Examination of Mechanical Writing Skills of Primary School Students

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Abstract

The foundations of writing, one of the four basic language skills, are laid in the primary school years and this skill is formally acquired during the first literacy teaching process in the 1st grade of primary school. Analyzing the writing skills of primary school students is essential for detecting weaknesses in their writing abilities, preventing potential writing difficulties in subsequent years, and designing intervention programs to enhance their writing competencies. In this context, this study aimed to examine the writing skills of primary school 1st through 4th grade students in terms of mechanics. The students' notebook writings were assessed based on the following criteria: the size and shape of the letters, the alignment and order of the writing, the spacing between words and letters, the layout and neatness of the paper, the quantity and quality of the writing on the page and in the notebook, and the expression and meaningful coherence of the writing. The sample of the study, which was conducted with a descriptive survey using quantitative methods, consisted of a total of 807 primary school students studying in districts of different socioeconomic levels in Istanbul and the students' writing notebooks. The "Writing Achievement Assessment Form," which was prepared by the researchers and revised following the opinion of a classroom education specialist, was used as a data collection tool in the study. As a result of the study, it was determined that the writing skills of primary school students were at different levels in terms of mechanics. In addition, it was observed that the deficiencies in students' mechanical writing skills were included in different criteria items. Based on the results obtained, the researchers have made suggestions to contribute to the field.

Keywords

Primary school, mechanical writing skills, quantitative research.

INTRODUCTION

Writing is a functional and versatile language skill that enables individuals to communicate many varied emotions and thoughts that they generate in their minds. Writing skills are fundamental for children to acquire in the first years of primary school, which is the initial stage of their educational journey. Despite the increasing use of computers and keyboards in today's technological age, handwriting remains a vital and powerful tool for students to demonstrate their learning outcomes (Chien, Brown, & McDonald, 2010). Handwriting is also a significant means of communication. Writing that fails to meet various criteria in terms of form and legibility creates a communication barrier not only for readers but also for writers (Bletz & Blöte, 1993). Writing is a skill that has different dimensions in terms of content and mechanics. It can be stated that writers who are not at a sufficient level in terms of form and legibility experience various difficulties in the mechanical dimension of writing. The quality of writing depends on both the mechanical and the content dimensions of writing, which are equally significant.

Writing, which begins in the preschool period with the ability to draw and copy various letters and the first motor movements of handwriting, has a developmental nature. The main objective of writing is to convey thoughts and meanings accurately (Ranweiller, 2004). According to another definition, writing is the transfer of experiences, feelings, thoughts, dreams, and impressions about any subject by following the basic rules of language (Göçer, 2010). In addition to having a developmental structure, writing is characterized as a complex and multicomponent skill in that it is influenced by many different factors, both internal and external (Kaiser, 2009). While individuals' fine motor functions, visual perception skills, hand-eye coordination, attention, and visual-motor integration are among the intrinsic factors affecting their writing skills (Feder & Majnemer, 2007; Kaiser, 2009; Saydam & Baştuğ, 2021), all kinds of components from the external environment are among the extrinsic factors. In addition, the multicomponent structure of writing requires multiple skills to work in coordination with the lower- and higher-level processes that it is divided into. Berninger et al. (1997) state that the creation of symbols representing letters in memory, accessing and retrieving these symbols from memory, and motor production of writing are the low-level processes of writing; planning, using language at the sentence and text level, and revising the written text, as well as the use of revision strategies, are the high-level processes of writing (as cited in Press, Hinojosa & Roston, 2009).

Writing is a multifaceted activity that requires the integration of mental, affective, and mechanical dimensions, and the coordination of these dimensions determines the quality of writing. Good motor control in the writing process plays an essential role in the mechanical production of writing (line and margins, size of letters, shape of letters, line tracking, spacing between words, and spacing between letters) (Kuşdemir, Katrancı & Arslan, 2018; Volman, Van Schendel & Jogmans, 2006). Volman, Van Schendel and Jogmans (2006) reported that the handwriting quality of primary school students with different levels of fine motor skills differed from each other. Case-Smith, Holland and Bishop (2011) state that individuals who have difficulties in the mechanical dimension of writing and spend more time than they should in the motor production of writing lose the meaning in writing, a situation that prevents the effective expression of ideas and may negatively affect the individual's overall academic success. Acquisition of mechanical writing skills is a prerequisite for increasing the quality of writing content.

In addition to the effect of mental and affective factors on the production quality of writing in the mechanical sense, various events and situations such as the COVID-19 pandemic that occurred around

the world can also play a role in the acquisition of academic skills of individuals. COVID-19, which was declared a global pandemic by the World Health Organization (WHO, 2020), has caused various disruptions in daily life as well as in education and training activities despite distance education studies (Koç, 2021). Especially in the first years of the primary school period, when mechanical writing activities are intensive, situations may arise where on-site and immediate feedback is required. This circumstance reinforced the value of engaging in writing in a physical learning setting and showed that writing activities could not be performed adequately on the screen, causing students to regress even further in a skill in which they already had various difficulties. The prediction that distance education processes may negatively affect writing skills particularly is the basis for the realization of this study. Assessing the mechanical writing skills of primary school students (grades 1–4) through their Turkish notebooks is essential for identifying their current writing level and existing writing challenges and for preventing potential difficulties that they may face in writing. Turkish course notebooks, which are tangible indicators of learning about writing in the context of the course, where the foundations of writing skills that are crucial for other disciplines are laid, are necessary for examining the students' writing abilities. The aim of this study was to examine the writing skills of primary school students in grades 1–4 in terms of mechanics (writing size, writing on lines, the way letters are written, writing layout, spacing between words, paper layout, spacing between letters, writing neatness, the amount of writing on the page, expression meaningfulness, and the amount of writing in the notebook). Based on this aim, the research problem was formulated as follows:

- What is the level of mechanical writing skills of primary school students (grades 1–4)?

METHOD

In this section, the research design, study group, data collection tool, process, and data analysis are given.

Research Model

This study, which looked at the mechanics of primary school students' writing, was carried out using the survey model, a quantitative research technique. Survey research involves studies conducted on large samples to determine the skills or attitudes of participants regarding a subject or event by examining them (Büyüköztürk, et al., 2018).

Study Group

The population of the study consisted of the province of Istanbul and the sample consisted of primary schools in the province of Istanbul, which were selected with the convenience sampling method due to the pandemic. In the study, the Turkish lesson notebooks of a total of 807 primary school 1st–4th grade students studying in primary schools of different socioeconomic levels in Istanbul were collected. Each researcher selected one school from four different districts in Istanbul where they could easily collect data and carried out the notebook collection process in four schools in total. The distribution of primary school students according to their grade levels is given in Table 1.

Table 1

Distribution of the Students in the Study Group by Grade Level

Grade Level	Frequency (f)	Percent (%)
1st grade	257	31.84
2nd grade	99	12.26
3rd grade	224	27.75
4th grade	227	28.12

Table 1 shows that 257 (31.84%) of the primary school students in the study group were in 1st grade, 99 (12.26%) were in 2nd grade, 224 (27.75%) were in 3rd grade, and 227 (28.12%) were in 4th grade. When the percentage and frequency values were analyzed, it was evident that the study group included mostly 1st grade students. The number of notebooks for the 2nd grade was significantly lower than the other grade levels. This could be attributed to the higher absenteeism of the 2nd grade students during the pandemic.

Data Collection Tool

In order to determine the students' mechanical writing skills, the study used the "Writing Achievement Assessment Form," which was prepared by the researchers and finalized after being edited according to the opinion of a classroom education field expert. The methodology for evaluating students' mechanical writing abilities included the Writing Achievement Assessment Form in terms of the criteria of "writing size, writing on the lines, the way the letters are written, writing layout, spacing between words, paper layout, spacing between letters, writing neatness, the amount of writing on the page, expression meaningfulness, and the amount of writing in the notebook." The evaluation of the writing in the students' Turkish lesson writing notebooks was carried out by comparing them with the criteria in the Writing Achievement Assessment Form. The Writing Achievement Assessment Form was prepared based on the criteria in Baştuğ and Şenel's (2021, p. 58) "First Literacy Teaching Process Writing Skills Class Tracking Chart". It was reorganized by the researchers and finalized with the addition of the dimensions of text clarity, spacing between letters, amount of writing on the page, expression meaningfulness, and amount of writing in the notebook. The items of text size, writing on the lines, the way the letters are written, writing layout (the positioning of the writing on the notebook page), spacing between words, paper layout, spacing between letters, and neatness of writing were scored "1-0." The amount of writing on the page was determined by considering the size of the page and the amount of writing as "0-1-2-3-4"; the meaningfulness of expression (the general meaningfulness of the writing produced by the student in the context of the sentence) was determined as "0-1-2-3-4"; and the amount of writing in the notebook was determined by proportioning the total number of pages written to the total number of pages in the notebook. Appropriate data for the relevant criterion item was scored as 1 and those that were not scored as 0. (For example, if a student's writing size was appropriate for their grade level, it was scored as 1; if it was smaller or larger than their grade level, it was scored as 0.) The descriptive statistics of the criteria items in the evaluation form were calculated based on the data collected.

Data Collection Process

To examine the students' Turkish notebooks, the study obtained a survey and research permission from the Istanbul Provincial Directorate of National Education (No. E-59090411-20-30378995, dated 31.08.2021) and an ethics committee permission from Sakarya University Social and Human Sciences Ethics Committee (No. E-61923333-050.99-69597, dated 16.10.2021). After obtaining the necessary permissions, the classroom teachers working at the 1st–4th grade levels in the primary schools included in the scope of the research were informed about the research topic, and the students' Turkish lesson notebooks were collected. Afterward, all notebooks were categorized and brought together according to grade levels.

Data Analysis

The analysis of the data obtained within the scope of the research was carried out using the SPSS 22.0 program. In the analysis of the data, the scores of the writing notebooks, which were evaluated together by all the researchers through the Writing Achievement Assessment Form, were grouped according to grade level and input into the Excel program. Descriptive statistics were obtained for the data transferred to the SPSS 22.0 program for each item in the evaluation form, tabulated, and presented in the findings section.

FINDINGS

This section presents the findings obtained from the research.

Table 2

Findings Related to the Writing Achievement Assessment Form

Criteria/Grade Levels	1st grade	2nd grade	3rd grade	4th grade
Font size	0.75	0.81	0.78	0.38
Writing on lines	0.61	0.74	0.42	0.88
How the letters are written	0.63	0.66	0.15	0.74
Text layout	0.71	0.68	0.46	0.14
Clarity between words	0.82	0.61	0.29	0.21
Paper layout	0.56	0.53	0.49	0.14
Text neatness	0.67	0.59	0.64	0.60
Space between letters	0.81	0.74	0.35	0.63

Amount of text on a page	0.74	0.66	0.55	0.63
Expression meaningfulness*	0.99*	0.67*	0.80*	0.94*
Amount of writing in the notebook	0.46	0.31	0.27	0.21

*When evaluating the criterion of expression meaningfulness, notebooks that did not contain students' own expressions were not evaluated. The student's dictation and text written by looking at the source were not taken into consideration, and the original expressions produced by the student were examined instead. In some notebooks, there were no originally created works. In the notebooks where this occurred, expression meaningfulness was not scored. Here, "meaningfulness of expression" refers to whether the student's expressions make up a coherent whole. For example, writing "I came to school today" constitutes a meaningful expression on its own, whereas the expression "I came to schl today" does not meet the criterion of expression meaningfulness since it is not a coherent whole.

When the findings related to the criterion of students' writing size are analyzed in Table 1, it is clear that 4th grade students have the lowest average score (0.38) and 1st grade students have the highest average score (0.75). When the findings related to the criterion of writing on lines are examined, it is obvious that 3rd grade students have the lowest average score (0.42) and 4th grade students have the highest average score (0.88). Regarding the findings related to the way of writing letters, it is noted that 3rd grade students have the lowest average score (0.15) and 4th grade students have the highest average score (0.75). When the findings related to the writing order criterion are analyzed, it is observed that 4th grade students have the lowest average score (0.14) and 1st grade students have the highest average score (0.71).

Figure 1

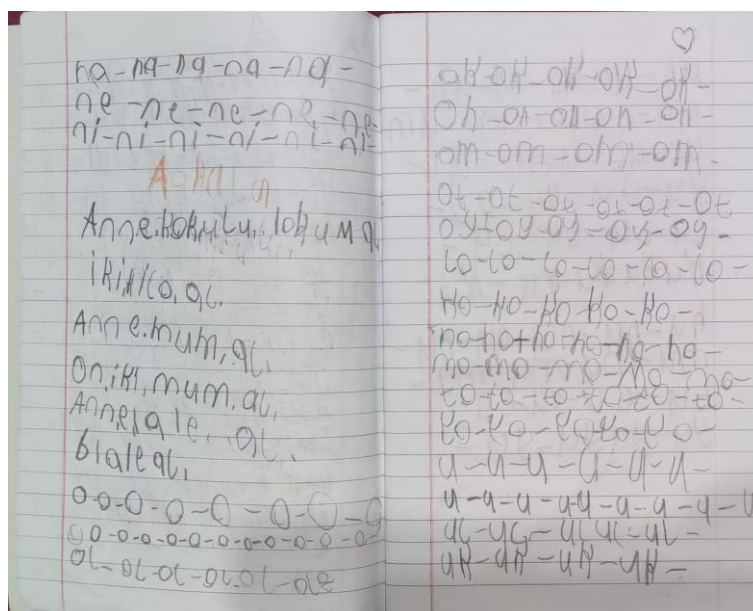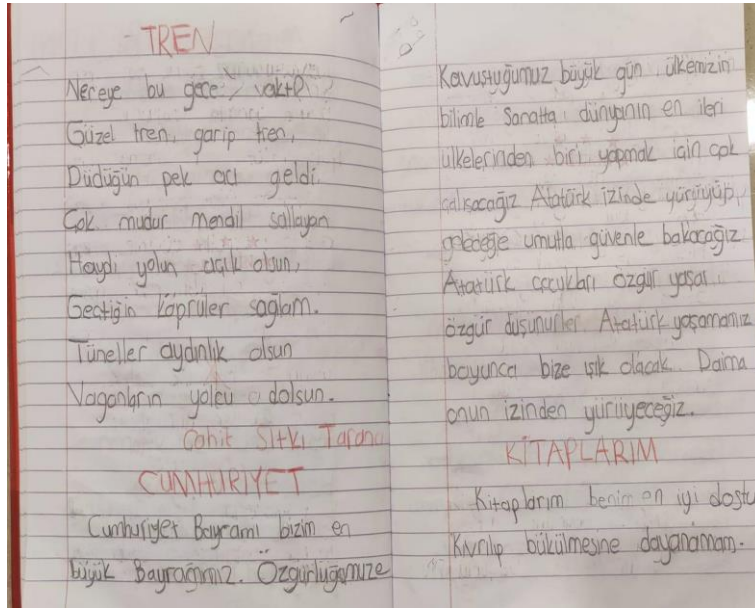*1st Grade Level Notebook Example-1*

Figure 2

1st Grade Level Notebook Example-2

When the findings related to the criterion of clarity between words are analyzed, it is evident that 4th grade students have the lowest average score (0.21) and 1st grade students have the highest average score (0.82). When the student notebooks related to the paper layout criterion are examined, it is seen that 4th grade students have the lowest average score (0.14) and 1st grade students have the highest average score (0.56). When the findings related to the criterion of text neatness are analyzed, it is clear that 2nd grade students have the lowest average score (0.59) and 1st grade students have the highest average score (0.67). When the findings related to the criterion of the amount of text on the page are examined, it is seen that 3rd grade students have the lowest average score (0.55) and 1st grade students have the highest average score (0.74).

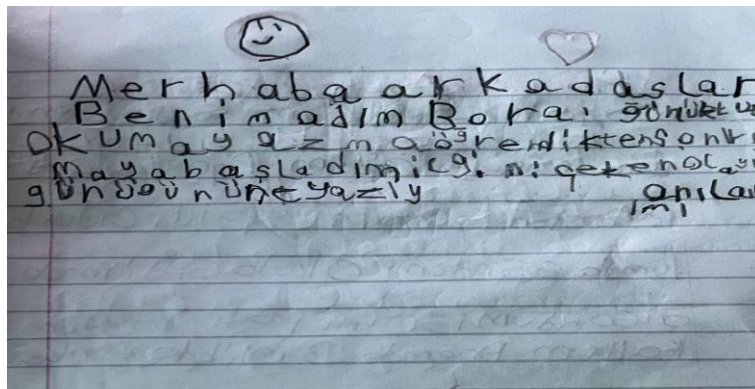**Figure 3**
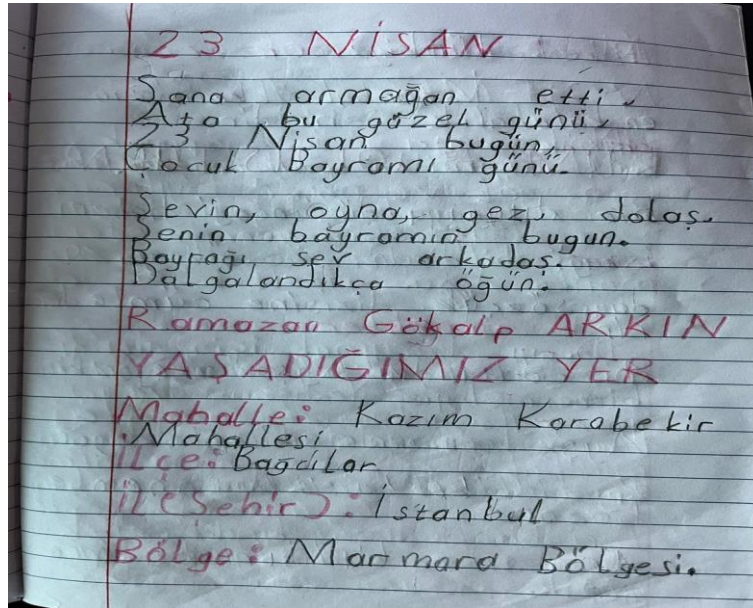
2nd Grade Level Notebook Example-1

Figure 4

2nd Grade Level Notebook Example-2

For the findings related to the criterion of the amount of text on the page, it is noted that 3rd grade students have the lowest average score (0.55) and 1st grade students have the highest average score (0.74). Additionally, the findings related to the criterion of expression meaningfulness show that 1st grade students have the lowest average score (0.33) and 3rd grade students have the highest average score (0.61). When the findings related to the criterion of the amount of writing in the notebook are examined, 4th grade students have the lowest average score (0.21) and 1st grade students have the highest average score (0.46). It is seen that the amount of writing in the notebook decreases regularly from the 1st grade onward.
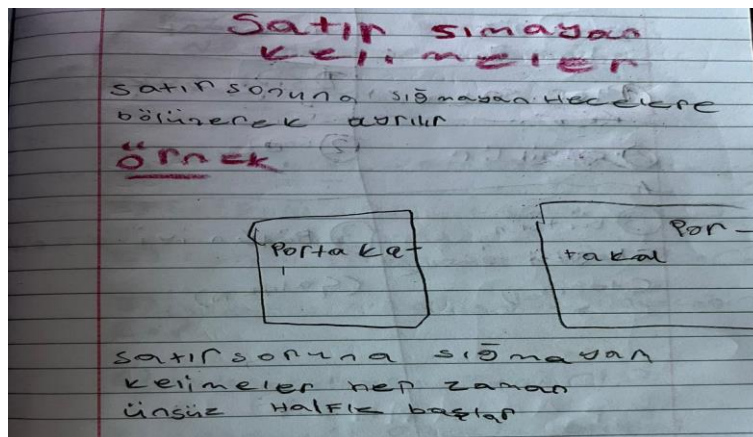
Figure 5

3rd Grade Level Notebook Sample-1

Figure 6

3rd Grade Level Notebook Sample-2
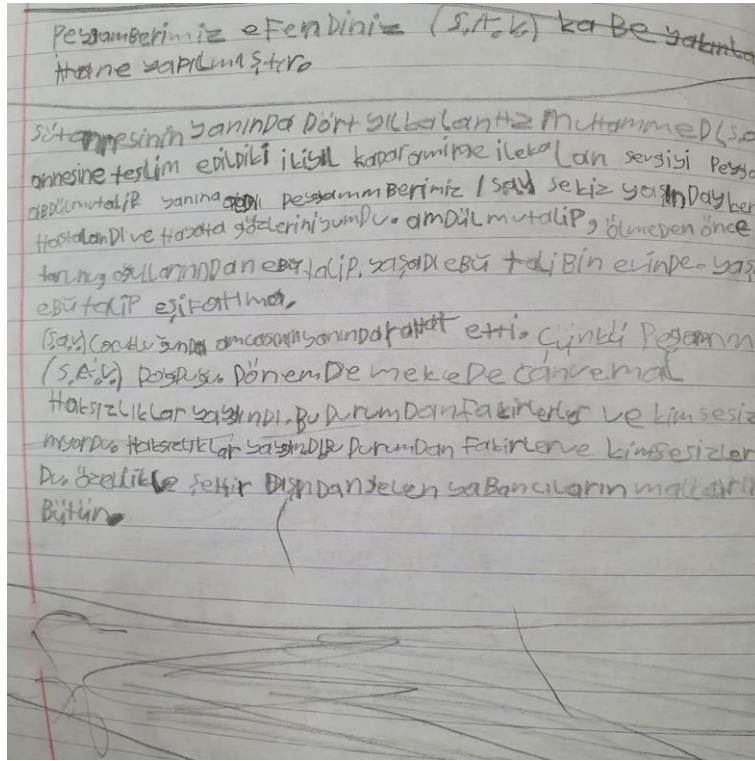

Figure 7
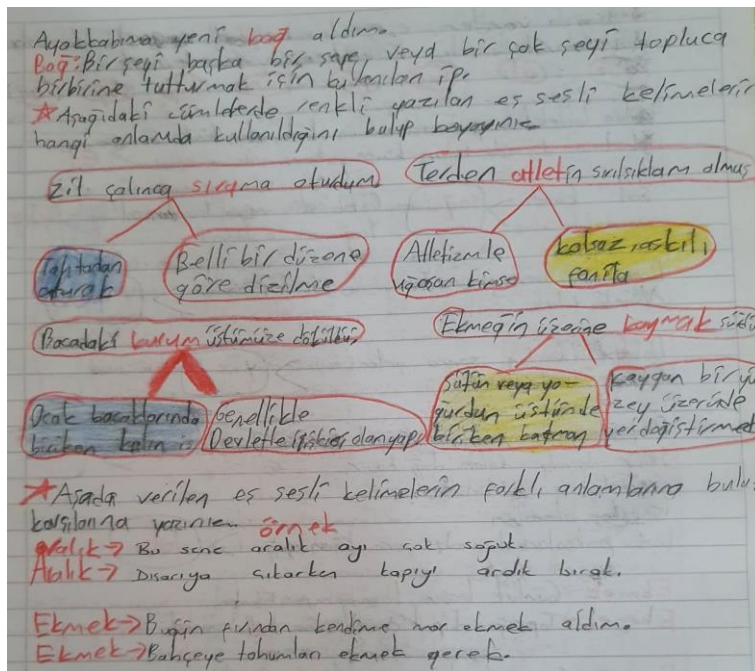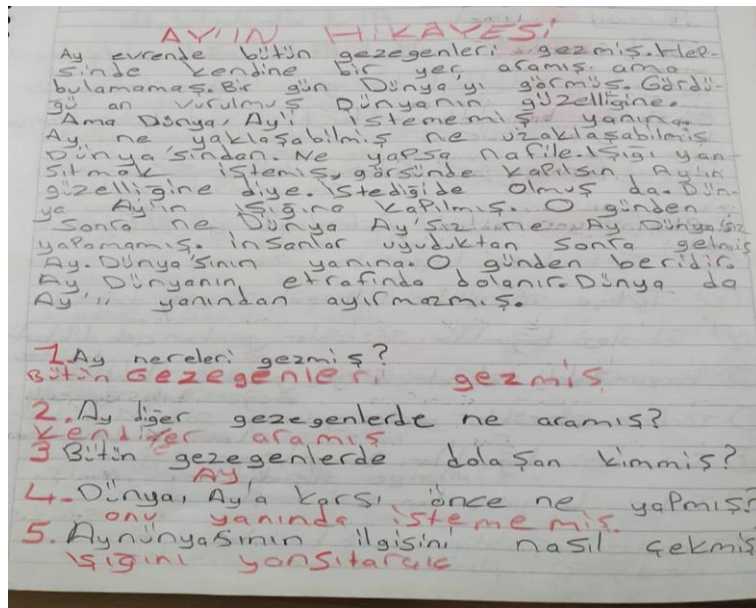
4th Grade Level Notebook Example-1

Figure 8

4th Grade Level Notebook Example-2

When the distribution of the scores related to the criteria in the Writing Achievement Assessment Form according to the grade levels is analyzed, it is seen that 3rd and 4th grade students have the lowest average scores in nine criteria, while 1st and 2nd grade students have the highest average scores in nine criteria. It is seen that students' writing skills should improve as the grade level progresses, but they seem to regress. This situation shows that the studies on writing education in schools should be concentrated on the 1st and 2nd grades and the reasons for the deterioration in writing order should be determined.

CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS

This study investigated the mechanical writing skills of primary school students and found a noticeable decrease in their mechanical writing achievement scores as they progressed to higher grade levels. The 1st grade level had the highest averages, while the 4th grade level had the lowest averages. This indicates that the students' writing skills deteriorated as they advanced to upper levels. The study collected the data during the pandemic, which was an extraordinary time, and suggested that the impact of distance education on writing skills could not be overlooked. It is thought that because the 1st grade level is a special stage for writing skills and that students carried out the process with parental support in front of the screen during the pandemic may have positively affected their writing skills. Feedback is also vital, especially for writing skills, and it improves writing effectiveness through corrections. However, a study found that teachers agreed that distance education, which they considered beneficial for teaching grammar and enhancing listening skills during the pandemic, was insufficient for developing skills that involved psychomotor processes such as reading and writing, and especially speaking skills (Günaydın, 2021). The mechanical dimension of writing, in particular, requires

individual observation and follow-up because it includes physical elements (Kuşdemir, Katrancı, & Arslani, 2018).

Sarıkaya (2021) examined writing skills in the distance education process and reported that writing activities were neglected during the pandemic and postponed to the next semester when face-to-face education was expected to resume. The study also found that student motivation was low in this process, there were challenges in managing the classroom environment, and students' writings did not receive adequate feedback and corrections. The existence of unusual conditions and situations is regarded as one of the significant factors that adversely affect the students' writing skills.

In the study conducted by Yıldız, Yıldırım, and Ateş (2009), "The Suitability of Classroom Teachers' Writing on the Classroom Board in Terms of Legibility in Modeling" was examined. The importance of teachers being good models for students in gaining writing skills was underlined. However, in the distance education process, even the physical environment, where teachers can be a model, could not be created. This situation is seen as one of the negativities affecting students' writing skills. At the same time, it is seen in the study that the scores of criteria such as writing order, writing neatness, the way the letters are written, and the size of the letters decrease toward the upper levels. It is thought that the change in writing notebooks that occurred after the completion of literacy education also led to the decline in these skills of the students. While students mostly use grid-lined notebooks in the first literacy process, they start to use lined notebooks toward the upper levels. It is observed that students' conformity to the writing criteria and ability to write more legibly are enhanced when they use guide-lined notebooks. Similarly, this study revealed that more than half of the 3rd grade students' writing was not legible (Yıldız & Ateş, 2010). It is thought that there may be a deterioration in writing skills toward the upper grades during the transition from the grid-lined notebook, which standardizes the mechanical writing process, to the lined notebook.

One of the results obtained from the study is that the criterion of expression meaningfulness increases from the 1st grade to the 4th grade. According to the data obtained, it can be said that dictation and writing by looking practices are intensively practiced in writing studies, especially in the 1st grade. Similarly, the study conducted by Tok and Erdoğan (2017) revealed that the written expression skills of 2nd and 3rd grade students were at a moderate level, while 4th grade students were at a good level. It is thought that expression meaningfulness has a higher average at the 4th grade level because students focus more on the mechanical writing and physical dimensions of writing, especially at the first levels. As qualified writing cannot be expected without acquiring the mechanical dimension of writing, the student who becomes automatic in mechanical writing will be able to devote most of their effort to the content and quality of writing (Graham, 2010). Similar to how fluent reading is a requirement for comprehension and reading comprehension is the ultimate objective of reading skill, mechanical writing is considered as the key to fluent writing as a requirement for qualified writing.

Writing, which is one of the basic skill areas of the Turkish course, is inseparable from reading, speaking, and listening as a means of self-expression. For this reason, as revealed in the study, it would be appropriate to identify the problems in mechanical writing skills for students to develop qualified writing works and use writing as one of the ways of self-expression. After these problems have been identified, it is thought that intervention programs related to the skills that students need can be developed and studies can be conducted on these programs. In addition, teachers can carry out planned writing activities in classroom environments for the criterion items (font size, font layout, expression meaningfulness, etc.) that students have problems with in the mechanical writing process.

The argument that the time allotted for writing skills is cut short before the writing abilities are fully mastered is raised by the decline in success scores in the criterion as the grade level increases. In addition, students can be given more opportunities to create meaningful and original works gradually in addition to dictation and writing by looking.

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