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Investigation of text-based comprehension questions in emergency distance education during the COVID-19 pandemic

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The purpose of this study was to analyze text-based comprehension questions asked by fourth-grade teachers in Turkish (L1) lessons in emergency distance education that started during the COVID-19 pandemic and to compare the results with those of other studies conducted in face-to-face educational settings. The text-based comprehension questions were evaluated in terms of different text types (narrative and expository) according to the distribution of the questions in the reading/listening process, answer source (whether the answer to the question was intratextual, extratextual, or intertextual), format, inference type, and teacher specificity. The study was designed to utilize a qualitative description method. Two fourth-grade teachers working in different primary schools were selected as participants. The data were collected through online lesson observations. A total of 56 lesson hours were observed and videotaped. The content analysis technique was applied for the analysis of the data. As in the results of previous studies, the present study, which was conducted in an emergency distance education environment, revealed that the text-based comprehension questions asked by teachers are generally asked after reading/listening, are answered with intratextual and extratextual sources, are prepared only in an open-ended question format, and are mainly of the propositional inference type. Additionally, it was found that teachers do not take the initiative to generate questions themselves and remain primarily dependent on the textbook.

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Introduction

In the context of the teaching and learning of reading comprehension, questions play a significant role in developing students' higher-order thinking skills and ensuring in-depth understanding (Ateş 2011; Durkin 1978–79). They not only provide information to teachers about the academic status of students but also help students construct meaning from the text (Başaran 2019, pp. 295–296). According to Güneş (2021a), the primary function of questions is to inform and to be informed within the scope of learning and teaching (pp. 313–314). Questions can be used to make readers aware of the crucial points of a text (Day and Bamford 1998), to check comprehension (Gerot 2000), to extend the topic, to relate the text to prior knowledge and experiences to improve comprehension (Handsfield and Jiménez 2008) and to serve as an assessment of students' comprehension of what has been taught (Kintsch 2005). Experts from the National Reading Panel (NRP) (2000) also argue that generating and answering questions effectively develops comprehension. In brief, questions can be considered an auxiliary element of students' comprehension, meaning-making, and learning (Beck et al. 1996; Duke and Pearson 2002; Durkin 1979).

Text comprehension questions can be classified in many different ways using various parameters. For example, the revised Bloom's taxonomy provides a framework for questions (Anderson et al. 2001). Questions related to the *remembering* stage of the taxonomy are directed towards recognition and recall. In contrast, questions associated with the *understanding* stage are directed towards interpretation, sampling, classification, summarizing, inferring, comparing, and explaining. The *application* stage includes execution and realization questions, while the *analysis* stage includes parsing, organizing, and examining questions. While questions related to the *evaluation* stage are about controlling/auditing and criticizing, the *creation* stage is about creating, planning, and producing (Krathwohl 2002). In Day and Park's (2005) taxonomy, questions are divided into six comprehension categories. These categories are literal, reorganization, inference, prediction, evaluation, and personal response. Clymer (1968) mentioned that Barrett's taxonomy puts questions into five categories. These categories are literal comprehension, reorganization, inferential/deep comprehension, evaluation, and appreciation. Furthermore, Akyol (2019) and Başaran (2019) suggested a question classification specifically for language lessons. They stated that it is necessary to classify questions based on their different aspects, including *their purposes* (questions about text schema and content), *the timing of asking* (pre-text, during-text, and post-text questions), *the format* (open-ended, multiple-choice, true-false, fill-in-the-blank, and matching questions), *the cognitive processes required* (simple comprehension and in-depth comprehension questions), and *the answer sources* [intratextual (the answer is within the text), extratextual (the answer is outside the text), and intertextual (the answer is between texts) questions]. In the current study, Akyol (2019) and Başaran's (2019) question classification was preferred because it deals with different aspects of questions and is specific to language lessons.

Inference-making is essential for comprehension and is emphasized in the Turkish curriculum beginning at the 3rd-grade level (MoNE 2019). Inference is explained as obtaining the truth from a proposition with the help of other propositions, deducing a new proposition from a proposition (Hançerlioğlu 1989; Timuçin 1994). Questions can be utilized to lead students to make inferences. In this vein, there are various types of inferences that questions serve. Although there are different taxonomies (Nicholas and Trabasso 1980; Pearson and Johnson 1978; Warren et al. 1979) for inference, Chikalanga's (1992) taxonomy was used in this study since it includes ideas from previous taxonomies and is more comprehensive. Accordingly, inference types are divided into lexical, propositional, and pragmatic inferences. *Lexical inferences* are aimed at finding the referents of pronouns and the intended meaning of words with multiple meanings (homophones) by using clues in the textual context. *Propositional inferences* are defined as necessary truths. This is because these inferences are directly derived from the semantic context of the explicit propositions in the text. Finally, *pragmatic inferences* are usually based on extratextual knowledge, in other words, the reader's schemas (Chikalanga 1992). Examples of questions related to inference types taken from Kaya et al.'s (2021) study are given below:

"Bulut felt a hand touching his right shoulder while he was walking absent-mindedly. At first, he was scared, but when this fear was replaced by curiosity, he turned and looked behind him. It was his favorite friend, Mehmet Ali, whom he had not seen for years, touching his shoulder. As soon as he saw him, an enthusiastic smile covered his face."

- To whom does the underlined word "him" refer in the above text?

Answer: Mehmet Ali

Inference type: Lexical inference

- Why was Bulut happy to see Mehmet Ali?

Answer: He was happy to see a friend he had not seen for years.

Inference type: Propositional inference

- Why do you think Bulut is walking absent-mindedly?

Answer: He might be thinking about something he has to do, or Bulut may typically be absent-minded and contemplative.

Inference type: Practical inference

In the comprehension process, the quality of the questions (type, content, comprehension level, and purpose) is among the factors that affect the construction of meaning (Fordham 2006a). For example, if the objective was to develop students' in-depth comprehension skills, it would be inappropriate to ask simple comprehension questions (Cerdán et al. 2009; Fordham 2006a). This is because the answers to simple comprehension questions appear directly in the text as words or sentences. Simple comprehension questions require low-level cognitive skills. For in-depth comprehension questions, the answer is not directly mentioned in the text. It is either implied or found by using an individual's background knowledge. In answering such questions, students need to activate high-level cognitive processes such as analysis, synthesis, and evaluation (Akyol 1997; Başaran 2019, pp. 307–308). Stevens (1912) observed that approximately two-thirds of the questions posed by teachers were based on memorization and recall. Similarly, both Ateş's (2011) study examined the questions asked to fifth-grade students in Turkish (L1) lessons (Ateş 2011), and Özdemir's study investigated questions in 1–5 grade level Turkish textbooks (Özdemir 2011) in Türkiye and found that they were mostly simple comprehension questions that require low-level thinking skills. To construct meaning and provide in-depth comprehension, teachers need to model how to make meaning through the questions they ask (Hervey 2006), and students need to be given opportunities to work with question types that engage different comprehension processes (Day and Park 2005).

One of the most common methods used in the teaching process is the question-answer method (Parker and Hurry 2007). When the related literature is examined, many studies are found that consider the use of questions in the teaching-learning process and during text-based comprehension activities (Afflerbach 2010; Akyol 1994, 1996, 1997, 2001; Akyol et al. 2013; Applegate and Applegate 2004; Applegate 2007; Applegate et al. 2002; Aslan 2011; Ateş 2011; Aydemir and Çiftçi 2008; Ayvacı and Türkdoğan 2010; Batur et al. 2019; Beck et al. 1996; Boyles 2003; Cerdán et al. 2009; Changpakorn 2007; Cortese 2004; Day and Park 2005;

Demirgüneş et al. 2014; Durukan 2009; Eason et al. 2012; Fordham 2006b; Kreiner 1996; Langer 1985; Özdemir 2011; Parker and Hurry 2007; Polat and Dedeoğlu 2020; Raphael 1982; Rosenshine et al. 1996; Stevens 1912; Tuinman 1973; Ülper and Yalınkılıç 2010). In these studies, questions are classified according to their format, the cognitive processes required, the answer sources (whether the answer to the question is in intratextual, extratextual, or intertextual), or various taxonomies. These studies were generally conducted by analyzing documents such as textbooks, student workbooks, teacher guidebooks, or exam papers. In some studies, teachers or preservice teachers were asked to list the questions they would likely ask their students about a particular text through various data collection tools. Research on comprehension questions based on direct classroom observations (Ateş 2011; Durkin 1978–79; Stevens 1912) is quite limited. However, investigating the type, content, and level of comprehension questions through observations has the potential to make essential contributions in terms of revealing the details of the implementation process. To utilize this potential, in this study, the approach employed involved examining the comprehension questions of primary school teachers about the texts they teach in Turkish lessons based on observations.

Turkish (L1) lessons are taught based on a thematic approach in Türkiye (MoNE 2019). The thematic approach has emerged as an instruction model that involves students working on a specific theme in detail (Arhan and Gültekin 2013; MoNE 2019). In the thematic approach, themes provide opportunities for students to expand, organize, and structure knowledge and skills in the mind, and to transfer them to daily life (Güneş 2009). Texts are essential elements of the thematic approach (Arhan and Gültekin 2013). There are different types of texts (informative, narrative, poetry) in the Turkish textbook to help students acquire basic language skills. The curriculum predetermines the texts in the book. Eight themes are included in the Turkish textbook for one school year. For each theme, the textbook proposes four texts, three of which are reading texts, and one involves listening/watching (students do not read these texts but listen to audio recordings or watch videos). Each text addresses different subdimensions of a theme. For example, the "Science and Technology" theme is one of the themes in the fourth-grade Turkish textbook (Kaftan-Ayan et al. 2021). The first text in this theme provides examples of technological tools that can be invented. The second text explains how to make an invention. The third text presents examples of the life and inventions of an inventor, and the fourth one describes the characteristics that scientists should have. Thus, the "Science and Technology" theme is taught in different aspects. Various text-based activities are carried out with a student-oriented approach before, during, or after reading or listening to the text. The primary purpose of these activities is to ensure that the students understand the text. Indeed, according to many studies in the literature (Akhondi et al. 2011; Akyol 2018, p. 4; Block and Parris 2008; Duke and Pearson 2002; Durkin 1978–79; Güneş 2021b; Loranger 1997; Pressley 2002; Temur 2001, p. 62), the main purpose of reading and listening is comprehension.

One of the crucial factors that affects learning is the learning environment (Özerem and Akkoyunlu 2015). The integration of technology into learning environments and the transformation of educational processes have accelerated in recent years. However, the most rapid change in educational environments in many countries occurred during the COVID-19 pandemic. With the first COVID-19 case in Türkiye, the Ministry of National Education decided to close the schools on March 16, 2020. On March 23, 2020, asynchronous and synchronous distance education was implemented through the Education Information Network (EBA) platform, and applications such as Zoom, Microsoft Teams, Google Meet, and Adobe Connect were used to continue education and training activities when schools were closed due to the COVID-19 pandemic.

This sudden and radical transformation in the educational environment due to the COVID-19 pandemic had the potential to affect many variables, such as the teaching process, teacher–student and student–student interactions, classroom management, student achievement, and motivation. According to Wong et al. (2022), although the distance education process has shortcomings, it provides certain advantages, such as providing students with a flexible and personalized learning environment, allowing them to progress at their own pace, removing limitations of time and space, and saving money and time.

In this context, curiosity arises about how distance education affects the quality of comprehension questions asked by teachers. Thus, this research aimed to investigate comprehension questions about Turkish texts in the emergency distance education process. Addressing comprehension questions in the emergency distance education process can be considered a microlevel investigation focusing on a small part of teaching and learning. Microlevel investigation is an inductive path that focuses on a specific situation and helps researchers reach new ideas. Given that education will become more digitalized in the future, it is essential to consider how microlevel aspects, such as the characteristics and quality of the questions, will affect the teaching and learning process. Therefore, examining questions that have important functions in comprehension in a digital learning environment can provide new data and new perspectives on the subject. Even though the study was conducted during the distance education period, it is expected that the findings will still apply to teaching processes in the future. Accordingly, the main problem of this research is as follows:

What are the characteristics of the text-based comprehension questions asked by fourth-grade teachers in emergency distance education Turkish lessons?

Based on this main problem, answers to the following sub-problems were sought:

For Turkish lessons taught under the emergency distance education process, the following questions were considered;

1. What is the distribution of the text-based comprehension questions in the reading/listening process (pre-text, during-text, post-text)?
2. What are the formats of the text-based comprehension questions?
3. What are the answer sources (intratextual, extratextual, intertextual) of the text-based comprehension questions?
4. What are the inference types (lexical, propositional, pragmatic) of the text-based comprehension questions?
5. What is the dependency of teachers on the textbook when asking text-based comprehension questions?

Method

Research design. In this study, a qualitative descriptive approach was applied. Qualitative description (QD) is a research method that describes experiences or events in a rich and straightforward way without in-depth interpretation (Milne and Oberle 2005; Neergaard et al. 2009; Sandelowski 2000). QD studies have taken a naturalistic perspective and examine phenomena in their natural state (Kim et al. 2017). Basic QD is not as highly interpretive as other qualitative research designs, such as grounded theory and phenomenology (Sandelowski 2000). "The goal is to stay close to the surface of the data while capturing all the elements of that experience, and the inherent scientific rigor is a reflection of a researcher's ability to achieve that goal" (Milne and Oberle 2005, p. 143). As explained in the introduction, text-based

Table 1 Demographic information of participants.

Study	School where data was collected	Participant	Gender	Age	Professional seniority (in years)	Previous fourth-grade teaching experience (in years)	Class size
Pilot study	School A	Teacher P	Male	58	36	7	33
Main Study	School B	Teacher A	Female	38	15	2	25
	School C	Teacher B	Female	34	8	1	24

Table 2 Information about the texts and observation durations.

Theme	Text (original Turkish name of the text)	Text Type	Duration	
			Teacher A (High SES school)	Teacher B (Low SES school)
Health and Sports	Mysterious Creatures (Gizemli Canlılar)	Expository Text	6 × 30 min	6 × 30 min
	Our First Wrestler Koca Yusuf and the Secret of His Success (İlk Güreşçimiz Koca Yusuf ve Başarısının Sırrı)	Expository Text	7 × 30 min	4 × 30 min
	For Healing (Şifa Niyetine)	Narrative Text	7 × 30 min	3 × 30 min
	A Medicine Tale (Bir İlaç Masalı)[a]	Narrative Text	6 × 30 min	3 × 30 min
Total			26 × 30 min	16 × 30 min

[a]This is a listening text.

comprehension questions have been analyzed through studies conducted in face-to-face educational environments. This study, which tries to examine how this situation is realized in the online environment, aims to produce a straightforward description and comprehensive summary of the phenomenon of interest. Therefore, the study was designed with a QD approach.

Participants. Qualitative samples are typically small due to the emphasis on thorough interaction with participants, and the findings are not generalizable. In qualitative research, one of the most effective methods is to select individuals with particular knowledge and experience about the phenomenon being examined (Cresswell and Plano-Clark 2011). In addition, participants' readiness and willingness to openly share their experiences and ideas are also important (Bernard 2002).

In this study, which was conducted during the pandemic, preliminary contact was made with the principals of eight primary schools to arrange the observation of online fourth-grade Turkish lessons. School principals were informed about the purpose of the study, and our request to work with volunteer teachers was conveyed. However, positive feedback was received from only three school principals. The other school principals stated that teachers did not volunteer because of the uncertainties of the pandemic, their unfamiliarity with the online teaching process, or their anxiety. Thus, this study was conducted with three volunteer fourth-grade teachers. A pilot study was conducted in one teacher's classroom, and the main study was conducted in two classrooms. Accordingly, the participants of this study were selected by convenience sampling.

Fluent reading skills are emphasized as a focus on "learning to read" in the first years of primary school. However, there is a shift in focus to reading comprehension skills, or "reading to learn", at the fourth-grade level. Thus, we decided to conduct this study at the fourth-grade level. Following ethical principles, participant identities were kept confidential, and teachers were given code names. The names given to the teachers were "Teacher A and Teacher B". Demographic information about the study participants is shown in Table 1.

Data collection. In the present study, video recordings were taken to prevent data loss in the observation of the questions asked by the teachers in the Turkish (L1) lessons for comprehension. In addition, the teacher questions were compared with the textbook questions for the subproblem that assesses the dependency of teachers on the textbook when asking text-based comprehension questions. Accordingly, the questions asked by the teachers were listed first. These questions were subsequently compared with the questions in the Turkish language textbook.

The study data were collected in April-May in the second semester of the 2020–2021 academic year. In this period, schools were closed to face-to-face education due to the COVID-19 pandemic, and distance education started. Thus, the observational data of the study were collected during online lessons on the Zoom platform. The data were collected by the first author of the study. First, a pilot study was conducted in a different class from the classes in which the main observations were made, and 16 h of Turkish lesson observations were conducted between January 11 and 22, 2021. Pilot observations were used to develop the observation form for question categorization, and the researchers were also provided with experience in managing the data collection process.

Within the scope of the study, the main observation data were collected from the online classes of two fourth-grade teachers (Teacher A and Teacher B). Before the observation, the themes and texts were determined by interviewing the teachers. Both teachers' online classes related to texts on the same theme were observed. For this purpose, the theme of "Health and Sports" theme was selected. This choice was influenced by the fact that two of the four texts in the theme were expository, and two were narrative texts. The texts in the "Health and Sports" theme were taught in Teacher A's class between April 22 and May 27, 2021, and in Teacher B's class between April 30 and May 26, 2021. From the beginning to the end of the process, 34 lesson hours were observed in Teacher A's class, and 22 lesson hours were observed in Teacher B's class. However, not all of this time was spent on the texts, and different activities (such as grammar and evaluation) were also carried out.

Table 2 presents information about the text taught and the duration of the classes in which only text-based activities were

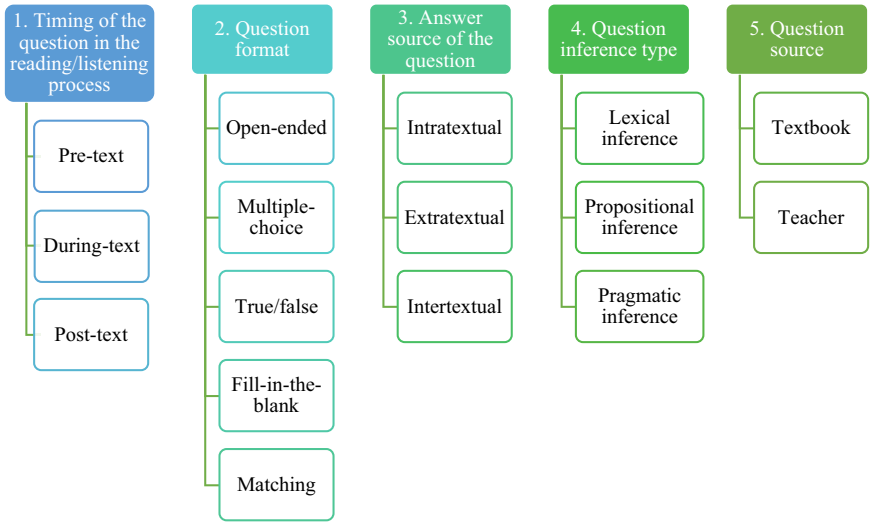


Fig. 1 Observation form for question classification.

carried out. Non-text activities such as grammar and evaluation activities were excluded.

To eliminate the testing/monitoring effect on teachers and students and to accustom them to the process, the researcher attended the classes and took recordings for a week before the main data were collected. These recordings were not used in the analysis. Before collecting the main observation data, teachers were asked about their weekly class schedules, and an observation schedule was created. The researcher recorded the lessons while turning off her video image and sound to avoid distracting the students.

Data analysis. The data of the study were analyzed using Weber's (1990) basic content analysis approach. This approach is deductive. Preliminary codes are developed before data collection. Theoretical and empirical works construct a basis for analysis (Drisko and Maschi 2016). Accordingly, the preliminary codes of this study were developed by drawing on Akyol's (2019), Başaran's (2019), and Chikalanga's (1992) studies prior to data collection and analysis. The "observation form for question classification" was created as the basis for the data analysis. This form consists of two parts. In the first part of the form, some information describing the lesson was recorded. These were the theme, text name, text type, school, class, teacher, and date. In the second part, the five categories in Fig. 1 and their codes were given.

As shown in Fig. 1, "the observation form for question classification" was designed to find answers for each subproblem. To develop this form, a literature review was conducted, and a draft form was created. This draft form was subsequently sent to five experts, one of whom was an expert in qualitative research and four of whom were Turkish language field experts. Necessary arrangements were made as a result of the suggestions. For example, the category name, initially "the originality of the teacher question", was changed to "question source" in line with expert opinions. In addition, the code names in this category were changed from "original" and "textbook-dependent" to "teacher" and "textbook". The pilot observation data were analyzed with the revised form. During these analyses, some changes were made to the form, and the finalized form was used. The codes used are explained in Table 3.

In the data analysis process, video recordings were transcribed first. The transcripts were coded in line with the subproblems. We also examined whether the questions were found in the textbook; thus, we determined whether the teachers depended on the textbook while asking questions. Regarding the four texts analyzed in the textbook, there were two pre-text questions before each text and 4 or 5 post-text questions after each text. Before the observation, the listening text "A Medicine Tale" was also listened to, and it was determined that there were three during-text questions. The researchers first coded the data individually based on the predetermined codes. The coding results were subsequently compared. If there were discrepancies in the coding, they were discussed, and a consensus was reached. The results of the analysis were subsequently defined and interpreted.

Rigour of the study. Rigour can be created in qualitative studies using various strategies (Milne and Oberle 2005; Neergard et al. 2009). This study's rigour was ensured within the framework of the credibility, confirmability, dependability, and transferability principles of Bradshaw et al. (2017). For *credibility* (to establish rapport before commencing observation), three volunteer teachers were contacted by telephone. The purpose of the research, the duration of the observation, and the fact that one researcher would be a passive observer during the observation were explained. Additionally, prolonged engagement, data sources, and researcher triangulation were used to ensure credibility. An audit trail technique was used to capture the data collection and analysis process to ensure *dependability*. Description of demographics of participants, direct quotations from teacher questions, and external expert opinions contributed to *confirmability*. Sufficient data collection and analysis details were provided for *transferability* to recreate the study.

Compliance with ethical standards. Within the scope of the research, first, approval was obtained from the *** University Ethics Commission dated November 24, 2020, number ***, stating that the research followed ethical principles. Then, official permission was obtained from the Ankara Provincial Directorate of National Education. After the official procedure, approval was obtained from the school administrators where the research was conducted, the teachers whose classes were observed, the parents of the students in these classes, and the students. While providing consent, the participants were told that participation in the research was completely voluntary and that they could withdraw from the study at any time. It was also stated that their identities

Table 3 Explanations of the codes in the observation form for question classification.

Category	Code	Code description
Timing of the question in the reading/listening process	Pre-text	When questions were asked before the text was read to activate and evaluate students' prior knowledge or to enable them to make predictions about the text.
	During-text	When questions were asked within the scope of participatory reading/listening activities.
	Post-text	When questions were asked about the text after the entire text was read/listened to.
Question format	Open-ended	When questions were asked that required students to answer in their own words.
	Multiple-choice	When questions were asked based on the principle of students selecting the appropriate answer from the ready-made responses about the text they read.
	True/false	When students were asked whether the given proposition was true or false.
	Fill-in-the-blank	When questions were asked in which students completed the missing word or words in the sentence or paragraph.
	Matching	When questions were asked in which students matched the items/options in the two groups.
Answer source of the question	Intratextual	When the answer was clearly stated in the text. Such questions are usually asked after reading/listening to the text. However, they can also be asked during the reading/listening of the text within the scope of participatory reading/listening.
	Extratextual	When the answer was not directly included in the text but was based on prior knowledge, experiences, or other texts.
	Intertextual	When questions were asked that required students to associate, compare, and evaluate the information they received from the text with the information in the texts they had previously read, and at the end of this process, to find the answer and reach a new meaning by creating a new text.
Question inference type	Lexical inference	When questions were asked to find the referents of pronouns and the intended meaning of words with multiple meanings (homophones) by using clues in the text context.
	Propositional inference	Questions that were answered logically by interpreting the semantic content of the text were coded when asked. Logical-informational inferential questions such as "Who?, What?, Where?, When?" and logical-explanatory inferential questions such as "Why?, How?" that can be answered based on the information available in the text are considered as propositional inference questions.
	Pragmatic inference	When the answers to the questions were not directly included in the text but were based on students' prior knowledge and schemas.
Question source	Textbook	When the teacher asked a question from the textbook.
	Teacher	When the teacher asked a unique question that was not included in the textbook.

Table 4 Distribution of the questions in the reading/listening process in distance education.

Reading/listening phases	Teacher A			Teacher B		
	Narrative text	Expository text	Total	Narrative text	Expository text	Total
Pre-text	6	3	9	4	5	9
During-text	3	0	3	3	0	3
Post- text	19	29	48	19	22	41

would be kept confidential, and the data would not be shared with anyone other than the researchers.

Results

In this part of the study, the characteristics of the questions asked by the teachers during the narrative and expository text-based activities are presented. The results that emerged from the analysis of the data are divided into five categories: (1) distribution of the question in the reading/listening process, (2) answer source of the question, (3) question format, (4) question inference type, and (5) teachers' dependency on the textbook when formulating questions.

Distribution of the questions in the reading/listening process. The questions asked by the teachers within the scope of expository and narrative texts were analyzed in three groups, pre-, during-, and post-text, according to their distribution in the reading/listening process. The analysis showed that the questions teachers A and B asked were similar according to their distribution in the reading/listening process. As shown in Table 4, when evaluated in terms of narrative and expository text types, the timing of the questions asked by both teachers in the reading/listening process was similar.

According to the results, teachers mostly asked comprehension questions after the text. Post-text questions served to make inferences and enabled the teacher to assess the extent to which the text had been understood by the students. Some examples of post-text questions are as follows:

"*When do Nasrettin Hodja's pains start?*" (For Healing - Narrative Text)

"*How can we see microscopic creatures?*" (Mysterious Creatures - Expository Text)

Pre-text questions were mostly asked to activate prior knowledge and to make predictions. These questions are generally included in the "preparatory studies" section of the textbook. This

Table 5 Answer sources of the questions posed by teachers in distance education.

Answer sources	Teacher A			Teacher B		
	Narrative text	Expository text	Total	Narrative text	Expository text	Total
Intratextual	13	17	30	12	14	26
Extratextual	15	15	30	14	13	27
Intertextual	0	0	0	0	0	0

section, which consists of two questions, is provided before each text in the textbook. The questions in this section are asked to activate students' prior knowledge about the text's subject and enable them to make predictions about the text. For example, the question *"What do you understand a balanced diet to mean?"* which was posed to the students before reading the text titled "For Healing", dealing with the subject of healthy nutrition, and the question *"Why do plants and food decay?"*, which was asked before the text "Mysterious Creatures", addressing the topic of microscopic organisms, are among those posed to students to activate their prior knowledge. In addition, in the text titled "Our First Wrestler Koca Yusuf and the Secret of His Success" the question *"What do you think the subject of this text could be?"* was posed to the students based on the title and visuals of the text, was a prediction question.

Students were rarely asked questions while reading or listening to the text. As in the pre-text phase, the questions asked during reading were also oriented towards predicting and activating prior knowledge. These kinds of questions were asked only in the listening text "A Medicine Tale". However, these questions were not directly asked by the teachers; rather, they were found in the audio recording of the text listened to by the students. Within the scope of participatory listening activities, while the students were listening to the text, the text was interrupted at a certain point, and questions were asked to predict what would happen next. For example, after listening to a part of the text titled "A Medicine Tale", Elif, the main character of the text, asks Uncle Arda, another character, *"How do medicines harm people? Why do people use them if medicines are harmful?"*. The questions were directed to the students through the question *"How do you think Uncle Arda answered this question?"*. Thus, a participatory listening activity was carried out, which maintained students' curiosity and motivation regarding the text. No questions were asked during reading in the other texts analyzed in this study.

"Answer sources" of the questions. The questions asked by the teachers during the text-based activities were divided into three groups: intratextual, extratextual, and intertextual. These analyses revealed that both teachers asked questions with similar characteristics in terms of answer sources. The teachers asked intratextual and extratextual questions in approximately equal amounts. However, in our dataset, it was determined that the teachers did not include intertextual questions. Table 5 shows the distribution of the questions asked by the teachers according to the answer sources.

The answers to the intratextual questions the teachers asked are directly included in the text. These questions are simple to answer. In the present study, the participants asked intratextual questions after reading/listening but not during participatory reading/listening. Since the questions asked before and during reading/listening in the analyzed texts are aimed at activating prior knowledge and predicting the content of the text, these questions are generally not suitable for answering with intratextual resources. For this reason, all the intratextual questions were post-text questions, as in the examples below.

"What do scientists do to find medicines?" (A Medicine Tale - Narrative Text)

"What does Mümin's master, Yolcu Mehmet Pehlivan, say about Koca Yusuf?" (Our First Wrestler Koca Yusuf and the Secret of His Success-Expository Text)

On the other hand, teachers asked questions that could be answered with extratextual sources at all stages of the reading/listening process. Although mainly after the text, extratextual questions were also asked before and during the text. Since the entire text had not yet been read, the questions asked before and during the text were mostly answered with extratextual sources. For example, the question *"What should we do to protect our health?", which* was asked before the text "Mysterious Creatures", and the question *"How do you think medicines cure diseases?"*, which was asked during the text "A Medicine Tale", are among the questions answered with extratextual sources. The extratextual questions asked after reading/listening are questions whose answers are not directly included in the text and which students can answer using their prior knowledge and experiences. The question *"What are the solutions you have found to solve the problem in the text?"* was asked after reading the text "For Healing", which was a question that students could answer based on their prior knowledge and experiences. Therefore, the question could be answered with extratextual answer sources. In addition, neither teacher included intertextual questions in the "Health and Sports" theme that was analyzed within the scope of the research.

Question format. The questions asked by the teachers were divided into five formats: open-ended, multiple-choice, true/false, fill-in-the-blank, and matching questions. The table below shows the distribution of the questions asked by teachers in this context Table 6.

Both teachers included only open-ended questions in both text types. When the questions in the textbook were analyzed, the results were similar. The textbook and teacher-made questions did not include multiple-choice, true/false, fill-in-the-blank, or matching-type questions.

Question inference type. The questions asked by the teachers to comprehend the text were categorized into three groups in terms of inference type: lexical, propositional, and pragmatic. Table 7 shows the distribution of the questions asked by teachers to students according to inference type.

There were similarities between the number and distribution of inference questions the teachers asked. The teachers did not include lexical inference questions in either text type. It was also found that the textbook did not include such questions. Lexical inference questions are aimed at finding the referents of pronouns and the intended meaning of words with multiple meanings (homophones) by using context clues.

Observations show that teachers ask questions that address propositional and pragmatic inference types. In this process, propositional inference questions were used most frequently, as

Table 6 Forms of questions posed by teachers.

Questions format	Teacher A			Teacher B		
	Narrative text	Expository text	Total	Narrative text	Expository text	Total
Open-ended	28	32	60	26	27	53
Multiple-choice	0	0	0	0	0	0
True/False	0	0	0	0	0	0
Fill-in-the-blank	0	0	0	0	0	0
Matching	0	0	0	0	0	0

Table 7 Inference type of the questions posed by the teachers in distance education.

Inference type	Teacher A			Teacher B		
	Narrative text	Expository text	Total	Narrative text	Expository text	Total
Lexical inference	0	0	0	0	0	0
Propositional inference	13	18	31	12	15	27
Pragmatic inference	6	10	16	7	7	14

seen in the following excerpt taken from the narrative text "For Healing" in the textbook.

> *"Nasrettin Hodja fell ill for a while. The doctor tells him to abstain for a while and not to eat heavy and spicy food. He gives him medicines. Hodja follows what the doctor says for a few days. He feels improvement in himself. He craves spicy stuffed dishes…."*

The questions given below for this text are examples of propositional inference:

> *"Why does the doctor ask Nasrettin Hodja to abstain?"* (*Logical-explanatory inference*)

> *"What does Nasrettin Hodja want to eat when he gets better?"* (*Logical-informational inference*)

Pragmatic inference questions were also asked by teachers in the text-based activities. The answers to such questions are not directly included in the text but are based on students' prior knowledge and schemas. Therefore, pragmatic inference questions are similar to extratextual questions in terms of their answer sources. One example of a pragmatic inference question is "*What is the importance of nutrition for an athlete? Talk about it as a class.*" To answer this question, students need to have some prior knowledge and schemas about the subject. Students who do not have prior knowledge about balanced and regular nutrition, energy requirements, nutritional values of foods, and exercise may not be able to provide a qualified answer to this question. Another example of this type of question concerns a visual activity in the text "For Healing". In this visual activity, Güven Usta suggests a correct sitting position for a child who is not sitting upright at a desk. In line with this suggestion, students are asked, "*How can Güven Usta's suggestion benefit our health in the future?*". To answer this question, students need to have prior knowledge and schemas on topics such as spinal structure, the muscular system, and the circulatory system. Otherwise, the answers given may not be sufficient.

As stated earlier in the present study, intratextual questions according to answer sources were similar to propositional inference questions in the classification made according to inference types, while extratextual questions were similar to pragmatic inference questions. Based on these findings, a detailed analysis was conducted. The code co-occurrence model related to the categories of inference types and answer sources was examined. The connections between the categories are presented concretely with numerical values in Fig. 2.

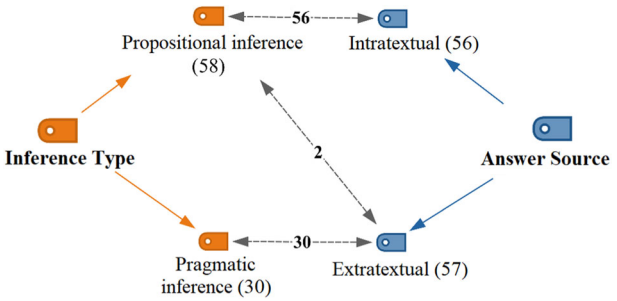


Fig. 2 Code co-occurrence model according to the answer sources and inference types of the text-based comprehension questions.

As shown in Fig. 2, almost all questions of the propositional inference type can be answered with intratextual sources. On the other hand, all of the questions of the pragmatic inference type can be answered using extratextual sources. The participants in this study did not ask any questions about lexical inference type, which is one of the inference types, or intertextual type, which is one of the answer sources. Therefore, further analysis of these codes could not be conducted.

Dependency of teachers on the textbook when questioning. It was determined that both teachers mostly followed the textbook in the text-based activities. In addition, we analyzed whether the teachers created unique questions without being dependent on the textbook. The results are summarized in Table 8.

Both teachers asked text comprehension questions based on the textbook without differences in type of text. Although the proportion of unique questions produced by Teacher A was greater than that produced by Teacher B, approximately 90% of the questions were textbook-based.

Discussion and conclusion

This study aimed to examine the text-based comprehension questions that fourth-year teachers asked in Turkish lessons taught during the period of emergency distance education that was implemented during the COVID-19 pandemic. The first

Table 8 Teachers' dependency on the textbook when asked text-based comprehension questions.

Source of questions	Teacher A			Teacher B		
	Narrative text	Expository text	Total	Narrative text	Expository text	Total
Textbook	24	28	52	25	25	50
Teacher-made	4	4	8	1	2	3

finding of this study is that the participating teachers asked more post-text questions than pre- and during-text questions. This result is similar to those of studies conducted in face-to-face education environments (Akyol 2001; Kaya-Özgül and Çetinkaya-Özdemir 2022; Sunggingwati and Nguyen 2013). This finding implies that teachers' text-based comprehension questioning did not change during the distance education period. The teachers asked all pre-text questions determined for the texts analyzed in the Turkish language textbook and the questions in the listening text. This behavior of the teachers shows that they tend to adhere closely to the textbook. Teachers' adherence to the textbook is understandable because textbooks are seen as the primary source of educational material in Türkiye.

Another issue addressed in this study is the type of questions asked by teachers in the distance education period, which were categorized by answer source. It was observed that teachers asked intratextual and extratextual questions almost equally in the text-based activities. This result is compatible with previous studies performed in face-to-face teaching (Akyol 2001; Akyol et al. 2013; Kaya-Özgül and Çetinkaya-Özdemir 2022). While the teachers asked extratextual questions to activate prior knowledge and prediction, they did not ask high-level cognitive questions that involved inferring, evaluating, or making connections. The Turkish language curriculum emphasizes the importance of developing higher-order cognitive skills such as inferring, evaluating and making connections from the third grade onwards (MoNE 2019). However, the results of the research conducted in face-to-face settings and this study reveal that teachers do not ask such questions. This important finding suggests that teachers' awareness of the Turkish language curriculum and the reasons for not asking such questions are issues that need to be investigated. Another result related to the answer source is that the teachers did not include any intertextual questions in text-based activities, as found in other studies (Akyol 1994, 1997; Ateş 2011; Kaya-Özgül and Çetinkaya-Özdemir 2022; Sunggingwati and Nguyen 2013). The reason why teachers do not ask intertextual questions may be that there are no such questions in the Turkish language textbook. However, there are explanations in the Turkish language curriculum that encourage teachers to ask questions that lead students to construct intertextual meaning. According to the curriculum, by studying different types of texts within the scope of a theme, students are expected to construct relationships between these different types of texts (MoNE 2019).

As has been found in various studies (Akyol 2001; Fordham 2006a; Kaya-Özgül and Çetinkaya-Özdemir 2022; Sunggingwati and Nguyen 2013; Şengül 2005), both teachers included only open-ended questions in both text types intensively in this study. When the questions in the textbook were analyzed, it is noteworthy that the situation was the same. Multiple-choice, true/false, fill-in-the-blank and matching-type questions were not included in the textbook or teacher-made questions. In some studies (Akyol 2001; Şengül 2005), open-ended questions were called "classical questions". Hynds (1990) argued that teachers should enable students to construct meaning from texts with open-ended, multifaceted, and student-centered questions. Since closed-ended questions have limited answers (Akyol 2019), if teachers limit meaning-making to short-answer questions, they can limit what their students can learn about literary works and reading texts (Hynds 1990). Thus, teachers' use of open-ended questions can be considered positive. However, as stated by Şengül (2005), when all questions that are posed are open-ended, as a result, students may be unfamiliar with different question types.

When the text comprehension questions asked by the teachers were analyzed in terms of inference type, similar results were obtained regardless of the text type. Propositional inference-type questions were mostly used. These questions included pragmatic inference questions. This result is similar to the results obtained from Demirgüneş et al.'s (2014) study in which the questions in the 8th-grade Turkish (L1) teacher's guidebook were classified according to inference types. However, it contradicts the results of Kaya et al.'s (2021) study in which questions in middle school textbooks were analyzed according to inference type. According to the results of the mentioned study, mostly pragmatic inference questions were included in the textbooks, followed by propositional inference questions. These results show that as grade level increases, the types of inference can be differentiated and higher level inference questions can be asked. In addition, the difference between the results of Demirgüneş et al. (2014) and Kaya et al. (2021), although both studies were conducted with middle school textbooks, can be attributed to the changes in curricula and textbooks over time, considering the publication years of the studies. In studies examining students' inference-making skills (Algül and Bozkurt 2021; Bayat and Çetinkaya 2020), it was observed that pragmatic inference-making was the most difficult for students. According to Kaya et al. (2021), such difficulty in pragmatic inference questions shows that students fail to use their world knowledge and experiences to make connections between texts. This finding also suggested that students cannot internalize texts. For this reason, it is essential to include pragmatic inference questions to a sufficient extent. According to the results of this study, more propositional inference questions were asked than other question types in text-based activities. Propositional inference questions are answered by interpreting the semantic content of the text. These questions require logical informational and logical explanatory inferences. To answer such questions, logical-semantic relationships need to be established between the sentences or paragraphs that make up the text. According to the results of the study, lexical inference questions were not included by the teachers, nor were such questions encountered in the relevant sections of the textbook. Lexical inferences serve to identify and monitor pronoun referents and to ensure the continuity of the subject in the text. They are also effective at finding the meaning of words in the text context (Demirgüneş et al. 2014). Given this explanation, teachers' failure to include such questions was considered a deficiency by the researchers.

Another issue the study addressed was teachers' dependency on the textbook when asking questions about text-based activities. When the questions were analyzed, it was seen that teachers were almost entirely dependent on the textbook when asking questions, regardless of the text type. These findings are similar to those of other studies (Akyol et al. 2013; Alvermann and Phelps 2002; Dillon 1988; Shomoossi 2004; Sunggingwati and Nguyen 2013; Van Der Meij 1994). There may be various reasons why

teachers are almost entirely dependent on textbooks when asking questions and rarely ask questions of their own making, and this topic can be explored in new research studies.

This study was conducted with two teachers in 56 lesson hours during the COVID-19 pandemic. Therefore, the data are relatively limited. However, this approach also contributes to determining whether there are changes in the characteristics of the text-based comprehension questions teachers ask in distance education. One of this study's most important results is that teachers depend on the textbook instead of producing text-based questions themselves. In general, further research to discover teachers' views on why they had chosen to use almost exclusively questions they had not created can be performed to contribute to studies on questioning and comprehension. In addition, additional research should be conducted on why teachers usually ask post-text questions that are to be answered with intratextual and extratextual resources, are prepared only in the open-ended question format, and mainly serve the propositional inference type but not higher-order comprehension. Considering these results, training can be given to teachers on the characteristics of the questions to be asked in text-based activities, asking a variety of questions that address individual differences and issues to be considered in the question-answer method. The question-answer method is but one possibility for comprehension. It is also a hierarchical method that does not allow children to learn in different ways. Whether teachers use this hierarchical method in the classroom through questioning could also be an interesting research topic. Future studies can examine other teaching-and-learning-methods that can be combined with reading.

Data availability

The raw observation records of the current study cannot be shared to keep the identity of the participants confidential in accordance with ethical principles. However, the data analyzed during the current study is submitted as a supplementary file (in Turkish) and can also be obtained from the corresponding author upon reasonable request.

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Author contributions
The authors confirm contribution to the paper as follows: study conception and design: [Ülkü Çoban Sural, Naciye Aksoy]; data collection: [Ülkü Çoban Sural]; analysis and interpretation of results: [Ülkü Çoban Sural, Naciye Aksoy]; draft manuscript preparation: [Ülkü Çoban Sural]; review and editing; [Naciye Aksoy]; revision: [Ülkü Çoban Sural, Naciye Aksoy]. All authors reviewed the results and approved the final version of the manuscript.

Competing interests
The authors declare no competing interests.

Ethical approval
This study was approved by the Ethics Committee at Gazi University on November 24, 2020 with approval number E.126119.

Informed consent
Written informed consent was obtained from participants before observations. As the authors of this paper, we undertook not to include any personal identifying details of the participant, as well as video records.

Additional information
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