Gist Education and Learning Research Journal. ISSN 1692-5777.
No. 28 (January - June, 2024). pp. 79-101.

So Easy to Write a Story with a Mind Map: An Experimental Study

Tan fácil escribir una historia con un mapa mental

Hümeyra Uysal[1]
Istanbul Sabahattin Zaim University, Türkiye

and Sabri Sidekli[2]
Mugla Sitki Kocman University, Türkiye

[1] humeyra.uysal@izu.edu.tr
[2] ssidekli@mu.edu.tr

Abstract

This study aimed to determine the effect of mind mapping on story writing skills of the students. A pre-test, a post-test, and a semi-experimental research design were used in this study. The study group consisted of a total of 86 third-grade students; 33 students from the experimental group, 23 students from the control 1 group, and 30 students from the control 2 groups. Stories were written by the students in the experimental group by using the mind map method during 18 lesson hours. In the control 1 group, story topics were given to the students, and they were asked to write stories about them as homework during one lesson hour for 9 weeks. In the control 2 group, the researcher did not intervene in their lessons during the term. As a result of the research, there was an increase in the post-test writing skill scores of the experimental and control 1 groups. The mind map method and story writing with homework exercises improved students' writing skills.

Keywords: Writing, Story writing, Mind map, Story writing with homework, 3rd grade

Resumen

Este estudio tuvo como objetivo determinar el efecto del uso de mapas mentales en las habilidades de escritura de historias de los estudiantes. En este estudio se utilizó un diseño de investigación de pre-test, post-test y semi-experimental. El grupo de estudio fue conformado por un total de 86 estudiantes de tercer grado: 33 estudiantes del grupo experimental, 23 estudiantes del grupo de control 1 y 30 estudiantes del grupo de control 2. Los estudiantes del grupo experimental escribieron historias utilizando el método del mapa mental durante 18 horas de clase. En el grupo de control 1, se les asignaron temas de historias a los estudiantes y se les pidió que escribieran sobre ellos como tarea durante una hora de clase por 9 semanas. En el grupo de control 2, el investigador no intervino en sus lecciones durante el semestre. Como resultado de la investigación, hubo un aumento en los puntajes de las habilidades de escritura en el post-test tanto en el grupo experimental como en el grupo de control 1. El método del mapa mental y los ejercicios de escritura de historias como tarea mejoraron las habilidades de escritura de los estudiantes.

Palabras clave: Escritura, Escritura de historias, Mapa mental, Escritura de historias como tarea, 3er grado.

Resumo

Este estudo teve como objetivo determinar o efeito do uso de mapas mentais nas habilidades de escrita de histórias dos estudantes. Neste estudo foi utilizado um desenho de pesquisa de pré-teste, pós-teste e semi-experimental. O grupo de estudo foi composto por um total de 86 estudantes do terceiro ano: 33 estudantes do grupo experimental, 23 estudantes do grupo de controle 1 e 30 estudantes do grupo de controle 2. Os estudantes do grupo experimental escreveram histórias utilizando o método de mapa mental durante 18 horas de aula. No grupo de controle 1, foram atribuídos temas de histórias aos estudantes e foi solicitado que escrevessem sobre eles como tarefa durante uma hora de aula por 9 semanas. No grupo de controle 2, o pesquisador não interveio em suas aulas durante o semestre. Como resultado da pesquisa, houve um aumento nas pontuações das habilidades de escrita no pós-teste tanto no grupo experimental quanto no grupo de controle 1. O método de mapa mental e os exercícios de escrita de histórias como tarefa melhoraram as habilidades de escrita dos estudantes.

Palavras-chave: Escrita, Escrita de histórias, Mapa mental, Escrita de histórias como tarefa, 3º ano

Introduction

Writing is the most powerful means of communication in human history, and it directly affects social life. Even ancient times began with the invention of writing. It is necessary to acquire the writing skill, which has such an important place in human history. By acquiring writing skills, societies and cultures can preserve knowledge and ensure its direct transmission to future generations.

Writing is defined as the process of expressing emotions, thoughts, desires, and events in our minds in accordance with certain rules with symbols and putting information structured in the mind into writing (Güneş, 2013; 2020), producing the essential symbols and marks to express our feelings and thoughts in accordance with its rules and legibility (Akyol, 2000). The concept of writing creates information that evokes cognitive processes and structures that work below the level of conscious thought (Galbraith & Baaijen, 2018), develops students' cognitive learning strategies (Bangert-Drowns, Hurley & Wilkinson, 2004) combining information in long-term memory (Silva & Limongi, 2019), is expressed as a troublesome process (Galbraith & Baaijen, 2018) that facilitates learning. Graham (2018) considered writing as a product of people, community goals, social practices, determined actions, tools, and people's common history. Writing is a set of activities such as setting goals, generating ideas, organizing information, selecting the appropriate language, drafting, reading and evaluating, and then reviewing and editing (Hedge, 2001). In addition, technological advances and the use of social media have created new areas of writing. Email writing, blogging, interpersonal messaging, Facebook (Graham et al., 2011), sharing on Twitter, and photo comments on Instagram are among the writing activities.

The skill used to translate ideas in a language fluently in written text format and transmit them to the other party is the writing skill (Goldstein & Naglieri, 2011). Steinlen (2018) defined writing skill as a complex task that requires the coordination of fine motor skills and cognitive skills and reflects social and cultural patterns. According to the Ministry of National Education [MoNE] (2019), the Turkish curriculum, "with the development of writing skills, it is aimed that students express their feelings, thoughts, dreams, designs and impressions, their opinions and theses on a subject in accordance with the rules of written expression, using the possibilities of language, turn writing into a habit in self-expression and develop those skills of those who have the ability to write" (p.) Development of writing skills is associated with repeated practice, practice controls, and writing about a topic that attracts the attention of the student and where the student is an expert (Johnstone et al., 2002). Writing skills are not innate skills, they should be acquired during childhood (Kellogg, 2008).

To improve writing skills, it is necessary to follow certain processes. Writing is a complex task that activates various cognitive skills, such as planning, synthesizing,

observing, analyzing, editing, and reviewing. Additionally, writing is shaped by different strategies, which are reflected in the editing stage. This process can be learned through structured feedback and enhances higher-order thinking skills (Benjamin, 2005; Canady, 2008; García & Fidalgo, 2008; Sharples, 2003). In the process of gaining writing skills, teachers are required to teach students handwriting and grammar skills as well as basic writing rules such as text planning, drafting, and reviewing (Cutler & Graham, 2008). The writing process is complex and requires careful organization. To teach it effectively and efficiently, teachers should employ a variety of methods and techniques. In addition, these methods and techniques to be applied with students will enhance the quality of the texts written by the students and will enable them to increase their motivation. It has been studied how methods used were effective in developing positive attitudes towards writing. Studies have shown that activities performed before writing have a positive effect on students' writing skills (Susar Kırmızı and Beydemir, 2012; Uysal and Sidekli, 2022). Many different methods are used before writing; one of them is the mind map.

The mind map was developed by Tony Buzan in the 1960s. The mind map is a visual, graphic holistic thinking tool that is suitable for memory, creativity, learning, and all kinds of brain functions (Buzan & Buzan, 2015). Brinkmann (2003) defined the mind map as a powerful technique that enables the expression of thoughts in the mind and reveals the potential of the brain. Mind maps are regular, visual graphic structures in which topics and themes are regularly presented (Tucker et al., 2010); and students can explain, criticize, and rearrange their thinking (Montgomery, 2005, as cited in Kan, 2012). Although a mind map is generally preferred to be made individually, it is also possible to make a mind map with the group. Mind map practices with the group eliminate the focus of students' brainstorming technique on one point (Buzan & Buzan, 2015) and offer a chance to visually enrich emerging ideas. Mind maps have a wide range of uses. They are commonly employed as tools for notetaking, learning, teaching, organizing thoughts, and editing information, as well as for uncovering existing knowledge. Numerous studies highlight the effectiveness of mind maps as both teaching and visual learning tools (Goodnough & Woods, 2002).

The mind map is one of the methods used in the writing process. It is generally used at the pre-writing stage due to its feature of revealing information. Bharambe (2012) explains that the mind map provides a useful focus for students to organize their knowledge with their thoughts and present clearly and effectively. Şahin (2016) states that tasks such as scribbling, using images, symbols, words, and drafts during the pre-writing process can be done more easily with the help of mind maps, which also help to reduce confusion. The use of the story map along with the mind map in the pre-writing process will also ensure that the stories are structured and effective.

The reason for using the story map is that the mind map reveals the students' prior knowledge by providing them with unlimited thinking opportunities (Uysal & Sidekli, 2020). The story map, on the other hand, presents the unlimited ideas of the students

under the elements of the story and enables them to be molded and gathered under categories to create their stories. In this way, students' unlimited ideas are gathered under certain patterns, and scattered ideas are collected. Akyol (2011) and Sidekli (2013) emphasized that the importance of using the story map before starting to write will allow students to understand the elements of the story in planning their stories, distinguishing important and insignificant information, and attracting attention to important details.

Writing is the most advanced and challenging linguistic skill to develop. Therefore, it is required to organize the pre-writing, writing, and post-writing stages well for students to be proficient writers and to have good writing education. While organizing the writing process, utilizing different methods and techniques will make the process more efficient. It should also be ensured that students enjoy this while writing, that they are not prejudiced against writing, and that their motivation is high. Students' positive attitudes during the writing process can significantly enhance the quality of their work. The methods and techniques to be applied to students in their writing processes will enable students to write more creative and original stories. The methods and techniques used before writing should ensure that the creativity comes out with the information required for the story. Using the mind map method in the pre-writing process will reveal students' prior knowledge through visuals and connotations, enhancing their creativity and enabling them to write more original stories. From this point of view, this research aims to determine whether the use of the mind map method in the pre-writing stage has an impact on the story writing skills of primary school third graders.

For the research, answers to the following questions were sought.

1. Is there any significant difference between the pre-test results of the groups participating in the comparison between the groups in the study?

2. Is there any significant difference between the pre-test and post-test results of the groups?

3. Is there any significant difference between the post-test results of the groups participating in the comparison between the groups in the study?

Method

Research Model

The pre-test and post-test with control group semi-experimental research design which is one of the quantitative research methods was used in the research. In the pre-test and post-test control group method, the groups are formed randomly. This study consists of an experimental group and two control groups. Pre-experiment and post-experiment story writing studies were conducted for each group.

Study Group

The study group consists of third grade students studying at two state primary schools in the Menteşe District of Muğla Province during the fall semester of the 2019-2020 academic year. Three teachers from these two state schools have volunteered to implement the study in their classrooms. Experimental, control 1, and control 2 groups were determined by drawing lots between the three classes.

Experimental Group: It is aimed to research the impact of an activity to be applied in the pre-writing process on the success of story writing. For this reason, the mind map method was applied to the experimental group in the pre-writing process. Then the story writing activity started.

Control 1 Group: In the pre-writing process, the students were given story topics without any studies or activities, and they were asked to write stories about them. The purpose of writing stories without any pre-writing activity in the control 1 group is to check whether students' story writing skills increase without any activity. Story writing activity with homework was carried out for this reason.

Control 2 Group: No intervention was made, and no activity or study was conducted by the researcher. The class teacher continued his lessons and activities without disrupting the process of his own course. Students wrote the stories only for the pre-test pro-test.

The methods, duration, and the number of students in the research groups are given in the following table.

Table 1. Groups, Number of Students in Groups, Methods and Duration

Groups	N	The Method	Duration
Experimental Group	33	Mind Map	18 hours course
Control 1 Group	23	Writing with Homework	9 hours course
Control 2 Group	30	Class Teacher as Independent	18 hours course

Data Collection Tool

The researcher developed the 'Story Writing Rubric' to collect data. The story writing rubric consists of 3 grades and 10 items. These items are in the form of title, characters, place, time, plan, word richness, relevance to the topic, spelling- punctuation, page layout, and originality. The lowest score a student will get from a rubric is 10 and the highest score is 30.

Before the rubric was finalized, a pool of 17 items was formed. Chong (2017) said that in the teaching of writing, the students should answer questions such as where, when, who, how, and why in their writings by presenting a detailed description of events. After this statement and the literature are scanned, in the item pool; title, characters, place, time, event order, event flow, word richness, originality, relevance to the topic, main idea, spelling rules, punctuation marks, page layout, legible writing, plan, word usage and style are included. It was decided that title, characters, place, time, spelling-punctuation, and plan items should be strictly by considering the issues from the item pool that students should pay attention to throughout the application. Three experts in the field of classroom teaching have been consulted on which of the remaining items to be added. After being interviewed by three experts, the rubric was made up of ten items adding the items of word richness, relevance to the topic, page layout, and originality.

After the proficiency levels, scores, and rubric items were developed, two linguists specializing in Turkish language education reviewed them, necessary corrections were made, and the final version was established.

The final version of the rubric is presented in the following table.

Table 2. Story Writing Rubric

Title	1	2	3
	The title isn't written.	The student writes the same topic in the title or uses an uninteresting title.	The student writes a creative title that enables the text to arouse interest.
Characters	There are characters, but they aren't introduced.	There are characters, but only the main characters are introduced.	All the characters are introduced.
Place	There is a place, but it isn't introduced.	There is a place, but the introduction is so little.	A detailed introduction of the place is done.
Time	The time isn't specified. Expressions such as 'One day, that day' are used.	The time is clear, but there are no details.	Time is specified in detail.
Plan	There are no introduction parts.	There are introduction parts or there is only an introduction part.	There are introduction parts that are in coherence with the text.
Word Richness	Word usage is limited, and words are used in their real meanings.	Word usage is limited, words are used in their real and figurative meanings.	Word usage is varied, words are used in their connotations, and real and figurative meanings.
Originality	The student writes the same program he/she has watched or a book he/she has read. It isn't relevant to the topic.	The student is inspired by a program he/she has watched or a book he/she has read.	The student writes a unique, new, and creative story.
Relevance To Topic	It isn't relevant to the topic.	The student tries to write on the topic, but there is no coherence.	The content is completely appropriate to the topic and there is coherence in the story
Spelling Punctuation	There are more than five mistakes in spelling and punctuation.	There are less than five mistakes in spelling and punctuation.	There are no mistakes in spelling or punctuation.
Page Layout	The writing is not legible. No suitable blanks have been left. His/her credentials are missing.	The writing is partially legible. No suitable blanks have been left. The student writes his/her credentials completely	The writing is legible. Suitable blanks have been left. His/her credentials are complete.

Research Process Data Collection Process

A story on "Family" was written by all groups to determine the story writing levels of the three groups before the practice. When the topic of the story was chosen, the class teachers of all groups were consulted, and all three teachers stated that it was consistent with the curriculum and that students' readiness levels would be higher about this topic.

After the practice, a story on "Home" was written by all groups to determine the levels of story writing of the three groups and the change in their story writing skills. The stories on "Home" were collected from the students for evaluation of the post-test.

Experimental Group

In the experimental group, a 2-hour session on mind mapping and a 2-hour session on story mapping were conducted before the implementation. The group then underwent two-hour sessions per week over a period of 9 weeks, totaling 18 course hours of practice. During the practice, a mind map of the topic was developed in one-course hour. In the next class, they were asked to write their stories by using the story map on the topic. For 9 weeks, they created mind maps in groups and individually while doing the mind map study.

The weekly story writing topics of the experimental group and their weekly studies are included in Table 3.

Table 3. Weekly Story-Writing Topics of Experimental Group and Studies in the Courses

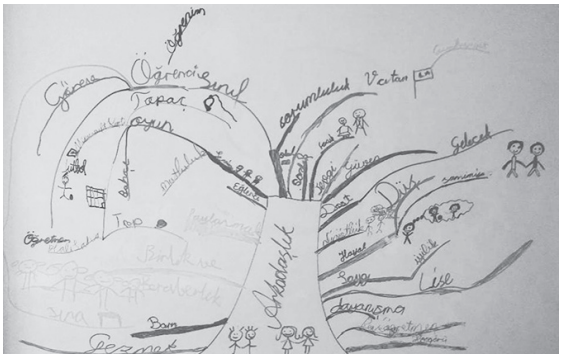
Topic	Week	Date	1st Lesson	2nd Lesson
Feast	1st Week	31.10.2019	"Mind Map" was created with the class.	The story writing activity was done with the help of a story map.
Friendship	2nd Week	07.11.2019		
Love	3rd Week	14.11.2019	"Mind Map" was created in groups of 6 people.	
Animals	4th Week	28.11.2019		
Game	5th Week	05.12.2019	"Mind Map" was created in groups of 4 people.	
Meatball	6th Week	12.12.2019		
Atatürk	7th Week	19.12.2019	"Mind Map" was created in groups of 2 people.	
New Year's Wishes	8th Week	26.12.2019	"Mind Map" was created individually by the students.	
Nature	9th Week	02.01.2020		

The topics to be written every week were decided by pre-interviewing with the class teacher of the experimental group and Control 1 group, story topics were chosen by taking into consideration the students ‘ readiness levels.

For example, the story-writing work on “Friendship” was done. Before this topic was chosen, a pre-interview was conducted with the class teacher and then it was decided that the topic of “Friendship” would be appropriate for the student’s readiness levels by sharing decision-making. In the first lesson, the mind map about “Friendship” was chalked up with the students. The mind map made by the class is presented in Figure 1. During the lesson, the students went to the blackboard and created a mind map in turn. In the second lesson, students prepared a story map individually by using the mind map. And then they wrote their own original stories by using the story map.

Creating the story map enabled them to write their stories faster and fluently. In the second lesson, they finished their stories and handed them over to the researcher.

Figure 1. The Mind Map about “Friendship” Made by the Class



Control 1 Group

The topics to be written every week were decided by pre-interviewing with the class teacher of the experimental group and Control 1 group, story topics were chosen by taking into consideration the students’ readiness levels.

Topics specified every week were given to the Control 1 group and the students were asked to write about them as homework during the lesson. The weekly story writing topics of the control 1 group and their weekly studies are included in Table 4. The duration for writing the stories was set at one hour. This is because, in the experimental group, students were given one hour to write their stories after completing the pre-writing activities. The goal was to assess the story writing skills of the Control 1 group without any intervention. For this reason, it is thought that a lesson hour is appropriate for the students in the Control 1 group to write a story.

Table 4. Weekly Story-Writing Topics of Control Group 1 and Studies

Topic	Week	Date	1st Lesson
Feast	1st Week	01.11.2019	Students were given 40 minutes and asked to write their stories.
Friendship	2nd Week	08.11.2019	
Love	3rd Week	15.11.2019	
Animals	4th Week	29.11.2019	
Game	5th Week	06.12.2019	
Meatball	6th Week	13.12.2019	
New Year's Wishes	7th Week	20.12.2019	
Atatürk	8th Week	27.12.2019	
Nature	9th Week	03.01.2020	

The Control 1 group and the experimental group wrote stories on the same topics every week. The reason why they write stories on the same topics every week is not to cause differences in students' stories because of the topics.

Control 2 Group

Stories were written by the students in the Control 2 group to acquire only data from the pre-test and post-test. No intervention was made by the researcher in the Control 2 group. In the Control 2 group, writing activities were conducted by the classroom teacher following the guidelines of the Turkish curriculum. The 3rd-grade curriculum includes writing exercises as part of its learning objectives. Based on this, it is assumed that the classroom teacher carried out weekly writing activities in alignment with the curriculum.

Data Analysis

Before conducting the analysis, the researcher randomly selected seven participants from each group, totaling 21 participants, to assign scores and ensure that no bias was present in the study. Dunsmuir et al. (2015) and Uysal and Sidekli (2020) used different raters to evaluate the students' stories. They found that stories were scored reliably by different raters. For this reason, two experts were asked to assign scores to 15 selected students.was found to be 0,82 (95%GA; 0,56-0,91). This result indicates inter-rater compliance. Scores were found to be unbiased and reliable.

As a result of the analysis, it was determined that the data obtained were normal distribution. One-way analysis of variance (ANOVA) was carried out to examine the significant difference between the pre-test and post-test, and Dunnett's C complementary statistical technique was used in cases with significant differences. Paired Samples T-test was carried out to analyze whether there was a significant difference between the pre-test and post-test scores of the groups. The Paired Samples T-test analysis determined whether there was a significant difference between the two mean scores being compared. Additionally, it was necessary to calculate the effect size to evaluate the magnitude of the significant difference. The influence quantity is calculated with the ratio of the t-score to the square root of sampling subsistence (Green & Salkind, 2005). Cohen's (1988) classification was used in interpreting the level of the influence quantity. According to this classification, $0.150 \leq d < 0.150$ is at an insignificant level, $0.151 \leq d < 0.400$ is at a low level, $0.401 \leq d < 0.750$ is at medium-level, $0{,}751 \leq d < 1.100$ is at wide level, $1.101 \leq d < 1.450$ is at very wide level and $1.451 \leq d$ is at excellence level.

Findings

The results of the analysis conducted in accordance with the purpose of the study are presented in tables.

One-way analysis of variance (ANOVA) test was carried out to determine the levels of the groups before the practice and to determine whether there were statistical differences between the groups. If there were significant differences, Dunnett's C complementary statistical technique was used to determine the source of this. The results of the analysis are given in Table 5.

Table 5. Comparison of Pre-Test Results of the Students by Groups

Source of Variance	Sum of Squares	sd	Average of Squares	F	p	Significant Difference
Between-groups	11.62	2	5.81	2.27	.11	
In-group	212.20	83	2.56			-
Total	223.82	85				

When Table 5 is analyzed, in the group consisting of 86 students from three different third grade, the mean scores of the levels of story writing skills of the groups formed according to their classes were compared with a one-way analysis of variance for the unrelated samples in order to test whether there was any difference between the levels of story writing skills before the practice. At the end of the test, it was found that the average of the students in the experimental group was ($\overline{X}$ experimental = 16.12),

the average of the students in the control 1 group was ($\overline{X}$ control1 =16.35), and the average of the students in the control 2 group was ($\overline{X}$ control2 = 15.47). No significant statistical difference was found as a result of the Dunnett C multiple comparison test.

The levels of story writing were compared before and after the practice with the mind map of the experimental group. The analysis of the Paired Samples T-test was conducted to make comparisons before and after the practice. The result of the analysis is given in Table 6.

Table 6. Comparison of Pre-Test and Post-Test Scores of the Experimental Group

Measurement	**N**	$\overline{X}$	**S**	**sd**	**t**	**p**
Experimental Pre-test	33	16.12	1.19	32	-7.06	.00
Experimental Post-test	33	19.00	2.59			

The t-test was conducted to determine whether there was a significant difference between the mind map and the averages of the scores of the stories written before, and after the practice for related samples in a class of 33 people, where the impact of the use of mind map on the development of story writing skills was investigated. As a result of the analysis, a significant difference was found between the average of the story scores written before the practice ($\overline{X}$ pre-test = 16.12) and the average of the story scores written after the practice ($\overline{X}$ post-test = 19.00) [t (33) = -7.06, p<.05]. It is possible to say that story writing practices using the mind map improved third graders' story writing skills. The effectiveness of the practice applied in the experimental group was calculated as d=1.23. According to Cohen's (1988) classification of influence quantity, this practice was found to be very effective at a very wide level.

A comparison of the levels of story writing skills in the Control 1 group between before and after the study of story writing with homework. The analysis of the Paired Samples T-test was conducted to make comparisons before and after the practice. The result of the analysis is given in Table 7.

Table 7. Comparison of Pre-Test and Post-Test Scores of the Cntrol 1 Group

Measurement	**N**	$\overline{X}$	**S**	**sd**	**t**	**p**
Control 1 Pre-test	23	16.35	1.94	22	-5.51	.00
Control 1 Post-test	23	17.22	1.73			

The t-test was conducted to determine whether there was a significant difference between the averages of the scores of the stories written before and after the practice for related samples in a class of 23 people, where the impact of the study of story

writing with homework done by giving topics every week on the development of story writing skills was investigated. As a result of the analysis, a significant difference was found between the average of the story scores written before the practice ($\overline{X}$ pre-test = 16.35) and the average of the story scores written after the practice ($\overline{X}$ post-test = 17.22) [t(22) = -5.51, p<.05]. It was found that the study of story writing with homework improved third graders' story writing skills positively. The effectiveness of the practice applied in the experimental group was calculated as d=1.15. According to Cohen's (1988) classification of influence quantity, this practice was found to be very effective at a very wide level.

A comparison of the levels of story writing skills was made before and after the lessons according to the Turkish curriculum of the control 2 group. The analysis of the Paired Samples T-test was conducted to make comparisons between before and after the lessons. The result of the analysis is given in Table 8.

Table 8. Comparison of Pre-Test and Post-Test Scores of the Control 2 Group

Measurement	**N**	$\overline{X}$	**S**	**sd**	**t**	**p**
Control 2 Pre-test	30	15.47	1.70	29	.24	.81
Control 2 Post-test	30	15.40	1.83			

The t-test was conducted to determine whether there was a significant difference between the averages of the scores of the stories written for the pre-test and post-test without interfering with the class teacher's lessons for related samples in a class of 30 people, where the impact on the development of story writing skills was investigated. As a result of the analysis, a significant difference was not found between the average of the story scores written for pre-test ($\overline{X}$ pre-test = 15.47) and the average of the story scores written after the practice ($\overline{X}$ post-test = 15.40) [t(29) = .24, p>.05].

One-way analysis of variance (ANOVA) test was carried out to determine the levels of the groups after the practice and to determine whether there were statistical differences between the groups. If there were significant differences, Dunnett's C complementary statistical technique was used to determine the source of this. The results of the analysis are given in the following table.

Table 9. Comparison of Pre-Test Results of the Students by Groups

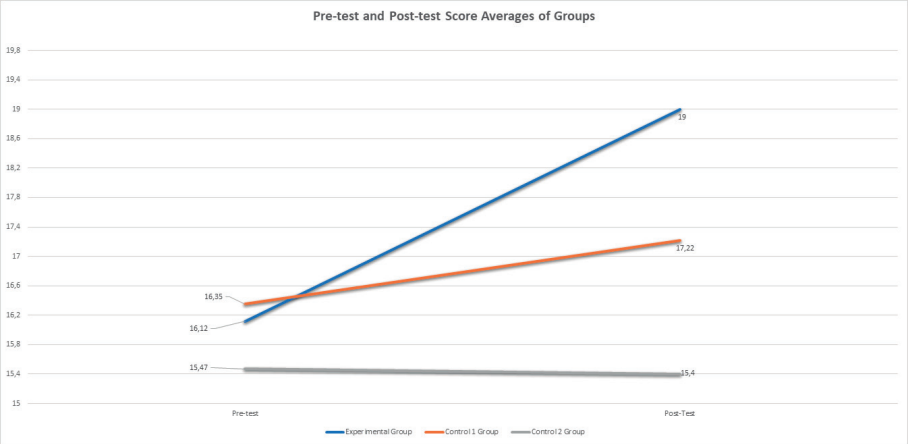
Source of Variance	**Sum of Squares**	**sd**	**Average of Squares**	**F**	**p**	**Significant Difference**
Between Groups	203.74	2	101.87	22.42	.00	Experimental>Control 1
In-Group	377.11	83	4.54			Experimental>Control 2
Total	580.85	85				Control 1>Control 2

When Table 9 is analyzed, in the group consisting of 86 students from three different third grade, the mean scores of the levels of story writing skills of the groups formed according to their classes were compared with a one-way analysis of variance for the unrelated samples in order to test whether there was any difference between the levels of story writing skills after the practice.

At the end of the test, it was found that the average of the students in the experimental group was ($\overline{X}$ experimental = 19.00), the average of the students in the Control group 1 was ($\overline{X}$ control1 =17.22) and the average of the students in the Control group 2 was ($\overline{X}$ control2 = 15.40). A significant difference was observed statistically between at least two of them [$F(2\text{-}85) = 22.42$, $p<.05$]. As a result of the Dunnett C multiple comparison test, a significant difference was found between the experiment and Control 1 group in favor of the experimental group, between the experiment and Control 2 groups in favor of the experimental group, and between the Control 1 and Control 2 groups in favor of the control 1 group.

Figure 2 shows the pre-test levels of all groups and the progress they made in their post-test levels as a result of the implemented practices, activities, and courses.

Figure 2. Comparison of Pre-Test and Post-Test Score Averages of Groups



The pre-test and post-test score averages of the three groups were analyzed. It was found that the pre-test score average of the Control 1 group was higher than the pre-test score averages of other groups. It was also given in the results that the pre-test score averages of all groups were close to each other. When we looked at the post-test score averages of the groups, it was found that the mean score of the experimental group was better than the mean scores of the other groups. While the experimental

group ranked second in pre-test score averages, it ranked first in the post-test score averages, outdistancing the other groups. Although there was a significant increase in the experimental group and Control 1 group, there was a negative change in the mean score of the Control 2 group.

Discussion, Conclusion And Suggestions

As a result of comparing the pre-test and post-test scores of the experimental group, a significant difference was found between the pre-test and post-test of the group in favor of the post-test. Story writing activities improved students' story writing skills positively with the mind map method applied to the experimental group. Padang and Gurning (2014) used the mind map method to develop descriptive writing skills of eighth grade students. As a result of the research, it was found that the method improved their writing skills as well as their writing motivation. As a result of the research carried out by Yunus and Chien (2016), they discovered that the mind mapping method is a supporting tool in planning and editing students' writings in the teaching of story-telling text writing to eleventh graders. Waloyo (2017) found that writing using a mind map enables students to think freely and creatively, making it easier for students to write stories (Uysal and Sidekli, 2020). They revealed that the mind map improves the story writing skills of fourth graders in primary school. The study, along with previous research, concluded that mind mapping has a positive impact on students' writing skills.

The use of a story map as well as a mind map had a positive effect on students' story writing. The story map was also used to determine the elements of the story after the mind map method and helped improve the writing skills of the students. Li (2007) analyzed the fluency of story writing and the variety of word usage of students who had a learning disability with the story map technique. As a result of the research, they found that three out of four students' writing fluency improved, and there was no noticeable change in students' writing performance related to the diversity of word use. As a result of Brunner's (2010) study, it was observed that the use of a story map also increased the number of words written by students, the number of words written correctly, and the number of sequences of words written correctly by students. Sidekli (2013) used the story map to improve the story writing skills of undergraduate students and as a result of his research, he observed a positive increase in the student's story writing skills. Based on this study and supporting literature, story mapping contributes significantly to the improvement of students' writing skills.

As a result of comparing the pre-test and post-test scores of the Control 1 group, a significant difference was found between the pre-test and the post-test. Writing activities with homework applied to the Control 1 group were found to be effective

in the development of the student's story writing skills. Regular story writing studies without any pre-writing activities also enhance the students' story writing skills. In Denny's (2008) study, conducted with university students, they were forced to write. As a result of this research, it was revealed that there was improvement in students' writing skills. However, some studies indicate that assigning writing as homework does not lead to improvements in students' story-writing skills. Story writing activity with homework conducted by Uysal and Sidekli (2020) did not improve the story writing skills of the students in fourth grade.

As a result of comparing the pre-test and post-test scores of the Control 1 group, a significant difference was not found between the pre-test and the post-test scores of the Control 2 group. This revealed that the Turkish curriculum did not improve the students' story writing skills. No significant differences were found between the pre-test and the post-test in story writing studies conducted according to the Turkish curriculum, even though there was a decrease by .07 in the average of the students' story writings.

A significant difference was found between the experimental group and the Control 1 group. In the development of story writing skills, the mind map method is more effective than story writing with homework. The mind map allowed students to relax at the pre-writing stage, make preliminary preparations, and reveal their knowledge again. This enabled the students to develop their writing skills. In the Control 1 group, story writing studies that had certain topics were given to the students as homework. No pre-writing activities were done. Despite this, as regular writing activities were done, it enabled students to have significant changes in their stories. In their study, Uysal and Sidekli (2020), with fourth graders, concluded that story writing activities with mind map are more effective than story writing activities with homework when comparing story writing with the mind map method and story writing with homework.

Considering the effect size of both the experimental and Control 1 groups, their levels are equivalent. Although they were at the same level of influence quantity, the influence quantity of the experimental group was higher than the influence quantity of the Control 1 group. This shows that pre-writing activities improve students' writing skills more. Research shows that pre-writing practices improve students' writing skills positively and have an impact on students' writing skills (Sidekli & Uysal, 2017).

A significant difference was found between the experimental group and the Control 2 group. It was concluded that story writing studies conducted with the mind map method are more effective than story writing activities conducted according to the Turkish curriculum. In a mind map study conducted with an experimental group, students are motivated to write stories. It also reveals the prior knowledge and creativity of students. A significant difference was found between Control 1 group and Control 2 group. It was concluded that story writing activities with homework were more efficient than story writing activities according to the Turkish curriculum.

Story writing activities with homework prepared by students each week had a positive impact on story writing skills, as they enabled students to write stories regularly. Different methods and techniques applied before and during the process of writing attract the attention of the students and make them write better stories. Not only the mind map method or writing activities with homework, but also different methods improve students' writing and story writing skills. Peker and Adıgüzel (2020) In study of Uysal (2022) found that primary students' writing skills increased with the think-research-discuss-write-present strategy developed the creative writing skills of the students with the private property technique, which is one of the creative drama methods. Taç (2020) proved that students' writing skills improve with an investigative writing approach.

Considering all groups, it was concluded that the study conducted with the experimental group improved students' writing skills more than the others. In addition, it was found that story writing activities with homework prepared by students also affect students' story writing skills positively.

Based on the research findings, the following recommendations are proposed:

- Along with mind mapping, various methods can be used to support the pre-The mind mapping method can be applied to writing different types of texts.
- Writing activities can be introduced as homework starting in the second grade.
- Providing students with feedback after writing can help them create even better stories

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Authors

Hümeyra Uysal. She completed doctorate education at Marmara University. She is currently working as an assistant professor in the Department of Primary School Teaching at Istanbul Sabahattin Zaim University. She continue studies in the fields of Turkish education, writing education, first reading and writing, mind map and field education in primary school.

ORCİD ID: https://orcid.org/0000-0003-4805-8079

Sabri Sidekli. Prof. Dr. Sabri Sidekli in 2011, he started to work as an assistant professor in Muğla Sıtkı Koçman University Faculty of Education, Department of Primary School Teacher Education. In 2014, he received the title of associate professor and in 2020 he received the title of professor. Prof.Dr. Sabri Sidekli continues to work at Muğla Sıtkı Koçman University. He is the author and editor of scientific researches, books, book chapters, and textbooks that are being taught in domestic and foreign primary schools affiliated to the Ministry of National Education on classroom teacher education, field education and language skills.

ORCİD ID: https://orcid.org/0000-0003-3202-6451