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An investigation of the relationship between story writing skills and mental image clarity in fourth grade primary school students

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Abstract

This study aims to determine the level of relationship between story writing skills and mental image clarity among fourth-grade primary school students. The research was conducted with 60 students studying in two public schools in the central district of Ardahan during the second semester of the 2024–2025 academic year. A correlational survey model, one of the quantitative research methods, was employed. Data were collected using the "Story Writing Skills Evaluation Scale" and the "Mental Image Clarity Scale." Descriptive statistics, the Shapiro-Wilk test, Spearman's Rho correlation coefficient, and the independent samples t-test were used in the data analysis. The findings revealed a high-level, positive, and statistically significant relationship between students' story writing skills and their mental image clarity. Furthermore, no significant difference was found in story writing skills and mental image clarity based on gender. The results suggest that supporting students' ability to create mental imagery may positively influence their written expression skills.

Keywords: Primary school, 4th grades, mental image clarity, story writing skill.

Introduction

Throughout human history, individuals have sought ways to share their emotions, thoughts, and imaginations with others, and to make sense of the world around them. While this fundamental need was initially met through oral communication, written expression gradually evolved into an indispensable tool for understanding and expressing oneself and the external world (İzdeş, 2011). Writing is considered a cornerstone of human civilization, enabling connections with past generations and the transfer of knowledge to future ones (Erbilen, 2021). In this context, writing plays a central role in communication, cultural memory, and knowledge production (Bazerman, 2020).

One of the fundamental functions of writing is to allow individuals to express their ideas and emotions in a permanent format. From this perspective, written expression plays a critical role in the formation of both individual and collective memory. According to Coşkun (2006), writing is the process by which individuals convey their feelings, thoughts, and desires through symbols. As the importance of passing knowledge and experience to future generations has become more widely

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recognized, the significance of writing and its instruction has grown. Güneş (2007) defines writing as the process of transferring mentally constructed knowledge into written form, while Akyol (2001) emphasizes the role of motor skills in producing the symbols necessary for expressing ideas. Writing instruction, therefore, is a key component of education beginning in primary school (Taç, 2020), and student participation plays a critical role in developing writing skills (Demir, 2013; Göçer, 2010). Contemporary research also indicates that students who use metacognitive strategies—such as planning, organizing, and evaluating—show significant improvement in writing performance (De La Paz & Graham, 2020; Kaya, 2016). As Erol (2021) suggests, metacognition is a teachable skill, and enhancing students' mental awareness during writing instruction contributes positively to their written expression performance. Developing writing skills supports not only expression but also cognitive abilities like organizing, associating, and critical thinking, as well as affective dimensions like imagination (McKeough, Palmer, & Williams, 2022).

The main goal of writing education is to enable students to create texts in which they can articulate their emotions, thoughts, dreams, and impressions (Yılmaz, 2008). In line with this goal, student-centered approaches guided by teachers are used in writing instruction, which is treated as a process. Story writing is one of the most effective techniques for enhancing students' writing skills (Özcan, 2014), and due to their engaging nature, stories are commonly employed in writing instruction (Akbayır, 2011). Akyol (2013) notes that stories help students develop both personality and language skills and provide opportunities to reflect on their own and others' emotions and behaviors. Essentially, story writing involves recounting an event or characters within the framework of narrative elements (Kaya, 2016), and helps students improve imagination, emotional expression, and critical thinking (İzdeş, 2011). Through creative story-building, students develop their imagination and produce original content (Duran & Karataş, 2020). For students to write effective stories, they need to develop observational skills, supported through visual reading and descriptive activities (Kaynaş & Anılan, 2015). As Özcan (2014) points out, story writing is a complex structure involving not only observation but also interpretation, organization, and revision.

In addition to the contributions of story writing to the development of writing skills, mental imagery plays a significant role in this process. Mental images are internal representations of objects, people, situations, or events (Bakırcıoğlu, 2012), and may involve all five senses (Sadoski, 2002). The use of multisensory experiences in learning enhances the effectiveness of knowledge retention (Ergin, 1995). Mental imagery supports learning and memory by providing an interactive coding system apart from verbal representations (Paivio, 1971). This is especially relevant during childhood, as vivid mental images enhance comprehension and recall of texts (Sadoski, Paivio, & Goetz, 1991). The ability to form mental images develops gradually from childhood to adolescence, with increased detail and control over time (Kosslyn, Behrmann, & Jeannerod, 1995). Teaching visualization strategies at an early age can help students process and retain information more effectively (Pressley, 1977). Moreover, mental imagery is closely linked with thinking processes—particularly creative thinking—where image vividness and flexibility play a key role in generating novel ideas (Finke, Ward, & Smith, 1992). The interaction between language and mental imagery significantly influences how children perceive and express the world (Johnson-Laird, 1983).

When writing stories, students often rely on mental images to construct events drawn from either

real life or imagination (Kaya, 2016). In order to develop effective story writing skills, students must be able to translate the mental constructs formed through observation into coherent and logically organized written text (Erdoğan, 2019). The stories produced through students' mental outputs not only communicate to others but also offer self-reflective insights (Topuzkanamış, 2014). Given that writing is a form of thinking education, its contribution to the development of mental skills is undeniable (İzdeş, 2011). Teachers should foster environments that enhance such skills as part of broader learning objectives. Students are expected to integrate mental images with other knowledge when writing stories (Yılmaz, 2008). Numerous studies support the idea that using mental imagery enhances academic achievement (Akyol, 2013; Çaylı, 2019; Keskin, Ay & Akıllı, 2016; Kocaarslan, 2015; Macomber, 2001). This study distinguishes itself from previous work by specifically examining the relationship between mental image clarity and story writing skills. Therefore, it is anticipated that the findings will contribute to the existing literature, inform instructional practices, and guide educational stakeholders. Fourth-grade students were selected because they are at a developmental stage where reading and writing skills are more advanced compared to other grade levels.

Purpose of the Study

The primary aim of this study is to determine the relationship between fourth-grade primary school students' story writing skills and their mental image clarity. In line with this objective, the study seeks to answer the following research questions:

1. What is the level of story writing skills among fourth-grade primary school students?
2. What is the level of mental image clarity among fourth-grade primary school students?
3. Is there a significant relationship between story writing skills and mental image clarity among fourth-grade primary school students?

Method

Research design

This study employed a correlational survey model, a quantitative research design, to descriptively examine and identify the relationship between fourth-grade primary school students' story writing skills and their mental image clarity. While cause-and-effect relationships are typically explored through experimental designs (Creswell, 2017), this study aimed to identify existing associations without manipulating any variables, due to its descriptive nature. The correlational design enables researchers to statistically determine the direction (positive or negative) and strength of the relationship between two or more variables (Karasar, 2012; Fraenkel, Wallen, & Hyun, 2019). Survey designs generally aim to describe the characteristics, attitudes, or beliefs of a particular group (Büyüköztürk et al., 2011). In correlational research, the natural relationships between variables are observed without intervention (Gravetter & Forzano, 2018). Accordingly, this study descriptively examined the natural relationship between story writing skills and mental image clarity in students' everyday learning environments.

Participants

The participants of this study consisted of 60 fourth-grade students attending two public primary schools in the central district of Ardahan, Türkiye, during the second semester of the 2024–2025 academic year. Official permissions were obtained from relevant authorities to conduct the

study. Within this scope, information regarding the socioeconomic levels of schools in the central district was obtained from the Ardahan Provincial Directorate of National Education.Participants were selected using simple random sampling, a type of probability sampling in which each individual has an equal chance of being selected (Fraenkel, Wallen, & Hyun, 2019). Fourth-grade students were chosen because their writing skills are generally more developed compared to students in lower grade levels. To ensure a more homogeneous sample, only students from public schools were included. Participation was voluntary, and informed consent was obtained from all participants and relevant stakeholders.

Data collection tools and procedure

The selection of data collection tools in this study was based on a review of the relevant literature and expert opinions, in alignment with the skills intended to be measured. To assess students' story writing skills, the Story Writing Skills Evaluation Scale, developed by Yılmaz (2019), was used. To measure students' mental image clarity, the Mental Image Clarity Scale, originally developed by Sheveland (1992) and adapted into Turkish by Kocaarslan (2015), was employed.

The data were collected during the second semester of the 2024–2025 academic year in two public primary schools in Ardahan. The study followed a correlational survey model, one of the quantitative research methods. Prior to data collection, ethical approval was obtained, and official permissions were secured from the Ardahan Provincial Directorate of National Education. After informing school administrations, the implementation process began.

The data collection tools were administered over a four-week period. The researcher provided students with information regarding the purpose of the study, explained how to complete the forms, and responded to student inquiries throughout the process.

Detailed information regarding the tools and procedures was provided to ensure the internal and external reliability of the study. The selected scales were evaluated based on content validity, construct validity, and reliability coefficients. Their suitability was confirmed through pilot applications, pre-tests, and expert reviews. Ensuring alignment with the study's objectives and the developmental level of the participants was critical for validity and reliability.

Story writing skills evaluation scale

To assess students' story writing skills, a scale aligned with the Turkish Language Curriculum was chosen after reviewing existing instruments (e.g., İzdeş, 2011; Öztürk, 2007; Yılmaz, 2019). The selected scale was originally developed by İzdeş (2011) to measure the story writing skills of seventh-grade students. It initially included 17 items, designed based on literature review and expert feedback. A pilot study was conducted with 33 fourth-grade students, and the structure of 17 items was retained. However, one item was excluded based on expert evaluation due to its incompatibility with the developmental level of fourth-grade students. Written permission was obtained from İzdeş (2011) for the use and adaptation of the scale. Each item on the scale is rated on a 4-point scale, and the tool assesses students' ability to compose narrative texts, use imaginative elements, organize writing, and share their work.

Mental image clarity scale

The Mental Image Clarity Scale, originally developed by Sheveland (1992), was adapted to Turkish by Kocaarslan (2015) with data from 229 students selected through convenience sampling. The

scale consists of 21 items, each rated on a 4-point Likert scale. Confirmatory Factor Analysis (CFA) supported its construct validity. Reliability analyses revealed a Cronbach's alpha coefficient of .720, Spearman-Brown coefficient of .773, and Guttman split-half reliability of .730 (Kocaarslan, 2015), indicating that the scale is a consistent and reliable instrument.

The scale measures clarity of mental images across seven sensory modalities: visual, auditory, kinesthetic, tactile, olfactory, gustatory, and vestibular. Permission for its use was obtained from Kocaarslan.

Data collection and analysis

Data analysis was conducted using IBM SPSS Statistics 27.0. Descriptive statistics (mean, standard deviation, minimum and maximum values) were calculated. The Shapiro-Wilk test was used to assess normality of distribution, and the results are presented in Table 1 and Table 2.

Table 1 Results of Shapiro-Wilk Test for each scale

Variable	SW	df	p
Story Writing Skills	0.952	60	0.018
Mental Image Clarity	0.962	60	0.062

Table 2 Results of Shapiro-Wilk Test for each scale by gender

Variable	Gender	SW	df	p
Story Writing Skills	Female	0.949	30	0.159
	Male	0.959	30	0.290
Mental Image Clarity	Female	0.961	30	0.327
	Male	0.969	30	0.510

The results of the normality tests revealed that:

- The scores from the Mental Image Clarity Scale were normally distributed.
- The scores from the Story Writing Skills Evaluation Scale did not follow a normal distribution.

Based on these findings:

- Spearman's Rho correlation coefficient was used to examine the relationship between the two scales.
- Since the scores for both scales were normally distributed by gender, independent samples t-tests were conducted to compare differences by gender.

Findings

Story-writing skills of fourth-grade students

The first sub-question of the study aimed to determine the story-writing skill levels of fourth-grade primary school students. The findings are presented in Table 3 below.

Table 3 Comparison of story writing skills by gender

Variable	N	$\bar{X} \pm SD$	Min	Max	T	p
Female	30	48.5667±8.32397	35.00	62.00	0.234	0.815
Male	30	48.0667±8.19560	35.00	63.00		
Total	60	48.3167±8.19361	35.00	63.00		

As seen in Table 3, the study was conducted with a total of 60 students, including 30 girls and 30 boys. The mean score for girls on the Story Writing Skills Evaluation Scale was 48.57 (SD = 8.32), while the mean for boys was 48.07 (SD = 8.20). The overall mean was 48.32 (SD = 8.19), with

scores ranging between 35 and 63. According to the independent samples t-test, there was no statistically significant difference in story writing skills based on gender.

Mental image clarity levels of fourth-grade students

The second sub-question addressed students' mental image clarity levels. The results are shown in Table 4.

Table 4 Comparison of mental image clarity scores by gender

Variable	N	$\bar{X} \pm SD$	Min	Max	T	p
Female	30	61.6333±9.58621	45.00	77.00	0.230	0.819
Male	30	61.0667±9.48296	45.00	78.00		
Total	60	61.3500±9.45789	45.00	78.00		

*p< 0.05

As shown in Table 4, the mean score for girls on the Mental Image Clarity Scale was 61.63 (SD = 9.59), and for boys, it was 61.07 (SD = 9.48). The overall average was 61.35 (SD = 9.46), with scores ranging between 45 and 78. Again, the t-test revealed no statistically significant difference between genders.

Correlation between story writing skills and mental image clarity

The third sub-question examined the relationship between students' story writing skills and their mental image clarity. Findings are displayed in Table 5.

Table 5 Correlation between story writing skills and mental image clarity

Variable		Mental Image Clarity
Story Writing Skills	r	0.999*
	p	<0.001

*p< 0.01

The results from Spearman's Rho correlation coefficient indicate a strong, positive, and statistically significant correlation between story writing skills and mental image clarity (r = .999, p < .001). According to the classification suggested by Büyüköztürk et al. (2009), correlation values between .71 and .99 indicate a high-level relationship. These findings suggest that as students' mental image clarity increases, their ability to write stories also improves significantly.

Discussion and conclusion

This study examined the relationship between the story writing skills of fourth-grade primary school students and their mental image clarity. The analyses revealed no significant differences in either skill area based on gender. Furthermore, a positive, strong, and statistically significant relationship was found between students' story writing skills and their mental image clarity.

This study examined the relationship between the story writing skills of fourth-grade primary school students and their mental image clarity.

These findings suggest that improvements in students' story writing abilities may positively influence their capacity for mental imagery. Since the writing process involves the effective use of both cognitive and affective domains, the richness of mental images appears to directly enhance the quality of written work (McCutchen, 2011; Sadoski & Paivio, 2001).

Previous research on mental image clarity has primarily focused on reading comprehension

(Çaylı, 2019; Keskin, Ay, & Akıllı, 2016; Kocaarslan, 2015; Kocaarslan, Akyol, & Güneş, 2017; Macomber, 2001). However, due to the interconnected nature of language skills, development in writing can also positively impact other domains. The results of this study support the idea that mental image clarity contributes to both cognitive and affective development (Akyol, 2013; Aykutlu, 2014; Cohen & Johnson, 2011; Güneş, 2007; Sadoski, 2002).

In this context, incorporating mental imagery activities into story writing instruction can significantly support students' creative thinking and the production of original work (Keskin, Ay, & Akıllı, 2016; Marzano, 2004). Students with low levels of mental image clarity may experience challenges in academic performance and motivation. Mountain (1986) emphasized the importance of mental image clarity in learning processes. Similarly, studies by Gunston-Parks (1985) and Oakhill and Patel (1991) revealed that mental imagery enhances narrative comprehension, particularly for struggling readers.

Training in mental imagery within Turkish language classes has been found to positively impact students' academic achievement (Kocaarslan, Akyol, & Güneş, 2017). The effect of metacognitive strategies in writing has also emerged as a critical factor in students' performance. Supporting writing with cognitive and affective experiences significantly improved story writing outcomes (Kaya, 2016). According to İzdeş (2011), observation and mental visualization are essential components in evaluating writing performance. Kaynaş and Anılan (2015) further emphasized that students must be able to observe effectively and describe mentally in order to write strong narratives. Taç (2020) defined writing as the process of transforming mentally constructed images—formed through sensory perception—into text.

A large body of research highlights the significance of mental image clarity in students' experiential, behavioral, and emotional development (Macomber, 2001; Paivio, 2007). Supporting the development of mental imagery in educational contexts can lead to meaningful contributions to students' cognitive, social, and psychological growth (Kocaarslan, Akyol, & Güneş, 2017; Marzano, 2004).

The positive and strong relationship found between story writing skills and mental image clarity in this study addresses a gap in literature. Future studies could explore the interaction between story writing instruction and mental imagery training in more detail. Additionally, the influence of mental imagery on variables such as student motivation, attitude, creative thinking, and self-regulation may be investigated through further research.

Kaynakça

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