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Research Article

Examination of Illustrated Children's Books on Natural Disasters

Doğal Afet Konulu Resimli Çocuk Kitaplarının İncelenmesi

Tuğçe Yakar Ulusoy*, Kübra Kanat**

* Ministry of National Education, Ankara, Türkiye. E-mail: yakartugce01@gmail.com
Millî Eğitim Bakanlığı, Ankara, Türkiye. E-posta: yakartugce01@gmail.com
** Bolu Abant İzzet Baysal University, Bolu, Türkiye, E-mail: kubrakanat@ibu.edu.tr
Bolu Abant İzzet Baysal Üniversitesi, Bolu, Türkiye. E-posta: kubrakanat@ibu.edu.tr

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Abstract

Purpose: *This study was conducted to examine illustrated children's books on natural disasters prepared for the early childhood period.* ***Method:*** *To this end, a document review was conducted using criterion sampling, one of the purposive sampling methods, to determine the study group. Accordingly, 20 illustrated children's books were included in the study, and the "Illustrated Children's Books on Natural Disasters Evaluation Form" prepared by the researchers in accordance with the relevant literature was used in the examination of these books. Through this form, the books in the study group were examined under a total of four themes: physical, drawing, content, and language characteristics. The research data was coded using content analysis methods to create categories, and examples were presented in tables.* ***Findings:*** *According to the study findings, the physical features theme consisted of the categories of cover, design, dimensions, typography, target age group, and illustrations. The illustration features theme comprised the categories of description, dimensions, techniques, and character continuity. The content features theme comprised the categories of narration, geographical and cultural elements, handling of the disaster theme, characterization, age group relevance, and plot structure. The plot structure category comprised the subcategories of introduction, development, and conclusion. The language features theme consists of the categories of narration, grammar and punctuation, vocabulary related to disasters, and descriptive language.* ***Conclusion:*** *Considering the need to make children directly or indirectly sensitive to the subject of natural disasters and to inform them about what to do, the study recommends increasing the number of high-quality illustrated children's books published and conducting different studies on the effectiveness of these books.*

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Özet

Amaç: *Bu çalışma, erken çocukluk dönemi için hazırlanmış doğal afetlerle ilgili resimli çocuk kitaplarını incelemek amacıyla yapılmıştır.* ***Yöntem:*** *Bu amaç doğrultusunda, çalışma grubunu belirlemek için amaçlı örnekleme yöntemlerinden biri olan ölçüt örnekleme yöntemi kullanılarak bir doküman incelemesi yapılmıştır. Buna göre çalışmaya 20 adet resimli çocuk kitabı dahil edilmiş ve bu kitapların incelenmesinde, ilgili literatüre uygun olarak araştırmacılar tarafından hazırlanan "Doğal Afetlerle İlgili Resimli Çocuk Kitapları Değerlendirme Formu" kullanılmıştır. Bu form aracılığı ile çalışma grubundaki kitaplar; fiziksel, çizim, içerik ve dil özellikleri olmak üzere toplam 4 tema altında incelenmiştir. İçerik analizi yöntemiyle araştırma verileri kodlanarak kategoriler oluşturulmuş ve örnekleri tablolarda sunulmuştur.* ***Bulgular:*** *Çalışma bulgularına göre fiziksel özellikler teması; kapak, boyut, yazı, yaş grubu ve resimler kategorilerinden oluşmuştur. Çizim özellikleri; betimleme, boyut, teknikler ve karakter devamlılığı kategorilerinden oluşmuştur. İçerik özellikleri; anlatım, coğrafi ve kültürel özellikler, konuyu işleyiş, karakterler, yaş grubu ve olay örgüsü kategorilerinden oluşmuştur. Olay örgüsü kategorisine yönelik giriş, gelişme ve sonuç alt kategorileri oluşmuştur. Dil özellikleri teması ise anlatım, yazım kuralları, afet konusunda kelime zenginliği ve betimlemeler kategorilerinden oluşmuştur* ***Sonuç:*** *Çalışma sonucunda çocukların doğal afetler konusuna ilişkin doğrudan veya dolaylı olarak duyarlı hale getirilmesi ve ne yapmaları gerektiği konusunda bilgilendirilmesi gerekliliği göz önüne alınarak, kaliteli resimli çocuk kitaplarının yayın sayısının artırılması, bu kitapların etkililiğine ilişkin farklı çalışmalar yapılması gibi önerilerde bulunulmuştur.*

Introduction

A significant number of people worldwide are affected by natural disasters. These events, which disrupt the natural course of life, cause both material and emotional losses and affect societies on a large scale, are powerful natural phenomena. Natural disasters may occur with such severity that they can leave lasting marks on communities, destroy inhabited areas, and significantly hinder the socio-economic and socio-cultural functioning of societies, resulting in loss of life and property (Akman & Yıldırım, 2022; Bağbancı, 2015). In addition to their immediate physical consequences, disasters often lead to long-term psychological and social challenges for affected populations.

The impact of natural disasters on individuals and communities extends beyond physical and social consequences; it also affects the lives of children (Taylor & Peace, 2015). In fact, the adverse effects of disasters may be observed even before birth. Research shows that disasters can result in lower birth weights and developmental problems in fetuses (Torche, 2011). Due to their still-developing language and cognitive abilities, children may struggle to express their emotions fully. However, this does not mean they are less affected by disasters. On the contrary, children are among the most vulnerable and sensitive victims of natural disasters (Karabulut & Bekler, 2019). The challenges they face often have a greater impact on them compared to adults because they have limited experience and coping strategies to deal with traumatic events (Erkan, 2010).

Children tend to feel anxious about unfamiliar concepts. Therefore, it is essential to raise their awareness and understanding, particularly regarding anxiety-inducing issues such as natural disasters (Karabulut & Bekler, 2019). One of the most effective tools helping children understand complex or potentially frightening topics is illustrated children's books (Erkan, 2010). Picture books combine visual and textual elements, allowing children—especially those who cannot yet read independently—to construct meaning through images and narrative context. By interpreting illustrations, children can develop skills such as visual interpretation, prediction, and reasoning (Dönmezler, 2019). Research in the international literature emphasizes that the interaction between images and text in picture books plays a crucial role in children's meaning-making processes and supports their early literacy development (Nikolajeva & Scott, 2006).

Illustrated children's books are also valuable tools that help children cope with various problems, events, and life situations (Kalaycıoğlu, 2012). In addition to their educational value, these books offer children opportunities to encounter different emotions, social situations, and real-life experiences in a safe narrative environment. They also play a significant role in children's lives by conveying knowledge on specific themes and supporting their understanding of the world around them (Russell, 1994). Through illustrations, picture books enable children to visualize abstract concepts more easily and engage actively with stories, thereby supporting cognitive and language development (Güngör, 2022; Arizpe et al., 2023). Furthermore, shared reading experiences involving picture books contribute significantly to children's vocabulary development, narrative comprehension, and communication skills through interactions between children and adults (Whitehurst & Lonigan, 1998; Sipe, 2008). Especially in early childhood, when conveying subjects related to science and nature, illustrated books function as both motivational and entertaining learning materials (Balat & Önkol, 2017). The literature also supports the idea that picture books are important tools for addressing both positive and negative experiences that children may encounter throughout their development (Gönen & Veziroğlu, 2013). Therefore, illustrated children's books can be considered appropriate tools for enhancing children's knowledge and awareness of natural disasters. In this context, parents and educators need to select picture books that are appropriate for the child's age and developmental level.

Literature review

A review of the literature reveals that various studies have examined picture books aimed at early childhood across different themes. These include values (Dirican & Dağlıoğlu, 2014), elements of violence and fear (Dağlıoğlu & Çamlıbel Çakmak, 2009), science-related concepts (Yılmaz Genç & Özen Uyar, 2016), children's literature and cultural elements (Dedeoğlu et al., 2021), gender roles (Bahçeli Kahraman & Özdemir, 2019), and fundamental concepts such as identifying people and objects, spatial orientation, time, and quantity (Kılıç et al., 2017). Similarly, studies in the international literature have examined picture books in relation to themes such as cultural representation, social values, and children's understanding of social issues (Arizpe et al., 2023; Crisp & Hiller,

2011; Johnson et al., 2017). However, there is a noticeable gap in studies specifically examining illustrated children's books on natural disasters. Therefore, this study aims to analyze picture books addressing natural disasters. It is anticipated that this research will assist parents and educators in selecting suitable illustrated books to raise children's awareness of natural disasters.

Methodology

Research Design and Documents

This study, which aims to examine illustrated children's books focusing on natural disasters, employs the case study method, a qualitative research approach. According to Merriam (2013), a case study is a qualitative research design used to explore a bounded system or a specific phenomenon in depth. Similarly, Creswell (2007) describes case studies as a type of qualitative research in which the researcher investigates one or more cases within a bounded context over time using multiple data collection sources (e.g., observations, interviews, documents, audiovisual materials, and reports). Considering the aim of this study and the use of illustrated books limited to the theme of natural disasters, the case study method was deemed appropriate for its focus on detailed investigation using predetermined criteria and themes.

The documents consist of illustrated children's books on the theme of natural disasters. The criterion sampling method, a type of purposive sampling, was used to select the documents. In this method, criteria for the research are established in advance, and only materials that meet these criteria are included (Patton, 2014). Accordingly, the following criteria were set for selecting the books in this study: (1) addressing early childhood audiences, (2) focusing on the theme of natural disasters, and (3) being published in Turkish as illustrated children's books. In line with these criteria, books related to the subject were sourced from various publishing houses, websites, and social media, and a total of 20 books were identified. The books selected by the working group are presented in Table 1 below.

Table 1: *Information About the Documents*

Book Code	Title of the Book	Author(s)	Publisher	Type of Disaster
K1	Kurtarma araçları [Rescue Vehicles]	Christian Tielmann	Türkiye İş Bankası Kültür Yayınları	Fire
K2	Çağlar İtfaiyeci Oluyor [Çağlar Becomes a Firefighter]	Christian Tielmann	Türkiye İş Bankası Kültür Yayınları	Fire
K3	Kahraman İtfaiyeciler [Brave Firefighters]	Heather Amery & Stephen Cartwright	Türkiye İş Bankası Kültür Yayınları	Fire
K4	Afetten Korkma! [Don't Be Afraid of Disasters!]	Özgür Öcalan	Eksik Parça Çocuk	Earthquake, Fire, Storm, Tornado, Flood
K5	Bir Depremin Öyküsü [A Story of an Earthquake]	Nicholas Harris	1001 Çiçek Kitaplar	Earthquake, Landslide, Avalanche, Tsunami, Fire
K6	Bir Volkanın Öyküsü [A Story of a Volcano]	Nicholas Harris	1001 Çiçek Kitaplar	Volcanic Eruption, Earthquake
K7	İtfaiyeciler [Firefighters]	Mireille Fronty	1001 Çiçek Kitaplar	Fire, Forest Fire
K8	Elmer Sel Baskını [Elmer and the Flood]	David Mckee	Mikado Yayınları	Flood
K9	Puf Diye Yıkıldı! [Collapsed with a Puff!]	Adile Alkan	Cezve Çocuk	Earthquake
K10	Selin Fırtına Kopuyor [Selin the Storm is Coming]	Catherine Metzmeyer	Remzi Kitabevi	Storm
K11	Fırtınadan Korkulmaz ki… [Don't Be Afraid of the Storm…]	OrianneLallemand	Almidilli Yayınları	Storm
K12	Tilki ve Orman Yangını [The Fox and the Forest Fire]	Danny Popovici	Okuyan Koala Yayınevi	Fire
K13	Elmer ve Rüzgar [Elmer and the Wind]	David Mckee	Mundi ÇocukYayınları	Storm
K14	Depremde Kendimizi Nasıl Koruruz [How to Protect Ourselves During an Earthquake]	Ayşen Oy	Mandolin Yayınları	Earthquake
K15	Toprak [Soil]	Ezgi Berk	Türkiye İş Bankası Kültür Yayınları	Earthquake
K16	Çök! Kapan! Tutun! [Drop! Cover! Hold On!]	Nurben Doğan	Okul Tabanlı Afet Eğitimi Projesi	Earthquake
K17	Ateşin Yaramaz Akrabası Yangın [Fire: The Naughty Cousin of Heat]	Ayşen Oy	Mandolin Yayınları	Fire
K18	Ah! Vah! Of! Pof! [Ah! Oh! Ow! Puff!]	Koray Avcı Çakman	Kırmızı Kedi Çocuk Yayınları	Storm
K19	Deprem Keki [Earthquake Cake]	Neslihan Dinler	Porsuk Kültür Yayıncılık	Earthquake
K20	Orman Ahalisi [The Forest Folk]	Johanna Lumme	Dinozor Çocuk Yayınları	Fire

As seen in Table 1, the books most frequently authored by "Christian Tielmann, Nicholas Harris, and Ayşen Oy", as well as those published by "Türkiye İş Bankası Kültür Yayınları", predominantly address the themes of fire and earthquakes.

Collection Tools

Document analysis was used as the data collection method. According to Patton (2002), documents may serve as the primary source of data or as a supporting resource, depending on the research question. Documents also contribute to a deeper understanding of the research process and the events within it. In this study, the books were analyzed using the "Evaluation Form for Illustrated Children's Books on Natural Disasters," which was developed by the researchers based on relevant literature.

Evaluation Form for Illustrated Children's Books on Natural Disasters

The form was developed by reviewing relevant literature (e.g., Baker et al., 2001; Bilgin, 2011; Erol et al., 2021; Gönen et al., 2012; Pekdoğan, 2017). A table format was used, allowing for binary responses (yes/no) and spaces for notes or examples for each item. Expert feedback was obtained from four academics who specialize in children's literature, early literacy, and qualitative research. Based on their suggestions, revisions were made, and the form was finalized. The final version of the form consists of four sections: physical, illustration, content, and language features.

Data Analysis

Descriptive analysis was used to interpret the data, combining both deductive and inductive approaches. According to Patton (2002), inductive analysis involves deriving themes, subthemes, and categories from the data, whereas deductive analysis uses predetermined categories to organize and interpret data. Data from the books were recorded using the evaluation form. The sections on physical features, illustrations, content, and language were analyzed deductively using predefined codes. Open-ended responses regarding content and plot were analyzed inductively, yielding subcategories and themes. The findings were presented in tables and diagrams.

Validity and Reliability

To ensure external validity, the study's findings and the methods used to obtain them were explained in detail in the methodology and findings sections. Detailed findings were presented by providing examples/notes for each item in the evaluation form. Furthermore, to enhance external validity, the application "myfonts.com" was used to identify the font style and size used in the books analyzed in the study.

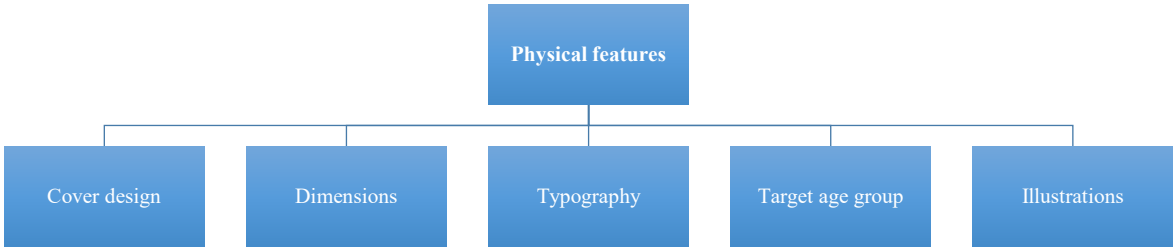
In this study, to ensure internal reliability, six randomly selected books—representing approximately 30% of the books analyzed—were read and coded by the researchers, and the inter-coder agreement rate was calculated. Accordingly, using the inter-coder agreement formula proposed by Miles and Huberman (1994), the coding agreement between coders was found to be 88%. An inter-coder consistency rate above 70% indicates consistent coding (Miles & Huberman, 1994). This process of calculating coder agreement was carried out during the data exploration stage, and as high consistency in coding was identified, the analysis process continued. Throughout the data analysis, consensus was reached among the researchers regarding codes, categories, and

themes. To ensure external reliability in this study, the researchers frequently met to conduct impartial analyses and consulted with subject matter experts. In addition, all data sets and notes collected during the study are being stored as files.

Findings

Examination of the physical features of illustrated children's books on natural disasters

Figure 1: *Categories Related to Physical Features*



As shown in the figure, the theme of physical features comprises the following categories: cover design, dimensions, typography, target age group, and illustrations.

Table 2: *Subcategories and Examples/Notes Regarding Physical Features of the Books*

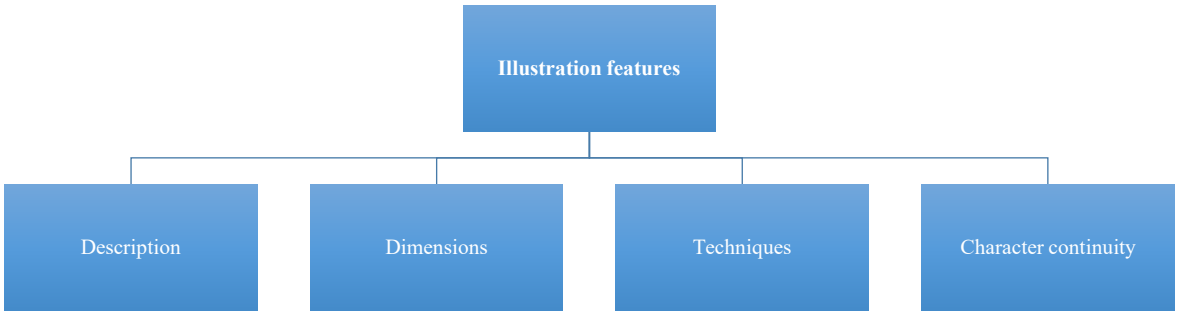
Subcategories	Book Codes (Yes)	Examples/Notes (Yes)	Book Codes (No)	Examples/Notes (No)
1.) Cover illustration filling the entire front cover	K1-K3, K5-K13, K15, K16, K18, K20	There is a big picture of a firefighter on the cover of the book. (K7)	K4, K14, K17, K19	
2.) Use of a cardboard cover	K1-K20	Thick cardboard covers were used in all books.		
3.) Cover image providing clues about content	K1-K3, K5, K7, K8, K11, K12, K14, K16, K17, K20	Covers include images of collapsed buildings, debris, injured people, or flooded areas (K5, K8).	K4, K6, K9, K10, K13, K15, K18, K19	Some covers show unrelated characters or abstract imagery that does not reflect disaster content (e.g., ants underground in K15).
4.) Specification of age group or grade level on the cover	K7, K14, K17	Cover includes "4+" (K7) or specifies "for ages 5-8" on the inner cover (K14, K17).	K1-K6, K8-K13, K15, K16, K18-K20	
5.) Proportionally more space allocated to images than to text	K1-K20	Images dominate the layout in all books.		

6.) Dimensions suitable for children's handling	K1-K20	All books range in size from 20×20 cm to 27×27 cm; all were found appropriate for children to hold and turn pages.
7.) Font size appropriate for target age group	K1-K20	Font sizes range between 12–22 pt across all books.
8.) Typeface simple and does not overpower the illustrations	K1-K20	The book cover states, "The font determined by the Ministry of National Education was used." (K7)

Analysis of Table 2 reveals that the majority of the books had covers fully covered by illustrations, and all used cardboard covers. In 12 of the 20 books, the cover illustration offered clues about the book's content; however, in the remaining 8, the cover failed to provide such clues. For instance, in book K4, the cover image shows characters running, which does not clearly reflect the internal content about disasters such as earthquakes, floods, or fires. Only 3 of the books indicated the recommended age group on the cover. It was also found that the illustrations occupied more space than the texts on the pages of all books. The books ranged in size from 20 to 27 cm, all suitable for young children to carry and flip through easily. The font size ranged from approximately 12 to 22 points, and the typography styles used were appropriate for the target age group. In summary, the books' dimensions, weight, durability, font size, and typography were developmentally appropriate for young children.

Examination of the illustrated features of illustrated children's books on natural disasters

Figure 2: *Categories Related to Illustrative Features*



As shown in the figure, the theme of illustration features consists of the following categories: description, dimensions, techniques, and character continuity.

Table 3: *Subcategories and Examples/Notes Regarding Illustration Features of the Books*

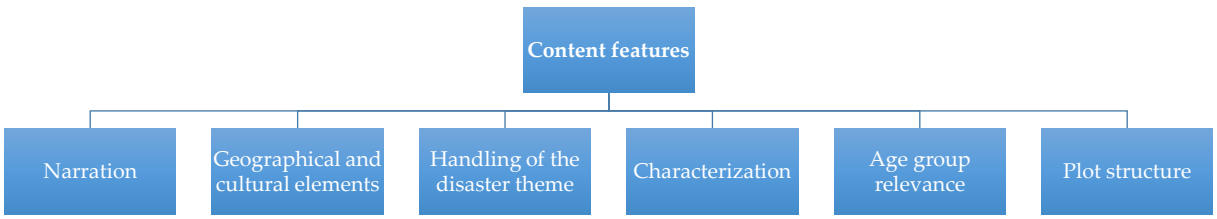
Subcategories	Book Codes (Yes)	Examples/Notes (Yes)	Book Codes (No)	Examples/Notes (No)
1.) Realistic illustrations	K1-K3, K5-K7, K9-K12, K14-K17, K19	The fire scene on a farm is realistically depicted with firefighters and equipment (K3); real-life visuals of the earthquake and soil concept are included (K15).	K4, K8, K13, K18, K20	Anthropomorphic animals simulating disasters (K4); dreamlike elements (K18).
2.) Use of two-dimensional illustrations	K1-K20	All illustrations are made using two-dimensional techniques.		
3.) Presence of depth perception	K1-K20	A fire truck in the foreground appears larger than the barn in the background (K3); a tree outside a window appears farther away than the window and curtain inside (K10).		
4.) Attention to spatial arrangement within illustrations	K1-K20	All books maintain accurate spatial orientation of elements.		
5.) Use of matte and harmoniously coordinated colors	K1-K20	All illustrations feature harmonious, matte color palettes.		
6.) The illustrations are true to life	K1-K3, K5-K7, K10, K12, K14-K17, K19	The emergency kit in the picture in the book is suitable for real life. (K14)	K4, K8, K9, K11, K13, K18, K20	The flying elephants, colored elephants, and black and white elephants in the book are not suitable for real life. (K13)
7.) Using different techniques in illustrations (illustration, photography, collage, cartoon, etc.)			K1-K20	In all picture children's books examined within the scope of the research, the pictures were prepared in two dimensions and no different illustration techniques were used.
8.) Character illustrations aligned with the child's age and development	K1-K4, K7-K20	The pictures are considered appropriate for the age and development level of the children in terms of reflecting the message that is intended to be given to the child. (K1)	K5, K6	Some pictures of the earthquake (fractures, injuries, etc.) can be scary for children. (K5)
9.) Illustrations reflect the text	K1-K20	In the book, images were used to reflect the text in order to show the intensity of the earthquake. (K14) In the book, images were used to reflect the text, such as animals leaving the forest after a fire. (K20)		

10.) Inclusion of frightening elements	K2-K7, K10-K12, K14, K17, K18, K20	The description of a thunderclap, indicating that a terrifying and deafening sound is heard, can be scary for children. (K11)	K1, K8, K9, K13, K15, K16, K19	
11.) Consistency of character visuals across pages	K1-K4, K8-K12, K16, K18-K20	Characters remain visually consistent throughout the story (e.g., Selin and Murat in K10; Elmer and Wilbur in K13).	K5, K6, K7, K13, K14, K15, K17	Informative books or ensemble character sets result in inconsistency (e.g., changing visuals in K14).

The analysis of Table 3 reveals that most of the books employed realistic illustrations. In books where realism was not present, anthropomorphic characteristics—human traits given to animals or inanimate beings—were commonly used. All books featured two-dimensional illustrations, with a noticeable sense of depth, attention to the spatial placement of objects, and harmonious use of muted colors. Moreover, none of the books applied varied artistic techniques (e.g., photography, collage, cartoon), indicating a uniform approach to visual representation across all publications. The majority of the illustrations were appropriate for the developmental level of the target age group. Most books also successfully conveyed the written text through visuals. However, it was found that many books contained potentially frightening elements, such as depictions of natural disasters and their consequences. This may be attributed to the inherently disturbing nature of natural disasters.

Examination of the content features of illustrated children's books on natural disasters

Figure 3: *Categories Related to Content Features*



As illustrated, the theme of content features is structured into the following categories: narration, geographical and cultural elements, handling of the disaster theme, characterization, age-group relevance, and plot structure.

Table 4: *Subcategories and Examples/Notes Regarding Content Features of the Books*

Subcategories	Book Codes (Yes)	Examples/Notes (Yes)	Book Codes (No)	Examples/Notes (No)
1.) Inclusion of realistic events	K1-K8, K10, K12, K14-K20	Possible scenes are depicted realistically (events during earthquakes, fires, tsunamis) (K5)	K9, K11, K13	The features mentioned in the book, such as shouting at thunder, spreading chocolate on lightning and eating it, are not presented as realistic. (K11)
2.) Inclusion of geographical information	K5, K6, K14, K15, K20	The book, which covers the subject of earthquakes, includes geographical features such as tectonic plates, the outer perimeter of the Pacific Ocean, the ring of fire, and the slope. (K5)	K1-K4, K7-K13, K16-K19	
3.) Inclusion of the child in the disaster response process	K2-K5, K10, K12, K14, K16-K19	By telling adults and talking about moving to a safe area with them, the child is included in the process. (K12)	K1, K6-K9, K13, K15, K20	It mostly describes the duties and responsibilities of firefighters. (K7)
4.) Presence of fear and violence elements	K5, K6	Images or text include dramatic destruction, collapse, and panic.	K1-K4, K7-K20	
5.) Use of fantasy elements	K4, K8, K9, K11, K13, K20	Includes anthropomorphism, talking weather elements, fictional clothing or environments (K9, K11)	K1-K3, K5-K7, K10, K12, K14-K19	
6.) Inclusion of universal values (e.g., democracy, cooperation, respect, love)	K2-K10, K12-K15, K17-K20	The book explains the necessity of calling the fire department in case of an accident or incident to help people and animals in trouble. (K2)	K1, K11, K16	
7.) The story should contain clues that will prompt children to comment	K1-K20	The story is of a nature that will allow children to interpret in terms of pictures and text. (K20)		
8.) The story has an educational quality about natural disasters	K1-K7, K12, K14-K20	It provides information about earthquakes and explains what can be done during an earthquake. (K16)	K8, K9-K11, K13	When we look at the general theme of the story, we see that the subject of cooperation is discussed. (K8)
9.) The story raises awareness and interest in natural disasters	K2-K7, K10, K12, K14, K16, K17, K19	The book provides awareness about what can be done before and after storm. (K10	K1, K8, K9, K11, K13, K15, K18, K20	The story mostly talks about the need for unity after the events that happened. (K18)

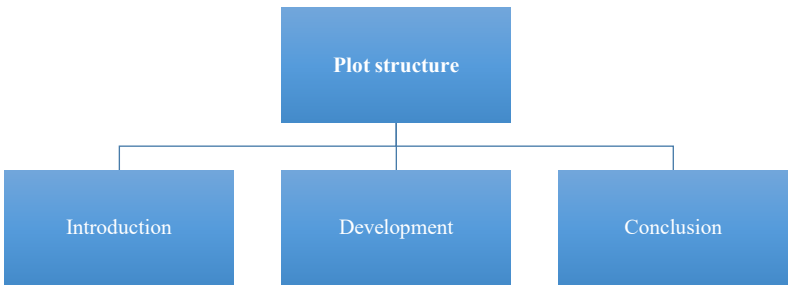
10.) There are entertaining and funny elements in the story.	K4, K8, K13, K16, K19, K20	One of the funny elements is that Elephant Necati called 110 out of fear at the time of the fire and asked for two wraps, and when Şakir objected, he increased the number of wraps to three. (K4)	K1-K3, K5-K7, K9-K12, K14, K15, K17, K18	
11.) Use of technological products in the story	K1-K5, K7, K14, K17, K19	The technological products used in the story are a seismograph, an earthquake simulator, and a radio. (K5)	K6, K8, K9-K13, K15, K16, K18, K20	
12.) The story offers the child options for coping with natural disasters	K1-K5, K7, K11, K14, K16-K20	The story mentions using the drop, cover, hold method in coping with natural disasters and moving to safe gathering areas after an earthquake. (K16)	K6, K8-K10, K12, K13, K15	
13.) There is a message about natural disaster in the story	K4, K5, K11, K12, K14, K16-K20	Getting excited during an earthquake is a normal feeling, but one should breathe calmly, hold on to a stable place and wait until the earthquake is over. It is stated that if one is safe, the earthquake will not cause any harm. (K19)	K1, K2, K7-K10, K13, K15	
14.) The characters in the story have characteristics that the child can model themselves on.	K1-K5, K7-K14, K16-K20	The characters' unity in collecting the garbage that fell into the river after the disaster can be a role model for children. (K18)	K6, K15	Since the character in the story is a volcano and there is no specific main character, there is no characteristic that the child can model himself on. (K6)
15.) The character/s are made up of people	K1-K3, K5-K7, K9, K10, K12, K14, K15, K17, K19	The characters in the book are the child and his mother. (K12)	K4, K8, K11, K13, K16, K18, K20	
16.) The character/s are composed of supernatural beings	K11	The Storm character who tries to scare people by shouting. (K11)	K1-K10, K12-K20	
17.) Character/s are made up of animals	K3, K4, K8, K10-K13, K16, K18, K20	Monkey, squirrel, hedgehog, mole, bear and elephant were used as characters. (K18)	K1, K2, K5-K7, K9, K14, K15, K17, K19	
18.) The character/s must be appropriate for the child's age group.	K1-K14, K16-K20	The firefighters in the book are suitable for the age group of children. (K7)	K15	Since it is not a specific character, it is not suitable for the age group. (K15)

19.) The number of characters should be appropriate to the story structure.	K1-K5, K8-K14, K16-K20	The number of characters in the books was determined in accordance with the story structure.	K6, K7, K15
20.) The number of main characters in the story is between 1-3	K1-K4, K8-K14, K16-K20	The main characters are Bodo (elephant), Brave (Lion), Jirafu (Giraffe). (K16)	K5-K7, K15
21.) The story's structure includes an introduction, development and conclusion section.	K1- K6, K8-K13, K16-K20	The stories of the books have an introduction, development and conclusion section.	K7, K14, K15

The analysis of Table 4 shows that most books portrayed realistic scenarios, though many lacked geographic details. Narratives often included coping strategies and involved children in the storyline. While violent imagery was generally avoided, a few books depicted scenes like people trapped under rubble to highlight the seriousness of disasters. Fantastical elements, such as anthropomorphic animals or surreal events, appeared occasionally but were not dominant. Universal values—such as cooperation, respect, and kindness—were commonly conveyed through character actions and decision-making. Visual and textual clues supported children's independent interpretation. Many books were educational, offering explicit disaster-related information, while others aimed to raise awareness or to emphasize collective values such as community support. A few included humorous elements, such as playful dialogue. About half of the books referenced technological tools (e.g., phones, sirens, simulators). Most presented specific coping strategies, such as "Drop, Cover, Hold On," emergency kit preparation, or seeking safe zones—meant to reduce psychological distress and enhance preparedness. Twelve books offered direct messages, including advice on earthquake-resistant buildings and staying calm.

Regarding characters, most were developmentally appropriate role models. Thirteen books featured humans, ten used animals, and one included a supernatural figure. Most had one to three main characters, an age-appropriate range. Seventeen books followed a structured narrative with a clear beginning, middle, and end.

Figure 4: *Subcategories Related to Plot Structure*



As shown in the figure, the plot structure category is divided into three subcategories: introduction, development, and conclusion.

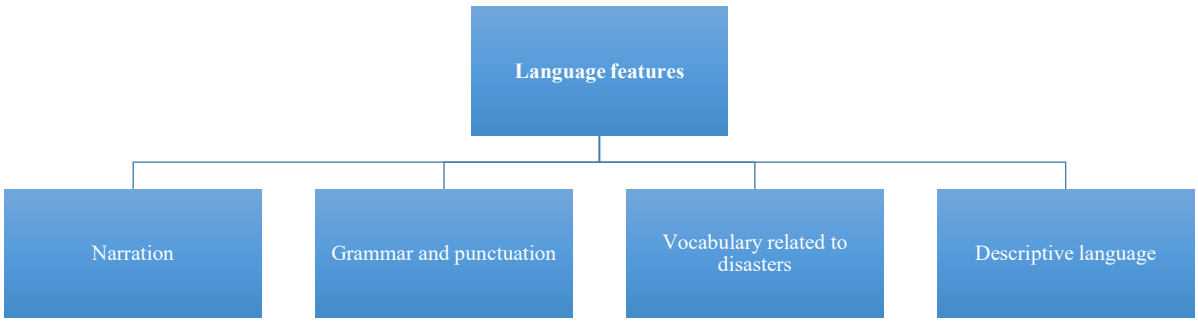
Table 5: *Subcategories and Examples/Notes Regarding Plot Structure of the Books*

Subcategories	Book Codes	Examples/Notes
1- Introduction		
Character introduction	K1-K5, K8-K14, K16-K20	Talking about Selin's emotional features (such as being afraid of lightning, crying because of thunder). (K10)
Time information	K1-K6, K8-K10, K12, K13, K16, K18-K20	It was stated that the story began 3000 years ago BC. (K5) Bodo walking in the forest every morning. (K16)
Place information	K1-K13, K16, K18-K20	Using the Apple Tree farm as a setting. (K3)
Reasons causing the disaster	K2-K6, K9, K14, K16-K20	Mentioning the tsunami that occurred due to the ongoing activity on the seashore after the earthquake. (K5)
Precautions that can be taken before a disaster	K2-K6, K9, K10, K13, K14, K16-K20	Preparing an emergency kit, securing belongings, conducting an earthquake drill. (K14)
1- Development		
Events experienced during the disaster	K1-K20	A child waking up one morning and seeing smoke in the distance, a forest fire starting and the child immediately leaving the forest with his mother. (K12)
2- Conclusion		
Consequences of the disaster	K3-K10, K12-K14, K16-K20	The collapse of all living things' nests and the bridge over the river due to flooding after a storm. (K18)
Recovery from disaster	K2-K10, K12, K14, K16-K18	A more durable, solid and new art house was built in place of the destroyed art house. (K9)
Taking precautions for future disasters	K2, K4, K5, K7, K9, K14, K16-K20	A grandfather teaching his grandchildren the drop-cover-hold method so that they can protect themselves during an earthquake. (K19)

Upon examining Table 5, it is observed that the introduction subcategory, which includes character presentation, is present in all the books. In terms of time and setting information, these elements were found in a portion of the books. The causes of the disasters and the preventive measures that can be taken beforehand were also addressed and exemplified in the books. Regarding the development subcategory, it was determined that, excluding purely informational texts, the majority of books included a middle section in which the events of the disaster were described in detail. In the conclusion subcategory, disaster consequences, recovery efforts, and preventative measures for future events were presented with examples, corresponding to the specific books indicated in the table.

Examination of the language features of illustrated children's books on natural disasters

Figure 5: *Categories Related to Language Features*



As shown in the figure, the language features theme comprises the following categories: narration, grammar and punctuation, vocabulary related to disasters, and descriptive language.

Table 6: *Subcategories and Examples/Notes Regarding Language Features of the Books*

Subcategories	Book Codes (Yes)	Examples/Notes (Yes)	Book Codes (No)	Examples/Notes (No)
1.) Use of plain and simple language	K1-K5, K7-K20		K6	The book uses words that are incomprehensible to children. For example: Vesuvius, pumice, volcanic soil, etc. (K6)
2.) Avoidance of regional slang and colloquial expressions	K1-K19		K20	Sentences such as “Aren't you the hooligans who woke up the city yesterday?”, "You uncouth people" were used. (K20)
3.) Conformity with Turkish Language Association grammar rules	K1-K20	All books comply with spelling rules and punctuation.		
4.) Use of vocabulary related to disaster experience	K2-K10, K12, K14, K16, K17, K19	The book uses the words earthquake, tremor, assembly area, drop-cover-hold. (K16)	K1, K11, K13, K15, K18, K20	
5.) Use of fluent and story-appropriate style	K1-K20	An appropriate, fluent style is used in all books.		
6.) Use of short descriptions appropriate for developmental level	K1-K20	“They were repairing the wire fence around the barn that morning.” (K3)		
7.) Use of everyday spoken language	K1-K20	All books use understandable, everyday language.		
8.) Inclusion of imperative and rule-based sentences	K2-K4, K7-K11, K13, K14, K16-K18, K20	“Fire must be deoxygenated!”, “Hot oil should never be extinguished with water.” (K2)	K1, K5, K6, K12, K15, K19	

Table 6 shows that nearly all books utilized a simple narrative style appropriate for young children, except one (K6), which contained complex vocabulary likely beyond their comprehension. Only one book (K20) featured regional dialect or slang. All texts conformed to the Turkish Language Association’s spelling and punctuation standards. Many books included disaster-related vocabulary, such as flood, fire, life jacket, lifebuoy, first aid, rubble, wreckage, earthquake, assembly area, and the drop-cover-hold-on technique (e.g., K3, K4, K9, K14, K20). Narratives were fluent, coherent, and developmentally appropriate, with concise descriptions. A conversational tone prevailed throughout, and 14 books included imperative or rule-based sentences.

Discussion

Among the books analyzed, fire and earthquakes emerged as the most frequently addressed types of natural disasters, whereas tornadoes, landslides, tsunamis, and floods were less commonly featured. This aligns with Sapsağlam's (2019) study of 110 children aged 3 to 5, which found that fire was the most recognized disaster, likely due to its prevalence in daily life, media, and personal experience.

In terms of physical features, most books displayed developmentally appropriate qualities, though only three explicitly stated the intended age group on the cover. Clear age labeling on picture books is essential for guiding parents and educators in selecting suitable materials (Turla, 2019). The books' dimensions ranged from 20 to 27 cm, aligning with Ersoy and Bayraktar's (2018) recommendation that children can easily handle books. Font sizes varied from 12 to 22 points, with appropriate typefaces used; this largely corresponds to Ural's (2019) suggested range of 14–22 points for preschool children.

Illustrations were generally realistic, colorful, and detailed features that support children in visualizing content (Ertaş, 2023). Örs (2022) emphasized the importance of design, thematic coherence, and visual appeal in picture books. Similarly, Schickedanz and Collins (2012) noted that illustrations should engage children and align with the subject matter. The books reviewed typically featured two-dimensional images with depth perception, careful spatial placement, and muted, harmonious colors. Previous research found that children aged 2–5 prefer books with realistic, colorful illustrations that reflect their own experiences (Danko-McGhee & Slutskyde, 2011). Maniam (2011) also observed that 5-year-olds favored books with less text. In this study, illustrations often took precedence over text and effectively complemented the narrative. Characters play a central role in facilitating learning, as their actions and strategies can shape children's thinking and behavior (Sever, 2017). While most books maintained character continuity, some informational texts did not. Sever (2008) also emphasized that children's books should avoid fear-inducing content, as such elements may negatively affect mental health. Nevertheless, several books included frightening imagery, likely because natural disasters are inherently distressing. However, exaggerated emotional portrayals can lead to anxiety rather than constructive engagement and should be avoided.

Content analysis revealed that most books addressed the theme of natural disasters appropriately, using both explicit and implicit messages to raise awareness. Books reflecting real or potential experiences can help children cope by offering strategies and emotional preparation (Gönen & Veziroğlu, 2013; Kılınç, 2020). As such, picture books serve as important educational tools for understanding what to do before, during, and after disasters. Scientifically grounded, content-rich books can address children's curiosity and foster a sense of emotional and cognitive security. Most books followed a coherent narrative structure with an introduction, development, and conclusion,

consistent with prior analyses of children's storybooks (Mammadova, 2023; Sargın & Kılıç, 2023).

In terms of language, all books employed developmentally appropriate, grammatically correct, and fluent expressions to convey disaster-related themes. Bilgin (2011) and Gönen et al. (2012) similarly found that most children's books use clear and accessible language. The inclusion of new vocabulary related to natural disasters in the analyzed books was found to enhance children's vocabulary and foster disaster awareness. Additionally, many books included imperative or rule-based sentences, which are useful for delivering crucial, memorable instructions in a didactic manner—especially in life-threatening contexts.

Conclusion and Recommendations

This study, which examined picture books for children about natural disasters, revealed that the most frequently depicted types of natural disasters in the books were fire and earthquake. According to the study results, the physical features theme consisted of the categories of cover, design, dimensions, typography, target age group, and illustrations. The illustration features theme comprised the categories of description, dimensions, techniques, and character continuity. The content features theme comprised the categories of narration, geographical and cultural elements, handling of the disaster theme, characterization, age group relevance, and plot structure. The plot structure category comprised the subcategories of introduction, development, and conclusion. The language features theme consists of the categories of narration, grammar and punctuation, vocabulary related to disasters, and descriptive language.

Based on these findings, several recommendations can be made: picture books should clearly indicate the target age group; the number of scientifically grounded books on natural disasters should be increased; underrepresented disasters (e.g., avalanches, landslides, tornadoes, volcanic eruptions, storms, droughts) should receive greater attention; interdisciplinary collaboration with fields such as physical geography, seismology, and geology should be pursued; and further research involving interviews with children is needed to explore how they interpret these books.

Ethical Approval

As the authors of the article, we declare in this form that scientific and ethical rules are followed in this article and that the article does not require ethics committee permission since it is a study based on document analysis (illustrated children's books review)

Author Contributions

Tuğçe Yakar Ulusoy: Conceptualisation, Theoretical Background, Methodology, Data Collection, Data Analysis, Data Visualisation, Writing

Kübra Kanat: Conceptualisation, Methodology, Data Analysis, Data Visualisation, Review and Editing

Conflict of Interest

There is no conflict of interest between the authors.

Plagiarism Checks

The manuscript was checked using Turnitin plagiarism detection software, and the similarity index was 15%.

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No artificial intelligence tools were used in this study.

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