

# Improving the Reading and Writing Performance of a Student with Dyslexia: An Action Research Study

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## Abstract

The aim of this study was to improve the reading and writing performance and reading motivation of a third grade primary school student who does not have any cognitive or physical disabilities. In the study conducted by the action research method, one of the qualitative research methods, the student's reading and writing performance and reading motivation were evaluated by scales. While fluent reading strategies were used to improve the student's reading performance, the strategy of identifying the main idea at the sentence level was used to improve his reading comprehension skills. On the other hand, the programmed instruction approach was adopted to improve the student's writing skills. At the end of the study, there was an improvement in the student's word recognition level, reading speed, comprehension percentage and reading motivation. While planning support programs for students with reading and writing problems, it is recommended that it is necessary to decide whether to develop both skills together or only one skill by considering the intensity of the students' needs and that reading books prepared for students should consist of stories short enough to end in one reading.

## Keywords:

Reading; Comprehension; Reading Motivation; Writing; Legibility

## Introduction

Reading and writing skills are required for individuals to be successful during their education and activities of daily living (Birgisdottir et al., 2020; Horowitz-Kraus et al., 2020). It can be said that literacy is a developmental stage of the individual since reading and writing are a prerequisite for learning both at school and throughout life (Lonigan et al., 2009), which has caused literacy to cease to be an exception and has transformed it into a requirement (Harmey, 2020).

Reading, which is referred to as the process of making sense out of the text (Fox & Alexander, 2011), allows individuals to get to know life, to find out and fulfill their needs, to have fun, and to enrich their lives in many areas (Jenkins & O'Connor, 2002; Tekşan & Yılmaz-Alkan, 2020). In addition to such a



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decisive contribution of reading to the personal lives of individuals, it also has effects on social and economic development (Snow et al., 1998). The clues of whether a child will be successful in his/her education life and whether he/she will be able to contribute to society can be observed in his/her success in reading and writing (NAEYC, 1988). Therefore, it should not be forgotten that the support provided for individuals' reading skills also helps to improve their social life.

The reading act achieves its purposes by recognizing the words and knowing their meanings and grasping the information in the background of the text, and readers' sufficient knowledge of the alphabet, form, sound and spelling, phonological awareness, and fluent reading skills should be developed (Jenkins & O'Connor, 2002). In order to achieve this, phonology instruction is a necessary component of reading instruction (Saha et al., 2021), and phonological awareness, decoding and repetition have significant roles in the acquisition of reading skills (Wagner & Torgesen, 1987). The process of learning to read supported by phonological sensitivity supports the development of reading skills (Plaza & Kohen, 2003). To this end, Duke and Block (2012) recommend that all students, especially students in the risk group, should be provided with access to pre-school education within the context of reading skills in primary school for the development of their reading skills, that a conscious phonological awareness instruction in areas such as how many sounds the words consist of, which letter represents which sound, and decoding in the axis of vocabulary instruction. In addition, they state that it would be beneficial that vocabulary instruction should be carried out in grades at the primary school level, that the recognition of the concepts and language structures in a wide variety of areas should be ensured to improve reading comprehension skills, that readers should be able to use comprehension strategies in a planned and conscious manner so that they can understand the text, and that school administrations should conduct out-of-school activities for the development of students' reading skills.

Writing is another skill that is learned in the first years of life (Hartingsveldt et al., 2014). Writing requires intensive functioning of cognitive processes (Roitsch et al., 2020) and many competencies such as phonological awareness, spelling and writing rules, metacognitive skills, the ability to read and spell words accurately, and recognition of the meaning of words and the syntax of the language (Watson et al., 2016). Meeks, Madelaine and Stephenson (2020) emphasized the role of writing skill in the education and training environment by indicating that students with insufficient writing skills may face academic failure.

The acquisition of writing skills by students in a timely and effective manner will support their subsequent

academic development (Barnett et al., 2020). However, some students may have problems in writing such as insufficient legibility, unwillingness to write, difficulty in writing, slow writing, and feeling uncomfortable while writing (Hartingsveldt et al., 2015). Under normal conditions, students who have the problems mentioned in the writing skill learned at school may need support throughout their lives (Barnett et al., 2020). Therefore, early identification of problems faced by students in writing and taking measures to solve these problems may prevent worse consequences in writing (Thomas et al., 2020). The fact that children realize that the sounds in the spoken language represent the letters used in writing from early childhood will enable them to be successful in their writing education (Laing & Espeland, 2005). Therefore, Bus et al. (1995) recommend that adults should read books to children so that they can be aware of the relationships between the sounds and letters.

The literacy skill supports individuals in fulfilling their lifelong changing needs and desires and in overcoming the difficulties they face in their lives (Eldering & Leseman, 1993), and constitutes the basis of all knowledge, skills and experiences of individuals. If students' literacy skills are not developed, students will face difficulties in other learning domains (Geske & Ozola, 2008). Since the formal education process is based on reading comprehension, it is a fact that reading difficulties will inevitably lead to educational difficulties (Hulme & Snowling, 2011; McQuillan, 2019). In particular, students leaving primary school without acquiring the literacy skills required for a higher education level (Torgesen, 2002) and students' academic failures due to inadequacies in literacy skills may lead to school dropouts (Meeks et al., 2020). Therefore, supporting students with the mentioned literacy problems in the earliest period will prevent the emergence of bigger problems such as school dropouts (Jenkins & O'Connor, 2002; Snow et al., 1998).

Since children do not have the same opportunities and facilities in their lives before they start primary school, some children cannot start primary school at a sufficient level of readiness, which prevents them from benefiting equally from reading and writing education in primary school. One of the main grounds of this study is to ensure that all children receive an equal education within the context of reading and writing. Although not being sufficiently ready to read and write is not a problem caused by children, its consequences primarily affect them. Since reading and writing performance is one of the prerequisites for academic achievement, and academic achievement also prevents children from dropping out of school, literacy support provided to a child will also ensure that the child will be protected from adverse environmental conditions and habits outside of school

by ensuring his/her presence in the educational environment for a longer period of time. The aim of this study, which is based on the importance of literacy in individual and social life, is to develop the literacy skills of a student whose reading and writing skills could not reach a sufficient level in the collective instruction conducted in the classroom, in accordance with the action plan. Since reading and writing have similar ways of presenting information, and cognitive processes, contexts and their development progress in parallel with each other, it is efficient to carry out their learning processes together (Fitzgerald & Shanahan, 2000). Furthermore, the support education to be provided for students in the risk group in terms of literacy performance should be more intense and detailed than the instruction activities applied in classrooms (Torgesen, 2004). Therefore, in the present study, the difficulties experienced by the student regarding reading and writing skills were discussed together, and more intense activities were carried out to improve both skills.

## Method

### Research Model

This study was conducted in accordance with the action research design, one of the qualitative research methods. This design is a reflective process that enables researchers and implementers to develop practical solutions to problems and allows questioning and discussion instead of theoretically dealing with the problems they detect in the learning environment (Ferrance, 2000). This design is based on a flexible approach that gives the researcher the opportunity to produce solutions, to make choices among them and to implement them (Burns, 2009). Due to the flexible structure, the solution process of the problem is planned, monitored and evaluated, and as a result of this, changes can be made in the action plan if needed (Tripp, 2005). In this study, the aim is to improve the reading and writing performance of a third grade student who needed support within the context of reading and writing skills in accordance with the specified characteristics of the action research.

### Characteristics of the Participating Student

This study was conducted with a third grade primary school student who had no physical, mental or personal problems, and who was examined by the school counseling service and found to have no difference in terms of the competences in any area compared to his peers. The name of the student was kept confidential in accordance with the ethical rules, and the student was coded with the initial letter of his name, "F". "F" is nine years old, the second child and the only boy in the family, and is studying in a public primary school. He has been studying with the same teacher since

the first year of primary school. His school is close to his home, and he goes to school accompanied by an adult and does not take the school bus. The mother of "F" is a housewife and his father works as a worker in the private sector. The house belongs to them but F does not have a private room. Nobody stays in the home except for the family members, and he lives with his paternal grandmother and grandfather in a two-story house with his nuclear family. Moreover, his maternal grandmother resides within walking distance of the student's house. Since the sister of "F" has a chronic illness, she regularly receives inpatient treatment with her mother at the hospital. Therefore, "F" sometimes stays with his maternal grandmother and sometimes with his paternal grandmother when his mother is in the hospital, which has significantly affected the learning process and school attendance of "F". "F" does not have any disorder but wears glasses due to amblyopia. It was determined based on the classroom teacher's observations that the student had problems in reading, comprehension and writing. While the observations indicating that the student had reading and comprehension problems were verified by the Informal Reading Inventory, which was adapted to Turkish by Akyol (2019), the writing problem was verified by the Multidimensional Legibility Scale developed by Yıldız and Ateş (2010). In the evaluation performed with a reading text at a lower level than the grade level of the student, it was determined that the student was literate at the *frustration* level and that his writing was at the *illegible* level. Permission to study with "F" was obtained from his family, and the materials such as the notebook and story book used during the study were provided by the researcher.

### Data Collection Tools

The measurement tools used during the study process and the purposes for which these tools were used are explained below.

### Informal Reading Inventory

This was prepared by Akyol (2019) to determine the reading levels of students by benefiting from Harris and Sipay (1990), Ekwall and Shanker (1998) and May (1986). Students' word recognition and comprehension percentages can be calculated by means of this inventory and the accompanying tables. Three levels, namely *Independent Level*, which is defined as the student's ability to read and understand the text without any support, *Instructional Level*, which is defined as the student's ability to read and understand the text as desired by receiving support from a teacher or an adult, and *Frustration Level*, which is defined as the student's understanding of very little of what he reads and making a lot of reading errors, were determined to make sense of the percentages. Due to these categories, the level at which primary

and secondary school students are readers can be determined.

The student's correct reading rate per minute was calculated based on the *formula of the number of words read correctly/the total number of words in the text x 60* recommended by Akyol and Yildiz (2010).

### **Multidimensional Legibility Scale**

This scale is used to evaluate the legibility of the text and was developed by Yildiz and Ateş (2010). In this scale prepared based on the analytical evaluation approach, legibility is evaluated with five factors, namely slope, space, size, form and line tracking. Each factor is evaluated as completely sufficient (3), partially sufficient (2) and insufficient (1). The slope factor was excluded from the measurement since the use of vertical basic letters is recommended in the Ministry of National Education [MoNE, (2019a)] Turkish Course Curriculum. Under these conditions, the lowest and highest scores obtained from the scale are 4 and 12, respectively. Writing with a total score of 4-6.7 is considered as *illegible*, writing with a total score of 6.8-9.5 is considered as *moderately legible*, and writing with a total score of 9.6-12 is considered as legible. With this measurement tool, the student's legibility level was determined, and at the end of the action research, the change in the student's legibility level was determined.

### **Motivations for Reading Questionnaire**

This scale, developed by Wigfield and Guthrie (1997) and later revised by Wang and Guthrie (2004), was adapted to Turkish by Yildiz (2010). The construct validity of the scale was tested by confirmatory factor analysis, it was determined that the correlation coefficients between the factors and their items varied between .41 and .73 and that the chi-square fit index ( $\chi^2$  df = 2.51) was at an acceptable level. The scale consists of two main factors: the Intrinsic Motivation Factor consisting of the sub-factors of interest and curiosity, and the Extrinsic Motivation Factor consisting of the sub-factors of recognition, social, competition and harmony. The reliability study of the scale was conducted by the internal consistency coefficient and test-retest method. The Cronbach alpha internal consistency coefficient was calculated as  $\alpha = .59$  for the curiosity sub-factor,  $\alpha = .68$  for the interest sub-factor,  $\alpha = .52$  for the recognition sub-factor,  $\alpha = .62$  for the social sub-factor,  $\alpha = .62$  for the competition sub-factor,  $\alpha = .54$  for the harmony sub-factor,  $\alpha = .68$  for the Intrinsic Motivation Factor,  $\alpha = .82$  for the Extrinsic Motivation factor, and  $\alpha = .86$  for the whole scale. The consistency of the scale over time was calculated by the test-retest method with 71 students three weeks after the main implementation, and it was determined that there was a moderate and high level

of correlation between the factors depending on the consistency coefficients (between the values  $r = .65$  and  $r = .810$ ) between the two implementations. The scale was prepared as a four-point Likert-type scale, which is scored as 1 point for Very Different From Me, 2 points for A Little Different From Me, 3 points for A Little Like Me and 4 points for A Lot Like Me, and consists of 21 items. The lowest and highest scores that can be obtained from the scale are 21 and 84, respectively. With this scale, the change in the student's reading motivation level was determined by measuring it at the beginning and at the end of the action research.

### **Analysis of Data**

The student's word recognition percentage and comprehension percentage were calculated using the Informal Reading Inventory. The student read the text aloud and his reading was recorded. The number of words that the student misread was determined by listening to the recordings. The student's word recognition percentage was determined by matching the number of misread words and the total word count of the text on the row column axis in the inventory table. The student's comprehension percentage was calculated by the answers given to the open-ended questions. In cases where open-ended questions are used, it is recommended that the questions should require simple and deep comprehension. In this study, the student's comprehension level was determined by five questions, consisting of three questions requiring simple comprehension and two questions requiring deep comprehension. While simple comprehension questions were scored as two points for full answering, one for half answering, and zero point for non-answering, deep comprehension questions were scored as three points for full and effective answering, two points for expressing more than half of the expected answer, one point for half answering, and zero point for non-answering. The student's comprehension percentage was calculated by dividing the score that the student got from the answers given to the questions by the full score that would be obtained if all the questions were answered correctly and completely. This result was placed in the relevant table of the inventory and the student's comprehension level was determined. The word recognition percentage and the comprehension percentage calculated in this way were interpreted in the table containing the three literacy levels (independent, instructional, frustration), and the student's general literacy level was revealed. The mentioned measurement and analysis processes were carried out separately for five reading texts.

The Motivations for Reading Questionnaire was applied before and after the action plan. The pre-and post-measurement results of the student were compared specifically for the sub-factors of

recognition, social, competition, and harmony of the extrinsic motivation dimension constituting the scale, and the interest and curiosity sub-factors of the intrinsic motivation dimension. With this comparison, the effect of the action plan on the student's reading motivation was determined.

Multidimensional legibility scale was applied before and after the action plan to determine the change in the student's legibility level. Scoring was done separately for the space, size, form and line tracking factors of the scale. Based on the pre- and post-measurement scores, the change in the student's legibility level was interpreted.

### *Preparation and implementation of the Action Plan*

Before the action plan was prepared, the execution processes and the recommendations sections of the studies in the literature on improving students' reading comprehension and writing skills (Aktaş & Çankal, 2019; Akyol & Çoban Soral, 2020; Akyol & Ketenoğlu Kayabaşı, 2018; Akyol & Kodan, 2016; Akyol & Sever, 2019; Akyol & Yıldız, 2010; Dağ, 2010; Duran & Karataş, 2019; Dündar & Akyol, 2014; Kurtdede Fidan & Akyol, 2011; Kuşdemir et al., 2018; Yangın & Sidekli 2011; Yıldız, 2013) were examined. These studies were used in the preparation of the action plan, and it was concluded that the plan should be kept to as long as possible. Therefore, no time limit was imposed for the action plan, and the plan was implemented until the student moved up to the next level from the levels predicted in the measurement tools in terms of reading, comprehension and legibility. Therefore, measurement and evaluation were performed periodically to evaluate the student's performance. The action plan was planned as two days a week and three course hours in a day. The courses were applied at 40-minute intervals and with 5-10 minutes of listening time between each course in the home environment. Except for the measurements made before the implementation, the entire action plan continued for 18 weeks. Three course hours per week were allocated for reading and writing studies for 10 weeks, and four hours of writing studies and two hours of reading studies were performed in the last 8 weeks.

The reading books used in the reading activities during the action plan consisted of story books chosen the student in the bookstore. During the selection of the book, the student was guided to ensure that the book was suitable for his level, that it should not be too thick, that it should be illustrated and that the font size should be large. Among the strategies recommended by Akyol (2019), repetitive reading, paired reading and choral reading strategies were used to improve the student's reading fluency. During the reading, the student was briefly reminded of the chapter read in the previous implementation and the comprehension

process was supported. Therefore, the books were read only during the implementation process, and the student was asked not to read these books at other times.

Hulme and Snowling (2011) indicate that although some students are proficient in oral reading, they may have problems in reading comprehension, and that their success in oral reading may prevent teachers from understanding that they have problems in comprehension. No situation similar to the mentioned problem was encountered during this study. In the interim evaluations made during the action plan process, although there was an improvement in the student's reading fluency, since the same level of improvement was not observed in his comprehension level, comprehension development work was performed from the eleventh week onwards to increase the student's comprehension level. To this end, The strategy of identifying the main idea at the sentence level, which was designed by Pollac et al. (2021) to improve the reading comprehension skills of students with comprehension difficulties, was used. This strategy is based on the principle of finding the main idea by analyzing the sentences that make up the text one by one and understanding the whole text. This strategy is applied in three stages, namely (i) determining "Who?" or "What?", (ii) determining two important words, and (iii) writing the main idea. In the first stage, the student determines the subject of each sentence with the questions "Who?" or "What?". In this stage, the teacher supports the student on how to find the subject of the sentence with the help of sentences that he has planned previously. In the second stage, the student determines two important words for each sentence. With this practice, the student learns to distinguish the important words that will enable him to understand the sentence from other words. In this stage, the teacher makes the student distinguish the important words in the sentence by thinking out loud. In the third stage, the information obtained in the first and second stages is combined and the main idea of the whole text is found. The third stage consists of three steps in itself. In the first step, the most common answers to the questions "Who?" and "What?" in the first stage are determined in the whole text; in the second step, five words in the whole text that best explain the subjects of the sentences are selected among the two important words selected for each sentence in the first stage; and in the third step, the main idea sentence is formed by combining the subject and five important words. In this process, the teacher supports the student in finding the additional words that will be required to form the main idea sentence in accordance with the grammar rules. A total of eight reading texts were studied with this strategy.

In the writing activities, the principles of programmed instruction recommended by Skinner for individual

instruction (Senemoğlu, 2005) were adopted. Mager (2014) indicated that programmed instruction allows the arrangement of the learning environment in accordance with the needs of the students in instruction carried out individually instead of in groups. The writing studies were carried out in accordance with the steps of programmed instruction: small steps, clear response, immediate feedback and self-pacing. First, the needs of the student were determined, the letters were divided into units according to ease of writing, immediate feedback was given to the student in the activities, the action plan was not limited to a period of time so that that the activities would be suitable for the student's learning speed, and the activities were continued until the legibility reached the next level. Due to reasons arising from the student's inability to hold the pencil correctly during the writing activities, writing was initiated with line exercises because of his inability to draw the general form of the letters. Vertical, curved, horizontal and round line exercises were performed. The line exercises were also continued during the writing of the letters. The letters were divided into categories according to the number of moves needed for the writing of the letters, and whether they would consist of vertical, horizontal and round lines. In small letters, there are five (c, ı, l, o, s) letters written with one move, eighteen (a, b, ç, d, e, f, g, h, i, j, n, p, r, ş, t, u, v, y) letters written with two moves, five (ğ, k, m, ö, z) letters written with three moves, and one (ü) letter written with four moves. In capital letters, there are five (C, İ, J, O, S) letters written with one move, ten (Ç, D, G, İ, L, P, Ş, T, U, V) letters written with two moves, eleven (A, B, F, H, Ğ, K, N, Ö, R, Y, Z) letters written with three moves, and three (E, M, Ü) letters written with four moves. While the letters were being ordered, priority was given to the letters that supported each other's writing. For instance, the letter "l" supports the writing of the letter "F", and the letter "F" supports the writing of the letter "E". Similarly, the letter "P" supports the writing of the letter "B", the letter "n" supports the writing of the letter "m", the letter "v" supports the writing of the letter "Y", and the letter "u" supports the writing of the letter "y". These conveniences were also taken into consideration in the writing order of the letters. Priority was given to

the letters consisting of vertical and horizontal lines, and during the writing of these letters, line exercises were performed to prepare for the writing of letters consisting of curved and rounded lines. While only line exercises and letter writing activities were performed in the first nine weeks, only letter writing and writing of words and sentences containing the letters learnt were performed from the tenth week to the fifteenth week, and dictation practice was performed from the sixteenth week onwards. While only a notebook consisting of four lines and three spaces was used during the first nine weeks, both a notebook consisting of four lines and three spaces and a lined notebook were used after the tenth week.

Since the action research was conducted by the researcher, support was received from a lecturer who had experience in action research and from a classroom teacher in order to avoid bias. The lecturer examined the plan before the implementation of the action plan and suggested that the student should choose the reading books. Furthermore, he also indicated that four hours should be allocated to the writing exercises, that were applied three hours a week during the implementation of the plan, after the 10th week. The classroom teacher determined the student's reading errors while using the Informal Reading Inventory, scored the student's answers to the open-ended questions, and evaluated the legibility of the student's writing with the Multidimensional Legibility Scale. During the implementation of the action plan, since the desired improvement in the student's comprehension level was not achieved despite the improvement in the student's reading performance, the strategy of identifying the main idea at the sentence level was added to the plan from the 11th week.

## Results

The results of the measurement procedures performed before the implementation of the action plan until its completion are respectively presented in Table 1.

**Table 1.**

*Data on the measurement and evaluation process performed in the action plan process*

Reading text	Number of words	Number of reading errors	Word recognition level	Reading time	Reading speed (words per minute)	Comprehension percentage
Daisy and Poppy	159	24	E*	188 sec	51	16%
Efe Goes to the Theater	116	11	E	125 sec	54	33%
The Orange Tabby and her Kittens	166	10	94%	121 sec	56	50%
The Miser's Cats	155	6	96%	157 sec	58	67%
My friend Papi	181	5	97%	145 sec	58	75%

\* In the Informal Reading Inventory, the abbreviation E is interpreted as a word recognition percentage of less than 91% in texts consisting of 156-160 and 116-120 words.

It is recommended by Akyol (2019) that texts to be used to determine the reading and comprehension level of students should be selected from a lower level than the student's grade level and that the word count of the texts should be in the range of 100-200 words for third graders. Therefore, the reading texts were taken from the second grade Turkish course book and arranged by considering the word number criterion in such a way that the content integrity would not be impaired. When Table 1 is examined, it is observed that the student's number of reading errors, which was 24 before the action plan was applied, decreased to 5, that his word recognition percentage, which was at the frustration level, increased to 97%, that his reading speed, which was 51 words per minute, increased to 58 words per minute, and that his comprehension level, which was 16% increased to 75% by the end of the implementation. "F", whose general literacy level was at the frustration level with his word recognition (E) and comprehension level (16%) before the implementation, increased to the instructional level with his word recognition (97%) and comprehension level (75%) after the implementation.

The first and final measurement scores for reading motivation, which was applied to determine the effect of the action plan on the student's reading motivation, are presented in Table 2.

**Table 2.**  
First and Final Measurement Scores of the Motivations for Reading Questionnaire

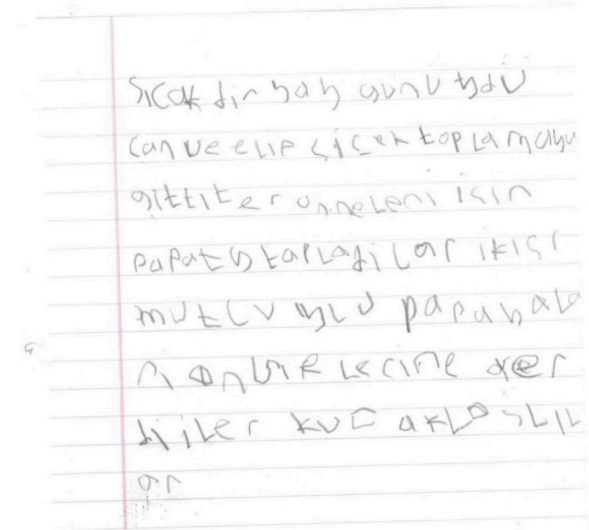
Factors	Sub-Factors	First Measurement	Final Measurement
Extrinsic Motivation	Recognition	5	7
	Social	6	8
	Competition	7	10
	Harmony	6	8
	Extrinsic Motivation Total Score	24	33
Intrinsic Motivation	Interest	6	12
	Curiosity	4	8
	Intrinsic Motivation Total Score	10	20
	Grand Total Score	34	53

When Table 2 is examined, it is observed that while the students' extrinsic motivation score was 24 and 33 before and after the action plan, respectively, his intrinsic motivation score was 10 and 20 before and after the action plan, respectively, and his total reading motivation score was 34 and 53 before and after the action plan, respectively.

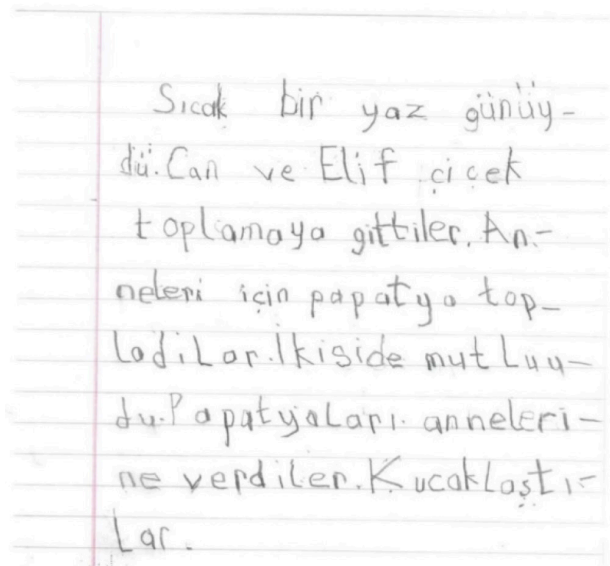
Examples of the student's writing before and after the implementation are presented in Figure 1 to reveal the effect of the action plan on the student's legibility.

**Figure 1.**  
Text samples

First implementation



Final implementation



*Transcription*  
It was a hot summer day. Can and Elif went to pick flowers. They picked daisies for their mother. Both of them were happy. They gave the daisies to their mother. They hugged each other.

It was calculated that the first test score and the final test score of the Multidimensional Legibility Scale were 5 (space = 1; size = 1; form = 1; line tracking = 2) and 8 (space = 2; size = 2; form = 2; line tracking = 2), respectively. Based on these scores, while the student's legibility level was illegible before the action plan, it was determined to be moderately legible after the action plan.

## Discussion

In this study aimed at improving the reading, comprehension and legibility of a third grade primary school student, practices were performed to reduce the student's reading errors and increase his legibility. Therefore, reading and writing practices were carried out together. In terms of reading errors, it was determined that the student frequently failed to say the last letters and syllables of words, and that after reading the root of the word, he made mistakes in reading the whole word by guessing the affixes without reading them. In the reading activities performed with the student before the action plan, it was observed that the student made the mistake of skipping lines while reading texts written with a single line spacing. Therefore, attention was paid to ensure that the line spacing of the selected story books would be wide. Furthermore, the reading texts used for evaluation were prepared in one-and-a-half line spacing. Easterbrooks and Lederberg (2021) indicate that students' probability of comprehending the text will decrease when they read without paying attention to punctuation, stress and intonation. Reading exercises were carried out together due to reasons such as the student's failure to pay attention to the punctuation marks, recognize the line he skipped, and correct the words that he misread. In the study conducted by Kanik Uysal and Akyol (2019), it was observed that the participating student made the same mistakes, and a reading program to be carried out with the student was prepared. The fact that the student who was supported performed reading under the supervision of the researcher ensured the elimination of reading errors in a shorter period of time.

It was observed that the reading performance of the student gradually increased from the first pages to the next pages while the story books were read. During the book reading activities performed with the student, the student had difficulty in reading words he encountered for the first time. However, when the number of pages read in the book increased, he could read more comfortably the words he previously had difficulty with. Since some words are frequently repeated in books due to the subjects of the books, there was a noticeable improvement in both the word reading performance and general reading fluency of the student as the number of pages he read increased. It was observed that there was a slight decrease in this performance when a new book began to be read, whereas there was an improvement again as the pages progressed. The fact that students make simple mistakes while reading may cause them to read less by reducing their desire to read (Torgesen, 2004). This may cause students to make more mistakes in more difficult texts they will encounter, which may also affect the reading performance of students in a cycle. In the study conducted by Kaşıkaya (2016) in which it

was aimed to improve the reading fluency of students with instruction supported by the neurological-impress method (NIM), activities were organized before reading in order to transform the words in the text into acquired words, and it was ensured that the student became familiar with the words. Therefore, if books consisting of short and limited words are preferred for students with poor reading skills, it can be ensured that the student achieves the pleasure of reading an entire book by preventing him/her from abandoning the book halfway through. Insufficient vocabulary may cause students to have difficulty in reading words that they have not encountered previously while reading, which will make it difficult to use these words in their writing (Hebert et al., 2021). The new words that students learn during reading activities will support their writing skills as well as their reading skills.

Since the individual must pay attention to the text intensively and consistently for reading comprehension, reading anxiety negatively affects his/her reading comprehension (Macdonald et al., 2021). The student said, "I get bored while studying, but I never get bored when I study with you". Similarly, the student's mother revealed the student's affective approach to the study by stating "On the days when he is to study with you, he prepares his equipment early and waits for you". Reading requires attention and emotional integration (Jakovljević et al., 2021). It is considered that the student's positive approach to the implementation was affected by the fact that he was just accompanied and chose the books himself while buying them. It was observed that for the student, going to buy a book after the end of each book was a reinforcer for the student. It is also considered that the student's review of the books, prediction of the content by interpreting the visuals, and choosing the books himself increased his motivation. Tezel et al. (2019) indicate that children's choice of books that they will read and prioritization of the topics that children love and care about in choosing the books will support their reading habits.

While students with underdeveloped reading skills mostly maintain reading by reading slowly with hesitation and receiving support for correction from another person (Knight-McKenna, 2009), individuals with developed skills read words in an automated way, and the words must have been engraved in the brain beforehand for this (Jenkins & O'Connor, 2002). According to Çaycı and Demir (2010), the word repetition method is useful for fluent reading of words that hinder the reading fluency of students who read the words that they know fluently but sometimes hesitate, and that the student has difficulty in recognizing while reading the text. Therefore, the words that the student had difficulty in reading, and that he repeated and misread during the story book reading activities were detected during reading,



and then, these words were written on cards and speed reading exercises were performed. With the word repetition method applied by Sağlam et al. (2020), the reading fluency of students was supported and positive results were obtained. In the studies conducted by Uzunkol (2013) and Yılmaz (2008), it was concluded that the word repetition technique increased students' reading fluency.

Since the academic success of students during the education and training process depends on reading performance, academic failure due to reading inadequacy may negatively affect students' motivation for learning, for the course and for school (Torppa et al., 2019). Moreover, since students' experience of difficulties in reading may cause them to face some social and emotional problems, these difficulties should be identified and eliminated as early as possible (Jakovljević et al., 2021). A delay in providing support to students in this context may lead to an increase in performance difference between them and their peers within the context of literacy and may cause problems to become permanent, which may prevent the support programs that are provided from achieving their goals. A third grade primary school student was supported in this study. This grade level is considered to be late for students who need support. According to Torgesen (2004), a significant number of the students who still have reading problems towards the end of primary school show indications that they experienced these problems during pre-school education and in the first year of primary school. Foorman et al. (1988) stated that instruction should be provided to students who are at risk of failing to acquire reading skills. Hulme and Snowling (2011) went one step further and stated that teaching children to read correctly, fluently and with adequate comprehension is one of the main goals of early education. These determinations confirm that supporting students simultaneously with the formal education process from the pre-school period onwards will contribute to their social and emotional development. From this point of view, it can be stated that it is a wrong decision to wait until the third grade so that students who are in the third grade of primary school and have insufficient literacy skills in Turkey can benefit from the support provided by the MoNE (2019b) through the Remedial Education Program in Primary Schools.

Reading is a complex skill that requires precise coordination of the eyes to efficiently track the lines of a text as well as the interaction of cognitive processes to understand the content (Guimarães et al., 2020). In this study conducted with "F", regarding the student's reading errors, it was observed that he frequently skipped the lines, and wide line spacing and 14 font size were preferred to prevent this. When the effects of the types of reading errors on comprehension

are considered, it can be said that line skipping is an error type that further prevents comprehension. Onursoy et al. (2010) indicated that with regard to eye movements, readers focus more on images than texts while reading, and they recommended that short texts should be preferred more than long texts by placing the visuals in appropriate places in the page layout. In the preparation of book designs in accordance with the reading practices of students with problems in line tracking due to eye movement deficiency, the recommended page layout for the development of these skills and the use of these books in support programs may be a solution to the line tracking problem.

The student's proper grip of the pencil and the sitting position are important factors to ensure legible writing (Hartingsveldt et al., 2015). Moreover, the development of the inner muscles of the hand is also a determinant of legibility (Reis, 1989). In the pre-implementation performed with the student, it was observed that the student could not hold the pencil correctly. The student held the pencil at its midpoint, which prevented him from grasping and controlling the pencil. When the student was asked why he held the pencil at its midpoint, he said "I cannot see the writing I write when I hold it closer to the end point.". It was found out that the student had this problem because he could not adjust the degree of tilt while holding the pencil. It was observed that the student's writing was more obscure since he could not apply pressure on the pencil with his current pencil grip, and that his pencil control skill was insufficient between two lines due to the failure to grasp the pencil well. The pencil grip with wrist slightly bent, holding the pencil with the index finger and thumb, and supporting the pencil with the middle finger recommended by Graham and Miller (1980) and Yıldız et al. (2015) was adopted as the student's technique for holding the pencil. In order to achieve this, the student was warned by the researcher, and the correct pencil grip was shown. However, no change was achieved because the student's pencil grip had turned into a habit. Therefore, apparatuses that enable students to hold the pencil correctly were used, and thus, the student's pencil grip could be changed. Since writing skill has an important place in the life of the individual, it is necessary to find solutions to the problems that the child will have in this field in the early period (Hartingsveldt et al., 2015). Most children become acquainted with the pencil in a home environment. If parents consciously monitor their children's pencil grip and prevent their incorrect pencil grip, this may prevent the occurrence of this problem in the education and training environment by preventing it from becoming a habit.

"F" developed his own style regarding the writing of each letter while writing. The general tendency of the student in writing letters was to write each letter

in a single move and without raising his hand. For instance, while writing the letter "A", he drew the "/" line from bottom to top and then drew the "\ " line and completed the writing of the letter in a single move by drawing a curved line from the lowest point of this line to the midpoint of the previous line. While writing the letter "t", he immediately drew the "-" line while drawing a line from top to bottom and then completed the writing of the letter by completing the line he drew from top to bottom. When the student was asked why he wrote each letter at once without raising his hand, he replied "I want to finish the writing quickly". Furthermore, when the student was asked about his opinions on his own writing, it was observed that the letters were not written properly and that he was not aware that his writing crossed the lines. All of this was interpreted as the fact that the student did not like writing very much, perceived writing as a task and wanted to finish it as soon as possible, and that spelling mistakes had become a non-disturbing permanent habit for the student. Orhan (2017) indicates that reward is an effective factor in the formation and change of habits. When "F" wrote letters in his own style and did not make an effort to make his writing legible, the act of writing was completed in a short time and "F" got rid of a boring action for himself. In brief, the act of writing with this form of writing lasted a short time, which may probably have been perceived as a reward by the student. Therefore, it was aimed to prevent the student from getting bored by taking frequent breaks during the writing activities. However, it was concluded that a longer-term and planned study was needed to change the student's approach to writing.

While writing, the student wrote the letters quickly and attempted to complete the writing task as soon as possible. In particular, he prevented the legibility of the letters by moving the pencil in various directions at the end of the last line while drawing the lines that made up the letter. For instance, the letter "L" is written vertically with the line "l" in the first move and horizontally with the line "-" in the second move. The student disrupted the aesthetics of this letter by moving the pencil up or down at the end of the horizontal line. He did this while writing every letter. The student was made to write the letters gradually in order to solve this problem. For instance, the letter "L" is written in two moves. Before the first move, the lines were drawn by discussing with the student where the pencil would be placed, the slope rate of the line and in which direction to draw, and after drawing this, the second move was made and the writing of the letter was completed. In this process, it was observed that the student did not take into account the directions provided while drawing the lines that made up the letters and drew the lines as he desired. For instance, it was stated by the researcher that he did not put the pencil in the correct place while writing the letter "A", and although the student was asked to stop, the

student completed the writing of the letter. Due to the frequent occurrence of this situation, in the interview held with the student's mother, she stated that the student showed this behavior when he did not want to write. In the interview held with the student, he said "I am hot and sweaty while writing and I have difficulty in breathing.". When he was asked about the reason for this, he said "I do not like to write; when I was writing in the first grade, my mother was putting pressure on me, holding my hand and writing, and my hand was sweating and painful". Putman and Walker (2010) indicate that children's behaviors are indicators of their motivation and that students should be provided with motivational opportunities during reading and writing education. Deniz and Demir (2020) indicate that writing motivation affects writing performance and emphasize that the intrinsic motivations of students support the writing skill more, and that therefore, environmental conditions should be regulated appropriately and external factors should not be exaggerated. Therefore, a break was given when the student was bored during the writing activities, the use of colored pencils during the line exercises was provided, and when the student created the correct form of the letter during the letter writing exercises, the writing of that letter was terminated.

#### ***Recommendations for Researchers, Educators, Parents and Policy Makers***

(i) Reading books prepared for students that consist of stories ending in one reading will make it easier for students to understand what they read. (ii) It is possible to conduct studies that will reveal the order of letters in accordance with the principle of 'from easy to difficult' in order to improve the legibility of students who have acquired the reading and writing skills but have problems in legibility. (iii) Students with legibility problems should be supported at the earliest possible period before gaining the habit of writing. (iv) Students' acquaintance with the pencil in early childhood should not be left to chance, and parents should make their children acquire the correct pencil holding habit by consciously monitoring their child's pencil holding process. (v) Students' opinions should be considered when parents buy books for their children and classroom teachers build the classroom library in order to increase children's desire for reading. (vi) While planning support programs for students with reading and writing problems, it should be decided whether to develop both skills together or only one skill by considering the intensity of the students' needs. The aim of developing only one skill for students who need serious support can enable the limited time in the action plan to be used more efficiently. (vii) Longitudinal studies can be conducted to reveal whether students whose reading and writing skills are supported can maintain the reading and writing level that they reach.

## Limitations

The most important limitations of this study are the aim of improving the reading and writing skills together for the student with severe reading and writing problems, and the inadequacy of motivational variables related to the mentioned language skills. It is inevitable that students who still have reading and writing difficulties in primary school will have negative affective attitudes towards these skills, despite the progress of their grade level. Unless these feelings change, it is difficult to achieve permanent improvements in skills. Therefore, if the researcher were to do the same study with the participating student again, he would prefer to conduct the study by preparing an action plan that was planned on only one skill and supported by intensive motivational elements.

## Declaration of Commitment to the Ethical Rules

Approval was received for this study from the family of the participating student and Türkiye/Bursa Uludağ University Research and Publication Ethics Committee. Scientific research ethics were observed during the study.

## Declaration of Interest Statement

The author has no conflict of interest with any institution or person regarding this paper.

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## APPENDIX Action Plan

	Day 1		Day 2	
	READING (2 course hours)	WRITING (1 course hour)	READING (1 course hour)	WRITING (2 course hours)
Week 1	Reading the book entitled The Red Spotted Caterpillar	Pencil holding practice Line exercises	Reading the book entitled The Red Spotted Caterpillar	Pencil holding practice Line exercises
Week 2	Reading the book entitled Akkuzu, Karakuzu and the Crows	Pencil holding practice Line exercises	Reading the book entitled Akkuzu, Karakuzu and the Crows	Pencil holding practice Line exercises
Week 3	Reading the book entitled The Little Sparrow	Pencil holding practice Line exercises	Reading the book entitled The Little Sparrow	Pencil holding practice Line exercises
Week 4	Reading the book entitled The Little Sparrow	Writing the letters l, İ, i, i Line exercises	Reading the book entitled Uzun Köprü Statue of Liberty	Writing the letters L, F Line exercises
Week 5	Reading the book entitled Uzun Köprü Statue of Liberty	Writing the letter E Line exercises	Reading the book entitled Uzun Köprü Statue of Liberty	Writing the letters E and T Line exercises
Week 6	Reading the book entitled Prince Yusuf	Writing the letter H Line exercises	Reading the book entitled Prince Yusuf	Writing the letters H and I Line exercises
Week 7	Reading the book entitled Prince Yusuf	Writing the letter N	Reading the book entitled Sun Girl	Writing the letters N, M and t
Week 8	Reading the book entitled The Sun Girl	Writing the letters V and v	Reading the book entitled The Sun Girl	Writing the letters Y, Z and z
Week 9	Reading the book entitled Gülperi	Writing the letters K and k	Reading the book entitled Gülperi	Writing the letters A, a and d.
Week 10	Reading the book entitled The Black Snake	Writing the letters g and ğ. Writing words and sentences consisting of the letters learned.	Reading the book entitled The Black Snake	Writing the letters P, B and p. Writing words and sentences consisting of the letters learned.
	READING (1 course hour)	WRITING (2 course hours)	READING (1 course hour)	WRITING (2 course hours)
Week 11	Comprehension studies with the sentence analysis method. (The Old Woman)	Writing the letters B, R and b. Writing words and sentences consisting of the letters learned.	Reading the book entitled Pinocchio	Writing the letters U,Ü, u, ü and y
Week 12	Comprehension studies with the sentence analysis method. (The Untidy Crow)	Writing the letters r, n and m	Reading the book entitled Pinocchio	Writing the letters J and j. Writing words and sentences consisting of the letters learned.
Week 13	Comprehension studies with the sentence analysis method. (The Little Penguin)	Writing the letters D, d and h.	Reading the book entitled Pinocchio	Writing the letters C, Ç, c and ç. Writing words and sentences consisting of the letters learned.
Week 14	Comprehension studies with the sentence analysis method. (The Good Citizen)	Writing the letters G and Ğ. Writing words and sentences consisting of the letters learned.	Reading the book entitled Pinocchio	Writing the letters O, Ö, o and ö
Week 15	Comprehension studies with the sentence analysis method. (What is Money?)	Writing the letters S, Ş, s, and ş .	Reading the book entitled Rüzgaroğlu	Writing the letters e and f. Writing words and sentences consisting of the letters learned.
Week 16	Comprehension studies with the sentence analysis method. (What Should You Eat?)	Sentence writing exercises through dictation.	Reading the book entitled Rüzgaroğlu	Sentence writing exercises through dictation.
Week 17	Comprehension studies with the sentence analysis method (Well done)	Sentence writing exercises through dictation.	Reading the book entitled Rüzgaroğlu	Sentence writing exercises through dictation.
Week 18	Comprehension studies with the sentence analysis method (The Red Balloon)	Sentence writing exercises through dictation.	Reading the book entitled Rüzgaroğlu	Sentence writing exercises through dictation.