The Effect of formative assessment on reading comprehension

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Abstract: The aim of this research is to set forth the effects of formative assessment methods on reading comprehension. To this end, reading status of a group of students was assessed with formative assessment methods, while that of another group was evaluated with traditional ones. The research was carried out by using unequalised quasi-experimental design. The experimental and control groups of the research were randomly assigned. The study group consisted of 50 3rd grade students of a primary school in the Dilovası district of Kocaeli city, Türkiye. The data of the study were obtained from the texts within 3rd grade curriculum and from the comprehension questions prepared for these texts. The data were analyzed via SPSS 22 program. Mann-Whitney and Wilcoxon signed rank tests were used during analyses. In the findings of the research, a highly significant difference was observed in favor of the experimental group. As a result of the findings of the research, it was observed that formative assessment methods contributed to reading comprehension success positively.

1. INTRODUCTION

Education of reading and reading comprehension starts from the 1st grade of primary school education and is carried out by increasing it gradually. As it is included within the aims of Turkish Language Education Program of the Ministry of National Education (MoNE) (2019), love and habit of reading and writing must be given to students and with this habit it must be ensured that they are given the opportunity to assess what they read and comprehend in a critical way. In order to reach these goals, it will be insufficient just to see, analyze, and vocalize the marks and symbols. It is therefore necessary to technically transfer reading from vocalization into meaning set up. Reading comprehension is the process of comprehending the thoughts and messages that the author intends to convey (May & Rizzardi, 2002). Comprehension is supposed to be the basic aim of reading since the basic aim of reading is to catch the meaning (Öztürk, 2019). In order for a successful reading process, the individual needs to comprehend what s/he reads. There are studies that assert that these activities need to be performed for comprehension, which is the major aim of reading, while such activities are few in numbers within schools, teachers spend less time on reading comprehension activities than it should be,

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especially in primary school years, and problems arise from these reasons (Ateş & Akyol, 2013; Ness, 2011; Neuman, 2001; Pearson & Duke, 2002). However, despite these studies, reading success in international exams has not reached a sufficient level. PISA (Program for International Student Assessment), which has been implemented since 2000, aims to evaluate students' knowledge and skills. Reading skill scores that belong to Turkish students in these exams are as follows:

Table 1. *PISA 2003- 2018 Average scores of reading skills in Türkiye.*

	2003	2006	2009	2012	2015	2018
Reading Skill	441	447	464	475	428	466
Total Average	-	-	464	471	460	453
Rank	33	37	39	42	51	40
Number of participating countries	41	57	75	65	72	79

(MoNE, 2005; MoNE, 2010; MoNE, 2013; MoNE, 2015; MoNE, 2019).

When the results of PISA are analyzed, it is observed that Türkiye scored above the average only in 2018 in the field of reading skills. However, even though it ranked 40th among 79 countries participating in 2018, it shows that there is a need to carry out further studies in this area when compared to successful countries. Learning to read well is largely achieved by carrying out more reading practice in schools. If assessment is included in the natural process of reading, it allows students to use their reading skills more easily (Landauer et al., 2009).

Instead of focusing on the status of reading success while evaluating students' reading success, evaluations should be made to determine the processes that will enable them to improve their reading success (Rogoff et al., 2001). It is emphasized that measurement and evaluation practices are an inseparable whole in the MoNE's curriculum of Turkish (2019). In addition, individuals' interests, attitudes, and values may differ over time and in this context, it is stated that the evaluation should take place with the active participation of students and teachers in the process. Reading studies and the measurement and evaluation of reading also need to be carried out as a whole.

Formative assessment is considered as a strategy to increase the success of the student or as a strategy that serves the purpose of determining the success of the student (Clarke, 2012). This type of assessment is seen as a process which is carried out through teaching rather than grading and includes determining students' prior knowledge and organizing and implementing their teaching plans according to such information (Bulunuz & Bulunuz, 2013; Keeley, 2008). Considering that formative assessment is within the teaching process, it is used to improve learning (Oosterhof et al., 2008; Vonderwell et al., 2007). With this feature, it is also called assessment for learning (Stiggins, 2002). Most of the educators agree on the idea that addressing reading with formative assessment aims to inform education and serve student needs (Piazza, 2012). Formative assessment is crucial for reading success because it reveals students' needs to ensure the continuous improvement in reading (Roskos & Neuman, 2012). It also facilitates modification of teaching according to students' needs and continuously provides feedback to students (Roskos & Neuman, 2012). It is known that effective reading occurs through using such skills as phonological awareness, decoding, word recognition, vocabulary, knowledge about language structures, and using inference skill (Scarborough, 2001). It is more difficult to determine in which dimension of reading the poor reader is having difficulties when compared to the problems encountered in other academic fields (Wiliam, 2006). Which students need help can be practically determined, but more detailed information is required to specify the reasons for failure. When considered within this framework, it is considered that formative assessment can be used to improve reading comprehension.

In the related literature, there are studies on strategies for improving reading comprehension and also on measures to be taken (Aktaş, 2015; Akyol & Ketenoğlu Kayabaşı, 2018; Baştuğ & Keskin, 2011; Çeliktürk Sezgin & Akyol, 2018; Çöklü Özkan, 2018; İlter, 2018; Kocaarslan, 2015; Kodan, 2015; Kuşdemir, 2014; Papatğa, 2016; Sidekli, 2010; Sözen & Akyol, 2018). Examining the international literature, the intensity of studies on reading comprehension is also observed (Coiro & Dobler, 2007; Dreyer & Nel, 2003; Gersten et al., 2001; Hock & Mellard, 2005; Ness, 2011). There are also studies in international literature that deal with reading, comprehension, and formative assessment together (Dupont, 2018; Kline, 2013; Li, 2016; Marchand & Furrer, 2014; Marcotte & Hintze, 2009; Offerdahl & Montplaisir, 2013; Roskos & Neuman, 2012). In addition to these, there are experimental studies (Boumediene & Hamazaoui-Elachachi, 2017; Gustafson et al., 2019; Hooley & Thorpe, 2017; Sanaeifar & Nafari, 2018) examining the effect of formative assessment on reading comprehension skills in the international literature; however, these studies are limited in number. In the studies conducted to evaluate reading comprehension within the national literature, there are studies that focus on questions used in comprehension (Akyol et al., 2013; Ateş, 2011; Aydemir & Çiftçi, 2008; Doğanay & Yüce, 2010; Durukan, 2009). In addition to these, there are also studies on different measurement tools used in reading comprehension (Karasu et al., 2011; Temizkan & Sallabaş, 2011). The purpose of this specific research study is therefore to set forth the effect of formative assessment methods on reading comprehension. In line with the purpose of the research, answers to the following questions are sought:

1. Is there a significant difference between the pre-test and post-test scores of the students to whom formative assessment methods were applied?

2. Is there a significant difference between the pre-test and post-test scores of the students evaluated by traditional methods?

3. Is there a significant difference between the post-test reading comprehension scores of the students to whom formative assessment methods were applied and the ones who were evaluated with traditional methods?

2. METHOD

2.1. Research Design

With a specific aim to set forth the effect of formative assessment methods on reading comprehension skills, this study was set up as a quasi-experimental design as one of the quantitative research designs. Experimental studies aim to reveal how the independent variable of the research affects the dependent variable (Karasar, 2012). In other words, the effects of different situations -set up by the researcher- on the dependent variable are examined through experimental studies (Büyüköztürk et al., 2017; Creswell, 2014; Creswell & PlanoClark, 2011). In the quasi-experimental design, groups are randomly assigned (Büyüköztürk et al., 2017). This research model can be expressed as a pre-test post-test unequalized quasi-experimental design with a control group (Karasar, 2012) as the groups were randomly assigned and the groups were partially controllable. In other words, the groups were previously formed as classroom format within the school.

2.2. Study Group

The study group of the research consisted of 2 classes of 3rd grade students in the 2019-2020 academic year in a public primary school in the Dilovası district of Kocaeli province in Türkiye. One of the classes participating in the research was randomly assigned as the experimental group and the other as the control group. In this context, the research was conducted with 50 3rd grade students. While there was a total of 22 participants, 7 female and 15 male students in the experimental group, the control group consisted of a total of 28 participants, 15 female and 13 male students. In the study, 3rd grade students were preferred because it was necessary that

the participants had to complete the literacy process and be at a level to exhibit fluent reading and comprehension skills.

While determining the study group, convenience sampling method was used in order to provide speed, practicality, and economy to the research process. With this method, researchers choose situations that are easy to reach (Glesne, 2015). Considering the ease of access and the fact that the research can be followed more closely and easily, a public school in the Dilovası district of Kocaeli province, in which the researcher also worked, was preferred during sampling.

In research, firstly it is necessary to choose the tests to determine the equivalence status of the experimental and control groups. The prerequisite for this situation is the normality of the data. When the normality distributions of the pre-test comprehension scores of the research data were examined, it was concluded that the normality distribution of the comprehension scores of the control group was S-W(28)=0.04, $p<0.05$. According to this result, the control group data are not normally distributed. When the pre-test comprehension scores of the experimental group are examined, the result emerges as S-W(22)=0.125, $p>.05$. This result shows that the experimental group data are normally distributed. In this context, nonparametric tests need be used to reveal the equivalence status between the two groups.

Table 2. *Mann Whitney U test results of the pre-test scores of the participants in the experimental and control groups.*

Pre-Test		N	$\bar{x}$	U	Z	p
	Experimental	22	7.64	223.5	-1.668	0.095
Comprehension Scores	Control	28	9.57			
	Total	50				

Table 2 shows Mann Whitney U test results of the pre-test scores of the experimental and control group participants. As can be seen in the table, the study was carried out with a total of 50 participants, including 28 participants in the control group and 22 participants in the experimental group. It can also be seen that the arithmetic mean scores of comprehension of the participants in the experimental group were 7.64 and the arithmetic mean scores of comprehension of the participants in the control group were 9.57. According to the results of Mann Whitney U test, it can be concluded that the groups were equal (U=223.5, $p>.05$). Therefore, in this context, the equivalence status of control and experimental groups of the research was ensured.

2.3. Data Collection Tools

The data of this study were collected through comprehension questions prepared in line with expert opinions regarding the text titled "Mektup –The Letter", taken from the book that was approved by the Board of Education and used as a 3rd grade Turkish textbook in the 2010-2011 academic year. No taxonomy was used while measuring the reading comprehension skill. Only comprehension questions developed in line with expert opinions were used. With these questions, the pretest-posttest comprehension scores of the participants were revealed. While three of the comprehension questions measured understanding at a simple level, two of them aimed at determining in-depth understanding. Four points were awarded for the correct answer to the simple comprehension questions and five for the correct answer to the deep comprehension problems. The lowest score that can be obtained from the test is zero, whereas the highest score is 22. While choosing the text to be used in the research, it was paid attention that the participants had not encountered this text beforehand. Among the texts in the book, used as a Turkish course book before, it was decided -in line with expert opinions- to use the text titled "Mektup – The Letter" as a measurement tool.

Mistake Analysis Inventory adapted by Akyol (2006) was used as the basis for the reading comprehension questions. According to the Mistake Analysis Inventory, reading comprehension situations can be revealed through the questions asked after the text is read silently. This inventory proposes using simple comprehension and in-depth comprehension questions. In this context, five questions, three of which aim to measure literal understanding and two to measure in-depth understanding, were created by the researchers during the research process. In the process of creating the questions, a candidate question pool of 15 questions was initially created. Candidate questions were presented to the opinions of one classroom teacher and three experts who received classroom education. In line with expert opinions, the questions to be used in the research were determined. A score of 0 was given for unanswered or incorrect answers to literal comprehension questions, 2 points for partially answered questions, and 4 points for fully answered questions. In the in-depth comprehension questions, 0 points were given for unanswered or incorrect answers, 2 points for partially answered questions, 3 points for incomplete but most of the expected answers, and 5 points for fully answered questions.

Reading comprehension questions were scored by two different raters to ensure the reliability of the research. After the scoring process, the correlation method, which is one of the approaches used to ensure inter-rater reliability, was used. Because the data were not normally distributed, Spearman Brown Rank Correlation Test was performed. According to the test results, it was revealed that there was a high correlation between the raters ($r(48)= .88$, $p=.00$, $p<.05$).

During the application process with the experimental group, formative assessment methods such as cloze test's multiple-choice format (maze), sentence verification, story map, re-telling techniques (written retell), and retelling fluency were used. According to Marcotte and Hintze (2009), the multiple-choice format (maze), sentence verification method (SVM), retelling fluency, and written retell methods of fill-in-the-blank technique can be used for formative assessment applications. The story map method, on the other hand, was used as a measurement tool in the research in line with expert opinions, considering it appropriate to see which element the student's understanding deficiencies were concentrated in and to give feedback. The texts of these measurement tools used in the experimental group were taken from the book used as a textbook in the past years. Text selection and measurement tools were carried out in line with the opinions of the three-class education experts. These measurement tools used in the experimental group were the formative assessment activities of the experimental group aiming only at the evaluation of learning.

2.3.1. *Cloze test*

Cloze test is a technique developed by Wilson Taylor in 1953, inspired by the completion principle of Gesthalt (Keskin & Akıllı, 2013; Ulusoy, 2009) and includes syntactic, structural, and semantic elements of the text (Ulusoy, 2009). With this technique, considered as an extremely reliable and valid reading comprehension measure (Bormuth, 1963), it is aimed to complete the incomplete images, thoughts or words in the mind as a whole (Akyol et al., 2014).

According to Akyol et al. (2014), at the beginning of the application phase, the teacher chooses a text suitable for the grade level. After students have read the text, every 5th, 6th, 7th, 8th, 9th, 10th words are selected and deleted from the text, except for the first-last word or proper nouns (the next word is chosen from the proper name) in the text. Students are also expected to write the same words in the text in the blanks. After the application of fill-in-the-blank test, words written correctly by the students are counted and the percentage value corresponding to total words deleted from the text is calculated (Akyol et al., 2014). According to the evaluation criteria, 60% and higher scores indicate the independent reading level, those scores between 59% and 40% indicate the instructional reading level, and 40% and below scores indicate the reading level at the anxiety level (Rankin & Culhane, 1969).

2.3.2. Sentence verification method (SVM)

The sentence verification test was developed by Royer et al. (1979), focusing on the structural aspect of understanding (Yazıcı & Kurudayıoğlu, 2017). In this technique, each sentence in the text read and understood by the reader has its own semantic symbols (Shaughnessy, 2005). The texts in which the sentence verification test will be used should consist of 12 sentences that are meaningful in themselves or these texts should be rearranged and expressed in 12 sentences (Akyol et al., 2014; Ulusoy & Çetinkaya, 2012; Yazıcı & Kurudayıoğlu, 2017). According to Royer (2001), each of the 12 sentences in the text should be arranged in 4 different categories; namely, using the original sentence, expressing the original sentence with other words, changing the meaning of the original sentence, and distracting sentence.

Students are expected to answer the questions formed as Yes/No or True/False in the new sentences prepared in 4 categories (Ulusoy & Çetinkaya, 2012; Yazıcı & Kurudayıoğlu, 2017). Considering the 50% chance factor of the test during the interpretation of the scores obtained from the sentence verification test, it is accepted that 80% and above correct answers indicate good understanding, while 71-79% correct answers indicate poor comprehension (Royer, 2001).

2.3.3. Story map

Story maps emerge as an important technique in order to reveal the connections between all the elements of the story clearly and to convey to the student how the story is organized (Mathes & Fuchs, 1997). The purpose of this technique is to create a story structure with story elements in the mind and to ensure that the texts are understood (Duman, 2006). According to Akyol (2011), distinguishing the important and unimportant information in the story, enabling the students to focus on more important information, ensuring that the information is transferred to the long-term memory regularly, making forward-looking predictions in the text by making use of prior information, and intertextual reading can be done by using a story map.

2.3.4. Written retell

The reading-telling technique, one of the written retell techniques, is considered to be the most important of the techniques used to assess the student's comprehension level of the text (Reutzel & Cooter, 2007). According to Leslie and Caldwell (2006), answers to 4 questions should be sought during narration in order to evaluate reading comprehension:

1. Is the basic structure of the text explained? Is important information in the text mentioned during the narration?
2. Are the main ideas and supporting ideas of the text included in the narration?
3. Is the narration sequence performed in the order in the text?
4. Is the narration complete?

By looking for answers to these questions, the student's reading comprehension status can be checked.

Fuchs et al. (1998) state that rewritten expression is a more successful method in evaluating reading comprehension rather than evaluating oral expression. At the same time, the rewritten method is a method that can be used to determine the teaching goals and also to reveal the needs of the students (Fuchs et al., 1989). Although the rewritten method does not currently have a standardized format, it is shown as a formative measure of reading comprehension (Marcotte & Hintze, 2009).

2.3.5. Retelling Fluency

Retelling Fluency is the evaluation of reading comprehension based on oral reading fluency (Good & Kaminkski, 2002). According to this technique; When students who read more than 40 words per minute are asked to retell the text they have read, they are expected to retell what

they have read with approximately 50% of the verbal fluency score or more. In this case, the student's oral reading score can be considered as an indicator of good reading comprehension, including comprehension. When a student who reads more than 40 words per minute is asked to retell the text, it is thought that if the number of words used while describing the text is 25% or less of the verbal fluent reading score, it cannot represent reading comprehension (Good & Kaminkski, 2002). For example, if the student reads 80 words in a minute and retells the text with 40 words or more when asked to retell, reading fluency represents reading comprehension. However, if the student reads 80 words per minute and retells what s/he has read with 20 words, there may be a comprehension situation that cannot be represented with fluency.

2.4. Data Collection

2.4.1. *Preparation phase*

At this stage, a text that the participants had not encountered before was selected and comprehension questions were prepared for this text. The selected text was the one named "Mektup – the Letter" from the Turkish textbook in the 2010-2011 academic year. The preparation of the comprehension questions was carried out in line with the expert opinions. Comprehension questions for the text were prepared in line with expert opinions, and with these comprehension questions, it was aimed to measure the simple and in-depth comprehension skills of the participants. In order to determine the group equivalence within the process of determining the experimental and control groups, a pre-test was applied to all the 3rd grade classes in the school. Before the pre-test application, the participants were informed about the general framework of the research and they were all told that they should not have any grade concerns. Thus, it was aimed to create an environment where they could answer the questions sincerely.

The text "Mektup – the Letter" selected as a measurement tool was distributed to the participants and they were asked to read it once. After the reading process, pre-prepared comprehension questions regarding the text were distributed to the participants and they were expected to answer them. After the answers were received, success scores of the participants were determined and analyzed with the SPSS program. After the analysis, the equivalence status of the groups was compared. Experimental and control groups were randomly determined among the classes subjected to the pre-test process. After determining the experimental and control groups, in-depth information about the research was given by interviewing the classroom teachers of the relevant classes. In addition, they were all asked to carry out the study voluntarily and sincerely as voluntary participation of the relevant teachers in the research was very important for the effective conduct of the study.

The classroom teacher in the experimental group was informed about how the implementation phase would be carried out, and it was ensured that he became aware of the time that he had to allocate for research in the Turkish lesson. In this context and within the framework of the research, the participating students were informed that during the 10-week period, reading comprehension assessment studies would be conducted for the formative assessment approach. At the same time, the assessment tools to be used in the research, sentence verification technique, multiple choice type of fill-in-the-blank technique (Maze), story map, retelling fluency, and retell writing techniques were introduced to the classroom teacher. The classroom teacher was also informed that the assessment process of reading comprehension skill would be carried out by adopting the traditional level determination approach in the control group. The Turkish lesson and the evaluation of comprehension skills continued in its normal course without any intervention in the control group. However, the teacher was informed that the texts used in the experimental group of the research should be used when applying the comprehension test.

2.4.2. *Implementation phase*

Although the research process had been planned as 10 weeks, the research implementation process was extended to 13 weeks due to the fact that the implementation phase coincided with the 1st semester break and also because of the experimental group participants' school attendance problems in some weeks of the research process. In the 14th week, the application phase of the research was concluded by applying the text applied in the pre-test and the comprehension questions about this text to the participants. At this stage, reading comprehension skills of the participants in the control group were dealt with traditional approaches and these participants were subjected to three different evaluations during the 13-week period. The researchers did not interfere with the frequency of evaluation. During the evaluations, the texts used in the experimental group that week were also applied to the control group. At the 14th week, the control group's post-test scores were obtained through the text used in the pre-test and also through the comprehension questions for this text. In the experimental group, reading comprehension skills of the participants were tested with a formative assessment method every week. The implementation process of the research was carried out as follows:

Table 3. *Implementations conducted during the implementation phase of the research.*

Week	Implementations conducted
1st Week	The reading comprehension skills of the experimental group participants were evaluated with the sentence verification technique and necessary feedback was given.
2nd Week	The reading comprehension skills of the experimental group participants were evaluated using the fill-in-the-blank technique and necessary feedback was given.
3rd Week	No evaluation could be conducted due to lack of participants.
4th Week	The reading comprehension skills of the experimental group participants were evaluated with the story map technique and necessary feedback was given.
5th Week	No evaluation could be conducted due to lack of participants.
6th Week	While the reading comprehension skills of the experimental group participants were evaluated with the rewriting technique, the reading comprehension status of the control group participants was subjected to the 1st evaluation with the classical question and answer method.
7th Week	The reading comprehension skills of the experimental group participants were evaluated using the retelling fluency method and necessary feedback was given.
8th Week	The reading comprehension skills of the experimental group participants were evaluated with the sentence verification technique and necessary feedback was given.
9th Week	While the reading comprehension skills of the experimental group participants were evaluated with the fill-in-the-blank technique and feedback was given, the second evaluation for the control group was conducted.
10th Week	No evaluation could be conducted due to semester break.
11th Week	The reading comprehension skills of the experimental group participants were evaluated with the story map technique and necessary feedback was given.
12th Week	The reading comprehension skills of the experimental group participants were evaluated with the rewriting technique and necessary feedback was given.
13th Week	While the reading comprehension skills of the experimental group participants were evaluated with the retelling fluency technique and the necessary feedback was given, the third evaluation was conducted for the control group.

Following each evaluation made regarding the experimental group, the participants were given feedback on where their understanding deficiencies were and how they could overcome these. While giving feedback, no judgment was made in the classroom and every attempt was made to prevent labelling students as successful or unsuccessful. No scoring was used during the evaluation. In order for the participants to see their own mistakes and shortcomings, their understanding deficiencies were resolved together in the classroom following individual feedback. After the completion of the evaluations carried out in the experimental group within a 13-week period, the post-test application was carried out and the post-test data of the research were reached.

2.4.2.1. Using the measurement tools and giving feedback. During the research process, the evaluation was carried out in the control group using the traditional question-answer method. The main purpose of the questions used in this group and the evaluation made is to reveal the reading success of the students. The assessment questions used did not focus on identifying the needs and learning deficiencies of the participants. The feedback given is limited to the exam scores and the correctness of the answers to the questions.

In the experimental group, the most basic element of the formative assessments was designed as the feedback given to the participants. After each evaluation process, feedback was provided for the needs of the participants. In the feedback given, no scoring or statements such as true or false were included. The main purpose of the questions used was to reveal the comprehension deficiencies in the text. As a result of the evaluations, the participants, who were thought not to understand enough what they read, were given information about their reading errors. For example, a participant who was thought to have a comprehension deficiency was asked to read the text aloud again, accompanied by a teacher. It was determined that the participant only focused on speed while reading and the participant was given information about how to take into account the units of meaning and how to perform prosodic reading as well.

During the research process, evaluations carried out in the experimental group by using SVM, multiple choice format of fill-in-the-blank technique, rewriting, retelling fluency, and story map techniques were completed within one course hour. Participants were asked to read the text once, and then assessments were made using measurement tools. Answers given by the participants to the measurement tools were read and their understanding deficiencies were revealed, and each participant was individually told which parts of the texts they lacked in comprehension. In this process, the texts were read again so that the students who did not answer the questions in the text or who had a lot of wrong answers could clearly see their own shortcomings as they were asked to respond to the relevant measurement tools again. In this direction, the aim was to encourage the participants to respond to the texts.

The participants were given general information about how to use SVM while the evaluations were carried out with the sentence verification technique in the experimental group. The participants were prepared for evaluation by informing them that the careful reading process would make it easier to find the answers to the questions to be asked. The texts previously prepared by the researchers were distributed to the participants. The participants were asked to choose true or false for the questions following the reading process; namely, they were asked to mark the column with "True" in case the sentence had the same meaning with the text, and to mark the column with "False" in case the sentence had a different meaning from the text. After the relevant instructions were given, the participants were told that they could start reading the text. Text reading was performed only once by each participant. SVM evaluation processes were completed by giving evaluation questions to the participants who completed the reading.

Before the assessments made with the multiple-choice format of the fill-in-the-blank technique, the measurement tool was introduced to the participants. Participants were told that a text would be given and they would read it only once. It was stated that some words of the text they would read would be removed from the form to be given after the reading process. It was also stated that these blanks would contain words in a multiple-choice form. It was added that they should choose, among these options, the same words as they appeared in the first text they had read. It was mentioned that only one word should be selected for each blank. After the general briefing, the text was distributed to the participants. The forms prepared for evaluation were distributed to the participants who had completed the text-reading process and their answers were received. After the answers were received, the evaluation processes carried out with the multiple-choice format of the fill-in-the-blank technique were completed.

In the evaluation process of the re-writing narration technique, the participants were expected to retell the text read in written form. In this process, texts were distributed to the participants and they were asked to read the texts once. After the texts were read, the participants were asked to write down everything they remembered about the text. Evaluation processes were completed by receiving the participants' re-writing narration responses.

While the evaluations were carried out with the retelling fluency technique, the number of words that the participants read during one-minute oral reading process was determined. Then, the participants were asked to verbally retell the text they read. In this process, it was measured how many words the participants used in one minute while telling the text they read. Evaluations were made by comparing the number of words they used during one-minute reading with the number of words they used during retelling. Participants who could not read enough words in one-minute period and those who explained what they read in very few words were recommended to do repetitive readings. Story maps were used in the evaluation process. First of all, story map format was introduced to the participants. It was explained to the participants that each box was intended to identify the story elements in the text according to its title. After the texts to be used were distributed, the participants completed the reading process. The story map forms were distributed and the participants were expected to fill in the titles in the story map appropriately.

2.5. Data Analysis

The data of this study were obtained by scoring the comprehension questions and analyzing them in the SPSS program. In the data analysis process, firstly, the normality of the data was determined. Normality conditions were checked with the Shapiro-Wilk test. When the normality status of the pre-test and post-test scores of the experimental group participants was examined, it was found that the pre-test normality distribution score was S-W(22)=0.125, that is, p>.05, which shows the pre-test scores as normally distributed. When the post-test normality distribution conditions were examined, it was concluded that the post-test data were not normally distributed, with a value of S-W(22)=0.001, that is, $p<.05$. When the normality status of the pre-test and post-test scores of the control group is examined, the pre-test normality distribution is S-W(28)=0.04, $p<.05$. Considering the post-test normality, the result is observed as S-W(28)=0.175, $p>.05$. The tests to be carried out were decided according to the normality conditions. The Mann-Whitney U test was used to determine the equivalence status of the groups in the pre-test data of two independent groups, the normality of which could not be assured. Wilcoxon signed-rank test was used to compare the pre-test and post-test data of the control group and the experimental group within themselves and also to determine their significance. Finally, the Mann-Whitney U test was used to compare the post-test data of the control and experimental groups.

The $r = \frac{Z}{\sqrt{N}}$ formula was used to determine the effect of the significance values that emerged as a result of the tests. According to this formula, as the effect value approaches zero, it can be mentioned that there is a low effect. As this value approaches 1, it can be interpreted that the effect increases (Green & Salkind, 2014).

3. FINDINGS

3.1. Findings Regarding the First Sub-Problem of the Research

Table 4 presents the findings that emerged as a result of the comparison of the pre-test and post-test scores of the experimental group participants with the Wilcoxon signed-rank test.

Table 4. *Wilcoxon Signed Ranks test results of the pre-test and post-test scores of the experimental group participants.*

Pre-Test / Post-Test		*N*	Mean *R.*	Total *R.*	*Z*	*p*
Comprehension scores	Negative rank	0	-	-	-3.934	0.000*
	Positive Rank	20	10.50	210.00		
	Equal	2	-	-		

*p<.05

In Table 4 it can be seen that there is no decline in the comprehension scores of any of the experimental group participants. In addition, there is no change in the comprehension scores of 2 students, while comprehension scores of 20 students increase. The mean score of the participants who show an increase is determined as 10.50. According to the results of the test, it can be concluded that there is a significant difference between the pre-test and post-test reading comprehension scores of the experimental group participants (z=-3.934, p<.05). When the effect value is calculated, the result r=-0.838 emerges, which reveals the significance value quite high.

3.2. Findings Regarding the Second Sub-Problem of the Research

Table 5 presents the findings obtained as a result of comparing the pre-test and post-test scores of the control group with the Wilcoxon Signed Ranks test.

Table 5. *Wilcoxon Signed Ranks test results of the pre-test and post-test scores of the experimental group participants.*

Pre-Test / Post-Test		*N*	Mean *R.*	Total *R.*	*Z*	*p*
Comprehension Scores	Negative rank	3	10.50	31.50	-2.152	0.031*
	Positive rank	14	8.68	121.50		
	Equal	11	-	-		

*p<.05

In Table 5, it can be seen that 3 participants experienced a decrease in their scores in the period between the pre-test and post-test and their average score of these participants was determined as 10.50. Although it is displayed in Table 5 that the scores of 11 students did not change, 14 students made progress between the pre-test and post-test processes and their mean scores reached 8.68. According to the test results, there is a significant difference between the pre-test and post-test scores of the control group participants (z=-2.152, p<.05). When the effect value is calculated, the result emerges as r=-0.390. With this result, it can be interpreted that there is a moderate significance value.

3.3. Findings Regarding the Third Sub-Problem of the Research

Table 6 shows the comparison of the reading comprehension scores of the experimental and control group participants with the Mann Whitney U test after the post-test.

Table 6. *Mann Whitney U test results of the post-test scores of the experimental and control group participants.*

Pre-Test		N	$\bar{x}$	U	Z	p
Comprehension Scores	Experimental	22	14.09	204.00	-2.064	0.039*
	Control	28	11.29			
	Total	50	12.52			

*p<.05

An analysis of Table 6 shows the arithmetic mean of the 22 participants in the experimental group as 14.09, while the arithmetic mean of 28 participants in the control group is 11.29. When the Mann Whitney U test result is examined, it is seen that the post-test reading comprehension scores of the experimental and control group participants differ significantly (U=-204.00, p<.05).

4. DISCUSSION and CONCLUSION

When the increase in the reading comprehension scores of the experimental group participants is evaluated individually, it is observed that the scores of only two participants did not increase, but the reading comprehension scores of the 20 participants in the experimental group improved. When considered in this context, it is seen that the formative assessment approach applied to the experimental group participants is an assessment process that is appropriate for the individual differences of the students and serves to meet the learning needs of many students. The features of effective feedback and increasing the individual time allocated to students appear as important elements in increasing the success of formative assessment in reading comprehension. Boumediene and Hamzaoui-Elachachi (2017) emphasize the conclusion that formative assessment interventions improve students' reading comprehension skills and they cite effective feedback and regular evaluation intervals as reasons for this improvement. Similar experimental studies by Gustafson et al. (2019), Hooley and Thorpe (2017) and Sanaeifar and Nafari (2018) support the current study and show that formative assessment practices improve reading comprehension. In our specific study it is observed in the control group that only half of the participants experienced improvement in their reading comprehension scores over a long period of 13 weeks, which may be the reason why the evaluation process, carried out with traditional methods, was done only to determine their development. The fact that assessment carried out in traditional methods fails to design teaching according to individual learning needs can be considered as the major reason why the reading comprehension scores of many students do not increase. As a result of this specific research, it is possible to reach the conclusion that reading comprehension skills of the experimental group participants, whose reading comprehension skills were evaluated with the formative assessment approach, improved.

Formative assessment is the process of supporting the participants by re-presenting the information according to their needs based on the data collected from the participants. In this process, teachers determine their learning goals and needs based on the information obtained before (Elden, 2019). At the same time, the fact that formative assessment is intertwined with the teaching process may cause teachers to be unaware of their assessment (Bredekamp, 2015). Reading comprehension skills are of vital importance for academic success and maintaining a quality social life. The increase in the reading comprehension success of the participants evaluated using the formative assessment approach will also affect their academic success. In his doctoral study, Ozan (2017) concluded that academic achievement increases when formative assessment practices are carried out. Considering reading comprehension as one of the most important conditions for academic success, this very study and Ozan's (2017) study point out similar results. In addition, there are many studies in the international literature stating

that formative assessment positively affects academic achievement and learning (Alkharusi, 2008; Black & Wiliam, 2012; Black & McCormick, 2010; Chappuis & Chappuis, 2008; Chappuis et al., 2011; Choi et al., 2001; Clark, 2012; Fuchs & Fuchs, 1986; Gardner, 2012; Heitink et al., 2016; Herman et al., 2006; Kingston & Nash, 2011; McMillan, 2014; Peterson & Siadat, 2009). With the current research, it can be stated that formative assessment can be used to improve reading comprehension skills, which is a prerequisite for academic success.

When the formative assessment studies conducted in the national literature are examined, the strengths of formative assessment in various disciplines compared to traditional approaches have been revealed (Buluzun & Bulunuz, 2013; Doğan, 2016; Elden, 2019; İnaltun & Ateş, 2018; Metin & Özmen, 2010; Ozan, 2017; Zengin et al., 2017). This study also contributes to the national and international literature with the conclusion that when formative assessment activities are used instead of traditional assessment methods, reading comprehension skills will be positively affected. Kline (2013) concluded in his research that formative assessment contributes to secondary school students' reading success. As also seen in our specific study, it would be beneficial to use the formative assessment approach in order to develop and support reading skills.

Temizkan and Sallabaş (2011) reached the conclusion that multiple-choice tests are more successful than open-ended questions in their study in which they sought an answer to the question of whether multiple-choice tests or written exams are more effective in assessing reading comprehension skills. The most important reason for this is that multiple-choice tests eliminate the difficulty of expressing thoughts in writing (Temizkan & Sallabaş, 2011). However, if the questions are only used to perform measurements and not to identify learning deficiencies and learning goals, it will not be possible to go beyond the measurement process and as a result, a superficial measurement and evaluation application will emerge. In order to enrich the learning environment, determine learning goals, and provide effective feedback, multiple choice tests and written examinations, which are used without being included in the process, are insufficient. As can be seen in the results of this study, it was observed that the achievement scores of many students did not improve in the group that was assessed only by traditional methods and teachers evaluated their students' reading comprehension level with a result-oriented approach by using written exams. However, it is very important to pay attention to the individual differences of students for an effective reading and reading comprehension (Başaran, 2013). Formative assessment is the process that is used to identify student needs, organize, and improve education and is applied based on the interaction of student understanding (OECD, 2005). It is supported in this study that the formative assessment process implemented in this way will be more successful in determining the individual learning needs and goals of each student when compared to the success of the traditional methods.

According to Yıldırım (2012), questions are important tools for monitoring comprehension processes and the competence of teachers and students regarding questions is important for students to develop their reading comprehension skills. The emphasis should be on creating environments where students can talk about what they read for the development of high-level thinking skills (Applegate, 2007). However, according to the results of other research studies, questions are mostly used to reveal what students have learned (Ateş, 2011; Brown, 1991; Fordham, 2006; Hervey, 2006; Johnston, 1997; Knapp, 1995). Assessment type which seeks to reveal such learning situations and sees learning results rather than supporting learning is not suitable for formative assessment. As it can be interpreted from the results of our study, questions and evaluation should be included in the process and used to support learning.

In the national and international literature, there are studies comparing traditional assessment methods with assessment approaches in which students are actively involved in the process. Examining the results of these studies, it can be observed that assessment approaches that center

the student in the process, such as formative assessment, are more beneficial in improving reading comprehension skills than the traditional approaches (Guthrie et al., 2006; Souvignier & Mokhlesgerami, 2006; Zipke, 2007). It can also be expressed that the results of the related studies and the results of this study are similar.

According to Roskos and Neuman (2012), the main features of formative assessment include identifying gaps between where students are and where they need to go in their reading development and it aims to create feedback loops that provide information about changes in performance gaps. It involves engaging students in meaningful and productive self-assessment process, developing a set of essential reading activities with clear criteria for success and building a culture for improving students' knowledge and skills. In such a reading climate, comprehension skills are expected to develop. In this specific research context, it is revealed that formative assessment activities should be used in education of reading and comprehension and in evaluation process by making use of the results of this research and the information in the relevant literature.

It can be suggested to use formative assessment methods that emphasize the process in the evaluation of reading studies. Formative assessment methods can be used in the evaluation of studies of reading texts within Turkish textbooks. It can be recommended that primary teachers offer effective feedback and corrections to students in reading and comprehension education. More comprehensive studies can be done on formative assessment and reading comprehension; namely, the effect of formative assessment on components such as fluent reading, reading motivation, and vocabulary can be examined; qualitative studies in which formative assessment and reading skills are handled together can be conducted; and similar studies can be carried out at different grade levels.

This research is limited to the formative assessment methods used in the process, measurement tools, and the participants of the research. Another limitation of the study is the 13-week quasi-experimental process. The possibility that the experimental and control group classroom teachers may have different qualifications and skills during the research process may also be a limitation, but the fact that the experimental and control group students had statistically equivalent comprehension scores in the pre-tests made at the beginning of the process is an indication that this situation was somewhat under control.

Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors. **Ethics Committee Number**: Duzce University, 05.11.2019, 2019-84.

Authorship Contribution Statement

Muhammet Sonmez: Investigation, Resources, Visualization, Software, Formal Analysis, and Writing-original draft. **Fatih Cetin Cetinkaya**: Methodology, Supervision, and Validation.

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REFERENCES

Aktaş, N. (2015). *Okuma öncesi strateji öğretiminin 4. sınıf öğrencilerinin ekrandan okuduğu nu anlama düzeyine etkisi [The effect of pre-reading strategy instruction on reading on screen comprehension levels of elementary school 4th graders]* [Unpublished master's thesis]. Gazi University.

Akyol, H. (2006). *Türkçe öğretim yöntemleri [Turkish teaching methods].* Kök Yayıncılık.

Akyol, H. (2011). *Türkçe öğretim yöntemleri [Turkish teaching methods].* Pegem Akademi.

Akyol, H., & Ketenoğlu Kayabaşı, Z. E. (2018). Okuma güçlüğü yaşayan bir öğrencinin okuma becerilerinin geliştirilmesi: Bir eylem araştırması [Improving the reading skills of a students with reading difficulties: An action-research]. *Eğitim ve Bilim, 43*(193), 143-158. http://dx.doi.org/10.15390/EB.2018.7240

Akyol, H., Yıldırım K., Ateş, S., & Çetinkaya, Ç. (2013). Anlamaya yönelik ne tür sorular sorarız? *Mersin Üniversitesi Eğitim Fakültesi Dergisi* [What Kinds of Questions Do We Ask for Making Meaning?]. *9*(1), 41-56. https://dergipark.org.tr/tr/download/article-file/160845

Akyol, H., Yıldırım, K., Ateş, S., Çetinkaya, Ç., & Rasinski, T.V. (2014). *Okumayı değerlend irme: Öğretmenler için kolay ve pratik bir yol [Assessing reading: The easy and practic al way for teachers]*. Pegem Akademi,

Alkharusi, H. (2008). Effects of classroom assessment practices on students' achievement goals. *Educational Assessment,* 13(1), 243-266. https://doi.org/10.1080/1062719080260 2509

Applegate, M.D. (2007). Teacher's use of comprehension questioning to promote thoughtful literacy. *Journal of Reading Education, 32*(3), 12-19.

Ateş, S. (2011). *İlköğretim beşinci sınıf Türkçe dersi öğrenme-öğretme sürecinin anlama öğretimi açısından değerlendirilmesi [Evaluation of fifth-grade Turkish course learning and teaching process in terms of comprehension instruction]* [Unpublished doctoral dissertation]. Gazi University.

Ateş, S., & Akyol, H. (2013). Türkçe dersi öğrenme-öğretme sürecinin anlama öğretimi açısından değerlendirilmesi [The evaluation of Turkish language arts course with regard to comprehension instruction]. *Journal of Turkish Educational Sciences*, *11*(3), 268-300. https://dergipark.org.tr/tr/pub/tebd/issue/26091/274940

Aydemir, Y., & Çiftçi, Ö. (2008). Edebiyat öğretmeni adaylarının soru sorma becerileri üzerine bir araştırma (Gazi üniversitesi eğitim fakültesi örneği) [A research on asking question ability of literature teacher candidates (Gazi University education faculty pattern)]. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 5*(2), 103-115. https://dergipark.org.t r/tr/pub/yyuefd/issue/13714/166035

Başaran, M. (2013). Okuduğunu anlamanın ölçülmesinde paragraftan anlam kurmaya dayalı çoktan seçmeli sorular [Measurement of reading comprehension using meaning-based paragraphs with multiple-choice questions]. *Eğitim Bilimleri Araştırmaları Dergisi, 3(*2), 107-121. http://dx.doi.org/10.12973/jesr.2013.327a

Baştuğ, M., & Keskin, H.K. (2011). Bilgi verici metin yapıları öğretiminin okuduğunu anlamaya etkisi [The effect of expository text structure on reading comprehension]. *E-Journal of New World Sciences Academy, 6*(4), 2598-2610. https://dergipark.org.tr/tr/pu b/nwsaedu/issue/19818/212034

Black, P., & McCormick, R. (2010). Reflections and new directions. *Assessment & Evaluation in Higher Education, 35*(1), 493-499. https://doi.org/10.1080/02602938.2010.493696

Black, P., & Wiliam, D. (2012). *Developing a theory of formative assessment*. In J. Gardner (Ed.), *Assessment and learning* (2nd ed., pp. 81-100). Sage.

Bormuth, J.R. (1963). Cloze as a measure of readability. *Proceedings of the lnternational Reading Association, 13*(1), 1-134. https://www.jstor.org/stable/1433978

Boumediene, A., & Hamzaoui-Elachachi, H. (2017). The effects of formative assessment on Algerian secondary school pupil's text comprehension. *AWEJ, 8*(3), 172-190. https://dx.doi.org/10.24093/awej/vol8no3.12

Bredekamp, S. (2015). *Erken çocukluk eğitiminde etkili uygulamalar* [*Effective Practices in Early Childhood Education*]. (H. Z. İnan & T. İnan, Trans.). Nobel Yayıncılık.

Brown, R.G. (1991). *School of thoughts: How the politics of literacy shape thinking in the classroom*. Jossey Bass.

Bulunuz, M., & Bulunuz, N. (2013). Fen öğretiminde biçimlendirici değerlendirme ve etkili uygulama örneklerinin tanıtılması [Formative assessment in science teaching and demonstration of its effective implementation]. *Türk Fen Eğitimi Dergisi, 10*(4), 119-135.

Büyüköztürk, Ş., Çakmak, E.K., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2017). *Bilimsel araştırma yöntemleri [Scientific research methods]* (23.bs.). Pegem Akademi.

Çeliktürk Sezgin, Z., & Akyol, H. (2018). Kavram odaklı okuma öğretiminin ilkokul dördüncü sınıf öğrencilerinin okuma motivasyonuna ve okuduklarını anlamaya etkisi [Influences of concept-oriented reading instruction on reading motivation and reading comprehensi on of fourth graders]. *İlköğretim Online, 17*(2), 546-561. https://doi.org/10.17051/ilkonline.2018.418901

Chappuis, J., Stiggins, R.J., Chappuis, S., & Arter, J., (2011). *Classroom assessment for student learning: Doing it right-using it well* (2nd ed.). NJ: Merrill/Pearson.

Chappuis, S., & Chappuis, J. (2008). The best value in formative assessment. *Educational Leadership, 65*(4), 14-19.

Choi, K., Nam, J.H., & Lee, H. (2001). The effects of formative assessment with detailed feedback on students' science learning achievement and attitudes regarding formative assessment. *Science Educational International, 12*(2), 28-34.

Clark, I. (2012). Formative assessment: assessment is for self-regulated learning. *Educational Psychology Review, 24*(2), 205-249. https://doi.org/10.1007/s10648-011-9191-6

Clarke, S. (2012). *Active learning through formative assessment*. Hodder Education.

Coiro, J., & Dobler, E. (2007). Exploring the online reading comprehension strategies used by sixth-grade skilled readers to search for and locate information on the internet. *Reading Research Quarterly, 42*(2), 214-257. https://doi.org/10.1598/RRQ.42.2.2

Çöklü Özkan, E. (2018). Okuduğunu anlamada yaratıcı dramanın etkisi ve önemi [The effect and importance of creative drama on reading comprehension]. *Ana Dili Eğitimi Dergisi, 6*(2), 343-368. https://doi.org/10.16916/aded.399213

Creswell, J.W. (2014). *Araştırma deseni nicel, nitel ve karma yöntem yaklaşımları [Research design quantitative, qualitative and mixed method approaches]* (S. B. Demir Trans.). Eğiten Kitap.

Creswell, J.W., & Plano Clark, V.L. (2011). *Designing and conducting mixed methods research* (2.ed.). Sage.

Doğan, C.D. (2016). Biçimlendirici değerlendirmenin üniversite öğrencilerinin değerlendirme tercihleri üzerindeki etkisi: Bir ölçekleme çalışması [Effect of formative assessment on assessment preferences of the university students: A scaling study]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 16(*2), 413-431. https://doi.org/10.17240/aibuefd.2016.16.2-5000194935

Doğanay, A., & Yüce, S.G. (2010). Öğrencilerin düşünme becerilerinin geliştirilmesinde rehberli yardım: Bir öğretmenin sözel ifadelerinin analizine ilişkin durum çalışması [Scaffolding in improving students' thinking skills: A case study of the analysis of a teacher's verbal expressions]. *Kuram ve Uygulamada Eğitim Yönetimi, 2*(2), 185-214. https://dergipark.org.tr/tr/pub/kuey/issue/10334/126644

Dreyer, C., & Nel, C. (2003). Teaching reading strategies and reading comprehension within a technology-

enhanced learning environment. *System, 31*(3)*,* 349-365. https://doi.org/10.1016/S0346-251X(03)00047-2

Duman, N. (2006). *Hikaye haritasi yönteminin eğitilebilir zihinsel engelli öğrencilerin okuduğunu anlama becerileri üzerindeki etkisi [The effect of story mapping method on educable mentally retarded students' reading comprehension skills]* [Unpublished master's thesis]. Abant İzzet Baysal University.

Dupont, P. (2018). Assessing adolescent reading comprehension in a French middle school: performance and beliefs about knowledge. *Australian Journal of Teacher Education, 43*(7), 30-61. https://doi.org/10.14221/ajte.2018v43n7.3

Durukan, E. (2009). 7. sınıf Türkçe ders kitaplarındaki metinleri anlamaya yönelik sorular üzerine taksonomik bir inceleme [A taxonomic analysis on questions for understanding the texts in 7th grade Turkish textbooks]. *Milli Eğitim, 38*(181), 84-93.

Elden, A. (2019). *Okul öncesi öğretmenlerinin biçimlendirici değerlendirme uygulamaları [The formative assessment practices of early childhood teachers]* [Unpublished master's thesis]. Baskent University.

Fordham, N.W. (2006). Strategic questioning: What can you tell me about sharks? *Principal leadership, 7*(1), 33-37.

Fuchs, L.S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53*(3), 199-208. https://doi.org/10.1177/001440298605300301

Fuchs, L.S., Fuchs, D., & Hamlett, C.L. (1989). Monitoring reading growth using student recalls: Effects of two teacher feedback systems. *Journal of Educational Research, 83*(2), 103−110. https://doi.org/10.1080/00220671.1989.10885938

Fuchs, L.S., Fuchs, D., & Maxwell, L. (1988). The validity of informal reading comprehension measures. *Remedial and Special Education, 9*(2), 20-28. https://doi.org/10.1177/074193258800900206

Gardner, J. (2012). Assessment for learning: A compelling conceptualization. In J. Gardner (Ed.), *Assessment and learning* (2nd ed., pp. 197-204). Sage

Gersten, R., Fuchs, L.S., Williams, J.P., & Baker, S. (2001). Teaching reading comprehension strategies to students with learning disabilities: A review of research, *Review of Educational Research, 71*(21), 279-320. https://doi.org/10.3102/00346543071002279

Glesne, C. (2015). *Becoming qualitative researchers: An introduction* (5th ed.). Pearson Education.

Good, R.H., & Kaminski, R.A. (Eds.). (2002). *Dynamic Indicators of Basic Early Literacy Skills* (6th ed.). Institute for the Development of Educational Achievement.

Green, S.B., & Salkind, N.J. (2014). *Using SPSS for windows and macintosh: Analyzing and understanding data (7th ed.)* [Kindle DX version]. Retrieved from Amazon.com

Gustafson, S., Nordström, T., Andersson, U.B., Fälth, L., & Ingvar, M. (2019). Effects of a formative assessment system on early reading development. *Education, 140*(1), 17–27.

Guthrie, J.T., Wigfield, A., Humenick, N.M., Perenevich, K.C., Taboada, A., & Barbosa, P. (2006). Influences of stimulating tasks on reading motivation and comprehension. *The Journal of Educational Research*, *99*(4), 232-246. https://doi.org/10.3200/JOER.99.4.232-246

Heitink, M.C., Van der Kleij, F.M., Veldkamp, B.P., Schildkamp, K., & Kippers, W.B. (2016). A systematic review of prerequisites for implementing assessment for learning in classroom practice. *Educational Research Review,* 17, 50-62. https://doi.org/10.1016/j.edurev.2015.12.002

Herman, J., Osmundson, E., Ayala, C., Schneider, S., & Timms, M. (2006). *The nature and impact of teachers' formative assessment practices (CRESST Report No. 703)*. University of California, National Center for Research on Evaluation, Standards, and Student Testing.

Hervey, S. (2006). *Who asks the questions? Teaching PreK-8, 37*, 68-69.

Hock, M., & Mellard, D. (2005). Reading comprehension strategies for adult literacy outcomes. *Journal of Adolescent & Adult Literacy, 49*(3), 192-200. https://doi.org/10.1598/JAAL. 49.3.3

Hooley, D.S., & Thorpe, J. (2017). The effects of formative reading assessments closely linked to classroom texts on high school reading comprehension. *Education Tech Research Dev* 65, 1215–1238. https://doi.org/10.1007/s11423-017-9514-5

İlter, İ. (2018). Zayıf okuyucuların okuduğunu anlama becerilerinin geliştirilmesinde ana fikir belirleme becerisinin öğretimi [The instruction on identifying main ideas in improving the reading comprehension of poor readers]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi, 19*(2), 303-334. https://doi.org/10.21565/ozelegitimdergi si.315887

İnaltun, H., & Ateş, S. (2018). Fen bilimleri eğitiminde biçimlendirici değerlendirme: Literatür taraması [Formative assessment in science education: A literature review]. *GEFAD, 38(2*), 567-613. https://doi.org/10.17152/gefad.353975

Johnston, P.H. (1997). *Knowing literacy: Constructive literacy assessment.* ME: Stenhouse

Karasar, N. (2012). *Bilimsel araştırma yöntemi [Scientific research method]* (24.bs.). Nobel Akademik Yayıncılık.

Karasu, H.P., Girgin, Ü., & Uzuner, Y. (2011). Okuma becerilerini değerlendirmede formal olmayan okuma yöntemlerinin kullanımı [Utilizing informal reading inventories on eval uation of reading skills], *Eğitim Teknolojisi Kuram ve Uygulama, 1*(1), 108-124. https:// dergipark.org.tr/tr/pub/etku/issue/6274/84243

Keeley, P.D. (2008). *Science formative assessment: 75 practical strategies for linking assess ment, instruction, and learning.* Corwin & NSTA Press.

Keskin, H.K., & Akıllı, M. (2013). Fen ve teknoloji ders kitaplarının okunabilirliğinin farklılaştırılmış boşluk doldurma teknikleriyle ölçülmesi [An assessment of the readability of science and technology textbooks through differentiated cloze tests]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 13*(27), 47-66. https://dergipa rk.org.tr/tr/pub/maeuefd/issue/19400/206159

Kingston, N., & Nash, B. (2011). Formative assessment: A meta-analysis and a call for resear ch. Educational Measurement: *Issues and Practice, 30*(4), 28-37. https://doi.org/10.111 1/j.1745-3992.2011.00220.x

Kline, A.J. (2013). *Effects of formative assessment on middle school student achievement in mathematics and reading* [Unpublished doctoral dissertation]. North Carolina Universit y.

Knapp, M.S. (1995). *Teaching for meaning in high-poverty classrooms.* Teachers College Pre ss.

Kocaarslan, M. (2015). *Zihinsel imaj oluşturma öğretiminin 4. sınıf öğrencilerinin okuduğunu anlama becerilerini geliştirmeye etkisi [The impact of teaching mental imagery on reading comprehension skills of 4th graders]* [Unpublished doctoral dissertation]. Gazi University.

Kodan, H. (2015). *Koro, tekrarlı ve yardımlı okuma yöntemlerinin zayıf okuyucuların okuma ve anlama becerileri üzerine etkisi [The effects of the methods of choral, repeated and assisted reading on the reading and reading comprehension skills of poor readers]* [Unpublished doctoral dissertation]. Gazi University.

Kuşdemir, Y. (2014). *Doğrudan Öğretim Modeli'nin ilkokul dördüncü sınıf öğrencilerinin okuduğunu anlama becerilerine etkisi [The effect of Direct Instruction Model on reading comprehension skills of elementary school fourth graders]* [Unpublished doctoral dissertation]. Gazi University.

Landauer, T.K., Lochbaum, E.K., & Dooley, S. (2009). A new formative assessment technology for reading and writing, *Theory into Practice, 48*(1), 44-52, https://doi.org/10.1080/00405840802577593

Leslie, L., & Caldwell, J. (2006). *Qualitative reading inventory-4* (4th ed.). Allyn & Bacon.

Li, H. (2016). How is formative assessment related to students' reading achievement? Findings from PISA 2009. *Assessment in Education: Principles, Policy & Practice, 23*(4), 473-494. https://doi.org/10.1080/0969594X.2016.1139543

Marchand, G.C., & Furrer, C.J. (2014). Formative, informative, and summative assessment: The relationship among curriculum-based measurement of reading, classroom engagement, and reading performance. *Psychology in the Schools, 51*(7), 659-676. https://doi.org/10.1002/pits.21779

Marcotte, A.M., & Hintze, J.M. (2009). Incremental and predictive utility of formative assessment methods of reading comprehension. *Journal of School Psychology, 47*(5), 315-335. https://doi.org/10.1016/j.jsp.2009.04.003

Mathes, P.G., & Fuchs, D. (1997). Cooperative story mapping. *Remedial & Special Education, 18*(1), 20-27

May, F.B., & Rizzardi, L. (2002). *Reading as communication*. Prentice Hall.

McMillan, J.H. (2014). *Classroom assessment: Principles and practice for effective standards-based instruction* (5th ed.). Pearson.

Metin, M., & Özmen, H. (2010). Biçimlendirici değerlendirmeye yönelik öğretmen adaylarının düşünceleri [Prospective teachers' views about formative assessment]. *Milli Eğitim, 40*(187), 293-310. https://dergipark.org.tr/tr/pub/milliegitim/issue/36197/407045

Ministry of National Education (2019). *Türkçe dersi (ilkokul ve ortaokul 1, 2, 3, 4, 5, 6, 7, 8. sınıflar) öğretim program* [*Turkish lesson (primary and secondary school 1, 2, 3, 4, 5, 6, 7, 8th grades) curriculum*]. http://mufredat.meb.gov.tr/

Ministry of National Education (MoNE). (2005). *PISA 2003 projesi ulusal nihaî rapor* [*PISA 2003 survey national final report*]. Milli Eğitim Basımevi.

Ministry of National Education (MoNE). (2010). *PISA 2006 projesi ulusal nihaî rapor* [*PISA 2006 survey national final report*]. http://pisa.meb.gov.tr

Ministry of National Education (MoNE). (2013). *PISA 2012 ulusal ön raporu* [*PISA 2012 National Preliminary Report*]. http://pisa.meb.gov.tr

Ministry of National Education (MoNE) (2015). *PISA 2012 araştırması ulusal nihai rapor* [*PISA 2012 survey national final report*]. http://pisa.meb.gov.tr

Ministry of National Education (MoNE). (2019). *PISA 2018 Türkiye ön raporu* [*PISA 2018 National Preliminary Report*], Eğitim Analiz ve Değerlendirme Raporları Serisi.

Ness, M. (2011). Explicit reading comprehension instruction in elementary classrooms: Teacher use of reading comprehension strategies, *Journal of Research in Childhood Education, 25*(1), 98-117. https://doi.org/10.1080/02568543.2010.531076

Neuman, S.B. (2001). The role of knowledge in early literacy. *Reading Research Quarterly*, *36*(4), 468-475. https://doi.org/10.1598/RRQ.36.4.6

Offerdahl, E.H., & Montplaisir, L. (2013). Student-generated reading questions: Diagnosining student thinking with diverse formative assessments. *Biochemistry and Molecular Biology Education, 42*(1) 29-38. https://doi.org/10.1002/bmb.20757

Oosterhof, A., Conrad, R.M., & Ely, D.P. (2008). *Assessing learners online*. Pearson.

Organisation for Economic Co-operation and Development. (OECD). (2005). *Formative assessment: Improving learning in secondary classrooms.* OECD.

Ozan, C. (2017). *Biçimlendirici değerlendirmenin öğrencilerin akademik başarı, tutum ve öz düzenleme becerilerine etkisi [The effects of formative assessment to students' academic achievement, attitude and self-regulation skills]* [Unpublished doctoral dissertation]. Atatürk University.

Öztürk, M. (2019). *Kelime duvarı yönteminin ilkokul 4. sınıf öğrencilerinin akıcı okuma ve okuduğunu anlama becerilerine etkisi [The effect of word wall method on 4th grade students' fluent reading and reading comprehension skills]* [Unpublished master's thesis]. Bolu Abant İzzet Baysal University.

Papatğa, E. (2016). *Okuduğunu anlama becerilerinin SCRATCH program aracılığıyla geliştir ilmesi [Developing reading comprehension skills through SCRATCH program]* [Unpublished doctoral dissertation]. Atatürk University.

Pearson, P.D., & Duke N.K. (2002). Comprehension instruction in the primary grades. In Cathy Collins Block & Sheri R. Parris (eds.), *Comprehension instruction: research-based best practices* (pp, 247-258). The Guildford.

Piazza, S.V. (2012). Cultural responsiveness and formative reading assessment: Retellings, comprehension questions, and student interviews. *Language and Literacy, 14*(3), 133-149.

Rankin, E.F., & Culhane, J.W. (1969). Comparable cloze and multiple-choice comprehension test scores. *Journal of Reading, 13*(3), 193-198

Reutzel, D.R., & Cooter, R.B. (2007). *Strategies for reading assessment and instruction: Helping every child succeed* (3rd ed.) Pearson Education, Inc.

Rogoff, B., Turkanis, C.G., & Bartlett, L. (2001). *Learning together: Children and adults in a school community*. Oxford University Press.

Roskos, K., & Neuman, S.B. (2012). Formative assessment: Simple, no additives. *Reading Teacher, 65*(8), 534-538. https://doi.org/10.1002/TRTR.01079

Royer, J.M. (2001). Developing reading and listening comprehension test based on the sentence verification technique (STW). *Journal of Adolescent & Adult Literacy, 45*(1), 30-41

Royer, J.M., Hastings, C.N., & Hook, C. (1979). A sentence verification technique for measuring reading comprehension. *Journal of Reading Behavior, 11*(4), 355–363.

Sanaeifar, S.H., & Nafari, F. (2018). The effects of formative and dynamic assessments of reading comprehensions on intermediate EFL learners' test anxiety. *Theory and Practice in Language Studies, 8(5*), 533-540. http://dx.doi.org/10.17507/tpls.0805.12

Scarborough, H. (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory and practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 97–110). Guilford

Shaughnessy, M.F. (2005). An interview with James M. Royer about reading and comprehension. *Educational Psychology Review, 17*(3), 273-283.

Sidekli, S. (2010). Eylem araştırması: İlköğretim dördüncü sınıf öğrencilerinin okuma ve anlama güçlüklerinin giderilmesi [An action-research: Correcting the fourth-grade students' reading and comprehension problems]. *TÜBAR*, *27*(1), 563-580. https://dergip ark.org.tr/tr/pub/tubar/issue/16968/177248

Souvignier, E., & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction, 15*(2), 57-71. https://doi.org/10.1016/j.learninstruc.2005.12.006

Sözen, N., & Akyol, H. (2018). Rehberli okuma yöntemi: Bir eylem araştırması [Guided reading: An action-research]. *Turkish Studies, 13*(19), 1633-1658. http://dx.doi.org/10.7 827/TurkishStudies.13812

Stiggins, R.J. (2002). Assessment crisis: The absence of assessment for learning. *Phi Delta Kappan, 83*(10), 758-765. https://doi.org/10.1177/003172170208301010

Temizkan, M., & Sallabaş, M.E. (2011) Okuduğunu anlama becerisinin değerlendirilmesinde çoktan seçmeli testlerle açık uçlu yazılı yoklamaların karşılaştırılması [Comparison of multiple-choice tests and open-ended written exams in the evaluation of reading comprehension skills]. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi. 30(1)*, 207-220. https://dergipark.org.tr/tr/pub/dpusbe/issue/4772/65689

Ulusoy, M. (2009). Boşluk tamamlama testinin okuma düzeyini ve okunabilirliği ölçmede kullanılması [Using cloze test to measure students' reading levels and readability of texts]. *Türk Eğitim Bilimleri Dergisi, 7*(1), 105-126. https://dergipark.org.tr/tr/pub/tebd/issue/26140/275303

Ulusoy, M., & Çetinkaya, Ç. (2012). Cümle doğrulama tekniğinin okuma ve dinlemenin ölçülmesinde kullanılması [The use of sentence verification technique for measuring reading and listening]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi (H.U Journal of Education), 43*,460-471.

Vonderwell, S., Liang, X., & Alderman, K. (2007). Asynchronous discussions and assessment in online learning. *Asynchronous Discussions and Assessment in Online Learning, 39*(3), 309–328.

Wiliam, D. (2006). Formative assessment: Getting the focus right, *Educational Assessment, 11*(3-4), 283-289. https://doi.org/10.1080/10627197.2006.9652993

Yazıcı, E., & Kurudayıoğlu, M. (2017). 5. sınıf Türkçe ders kitaplarındaki dinleme metinlerinin öğrencilerin seviyesine uygunluğunun incelenmesi [Examination of the appropriateness of listening texts in the 5th grade of Turkish textbooks to students' level]. *Anadili Eğitim Dergisi, 5*(4), 967-984. https://doi.org/10.16916/aded.340839

Yıldırım, K. (2012). Öğretmen ve öğrencilerin okuduğunu anlama becerilerini değerlendirmede kullanacakları bir sistem: Barrett taksonomisi [A system to be used by teachers to evaluate students' reading comprehension skills: Barrett taxonomy]. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 9(*18), 45-58. https://dergipark.org.tr/tr/pub/mkusbed/issue/19552/208323

Zengin, Y., Bars, M., & Şimşek, Ö. (2017). Matematik öğretiminin biçimlendirici değerlendir me sürecinde Kahoot! ve Plickers uygulamalarının incelenmesi [Investigation of using Kahoot! and Plickers in formative evaluation process in mathematics teaching]. *Ege Eğitim Dergisi, 18*(2), 602- 626. https://doi.org/10.12984/egeefd.318647

Zipke, M. (2007). *Metalinguistic instruction improves third graders' reading comprehension* [Unpublished doctoral dissertation]. The City University of New York.