned, status, gender and

cultural differences affect the individual's listening in psychological elements and increase selfconfidence skills.

The study includes participants' opinions about the contribution of the Cornell Note-Taking Technique to listening skills. The technique contributes to the skills of distinguishing information and using time effectively. At the same time, with the technique, participants gain the ability to listen and take notes at the same time, to concentrate on the information during the listening process, and not to waste time while taking notes. It is known that the main purposes of the technique, which provides positive contributions to the individual in terms of managing time effectively and establishing relationships between information, include distinguishing information, focusing, synthesizing information, and ensuring that what is listened to/watched is easily understood and remembered (Boelter, 2010; Gündüz & Şimsek, 2014; Şahin et al., 2015). Thus, students' academic skills regarding listening skills increase. In other words, it is observed that students who receive training with the Cornell Note-Taking Technique have increased success levels compared to students who do not (Evans & Shively, 2019; Kurudayıoğlu & Soysal, 2016; Şahin et al., 2011; Tsai & Wu, 2010). These increases develop the individual's critical thinking, creative thinking, and problem-solving skills. For example, while taking notes in the study, the participants learned how to take notes correctly for the important information they would need and found new and different ideas for solving problems. They concretized the subjects especially with keywords and visuals and meaningful learning took place. This result is supported by the research results of Davoudi and colleagues (2015). Davoudi et al. (2015) stated in their study that the Cornell Note-Taking Technique encourages students to think critically. In short, the Cornell Note-Taking Technique ensures that information is stored meaningfully. It is an important technique for students to be successful in the course (Fender, 2003). Taking notes helps develop mental functions (Sahin et al., 2009). By taking notes, the individual looks at the subjects from multiple perspectives, learns in depth, discusses, questions and makes new definitions (Anarsit & Aryuliva, 2017).

#### 4.1. Suggestions

• Cornell Note-Taking Technique can be applied at different levels of education and in different courses.

- The contribution of Cornell Note-Taking Technique to students' academic skills can be investigated.
- In this study, in which listening comprehension skills are determined with Cornell Note-Taking Technique, a qualitative design was used. Mixed designs related to the technique can be used in different studies.
- The contribution of Cornell Note-Taking Technique to the individual's four basic language skills can be investigated.

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