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DIGITAL LITERACY IN CARTOONS: "*DIGITAL CREW*" AS AN EXAMPLE

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Abstract:
This study aims to examine the content of the "*Digital Crew*" cartoon broadcasted on TRT in terms of digital literacy skills. In this context, 10 episodes of the "*Digital Crew*" cartoon broadcasted on TRT Child were used as the data source. The document analysis method was used in the analysis of the data. The researchers developed a document review form as a data collection tool for this study. The developed form was used to analyze the "*Digital Crew*" cartoon regarding technical, social-emotional, and cognitive dimensions of digital literacy. Most observed contents in the cartoon belonged to the technical dimension. As a result of this study, it has been suggested that new episodes of the "*Digital Crew*" cartoon should put a more balanced emphasis on the dimensions of digital literacy. The cartoon can be used in schools for educational purposes in digital literacy skills.

Keywords: digital literacy, cartoons, document analysis

1. Introduction

The Internet, which allows us to access all kinds of information beyond time and space, has spread worldwide in recent years. Individuals who join life as digital natives are born into the digital world. Thus, in recent years, the Internet, which is a worldwide electronic communication network that provides access to information in a short time and eliminates borders in sharing information (Kaya, 2020), has become a simple facility that every individual of all ages can access via telephone, tablet, television, and computer.

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The use of the Internet, which is present in every aspect of our daily life and reinforces its existence with the technology advancing day by day, is becoming widespread for educational purposes (Taylan, 2020). In addition, many different tools/concepts such as artificial intelligence, mobile technologies, robots have emerged with 21st-century skills. The 21st-century skills we are in include learning and innovation skills, career and life skills, and digital literacy skills (Trilling & Fadel, 2009).

Today's children are thought to have different cognitive abilities than in previous years (Göksün, 2017). Pedro (2006) has grouped the new millennium learners' characteristics under three headings, "*alternative cognitive characteristics*," "*change in cultural and social values*," and "*expectations for teaching and learning*." Alternative cognitive characteristics include accessing information via non-printed, digital sources, prioritizing visuals, motion, and sound in the text, obtaining information with non-linear and non-continuous operations, and multitasking comfortably (Pedro, 2006). Alternative cognitive characteristics also show that new generation learners have different cognitive skills than the previous generation. Within the scope of these characteristics, the new millennium learners grow by accessing information from non-printed, digital sources (Göksün, 2017). This situation puts digital literacy on the agenda. Some terms, such as 21st-century literacy, internet literacy, multi-literacy, information literacy, information communication technology (ICT) literacy, computer literacy, and online reading comprehension, may also be used with or sometimes synonymously with digital literacy. Each term has specific definitions, but common assumptions bring them together under the same theoretical umbrella of new literacies (Osterman, 2012). Knowledge, skills, and understandings of literacy emerge through socio-cultural interactions with non-digital (i.e., printed books) and digital tools (i.e., touchscreen tablets) (Neumann, Finger, & Neumann, 2017).

1.1 Digital literacy

Digital literacy is a broad term that includes several literacies, such as information literacy, media literacy, and visual literacy (Martin, 2005). With the rapid and continuous development of digital technology, individuals need to use various technical, cognitive, and sociological skills to perform tasks and solve problems in digital environments (Eshet-Alkalai, 2004). These skills are called "*digital literacy*" in the literature (Gilster, 1997). As with other fashionable terms, there are various studies in the literature on "*digital literacy*" (Gilster, 1997; Lanham, 1995; Pool, 1997; Tapscott, 1998).

The concept of digital literacy was first defined by Gilster (1997) as the ability to use and understand the information presented via computer in different ways from a wide range of sources. Digital literacy refers to engaging digital tools to use visual representations, integrate different digital texts, navigate non-linear digital texts and evaluate digital information, create meaning and communicate effectively with others (Bulger et al., 2014; Eshet-Alkalai, 2004; Ng., 2012). Digital literacy includes more than using a software program or operating a digital device. It includes a wide range of complex cognitive, motor, sociological and emotional skills that users need to work effectively in digital environments (Eshet-Alkalai, 2004). Eshet-Alkalai (2004) explained

digital literacy with five subcomponents: photo-visual literacy, productive literacy, branching literacy, information literacy, and social-emotional literacy. Digital literacy has been suggested to have four core competencies: internet search, hypertext navigation, knowledge accumulation, and content evaluation (Bawden, 2008). Martin (2006) defined digital literacy as individuals' awareness, attitude, and ability to appropriately use digital tools and opportunities to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources, create new information, create media expressions, and communicate with others. As the term "digital literacy" is generally used in a limited sense that expresses the effective use of information and communication technology (ICT), some inconsistencies are observed in its use (Koltay, 2011). In addition, "new literacies" emphasizes social practices shaped by emerging technologies; in contrast, digital literacy in the context of education is seen as a broader term that encompasses the technical, cognitive, and social-emotional perspectives of learning both online and with digital technologies (Ng, 2012). Clarifying the conceptual framework of the "digital literacy" concept by creating a framework with more specific features may facilitate understanding the skills covered by this concept. Ng defined three dimensions of digital literacy (2012) (Figure 1).

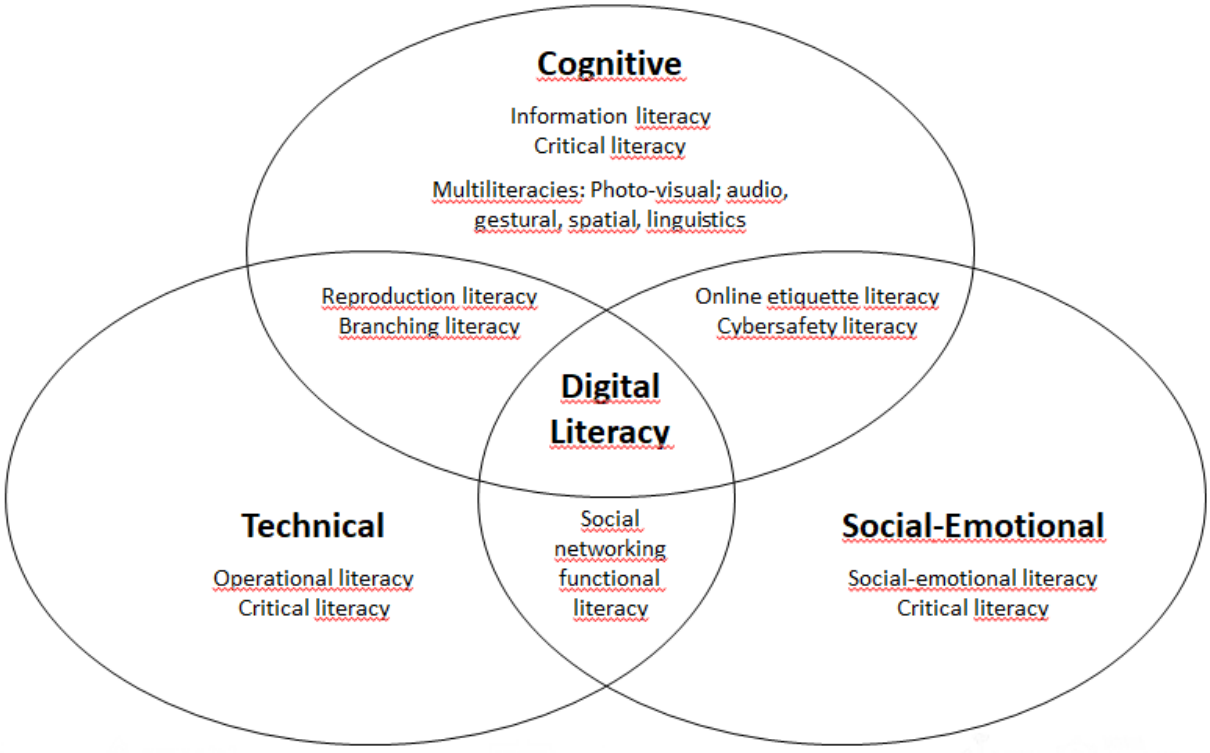

Figure 1: Digital literacy model (Ng. 2012)

The technical dimension indicates having technical and operational skills for learning and daily activities in the computer; *the cognitive dimension* is related to the critical thinking ability of individuals in research processes, who use digital-based resources and have a multi-literacy understanding; and *the social-emotional dimension* includes using the Internet responsibly for communication, socialization, and learning.

Since all these three dimensions of digital literacy involve "texts," i.e., reading digital guides while troubleshooting or watching a video on YouTube (technical dimension), collecting clues from the conversational content and tone of posts, including text abbreviations and phrases (social-emotional dimension), and evaluating the opinions from written materials, videos and images (cognitive dimension), the individual's critical analysis of digital materials is vital for understanding the underlying meanings in the content (Ng, 2012). Digital literacy was examined in four dimensions in another study (Pérez-Escoda, García-Ruiz & Aguaded, 2019). These are as follows:

- Dimension 1: Learning. In this dimension, the individual, regardless of their status, is in the phase of accessing digital resources and online devices, fostering basic digital skills, and adopting basic lessons, contents, and themes.
- Dimension 2: Being able. The individual adopts and adapts the contents learned in personal competencies. It is a phase in which they can create their own learning strategies.
- Dimension 3: Making/Creating. In this dimension, the individual takes a proactive attitude towards creating new content with appropriate technology and resources because of their fluency level.
- Dimension 4: Being/Practising. In this stage, the individual develops digital citizenship accompanied by a profession or job, identity, and self-awareness, enabling us to talk about a digitally literate individual who innovates with the technology in their profession or work.

In the scale development study carried out by Pala and Başıbüyük (2020), digital literacy skills were addressed in four dimensions using the "Digital skills - Personal evaluation" table on the official website of Europass, namely information-processing, communication, security (reliability), and problem-solving.

The concept of digital literacy has been popular for over thirty years but has become functional in education in recent years. Although the mass media has helped spread the concept and importance of digital literacy, the integration of new media and technology in education is still weak (Feola, 2016). On the other hand, younger generations use digital social applications, which are ubiquitous by nature, to integrate into the school curriculum (Starčič & Turk, 2016). In addition, the gap between home and school use of the technology should be tried to be resolved (Osterman, 2012).

Digital literacy requires using various technologies befittingly by accessing information through proper channels and using technology for producing and sharing and in learning-teaching processes (Hamutoğlu et al., 2017). The increasing use of these frequently used information and communication technology tools in education, business life, and social life provides various benefits to individuals, but the mistakes made in their use cause individuals to face some problems (Dönmez, 2019). Children are the age group most affected by these problems.

1.2 Cartoons

In terms of easy access, the digital platform that children are most exposed to during the day is the cartoons on television. Besides, children can watch these cartoons repeatedly

on any platform, such as computers, tablets, and smartphones, because they can easily access the Internet (Beldağ & Kaptan, 2017). Some television program aims not only to entertain; documentaries, scientific programs, and some cartoons aim to teach and help children learn certain scientific and social concepts (Özcan, 2019). It has even been stated that some television programs can be used as teaching tools in schools (Benwari, 2015; Demiral et al., 2016). The cartoons used as teaching tools may improve students' vocabulary, and students exhibit active listening during teaching because it is in their fields of interest (Vitasmoro et al., 2020). It is, of course, desirable for children who use television more effectively as a digital platform to encounter good content in an increasingly digital world.

A study on students' digital literacy and developing it in universities examined technology literacy, one of the dimensions of digital literacy. Most university students failed to show the necessary skills in using the internet and information technologies to solve scientific problems (Shopova, 2014). Eshet (2004), on the other hand, focused on visual literacy, information literacy, and social-emotional literacy, which are the sub-dimensions of digital literacy. Another digital competence and digital literacy study conducted in higher education emphasized the seriousness of developing definitions for these concepts, the significance of using them in teacher-student training, and the need for more research on this subject (Spante, Hashemi, Lundin, & Algers, 2018). Another study, which examined storytelling on digital platforms and children's digital literacy in early childhood, emphasized phonological awareness, alphabet recognition, and print awareness skills (Maureen, van der Meij & de Jong, 2018). In addition to them, the review of the studies on digital literacy showed that the studies conducted to determine the most crucial digital literacy skills are limited, and the dimensions of digital literacy are not completely clear (Acar, 2015; Alexander, et al., 2017; Arık, 2018; Göldağ & Kanat, 2018; Kıyıcı, 2008; Öksüz et al., 2016; Yıldız et al., 2012).

There is also a lack of understanding of how digital literacy skills emerge and how these skills affect the development of adequate reading of both digital and non-digital texts (Neumann, Finger, & Neumann, 2017). Therefore, in this study, it is considered to examine digital texts in terms of digital literacy skills.

Regarding the studies on digital literacy, there are various studies in which digital literacy levels of secondary school, high school, and university students were examined (Dönmez, 2019; Gürtekin, 2019; Kaya, 2020; Kul, 2020; Onursoy, 2018; Pala, & Basibuyuk, 2020; Talan, & Aktürk, 2021); Uyar, 2021); and digital literacy levels of teachers and preservice teachers were examined (Kara, 2021; Liza, & Andriyanti, 2020; Ocak, & Karakuş, 2018; Özerbaş, & Kuralbayeva, 2018; Özoğlu, & Kaya, 2020; Üstündağ, Güneş, & Bahçivan, 2017). In addition, some studies examined secondary school textbooks and digital literacy topics in secondary school and higher education curricula (Direkçi et al., 2019; Duran, & Özen, 2018; Sezgin, & Karabacak; 2020).

Various studies are encountered in the literature on cartoons, which have increased even more with digitalization. For example, in the study conducted by Beldağ and Kaptan (2017), the values included in the animated movie "Cars" were examined, reporting that respect, love, sensitivity, cooperation, honesty, humility, and benevolence

were emphasized in the movie. The study conducted by Özcan (2019) examined the "Puzzle Tower" program within the scope of life skills. It was concluded that decision-making skills were observed the most among the life skills, while teamwork skills were encountered the least. It was also concluded that the program could be used as educational material. In the study, in which "Little Lamb," "Square," and "Ege & Gaga" cartoons on TRT Child channel were evaluated according to their developmental areas, all three cartoons were found to cover the acquisitions of cognitive and social-emotional development areas (Cengiz et al., 2020). In the study conducted by Yener et al., (2021) all the cartoons on the TRT Child channel were examined, and cartoons were reported to have an essential role in values education. In the study in which the "Lion" cartoon of the TRT Child channel was associated with Science-Engineering and Entrepreneurship applications, it was reported that the series could be used in science education with new updates and by enriching within the scope of 21st-century skills (Yener et al., 2021). Another study reviewed the studies conducted in Turkey on the use of cartoons in education, and it was concluded that the use of cartoons in education was beneficial (Kaya & Uzoğlu, 2020). In the study examining the effects of cartoons on the affective characteristics of primary school students, it was reported that they highly affect students' affective characteristics and that girls are more affected than boys (Dönergüneş, 2021). In another study, in which some of the cartoons on the TRT Child channel were examined within the scope of cognitive and logical thinking skills, Pepe was the cartoon involving the highest cognitive skills among the films examined. These skills were presented mostly by questioning and rarely by establishing a part-whole relationship (Arslan, 2018). In the study conducted by Aytekin (2020), the scientific images in the cartoons on the TRT Child channel were analyzed, and each cartoon was observed to contain scientific images according to its thematic feature.

The review of the studies in the literature showed that many aspects of the cartoons had been researched, including cultural values, value judgments they contain, their scientificity, and usability in education. However, no study examining a cartoon in the context of digital literacy, whose importance is increasing day by day, has been found. For this reason, the "*Digital Crew*" cartoon has been examined in this study. This study sets an example by showing the content that may increase children's digital literacy level, one of the 21st-century skills in this program watched by children.

2. Purpose of the Study

This study aims to analyze the content of the "*Digital Crew*" cartoon on TRT in terms of digital literacy skills. For this purpose, the following questions were addressed.

1) What are the contents belonging to the "technical" dimension of digital literacy in the "*Digital Crew*" cartoon?
2) What are the contents belonging to the "social-emotional" dimension of digital literacy in the "*Digital Crew*" cartoon?
3) What are the contents belonging to the "cognitive" dimension of digital literacy in the "*Digital Crew*" cartoon?

3. Material and Methods

3.1 Research Model

This study is designed as qualitative research, and the document analysis was used as the data collection method. Document analysis is defined as the systematic operations carried out in the process of reviewing and evaluating printed and electronic (computer-based and internet-accessed) documents (Bowen, 2009). Document analysis is the primary research data source used in collecting, examining, querying, and analyzing various forms of written text (O'Leary, 2017). It can be used alone or as complementary to other research methods. The documents examined in this research are movie contents.

3.2 Reviewed Documents

Different researchers categorize documents in different ways (Merriam, 2009). They are categorized as public documents, personal documents, and others. Other category includes popular culture documents such as social media, radio, newspapers, cartoons, and visual documents such as movies, videos, and photographs (Bogdan & Biklen, 2007). The visual documents examined in this study are ten episodes of the "*Digital Crew"* cartoon on the TRT Child channel. The information about the analyzed episodes is given in Table 1.

Table 1: Episodes of the "*Digital Crew*" Cartoon

Episodes	Concepts	Message Given	Duration
1. Internet Trap	Computer game, website, secure site, program installation, file copy, file protection, file steal, online, password, hacking an account, computer screen, retrieval.	Let's use the Internet carefully.	13:32
2. Is it funny now?	Sharing, video commentary, production, human effort, humor, sense of humor, being open-minded, screenshot, project, cyberbullying.	Let's respect personal rights.	13:32
3. Real vs. Virtual	Internet, charger, smartphone, uploading to the Internet, website, virtual neighborhood, real, leveling up, space industry, nanotechnology, space shuttle, disconnecting from the world, moderation in all things.	Let's pay attention to the limit of virtual games.	12:05
4. Rain of False News	Term paper, information reliability, news source, real, sharing on the Internet, confirming, distorting information, misinformation, being popular, malicious intent, correct digital literacy, virus, news not reflecting the reality, checking, fake news, apology video, regret.	Let's not trust every information published on the Internet.	12:25
5. Autonomous Grocery Store	Programming, testing, machine learning, autonomous devices, artificial intelligence, artificial intelligence ethics, ethical inputs, decision boundary, synchronization, software, robot, site scanning, technology,	Let's follow ethical rules while using autonomous devices.	13:29

	home delivery, phone book matching, memorization.		
6. Technology is our life	The smart panel, smart home, homework software, technology, command, maintenance, find water/drink water application, smart refrigerator, event reminders, reminder, projection, smart elimination, Internet of things, electronic ticket, barcode scanning, server, virtual reality, face recognition.	Let's not be addicted to technology.	13:60
7. Future Jobs	3D modeling, robots, computers, machines, artificial intelligence, smartphone, presentation, projection, digitization, software, email, scientists, control mechanism, animation on the computer.	Let's keep in mind that people will still be needed even in future jobs.	12:56
8. Young Inventor	Augmented reality, blockchain, cloud, artificial intelligence, video, invention, science, recycling, application, gamification, autonomous drone, space scanning, mobile phone, station, advanced technology, atmosphere preservation.	Let's use advanced technology in innovative projects that make life easier.	11:02
9. Beware of the Phishing	Email, education application, clicking the link, phishing email, personal information, websites, deceptive link, spyware, form, zip code, credit card, phishing technology.	We should not give our personal information requested from us on websites.	12:36
10. Drone Races	Software, calibration, factory setting, drone, map, technology, connection, radiofrequency, image zoom, programming, technology generation.	Let's learn all kinds of information well while using new technologies	11:21

The first episode shows that information on the Internet can be easily captured and used for different purposes. The message given to the children is that rewinding is not possible in real life, so they should be careful when using the Internet. The second episode underlines that cyberbullying is disrespecting other people's rights by commenting on all kinds of videos. The children are told to think twice while commenting on the videos and not offend anyone. The third episode illustrates the negative situations that may occur by spending too much time in the virtual world and living away from real life. The message given to the children is that they should manage to play virtual games. The fourth episode shows that all information published on the Internet is not reliable. The children are given the message that digital literacy is essential and that they should not believe every published information without checking its source. The fifth episode addresses why artificial intelligence ethics is vital in installing autonomous devices. Children are told that operating autonomous devices would not be appropriate without loading ethical inputs. The sixth episode exhibits positive and negative situations resulting from the digitalization of everything in life. The given message is that technology is a blessing, but we should not rely on it for our whole life. The seventh episode reaps the replacement of some jobs by others in the future with advancing technology. The message is that

professions may disappear or evolve, but people will always be in charge as the control mechanism. Machines will be our most fabulous helpers. We have to be a part of technology by reading and improving ourselves. The subject of the eighth episode is the images showing that different projects can be developed using advanced technology. The message is that young inventors can implement many projects, such as recycling, using advanced technology. The ninth episode addresses phishing, which is common on the Internet and can easily deceive people. The message is that we should not use our identity information on any website; we should be careful when using the Internet and not give personal information at non-secure sites. The tenth episode presents content about being a drone pilot and using a drone. The importance of producing new technologies and the need to know every detail as a drone pilot is underlined. All episodes lasted approximately 12-13 minutes.

3.3 Data Collection Tools and Process

The researchers have developed a document review form as the data collection tool for this study. Ten episodes of "*Digital Crew"* were analyzed using this form in terms of technical, social-emotional, and cognitive dimensions of digital literacy. The episodes were also examined in terms of time and film content. Document analysis includes the analysis of written materials containing information about the case or cases that are aimed to be investigated (Yıldırım & Şimşek, 2021).

3.4 Data Analysis

Document analysis steps suggested by Corbin and Strauss (2008) were used in the data analysis process. This process involves skimming (superficial examination), reading (thorough examination), and interpretation. In this study, first of all, ten episodes of the "*Digital Crew*" cartoon were watched. Then, each episode was analyzed in terms of technical, social-emotional, and cognitive dimensions of digital literacy (Ng, 2012). The obtained analysis results were interpreted and transferred to the findings and results. The reliability criterion for qualitative research focuses on identifying and documenting the patterns, themes, worldviews, and other phenomena studied in similar or different human contexts (Labuschagne, 2003). In this study, the credibility, transferability, dependability, and confirmability criteria suggested by Guba and Lincoln (1982) were followed to ensure the quality of the analysis. For the study's credibility, the films taken as data sources were examined and analyzed in detail at different times by the researchers. The researchers came together for unmatched codes in the analysis and calculated the agreement rate. For the reliability of the analysis, Miles & Huberman's (1994) formula [Reliability = (Agreement / (Agreement + Disagreement)) x 100] was used and found to be 0.90. The research process was expressed in detail for transferability, and direct quotations taken from the dialogues in the episodes are given without any comments. The researchers rewatched the films at different times and compared the results for dependability and confirmability. For "*time-dependent reliability*" and "*observational reliability*" suggested by Kirk and Miller (1986), the document was re-examined after a certain time and evaluated in the same way (time-dependent reliability),

and the same findings were obtained by two different researchers (observational reliability).

4. Results and Discussion

The Digital Crew cartoon on the TRT Child channel was examined in terms of technical, social-emotional, and cognitive dimensions of digital literacy, and the findings were presented.

Table 2: Frequencies of the contents in the "*Digital Crew*" cartoon according to the dimensions

	Episodes	**Technical**		**Social-Emotional**		**Cognitive**		**Overall**
		f	**%**	**f**	**%**	**f**	**%**	**f**
Digital Crew	1st Episode	6	60	0	0	3	30	9
	2nd Episode	2	20	5	50	1	10	8
	3rd Episode	4	40	0	0	0	0	4
	4th Episode	3	30	0	0	0	0	3
	5th Episode	1	10	0	0	1	10	2
	6th Episode	1	10	0	0	1	10	2
	7th Episode	1	10	0	0	0	0	1
	8th Episode	0	0	0	0	0	0	0
	9th Episode	1	10	0	0	0	0	1
	10th Episode	0	0	0	0	1	10	1
	Overall	19		5		7		31

The review of the entire "*Digital Crew*" cartoon, which consists of ten episodes, revealed that the content related to the technical dimension was observed the most, followed by the cognitive and social-emotional dimensions (Table 2). On the other hand, there are more content related to the dimensions of digital literacy in the first episode, followed by the second, third, fourth, fifth, sixth, seventh, ninth, and tenth episodes. There was no content related to digital literacy in the eighth episode. Besides, all three dimensions were emphasized in the second episode, whereas no dimension was emphasized in the eighth episode.

4.1 Findings on the "Technical" Dimension of Digital Literacy

The analysis of the ten episodes in the "*Digital Crew*" cartoon regarding the technical dimension of digital literacy showed that the expressions related to this dimension are frequently encountered in all episodes except for two episodes (Table 3).

Table 3: Contents of the Technical Dimension

Dimension	Episodes	Time Interval	Content
Technical	1	03.36-03.47	*Hayri "Trust us on www dot free play! You won't regret it, dot nihoha, dot tr."*
	1	12.50-12.59	*Kamil "Friends, real-life unfortunately doesn't allow us to rewind as we did. So please be careful when using the Internet."*
	1	04.07-04.11	*Hayri: "Your father also took care of security like keeping state secrets."*
	1	04.44-04.53	*Kamil: "This site is absolutely, utterly unsafe! However, if you say, "I'll go and have a look," enter the parent password.*
	1	07.24-07.27	*Hayri: "Someone obviously hacked your account."*
	1	09.13-09.17	*Hayri: "He is not your father, Kamil; he should be the one who stole his information."*
	2	12:23-12:36	*Hayri: "…..my objective was to raise awareness, there is nothing wrong with writing a comment, but let's think twice before writing…"*
	2	11:35-11:48	*Hayri: ".. But unfortunately they are not very good at distinguishing humor from cyberbullying…"*
	3	01:23-02:30	*Dede: "..it was made so that people who are glued to their phones, who lose their charm without internet, can draw a lesson..."*
	3	02:06-02:25	*Hayri: "Look, look at Mert; if he leaves his phone, you'll not see such a story."*
	3	10:54-11:00	*Hayri: "This is the best way to show what is going to happen to you if you don't get rid of your internet and gaming addiction."*
	3	09:22-10:33	*Mert: "Where was I while all this was going on?* *Hayri: "You were busy leveling up in the virtual neighborhood; you only played games for exactly 20 years, Mert; you did nothing else."*
	4	04:00-04:15	*Hale: "…are you sure this news is true?"* *Hayri: "Of course, it was shared on the internet after all."* *Hale: "…, so is everything posted on the internet true?"* *Harry: "Isn't it?"* *Hale: "Of course not."*
	4	05:54-06:04	*Hayri: "How do you know so much?"* *Hale: "Where it may come from, bro? My term paper is about this topic, good digital literacy."*
	4	09:20-09:23	*Hale: "We will send a message to authorized persons and news sites."*
	5	02:53-03:00	*Kamil: "What does it say? What ethics?"* *Akın: "The ethics of artificial intelligence, bro, it is an autonomous vehicle; it is natural to ask for it."*
	6	12:23-12:27	*Akın: "Technology is a blessing, but at the same time, we should not rely on it in our whole life."*
	7	09:11-10:29	*Sevim talks to her friends about the positive effects of technology and its transformation in the formation of future professions.*
	9	07:43-07:54	*Sevim: "…that is why we should always use the addresses of the websites; we should check the contact information from those addresses."*

In the first and second episodes, the characters use search engines to reach information. There is content about the rules to be followed when using digital tools in the first, fourth, and fifth episodes. In the second and fourth episodes, the emphasis is on transferring/sharing information on the Internet. In the first and ninth episodes, there are dialogues about using passwords to protect devices such as computers, smartphones, tablets and not sharing personal information on the Internet because identity information may be stolen. The contents shared in the third, sixth, and seventh episodes are about the negative effect of the intensive use of digital technology on our health and the positive and negative effects of technology on the environment. These findings show that the technical dimension of digital literacy is frequently included in the "*Digital Crew*" cartoon.

4.2 Findings on the "Social-emotional" Dimension of Digital Literacy

After analyzing ten episodes of "*Digital Crew*" cartoon according to the social-emotional dimension of digital literacy, the statements related to this dimension were found in only one episode (Table 4).

Table 4: Contents of the Social-Emotional Dimension

Dimension	Episodes	Time Interval	Film Content
Social-Emotional	2	03:03-03:06	*Hale: "Dude, is this the video you shared?"*
		06:04-07:08	*Sevim: "Hmm, Hale tagged me."* *Akin: "Uhhhhh…* *Hale: "Who is this with walnuts?*
		09:02-10:32	*Hayri: "What's up, Sevim?"* *Sevim: "Hi Hayri"*
		1:04-1:07	*Hayri: "All I do is comment on other people's posts."*
		08:28-09:36	*Sevim: "This is nice; let me share it right away."*

In the second episode, the characters re-access the contents recorded on the computer, communicate via mobile phones, the Internet, and chat programs, comment on documents and videos created by others, and use social networks. This episodes' images and dialogues show that the content involving digital literacy's social-emotional dimension is intensely included in the second episode.

4.3 Findings on the "Cognitive" Dimension of Digital Literacy

After analyzing ten episodes in Digital Crew cartoon according to the cognitive dimension of digital literacy, the statements related to this dimension were found in five episodes (Table 5).

Table 5: Contents of the Cognitive Dimension

Dimension	Episodes	Time Interval	Film Content
Cognitive	1	05.20-05.28	*Hayri "This is such a challenging task, friend?* *Kamil "Well, I will sign up immediately."*
	1	04.55-04.02	*Hayri "Wow, friend, what are we going to do now?"* *Kamil "Wait, wait, my father wrote the password here somewhere."*
	1	11.32-11.40	*When the characters realize that all the information is being stolen quickly, they unplug all the electronic devices.*
	2	09:02-10:31	*Hayri: ".. I was going to ask, how do we take this screenshot?"* *Sevim: "… you press the upper key and the middle key at the same time."*
	5	03:03-03:09	*Kamil: "Go ahead, press escape."* *Akın: "No, we have to write ethics; it is vital for machine learning."*
	6	07:13-07:20	*Mert: "Server error? What the hell is this?"* *Hayri: "Stop, we will figure it out. Fix your computer connection."*
	10	09:46-09:53	*Kamil: Akın, can we reprogram this drone?*

In the first and second episodes, the characters solve technical and non-technical problems that frequently arise when using digital technologies. In the fifth episode, the characters find support and help when a technical problem occurs while using a new device and application. In addition, in the sixth and tenth episodes, the characters solve the technological problems of programs or tools. When a technology-related problem occurs, they use digital tools to solve the problem. These findings show that these episodes include content belonging to the cognitive dimension of digital literacy.

5. Conclusion and Recommendations

This study aimed to examine the content of the "*Digital Crew*" cartoon on the TRT Child channel in terms of digital literacy skills (technical, social-emotional, and cognitive). The results obtained are given in this section.

The overall analysis of the "*Digital Crew*" cartoon, consisting of 10 episodes, showed that most of the content was related to the technical dimension, followed by the cognitive and social-emotional dimensions. There was more content related to the dimensions of digital literacy in the first episode, whereas no content related to the digital literacy dimensions was found in the eighth episode. In addition, all three dimensions were emphasized in the second episode, but no dimension was emphasized in the eighth episode.

Having more content related to the technical dimension of digital literacy in the "*Digital Crew*" cartoon may convey a message emphasizing that today's children should act more safely when accessing information. At the same time, this message points out information literate individuals. An information literate individual is expected to determine the scope of the necessary information, access the needed information

effectively, question the information and its sources, understand the economic, legal, and social problems related to the use of information, access and use information ethically and legally (Ala, 2000; Seçkin-Kapucu, 2021). An information literate individual is likely to demonstrate these skills in the digital environment. For this reason, today's youth can gain the skills required by the digital age expected from them through digital texts. The cartoons used in this study can also be evaluated within the scope of digital texts.

The contribution of digital technologies to the development of 21st-century skills is undeniable. Children should have the proper digital literacy knowledge because acquiring these skills at an early age will affect the child's future success (Akman, 2019). Thanks to these environments in which digital technologies are used, individuals can access diverse and large amounts of information. For this reason, it is crucial for individuals to critically evaluate the information they have obtained and use it effectively.

The following suggestions were developed within the scope of this study. New episodes of the "*Digital Crew*" cartoon can put a more balanced emphasis on digital literacy dimensions. Further studies examining different cartoons in terms of digital literacy should be conducted. Cartoons should be analyzed in terms of the essential skills of today (21st-century skills, learning and innovation skills, life and career skills, information, media and technology skills, global skills, digital skills, etc.). As stated in Kaya & Uzoğlu's (2020) study, which concluded that using cartoons with suitable content in education will be beneficial, the "*Digital Crew*" cartoon can be used for educational purposes in schools for digital skills. Regarding this issue, Kumpulainen & Gillen (2017) emphasized the need for applications involving digital literacy of the children who spend time at home in early childhood, their parents' digital literacy, and practices in school-family cooperation. Similarly, children need content that supports their digital literacy instead of prohibiting their technology usage in developing technology. Based on this idea, the "*Digital Crew*" cartoon may be used in this sense. In addition, further studies should be designed to examine the effects of the different messages given in each episode on children: ("*let's use the Internet carefully, respect personal rights, pay attention to the limits of virtual games, not trust every information published on the Internet, follow ethical rules when using autonomous devices, not become addicted to technology, keep in mind that people will still be needed even in the future jobs, use advanced technology in innovative projects facilitating life, refrain from giving our personal information requested from us on websites, learn well all kinds of information when using new technologies*").

This study is limited to ten episodes of the "*Digital Crew*" cartoon, broadcasted on TRT Child between 2020-2021. In addition, it is limited to the technical, social-emotional, and cognitive dimensions of digital literacy suggested by Ng (2012). It is also limited to the document analysis method, frequently used in qualitative research, and the document review form developed by the researchers.

Conflict of Interest Statement

The authors declare that there is no conflict of interest.

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