

Digital listening texts versus traditional listening texts: Fourth graders' listening comprehension

Nilgün Günbaş and Meral Gözüküçük

Kafkas University, Turkey

The purpose of this study was to improve fourth grade students' listening comprehension with digital listening texts. An experimental research design was used to compare student outcomes with digital listening texts and outcomes for students who completed the same texts as traditional classroom activities. The digital listening texts included static and animated visuals compatible with the texts, which were digitally recorded. The experimental group (n=30) completed the digital texts in an individual learning environment in a classroom with computers. The control group (n=31) activities with traditional texts were completed in the students' classrooms under the supervision of one of the researchers. Students in the digital listening group attained statistically significant higher gain scores than those in the traditional treatment group. Recommendations are made about expanded use of digital listening texts, and further research into factors such as student motivation and availability of computers in classrooms.

Introduction

Turkish textbooks published by the Ministry of National Education (MNE, 2018) comprise about 40 texts, only eight of which are listening texts. Akyol (2012) argued that although listening skill is one of the most used and important components of learning, it is one of the most neglected skills in elementary education. He argued that children are mostly in a passive position in classes, where listening only takes place in the context of an adult's and teacher's speeches. Thus, children cannot derive the most benefit, as listening involves writing, reading, and speaking activities, and it triggers language acquisition (Surayatika, 2017). More than half of the student population prefer language learning by listening, according to Bada and Okan's (2000) study. Kavcar, Oğuzkan and Hasırcı (2016) argued that for students, learning by listening is an important part of their classroom activities. For this reason, it is crucial to improve students' listening skills in schools.

Technological tools can be helpful for supporting students' listening comprehension, when their prior knowledge is taken into consideration (Jones, 2008). Interactive multimedia materials can make a significant difference to students' listening skills, compared with audio-only materials (Ampa, 2015). That is, adding visuals, graphics, text and interactivity to audio materials contributes significantly to students' listening comprehension. Digital stories including multimedia features, such as animated objects, music or sounds, positively and significantly affect students' listening comprehension (Takacs, Swart & Bus, 2015). According to Mayer's (2007) multimedia learning theory, when instructional messages are delivered with simultaneously presented words and visuals, learners' auditory/verbal and visual/pictorial learning channels are activated, and therefore, learning occurs better.

The purpose of this study was to improve fourth grade students' listening comprehension by using digital listening texts which included multimedia features such as visuals and sounds. In traditional classrooms, teachers read listening texts aloud to students without multimedia features. For this reason, we wanted to investigate whether digital listening texts have any listening comprehension advantages for students, compared with traditional listening activities.

Literature review

There are four types of skills in Turkish language learning, as stated in the 2018 Turkish Curriculum Program: listening, speaking, reading and writing. Of these skills, children use listening first. That is, before they even start speaking, they can understand what they listen to, at a basic level. Güneş (2014) argued that listening is a complicated process, which involves hearing, concentrating attention, understanding and mental construction. Sever (2011) defined listening as grasping and storing or paying attention in order to understand what we hear. He also claimed it is a fundamental way of communication and learning. Moreover, more than all the language skills, listening is used 45% of the time as a way to communicate (Oxford, 1993 in Turel, 2004). Listening is not only a necessary skill to communicate for learning and teaching purposes in school settings, it is also a necessary skill for life-long learning in real life (Turel, 2004). For these reasons, it is important to support students' listening skills. To determine whether students' listening skills are improved, it is essential to measure students' listening comprehension.

Listening comprehension requires a listener to make inferences, connections and predictions from a story text, and also to understand story-related information (e.g., characters, settings, events, etc.) (Paciga, 2011). Listening is considered as a difficult subject to teach and learn (Harris, 2015). However, research studies on students' listening comprehension are very limited in the literature (Tuzel & Keles, 2013). Adequate activities, practices and curriculum and instruction to improve listening are ignored (Emiroğlu & Pinar, 2013).

To improve students' listening comprehension, before-listening, during-listening and after-listening activities are completed. Teachers discuss the texts with students to check their pre-knowledge and thoughts before having them listen to the texts. The title and visuals of the text are provided so that students can guess the content of the text. This phase is called before-listening, which helps teachers understand what learners know (Grognet & van Duzer, 2002). During listening activities, teachers have students listen to the text and meanwhile, ask questions about what is going to happen next. After students listen to the text, what, where, when, how, why, and who questions are asked. Also, students are checked to see whether they understand the plot and theme. In this phase, learners assess themselves on their performances in the listening task (Grognet & van Duzer, 2002).

Studies show that visuals, in either static or dynamic format, may improve learning and are necessary in educational settings to support students' understanding and interpreting of what they listen to (Bayrak, 2010; Karasakaloğlu & Bulut, 2012). The use of visuals is

helpful for students to actively process information in terms of selecting, organising and integrating information (McCrudden & Rapp, 2017). Moreover, visuals may yield different results on students' comprehension, based on when and how to use visuals. For example, looking at related pictures before listening to a second language text was found to be more effective than looking at pictures simultaneously with the listening text (Kashani, Sajjadi, Sohrabi & Younespour, 2011). This result, however, was not significantly different. Additionally, static and dynamic visuals might be better than one another in supporting students' listening comprehension. For instance, the use of static pictures may be better for supporting learning when presented with text on paper than dynamic pictures narrated on a computer (Mayer, Hegarty, Mayer & Campbell, 2005). On the contrary, dynamic pictures may support narrative comprehension significantly better than static pictures (Stebner, Kühl, Höffler, Wirth & Ayres, 2017). However, Arguel and Jamet (2009) in their study showed that when both static and dynamic pictures are combined, students perform the best.

Meskill (1996) pointed out that because pictures may decrease cognitive energy spent on lingual decoding, that energy can be used in other linguistic processes that are critical. Visuals representing listening texts support students in comprehending and recalling the texts (Ünal & Sever, 2013; Türkyılmaz, 2010). Moreover, when visuals are used along with narration in a listening text, students comprehend the text better than when narration is used alone (Coşkun & Erdin, 2014). For example, a narrated text vs. a multimedia formatted text was presented to students in a study by Pangaribuan, Sinaga and Sipayung (2017). In their study, multimedia formatted listening texts were found to be significantly more effective for students' listening comprehension. In general, audiovisual media-supported learning contexts produce significantly better results on students' language achievement than those without such support (Gonçalves, de Araújo, Pereira & Moreira, 2017; Mathew & Alidmat, 2013). According to Asadi and Berimani (2015), both students in their language learning and teachers in their language teaching derive benefits from audiovisual text materials.

Digital stories include texts, music, pictures and sounds (Dayan, 2017). Ciğerci (2015) in his study prepared digital stories combining digital pictures and voiceover recordings. The pictures in his study were drawn by a painter and scanned to digitise. The digital pictures and voiceover recordings were then combined with video editing software to create digital stories. Ciğerci and Gültekin (2017) compared digital stories to traditional read-aloud stories on fourth grade students' listening comprehension skills. Lesson plans and activities based on digital stories were developed and a teacher completed an eight-week lesson based on the plans and activities in their study. The results showed that the students in the digital story group improved their listening comprehension significantly better than the traditional group. Additionally, they observed that this learning activity created a positive and motivating learning environment.

Different from Ciğerci and Gültekin's (2017) study, we had an individual learning environment for the students' digital listening activities. Additionally, the before and after listening activities in our study were presented in digital form, in contrast to the traditional reading aloud by teachers. Instead of receiving feedback from teachers, each individual

student received feedback based on their individual progress, from an animated character in the activities. In our study, the listening texts were selected from the fourth grade Turkish textbook. We specifically selected the texts from those that the students had not yet been taught. We then selected text-related visuals (i.e. static and animated visuals) and read the texts aloud. Our purpose was to create a multimedia learning environment, in which information was presented through auditory and visual information processing channels. We built the digital stories in a block-based visual programming language. We used pictures available in this programming software, imported some other pictures and recorded our voice to build the digital listening texts.

Multimedia learning occurs when people construct knowledge from words and pictures (Mayer, 2005). This type of learning is deeper than learning from words alone (spoken or printed). According to Mayer (2005), computer technology has expanded the availability of visuals in static and dynamic form. However, using any form of visuals cannot guarantee that learning will occur. Both visuals and words must present the same instructional message simultaneously and these messages must be presented based on how the human mind works. Taking the full capacity of humans for processing information is at the core of this theory. When words are narrated, the auditory/verbal channel is used to process information. However, when words are presented as text, the visual/pictorial channel is used to process information. To stabilise cognitive load between the two channels, words must be narrated (Mayer, 2007). According to the multimodality principle of multimedia learning, students learn better when associated words are presented in spoken form than when they are presented in written form (Low & Sweller, 2005). We wanted to take advantage of the multimedia learning theory when teaching listening to fourth graders. Because the use of spoken instructional messages along with related visuals is helpful for students' language learning, we expected the students to improve their listening comprehension.

The purpose of this study was to improve fourth grade students' listening comprehension skills with digital listening materials which included texts with audiovisual support, feedback, static and animated pictures, and narration to better support students' listening comprehension. The research question in this study was:

Is there a significant difference between fourth grade students' listening comprehension after being exposed to digital listening texts compared with traditional listening texts?

Method

Research model

A quantitative research method was utilised in this study. In an experimental design, fourth graders completed a listening comprehension pre-test, a treatment (digital listening or traditional listening) and then a listening comprehension post-test (the same test as in the pretest). The students completed one text each week, and four texts in total (two

narrative texts, one informative text, and one poem). Their listening comprehension improvement was tested with a one-way ANOVA test.

Participants

The fourth grade students who participated in this study were from a public elementary school in Turkey (ages 9-10 years, N = 61). The school was randomly selected because it was one of the representative schools in the region based on the report of the Provincial Directorate of National Education in Turkey. This school with the students' socioeconomic status, location and success level was similar to other schools in the region. There were four fourth grade classes at the school. The students were invited into the study with the consent of the Provincial Directorate. The classes were randomly assigned to experimental ($n = 30$) and control groups ($n = 31$).

Materials

Texts

The texts used in the implementation stage were selected from a Turkish textbook published by the Ministry of National Education (MNE, 2015). There are three types of texts in the 2018 Turkish Curriculum Program: narrative texts, informative texts and poems (MNE, 2018). Two of the texts in this study were narratives, one was an informative text and one was a poem. Turkish textbooks used in the elementary schools include eight themes, which are completed in one school year. Each theme includes one listening text. We paid attention on selecting texts from different themes. Thus, the four texts we used were from different themes in the Turkish textbooks. These texts were read aloud by one of the researchers with five years of elementary school teaching experience in the classroom for the traditional listening treatment group. These texts were presented on computers in the form of digital listening texts for the digital listening treatment group. The texts and their explanations are shown in Table 1.

Table 1: The texts used in the study

Text type	Theme of the text	Title of the text	The plot
Narrative text	Science and life (Bilim ve Yaşam)	<i>The snowflake</i> (<i>Kar Tanesi</i>)	A snowflake tells how it was transformed to a child
Narrative text	My beautiful country, Turkey (Benim Güzel Ülkem Türkiye)	<i>The King's golden-haired daughter</i> (<i>Kralın Altın Saçlı Kızı</i>)	The King's sick daughter is cured in the city of Pamukkale
Informative text	Health and the environment (Sağlık ve Çevre)	<i>The dirty sea</i> (<i>Kirli Deniz</i>)	A child is disturbed by the dirty sea on his summer vacation
Poem	Production, consumption and productivity (Üretim, Tüketim ve Verimlilik)	<i>How good saving is!</i> (<i>Tasarruf Ne Güzeldir</i>)	Energy saving and the necessity of not squandering

Digital texts

The listening activities were created with *Scratch* programming. For this, before-listening activities, during-listening activities and after-listening activities were prepared (see Figure 1). We used static pictures and animated characters representing the listening texts, and voice recordings in which the texts were read aloud. By doing this, we aimed at presenting the listening texts through eyes and ears. The before and after listening activities consisted of text-related questions, an answer button to respond to the questions, and an animated character asking questions and providing feedback based on students' answers. These before and after listening activities also had question-related static and dynamic pictures. The students completed these activities on computers, individually, at their own pace, taking approximately 30-60 minutes. The materials required *Scratch* on each computer, but an Internet connection was not required.



Figure 1a: Sample screen shots of before-listening activities

The before-listening activities were presented to students before they listened to the texts. Students were required to guess the contexts of listening text from the keywords provided above. The before-listening activities included multimedia features (i.e., visuals and written text). The visuals in these samples included static (e.g. the balloons and the doctor) and animated objects (e.g. the clouds, the characters asking questions). Background music was provided while students interacted with the activities.

Kralın kızı metin öncesi

1

Pamukkale

doctor

doktor

the king's daughter

kızı

Doktor kelimesinin karşılık geldiği görsel kaç numarada verilmiştir?

1

2

3

Which visual on the right side represent the word *doctor*?

Figure 1b: Sample screen shots of before-listening activities



Figure 2a: Sample screen shots of during-listening activities



Figure 2b: Sample screen shots of during-listening activities

Students listened to the texts in the during-listening activities, while looking at the text related pictures. The during-listening activities included multimedia features (i.e., visuals and spoken text). The visuals in these samples included static (e.g. the background images) and animated objects (e.g. the kids, the ball, and the swimmers). Spoken texts were read aloud and recorded by the researchers.

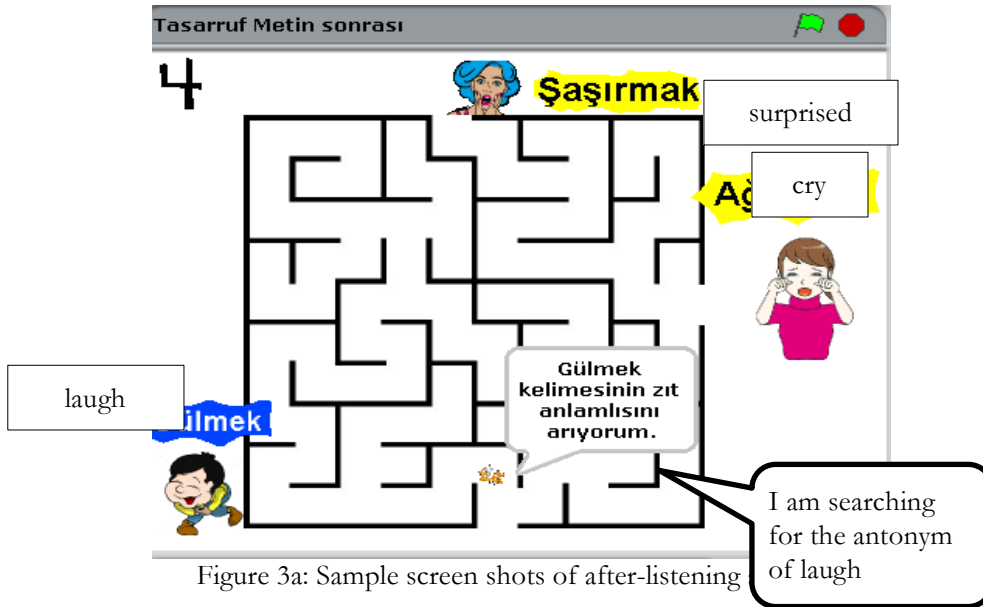


Figure 3a: Sample screen shots of after-listening

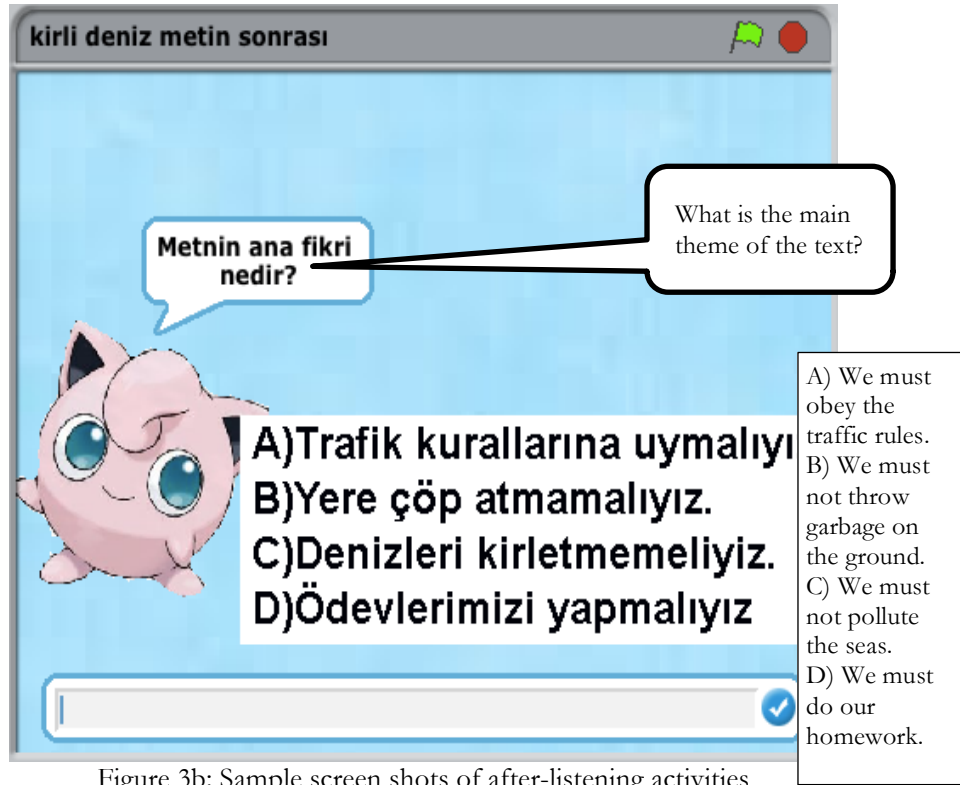


Figure 3b: Sample screen shots of after-listening activities

The after-listening activities were presented to students after they listened to the listening texts. Students were required to distinguish antonyms of the words from the listening texts. They are also required to search for the answers to what, where, when, how, why and who questions from the listening texts. The after-listening activities also included multimedia features (i.e., visuals and written text). The visuals in these samples included static (e.g. the maze and the kids in the first example) and animated objects (e.g. the characters asking questions). In the first sample page, the cat asking questions is interacted with the arrow keys on the keyboard to walk through in the maze. Background music was provided, while students interacted with the activities.

Listening comprehension test

The listening comprehension test developed by Bulut (2013) was used in this study. It included 35 items based on 15 fourth grade learning objectives from the listening domain in the 2009 Turkish Curriculum. The reliability coefficient of the test, calculated with the Kuder-Richardson formula (KR-20), is .92. This test was selected for the purpose of this study because it had a high reliability coefficient and was prepared for fourth graders. The number of items and related objectives are listed in Table 2.

Table 2: The translation of the learning objectives in the listening comprehension text

Learning objectives	Item #
1 Search for the answers to what, where, when, how, why, and who questions from what they listen to.	33
2 Distinguish the real and figurative meaning of the words from what they listen to.	12-15
3 Distinguish synonyms and antonyms of the words from what they listen to.	4-11
4 Distinguish homonymous words from what they listen to.	1, 16
5 Distinguish emotional and exaggerated expressions from what they listen to.	18
6 Distinguish objective and subjective judgments from what they listen to.	17
7 Distinguish reality and imagination from what they listen to.	19
8 Determine the main theme of a poem that they listen to.	26
9 Determine the topic of what they listen to.	2, 30, 34
10 Distinguish the main idea of what they listen to.	3, 31, 35
11 Find out the supporting details and idea of what they listen to.	27, 28
12 Guess the development and result of the event from what they listen to.	21-25
13 Make inferences about what they listen to.	32
14 Find different titles for the listening topic.	29
15 Summarise what they listen to.	20

In the present study, the researchers also calculated the internal consistency reliability with a KR-20 coefficient value for the pretest (KR-20 = .86), and the posttest (KR-20 = .88).

Procedure

Traditional listening condition

The students in the traditional listening group completed before listening, during listening, and after listening activities in their classrooms with one of the researchers. They completed four texts in four weeks, one text each week. Traditionally in Turkish classes, students complete listening activities with their teachers. Teachers read the listening texts aloud and students listen. The students in the present study completed the same listening activity in the traditional listening condition. In the before listening activity, the researcher discussed the texts with the students to check their pre-knowledge and thoughts. The researcher had students guess the plot of the main texts by providing the title of the text. In the during listening activities, the researcher read the texts aloud to the students. During this time, the researcher paused several times and asked questions to students about what was going to happen next. For the after listening activities, the researcher asked wh-questions (what, where, when, how, why and who) in the text. Additionally, the students determined the main theme/idea of, made inferences about and summarised what they listened to. The students found suitable titles and eliminated unsuitable titles for the texts. The students were given feedback based on their answers by the researcher.

Digital listening condition

The students in the digital listening group completed before listening, during listening and after listening activities in a classroom on computers. They completed four texts in four weeks, one text each week. The digital listening texts were the same as those in the traditional format. The students completed all the activities on their own in an individual

learning environment without teacher support. Headphones were provided before they started doing the activities. In the before listening activity, using the titles of the texts and text-related visuals, the students guessed the plot of the texts. They also guessed the meaning of the crucial words in the texts, and paired visuals with associated words. These questions were asked by an animated character, and the students typed their answers to the questions in a dialog box at the bottom of the screen and received feedback. The during listening activities included static and animated pictures representing the texts, which were recorded in small parts. The students listened to the listening texts divided into small parts while looking at related visuals (static and animated) on the computer screen. For the after listening activities, the students answered text-related questions asked by an animated character. They clicked on the answer button to move forward on the questions. The students completed these activities on computers and received feedback based on their individual answers.

Data collection

The digital listening texts and the traditional versions of the same texts were tested with the fourth grade students in six weeks during regular school time in the 2018-2019 spring semester. In the first week, a listening comprehension pretest was administered to both the experimental and control groups by one of the researchers with five years of elementary school teaching experience. The pretest took approximately 50 minutes to complete. In the following four weeks, the digital listening texts were applied to the experimental group. During this period, the same texts in traditional format were administered to the students in the traditional group. The researcher read the texts aloud to the students and completed the activities in this condition. As a result, the students completed one text each week, and four texts in total (two narrative texts, one informative text, and one poem) in either the experimental or traditional format. In the last week, a listening comprehension posttest (the same test as used in the pretest) was administered to both the experimental and control groups by the same researcher who had administered the pretest. This again took approximately 50 minutes to complete.

Results

The pretest-posttest gain scores were analysed with one-way ANOVA, taking the study groups (digital-listening vs. traditional group) as independent variables. Before running the ANOVA test, the students' pretest scores in each group were compared to see if they started the experiment at an equal level. Results showed that the students' pretest scores in the groups were not significantly different ($F(1, 60) = 2.17, p = .146$) (Table 3). Additionally, assumptions for the ANOVA were also checked and as a result the data were found to be appropriate for an ANOVA test.

Table 4 shows that there was a significant difference between the groups' gain scores ($F(1, 60) = 10.77, p = .002$). The students in the digital listening treatment ($M = 4.00, SE = .49$) had statistically significant higher gain scores than those in the traditional treatment group ($M = 1.65, SE = .52$).

Table 3: One-way ANOVA analysis results on group differences for pretest

Source	SS	df	MS	F	p
Between groups	104.17	1	104.17	2.17	.146
Within groups	2826.52	59	47.91		
Total	2930.69	60			

Table 4: One-way ANOVA analysis results on group differences for pretest to posttest gain scores

Source	SS	df	MS	F	p
Between groups	84.54	1	84.54	10.77	.002*
Within groups	463.10	59	7.85		
Total	547.64	60			

* $p < .05$, ($n = 61$)

Discussion

In this study, 30 fourth grade elementary school students were given digital listening texts created in the *Scratch* programming language. The same stories were read aloud by one of the researchers to 31 fourth grade students. Based on the pretest to posttest gain score comparison results, the experimental group, who completed the digital stories, had significantly higher listening comprehension scores than those who were read the same stories in a traditional format.

The results of this study are consistent with those of previous studies (e.g. Cığerci, 2015; Cığerci & Gültekin, 2017; Karasakaloğlu & Bulut, 2012) which also found significantly higher scores in favour of the digital story group. This result indicates that listening texts given in a multimedia-based visual learning environment improved students' listening comprehension significantly better than the traditional read-aloud learning. However, some differences exist between these studies and the present study. In Cığerci & Gültekin's (2017) study, digital stories were implemented to the students by the classroom teacher using lesson plans. The listening activity took place in the classroom as in traditional learning. Different from their study, we had the students complete the activities individually in a one-to-one learning environment on computers (see Figures 1, 3). The students in the present study did not have teacher support during their listening activities. Instead, they received feedback from the animated characters in the digital stories based on their own progress.

The results show that their listening comprehension results, although in an individual learning environment, were significantly better than the students' listening comprehension in the traditional group. In Karasakaloğlu and Bulut's (2012) study, the listening text was digitally read aloud with the *Windows Movie Maker* program with related pictures and photos. Cığerci (2015) combined digital still pictures with voiceover recordings in a video editing software. Different from their studies, we used animated and still pictures in the

present study. Moreover, students interacted with the before listening and after listening activities on a computer, instead of listening passively to their teacher.

The before listening and after listening activities in this study consisted of an animated character asking questions and providing feedback. For the feedback, the character explained the correct answer immediately after students answered questions, no matter whether their answer was correct or incorrect. Students completed these activities individually. Accordingly, each student received feedback based on their individual answers. Feedback is seen as a learning opportunity in learning environments. Moreover, feedback providing the correct answer is more helpful for students' learning performance and retention than telling students whether their answers are correct or incorrect (Pashler, Cepeda, Wixted & Rohrer, 2005). Students receiving feedback on a timely basis show higher learning performance than those receiving delayed feedback (Thai, de Wever & Valcke, 2017). As a result, we can conclude that the students' higher performance in the digital story group can also be attributed to the way of presenting feedback. Listening comprehension requires a listener to make inferences, connections and predictions from a story text and also to understand given information (Paciga, 2011). From the results above, we can conclude that students made inferences, connections and predictions from the texts in digital format.

In the present study, visuals representing listening texts were presented in digital story format to support the students' visualisation of listening texts. In traditional classroom settings, listening texts are read aloud by teachers and students listen to their teachers. Audiovisual media-supported learning contexts produce significantly better results on students' learning achievement than those without such support (Gonçalves, de Araújo, Pereira & Moreira, 2017). In this study, when the listening texts were read aloud to the students in the traditional format, visuals representing the listening texts were accordingly absent. However, the digital story listening group listened to the texts while looking at the text-related visuals on computers (Figure 2). In Babayiğit & Ökten's (2016) study, elementary school teachers reported that fourth grade students who cannot visualise listening texts have difficulties in understanding the texts. Listening texts, when supported with visuals, are easier to comprehend (Türkyılmaz, 2010; Ünal & Sever, 2013). Thus, the digital story group's significantly higher listening comprehension results might be attributed to visuals. This result accords with studies in the literature where visuals were found to support students' understanding and interpretation of listening texts (e.g. Bayrak, 2010; Karasakaloğlu & Bulut, 2012; Cigerci & Gültekin, 2017).

Digital stories in this study included multimedia features such as animated and static objects, voice recordings, in which the texts were read aloud, and sound effects. We combined both static and dynamic pictures in the digital listening texts. Moreover, the visuals were aligned with the narration. In the literature, these features are mentioned as positively and significantly affecting students' listening comprehension (e.g. Takacs, Swart & Bus, 2015; Coşkun & Erdin, 2014; Pangaribuan, Sinaga & Sipayung, 2017). Although both forms of pictures may help support students' comprehension (e.g. Mayer, Hegarty, Mayer & Campbell, 2005; Stebner, Köhl, Höffler, Wirth & Ayres, 2017), Arguel and Jamet (2009) in their study showed that when both static and dynamic pictures are combined,

students performed the best. We found significant effects on the digital text group's listening comprehension, supporting Arguel and Jamet's (2009) findings. As a result, we can conclude that the students' significantly better comprehension results might be attributed to combining static and dynamic pictures in the digital texts.

Based on multimedia learning theory (Mayer, 2007), learning occurs better from words and pictures than from words alone. Moreover, when words are presented in narrated form, the auditory/verbal learning channel is used. Since the visual/pictorial learning channel is used for information processing from pictures, students learn better because their cognitive loads are balanced. In the present study, the students' listening comprehension increased with the read-aloud listening texts in the traditional listening format. However, students' listening comprehension increased significantly better with digital listening, which was presented in a visual and auditory way. As Mayer (2007) mentioned, this result might be attributed to presenting information through two channels, namely, the auditory/verbal and visual/pictorial channels.

In summary, immediate and individual feedback presented in the digital listening text activities can be effective for students' listening comprehension. Supporting the literature, the effective results might be attributed to visuals being presented in both animated and static form. Based on multimedia learning, the digital texts were presented to students through their visual/pictorial and auditory/verbal channel. As a result, students' significant listening comprehension improvements can be attributed to a multimedia learning environment.

Conclusion and recommendations

Listening is the most used skill in communication and it is children's first developed skill. Moreover, listening is linked with reading, writing and speaking skills and is crucial for language acquisition. Thus, it is the teachers' responsibility to help students develop their listening skills. However, listening is an ignored skill to be developed in classrooms. In this study, we wanted to take advantage of multimedia learning when teaching listening to fourth graders. Our aim was to improve their listening comprehension with digital listening texts, consisting of multimedia features such as visuals and spoken texts. We used both static and animated pictures along with narration to better support students' listening comprehension. Usually, teachers read listening texts aloud to students without such support in traditional classrooms. For this reason, we wanted to see whether digital listening texts have any advantages for students' listening comprehension over traditional listening activities.

We found that students in the digital listening group had significantly higher listening comprehension results than those in traditional listening group. The digital listening texts in this study was created in a block-based visual programming language, which is easy to learn and use to create projects. For this reason, we recommend teachers that learn to create their own digital listening materials to support student learning. Additionally, we recommend that parents use such learning platforms for their children at home, to better

support their language learning. Because students' listening comprehension can be improved with the use of digital materials, schools should aim to become equipped with computers to enable digital listening materials to be used for students' individual learning.

The significantly higher results in favour of the digital listening group might be a result of students' increased willingness to complete the activities. The students in the digital listening format seemed to be highly motivated to continue with even more activities. However, we did not measure students' motivation while they completed the listening activities, so further research could be undertaken on students' motivation in this type of learning environment. As this study was limited to fourth graders in one public school in Turkey, we recommend that similar studies be conducted with different class levels and with different subjects.

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Dr Nilgün Günbaş is an assistant professor in the Faculty of Education at Kafkas University in Turkey. She completed her EdD in Instructional Technology and Media program at Columbia University Teachers College. Her research interests include computer-based learning, multimedia learning, educational video games, teacher education, and computer programming to improve learning.
Email: ng2248@tc.columbia.edu

Dr Meral Gözüküçük is an assistant professor in the Faculty of Education at Kafkas University in Turkey. She completed her PhD in Elementary Education at Pamukkale University in Turkey. Her research interests include literacy, bilingual education, primary reading and writing, and Turkish language education.
Email: meralyaprak@gmail.com

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