The Role of Educational Leaders in the Development of Students' Technology Use and Digital Citizenship

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ABSTRACT

This study aims to investigate the role of educational leaders in students' acquisition of digital citizenship and technology use. The research study group consists of school principals, assistant principals, and teachers working in Istanbul. In this study, the case study technique, one of the qualitative research designs, was used to describe the current situation in detail regarding the use of technology and the development of digital citizenship behaviors. The data were obtained with a semi-structured interview form, and content analysis was made. The results explain the roles of educational leaders in developing technology ethics in students, ensuring that students use technology safely, preventing students from misusing technology, and raising a sense of responsibility towards technology as required by the age.

Keywords: Digital education, technology ethics, digital citizenship, technological leadership

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INTRODUCTION

The new digital age has brought extraordinary changes in technological developments. The way of accessing and using information in most people has begun to change. The digital age and the internet world continue to develop rapidly. Internet usage continues to increase day by day. As with every human being, the increase in the use of the internet and social media continues among students. According to a study conducted by Pew Research Center, 95% of 12-17-year-olds use the internet, and 80% of internet users use social media sites (Lenhart et al., 2011). Due to the rapid increase in internet and social media use and the increase in screen time, technology or internet addiction comes to the fore. This type of addiction shows the same reactions in the human brain as drug and alcohol addiction (Briggs, 2012). Due to the rapid changes in technology, it is necessary for school leaders to develop their digital literacy skills and put forward innovative applications for the safe and appropriate use of technology (Ribble & Miller, 2013). Thanks to the safe and appropriate use of technology, students may not be greatly affected by the harmful effects of technology addiction in the 21st century. For this reason, it is understood that educational leaders should provide digital leadership to students to develop their digital citizenship skills in educational environments.

The concept of digital citizenship, which is widely used due to the development of technology and the internet, emphasizes that students should integrate technology with their daily lives to live in

the digital age. In short, digital citizenship is defined as the norms of responsible behavior of digital citizens regarding technology use (Mossberger, Tolbert, & McNeal, 2007). For this reason, schools and educational leaders should have an important mission to teach students how to use technology and when and where to use it. Therefore, schools should teach children how to use technology effectively, creatively, responsibly, and wisely (Ohler, 2010). Otherwise, children will be exposed to the harmful effects of technology and the internet, and irreparable negative consequences may occur for them.

While technology enables us to obtain information efficiently, it can also make our children vulnerable to harmful behaviour and abuse by malicious people. Although parents warn their children that it may be inconvenient to talk to strangers in daily life, they impose fewer restrictions in this direction in the digital environment. More than 50% of young people carelessly publish their personal information such as their name, age, and address on social networking sites and chat with people they have just met online. Young, middle-aged, and older people using technology do not think that the location information of a photo taken from a GPS-enabled phone can fall into the hands of malicious people (to DeFranco (2011)). Violation of the confidentiality of personal data shared in the digital environment and the fact that malicious individuals obtain and use this information in a way that constitutes a crime is a common problem (Valcke, Bonte, De Wever, & Rots, 2010). Therefore, an important awareness should be created about digital data security. Digital data security is concerned with creating a platform for secure information processing for data or information in electronic media from unauthorised access without damaging its integrity during storage and transportation(Canbek & Sağıroğlu, 2006). When individuals and institutions take the necessary precautions by analysing the threats and dangers that await them while using information technologies, they will ensure their digital data security (Vural & Sağıroğlu, 2008). It is understood that it is important for children to receive education and guide them correctly so that they are not the target of malicious people in the digital environment.

DeFranco (2011) says that to determine whether a child is the target of malicious people in the digital environment, adults should pay attention to the following: i) Children start to spend a lot of time online, ii) It is observed that children communicate with people they do not know, and iii) Children tend to turn off the screen when parents enter the child's room. These factors could be an indication that something is wrong. iv) Children move away and start to spend less time with the family and v) They say that they have won some gifts of unknown origins (bus tickets, mobile phones, Webcams etc.). Considering that students spend most of their time at school and are intertwined with digital environments at school, limits should be determined regarding using technology correctly and exhibiting digital citizenship behaviours. School administrators and teachers need a clearly defined guide to be educational leaders for students and other employees in the digital environment. According to Ribble e Miller (2011), there are some qualities that digital citizens should have. The first of these,

- *You must respect yourself and others*. a) Digital etiquette: Educational leaders should be role models with good behaviours in the classroom and the digital world from a young age. b) Digital access: At the point of accessing the digital environment, all students should benefit from equal opportunities. c) Digital law: By enabling students to establish a link between real-life and the digital world, it should be ensured that they know that the rules of law valid in real life are also valid in the online environment.
- *You must educate yourself and connect with other people*. a) Digital communication: Which technologies are needed for interpersonal communication and interaction and in which situations should be discussed. In the digital environment, there is no possibility to see students' reactions, facial expressions, etc. Therefore, it is necessary to develop an

understanding for misunderstandings. b) Digital literacy: As the number of digital tools increases, there is a need to increase knowledge and experiences regarding these technologies. c) Digital commerce: Students should know how to protect their knowledge in the online world. They should know which sites are safe and how much information they could share.

- *You must protect others as you protect yourself*. a) Digital rights and responsibilities: Educational leaders should be aware that students must comply with the rules regarding online access and that their rights may be taken away if not followed. Students should not hesitate to inform authority figures when they feel uncomfortable about the violation of their rights. b) Digital Security: Educational leaders must ensure that technological tools and information are protected. It should not be forgotten that the problems that will occur when steps are not taken for the safety of the students will harm both themselves and others. c) Digital Health and Wellbeing: Educational leaders should try to identify the skills required for all users by setting the limits of technology use. It is important to find a balance between daily life and online life.

Since technology has an important place in our daily lives and education, it should be followed within a certain discipline. Its harmful effects must be reduced as much as possible. As educational leaders increase their awareness of technology and become digital citizens, they can support their students to acquire this citizenship and learn how to use technology appropriately. School administrators, teachers, parents, students, and other school stakeholders should work together to find solutions to the problems experienced in digital citizenship and technology use. It can be said that educational leaders have an important responsibility in guiding these people correctly in the transition towards a digital society and in reducing the harmful effects of technology and increasing its benefits. In this study, the role of educational leaders in students' acquisition of digital citizenship and technology use was examined. For this purpose, answers to the following questions will be sought:

- What is the role of the educational leader in the students' use of technology, following ethical and etiquette rules, and having a sense of responsibility in schools and daily life?
- What is the role of the educational leader in developing students' technology literacy skills?
- To what extent are the technological leadership competencies of educational leaders effective in making students technology literate?
- What kind of damage does the misuse of technology in schools and daily life cause students?
- What are the duties of educational leaders in solving problems related to the misuse and abuse of technology in schools?
- What measures should educational leaders take to protect and develop the technological infrastructure in schools?

RESEARCH METHOD

Research Model

Qualitative research has developed very different assumptions about research methods. First of all, qualitative researchers assume that events and phenomena, especially those with social content and human-related events, cannot be separated into subunits or behaviors with their precise boundaries because there are complex relationships between social events and phenomena. The qualitative researcher can still work with a series of variables but assumes that these variables are not separate, disconnected, and independent from each other. In this sense, variables in qualitative research are not finite and independent; they can be explained by complex intertwined relationships

(Yıldırım & Şimşek, 2011, p.54). In this study, the case study concept, one of the qualitative research designs, was used to reveal the role of educational leaders in students' gaining technology literacy and preparing them for the digital future. The case study examines the situations and themes that the researcher deals with in a descriptive way (Creswell, 2007).

Participants

In qualitative research, the concepts of universe and sample are replaced by "participants" or "working groups" (Yıldırım & Şimşek, 2017). For this reason, the study group method was prefered instead of universe and sample. The purposeful sampling method, one of the non-random sampling techniques, was preferred in determining the study group. The study group of this research consisted of educators selected through typical case sampling, one of the purposeful sampling techniques, among 20 school principals, vice-principals, and teachers working in Maltepe, Kartal, Pendik, Tuzla, and Sultanbeyli districts of Istanbul in the 2021-2022 academic year. Statistics of the study group are shown in Table 1 below.

Table 1. *Descriptive Statistics of Educational Workers in the Study Group*

Variables	Groups	f	%
Gender	Male	12	40
	Female	8	60
Age	20-25	2	10
	26-30	10	50
	31-35	4	20
	36-40	2	10
	41-45	2	10
Educational Status	Undergraduate	14	70
	Master's	5	25
	Doctoral	1	5

Data Collection Tools

In this study, the face-to-face interview method was used for data collection. The interview technique is a form in which the interviewer directs the questions to the subjects verbally and generally face-to-face to get answers (Büyüköztürk et al., 2012). In this study, a semi-structured interview form was used to collect data. This form consists of three demographics (gender, age, educational status) and six open-ended questions.

Data Analysis

The data obtained with the semi-structured interview form were subjected to content analysis. The basic process in content analysis is gathering similar data within the framework of certain concepts and themes and interpreting them so that the reader can understand. According to Yıldırım and Şimşek (2017), content analysis in qualitative research is analysed in four stages. These include; coding the data, finding the themes, organising the codes and themes, defining and interpreting the findings. At the bottom of the codes and themes created with the obtained data, remarkable participant opinions are included. Code names were given to the participant opinions (10K, 13K, etc.) used in the analysis process.During the data analysis process, expert opinion was taken to determine whether the coding made and the themes it belonged to were compatible.By using Miles and Huberman's (2016) calculation formula, a result was obtained in which consensus and disagreement were taken into

account. While the agreement between the expert opinion and the researcher should be over 90% (Miles & Huberman, 2016), the level of participation in this study was calculated as 92%. This result is important in terms of showing reliability.

FINDINGS

In this section, the findings obtained because of the research are given. The researcher analysed the answers given. The themes (technology ethics, technology security, technology abuse, misuse of technology, the role of the educational leader in gaining technology literacy) and sub-themes that emerged from these analyses are presented below.

Technology Ethics

This section includes the sub-themes of empathy, role modelling, curricula, and increasing student awareness under the theme 'technology ethics', one of the themes obtained from teacher opinions.

Table 2. *Sub-Themes, Frequency, and Participant Status on Technology Ethics*

Themes	Sub-Themes	*f*	Participant
Technology Ethics	Empathy	2	8K, 13K
	Being a Role Model	4	6K, 7K, 8K, 13K
	Teaching Programs	2	4K, 7K
	Increasing Student Awareness	6	2K, 3K, 4K, 5K, 10K, 12K

Empathy

Communication with technology has shortcomings compared to face-to-face communication. For this reason, it is thought that the ability of the students to have compassion and empathy towards the people they are in contact with decreases. Suppose the behaviors expected to be encountered in daily life are expected to be shown in technology usage. In that case, this will only be possible by developing empathy skills in students. The views of the participants regarding these views are given below.

> *"It does not arouse real emotion in people. This virtual love also reduces the ability to empathise or arouse a sense of compassion when necessary. For this reason, a society emerges that offends, hurts or inflicts violence on the other person more easily. They become unable to empathise about how their wrongful behavior could affect the other person (13K)."*

> *"It is necessary to internalise the concept of empathy in our students to bring the behaviors expected in our daily lives to the online world. It is necessary to make them understand and feel how the words to be said, the content to be quoted, and how unrestricted behaviors could make others feel (8K)."*

Being a Role Model

The educational leader in an educational institution should be a role model for all students, parents, and teachers in using technology. An educational leader should pay attention to the rules of etiquette in the social media accounts and the online environment they use. First of all, the educational leader must know and internalise the rules of etiquette in the online environment. In addition, it is necessary to control the online communication networks and whether the rules of etiquette are followed at the school. The views of the participants regarding these views are given below.

> *"As long as the educational leader acts fairly and pays attention to the ethical rules among the employees in daily life, as in every subject, the effect of this will be reflected on the school culture and also on the students (12F)."*

"An educational leader should first pay attention to courtesy and etiquette in the social media accounts they use (12K)."

"First of all, the educational leaders should know and apply these rules very well. Then they should supervise the implementation of these rules in all existing online communication networks of the school (6K, 7K, 8K, 13K)."

Teaching Programs

It is necessary to design an effective curriculum to improve students' technology literacy, enable them to use technology for obtaining information or useful works, and show students how to access the right sources of information. It is seen that students use the internet while doing their homework or project studies. Although they use the internet to reach healthy information, they interpret the information and include it in their studies without researching whether the information they use is correct. This situation poses a great obstacle to the development of students' creativity. For this reason, useful training programs should be organised for the correct use of the internet and for students to gain technology literacy. The views of the participants regarding these views are given below.

"Taking into account the newly formed criteria, it is necessary to rearrange these rules in line with the needs and integrate them into the learning programs, to ensure their applicability at young ages and ensure that that cultural environment is used actively at school (4K)."

"In assignments given to students, performance tasksand project assignments, we have often seen that students often refer to the internet directly without searching for sources or mixing books. Here, the educator must give the student pre-prepared homework, where students can use their creativity—using the internet or social media only to give them ideas (7K)."

Increasing Students' Awareness

Since it is thought that students do not have much knowledge about cybercrimes, their awareness should be increased on them not being aware of the situations that can be seen as crimes in the virtual world, that all personal information shared on the internet is recorded, that malicious people can use their personal information, and that they may be exposed to cyberbullying. It is understood that it is important to inform individuals about the safe use of information technologies, based on the increase in the factors that threaten information security and the increase in cybercrimes. The views of the participants regarding these views are given below.

"First of all, it is necessary to explain that the online world is not virtual, that the other person is also an individual, even if not face-to-face, and has the same feelings as in real life when humiliated or threatened (3F)."

"There is no difference between virtual theft and the real thing; both are crimes (such as the rules of correspondence). People should internalise training relevant teachers and parents (informing), informing the cafe staff around the school and constantly monitoring them (even virtually) in cooperation with the police and meeting them with the students, and that the rules of morality and respect in real life are also valid in the virtual environment (4K)."

"To make students aware of the dangers of the virtual world, make them aware that no information is kept confidential and recorded on the internet, raise awareness about what can happen when personal information is in the hands of malicious people, and have information about concepts such as cyberbullying (2K, 3K, 4K, 5K, 10K, 12K)."

Technology Security

In this section, the sub-themes of protecting technology infrastructure and satisfying student curiosity are included under technology security, another theme obtained from teacher opinions.

Table 3. *Sub-Themes, Frequency, and Participant Status on Technology Security Theme*

Themes	Sub-Themes	*f*	Participant
Technology Safety	Protecting Technology Infrastructure	4	10K, 13K, 15K, 20K
	Satisfying Student Curiosity	4	3K, 6K, 11K, 17K

2.1. Protection of Technology Infrastructure

It is stated that precautions should be taken first so that students can use technology safely in schools and homes. Licensed programs should be used on school computers, i.e. virus programs, to protect against harmful software; preventive programs should be included; infrastructure systems should be established to prevent misuse by students. In addition, it is emphasised that human resources trained in the protection and development of technological infrastructure should be employed in schools. The views of the participants regarding these views are given below.

> *"Especially, all security measures should be taken to avoid any negativity in the school. For example, access to licensed programs, computers with protection certificates, and precautionary family programs should be allowed in the internet network used by the school (13K)."*

> *"First of all, the educational leader should have good knowledge of the technological equipment in the school and their infrastructure. In cases of deterioration and loss of the technological infrastructure, they can establish a team that can intervene on time. There may be professional people with whom they can be in constant contacton this issue. The environments where technological tools are used should be kept locked at all times (10K)."*

Satisfying Student's Curiosity

Students' interest and curiosity in the online world should not be ignored. Damage to software and hardware systems used in technology can create a significant cost for educational institutions. However, students should be allowed to use technology and spend time in the digital environment correctly. The views of the participants regarding these views are given below.

> "To protect the technological infrastructure in schools, it is necessary to allow students to disrupt that *infrastructure* and thus learn it fully. Otherwise, it is not possible to protect that infrastructure from students who are curious and try to solve it (11F)."

Technology Abuse

In this section, the sub-themes of protection of personal data, school/environment communication, information, and secure network access are included under the theme of technology abuse, which is another theme obtained from teachers' opinions.

Table 4. *Sub-Themes, Frequency, and Participant Status of Technology Abuse*

Themes	Sub-Themes	*f*	Participant
Technology Abuse	Protection of Personal Data	3	9K, 15K, 20K
	School/Environment Communication	5	1K, 4K, 7K, 19K, 20K
	Information	6	3K, 5K, 6K, 10K, 13K, 14K
	Secure Network Access	6	3K, 5K, 11K, 13K, 16K, 20K

Protection of Personal Data

Situations that pose a security risk for students, themselves or their families should not be allowed in online environments. The student should be aware that there should be a certain limit in sharing personal data in the online environment. The unnecessarily and carelessly shared information may pose a danger to students in the hands of malicious people. The views of the participants regarding these views are given below.

> *"About the protection of personal information, I always share it in groups with permission from the parents. I always try to pay attention to personal rights; this can be an example (9K, 15K, 20K)."*

School and Environment Communication

School and environmental communication are very important for students to become conscious of the harm that technology could cause. Non-governmental organisations that family members or students are members of should be contacted to support the education given at school. It should be explained to the students that the harms of technology can be minimised by the existence of beneficial institutions and organisations working for the society and by taking an active role in these institutions and organisations. In this context, encouraging activities should be carried out within schools to use students' extracurricular time working for the benefit ofsociety. The views of the participants regarding these views are given below.

> *"I think that the prevention of technology damage also depends on the person's communication with the environment. Informative and educational programs can be organised for students about the negative use of technology by contacting various non-governmental organisations (5F)."*

Information

School leaders should be able to foresee the problems that may arise and take the necessary precautions. Although the necessary precautions have been taken, experts and guidance counsellors should be used for the problem encountered, and a coordinated search for a solution should be sought. It is very important to inform the family and get them to contribute to solving the problems. The views of the participants regarding these views are given below.

> *"Environments for raising awareness of teachers, parents, and students about technology literacy should be prepared (13K)."*

> *"In this regard, the educational leader must first take measures to prevent misuse and abuse. For example, necessary warnings should be given to the personnel about this issue, and teachers should inform their students (5F, 6K, 10K)."*

Secure Network Access

The internet access network used within the school boundaries must be provided from the secure internet access line provided by the Ministry of National Education. Students must gain technology responsibility and have a high level of awareness;however,it is critical to connect them to the online environment through secure networkaccess. The views of the participants regarding these views are given below.

> *"People should be careful not to use networks other than the secure internet network offered by the Ministry of National Education during working hours (12K)."*

> *"It is to make them think that they are free to use and abuse a structure with online networks and to control them from the same network (11K)."*

"They should recommend safe sites or internet filters, and they should also use it themselves. Although methods such as blocking and filtering harmful content sites work for a short time, we understand that there is no ban in the technology world with VPN, which the students showed us (3K)."

Misuse of Technology

This section includes sub-themes of technology addiction and harm, cyberbullying, decreased academic achievement, psychological and adjustment problems under the theme of misuse of technology, another theme obtained from teacher opinions.

Table 5. *Sub-Themes, Frequency, and Participant Status of Misuse of Technology*

Themes	Sub-Themes	*f*	Participant
Misuse of Technology	Technology Addiction and Harm	6	4K, 6K, 8K, 11K, 12K, 13K
	Cyberbullying	4	2K, 5K, 8K, 9K, 13K
	Decreased Academic Achievement	2	2K, 3K, 12K, 13K
	Psychological and Adjustment Problems	7	2K, 4K, 11K, 13K, 14K, 15K, 19K

Technology Addiction and Harm

The unconscious use of technology is harmful to human life and health. It is seen that the internet has started to become a necessity due to the increase in access channels and the solutions that make life easier. Excessive use of the internet and social networks at the level of addiction harms people's health and social relations. Excessive use of technological devices that provide online access becomes addictive, especially in younger age groups. The views of the participants regarding these views are given below.

"Technology not only makes our life easier but also negatively affects our lives. It is harmful to our health. It causes global warming, obesity, and cancer. It harms forests and causes unemployment. It makes people antisocial (6K)."

"Technology is taking place more and more especially in the lives of our students. This is an inevitable situation. We should develop measures, raise awareness, inform and inform our students so that this situation does not turn into an addiction (4K, 8K, 12K, 13K)."

Cyberbullying

Technology allows communication with too many people simultaneouslyand increases the risk of being exposed to cyberbullying. Since cyberbullying is more difficult to predict and detect than other types of bullying, students should be given attention. In this way, students are exposed to criminal behaviors in daily life and feel their harmful effects. Computer games that ignore social ethical rules and encourage violence negatively affect students and make them addicted. The views of the participants regarding these views are given below.

"A type of violence that is especially common among students has become widespread with technology development. This violence, which is referred to as cyberbullying in the literature, creates great problems for students. Moreover, cyber violence is much more common than other types of violence; it is harder to detect. Unfortunately, it also greatly harms students (13K)."

"Misuse of technology in schools and daily life, sexual abuse of children, cyberbullying, directed by various mobile games (Ex: Blue Whale) cause individual and social damages that lead to murder, extortion, theft, and suicide (5F)."

"Students encounter all kinds of bad examples when they enter the sites they want in this uncontrolled environment. For example, the very common supply of weapons and drugs from the internet (2K, 8K, 9K)."

Decreased Academic Achievement

The fact that students spend too much time with technology causes their academic success to decrease. The views of the participants regarding these views are given below.

> *"The fact that students spend too much time at home or want to play too many games, and their minds are always on computer games can reduce their academic success at school (2K, 3K, 12K)."*

Psychological and Adjustment Problems

Spending a lot of time in the online world and identifying with virtual characters can lead to psychological problems in the future. This can lead to undesirable behaviors such as aggression, concentration disorders, unhealthy eating habits, andbeing an unconscious consumer. Students spending a lot of time in the virtual world brings adaptation problems in real life. This situation causes individuals to become unsocial and introverted. The views of the participants regarding these views are given below.

> *"Children's mental and mental structures will be adversely affected, and their adaptation to real life will be difficult (10K)."*

> *"Some problems arise in children who play violent games or encounter inappropriate content on the internet. To put it briefly, these are things like aggression, concentration disorders, unhealthy diet and habits, even having unrealistic thoughts about the world and being an unconscious consumer (2K, 4K, 13K, 14K)."*

> *"In daily life, asocial individuals who are far from a sense of responsibility may emerge (12F)."*

> *"To put technology in the place of life (to spend too much time, to be dependent on technology, etc.) will be a factor that will not only prevent the student from socialising but also take away their social life (11F)."*

The Role of Educational Leader in Acquiring Technology Literacy

In this section, sub-themes of technology infrastructure, being a role model, and technology awareness are included under the theme of the role of the educational leader in gaining technology literacy, which is another theme obtained from teacher opinions.

Table 6. *Sub-Themes, Frequency and Participant Status of the Theme of the Role of Educational Leader in Acquiring Technology Literacy*

Themes	Sub-Themes	*f*	Participant
Role of Educational Leader in Acquiring Technology Literacy	Technology Infrastructure	2	6K, 10K
	Being a Role Model	4	10 K, 5K, 2K, 3K
	Technology Awareness	3	2K, 12K, 13K

Technological Infrastructure

The educational leader should take the necessary measures to ensure safe access of students to online environments within the school and create the necessary infrastructure according to the needs. The views of the participants regarding these views are given below.

> *"The educational leader needs to prepare the necessary technological infrastructure for the students. If this infrastructure is not ready, we cannot teach the students anything. Today, the development of technology and the acquisition of information through technological devices necessitate following the innovations in this field and having knowledge. For this, the educational leader needs the necessary infrastructure (6K)."*

"Their primary duty is to provide this technological equipment to the school. They should provide this technological equipment and prioritise its use, maintenance, and repair. They establish written and verbal communication to improve teachers and staff, organise meetings and seminars, etc. They conduct inspections in this regard (10K)."

Being a Role Model

The educational administrator has a critical role in increasing students, teachers, and parents' technology literacy levels. Educational leaders must be good technology literate. The views of the participants regarding these views are given below.

"The educational leader should use technology correctly to reach parents, teachers, and students, be aware of their daily lives or create a school culture (13F)."

"Educational leaders and teachers should always improve and renew themselves in technology literacy. And in this regard, they should always be an example to their students, and they should constantly convey the developments and changes they have learned to their students in the correct way (2K, 3K, 5K, 10K)."

Technology Awareness

Educational leaders in a school must have the skills required of the age and be proficient in technology leadership. In this way, it will lead all school stakeholders (parents, teachers, students, education administrators) to use technology correctly in daily life. In this way, school stakeholders can be aware of the possibilities and convenience of technology. The views of the participants regarding these views are given below.

"First of all, it is necessary to know this well. A person who cannot keep up with the necessities of the age cannot lead in education. Therefore, educational leaders must follow and learn about current developments on time. If an educational leader wants to create an effective school climate, they must provide all kinds of opportunities required by the age in their school." (13K)

"With technology education to be given to the individual at school, it can be ensured that the individual becomes 'technology literate'. The educational leader, who knows what technology is (how it is discovered, how it shapes society, and how it is shaped by society) and conveys it to the student in a good way, guides them to make a distinction and enables them to form an opinion based on this." (2K)

"First of all, an educational leader should have the necessary technology literacy skills themselves. Technology literacy skills are already an issue that should be taught to students in the Information Technologies course. First of all, an educational leader should know that the Information Technologies course has an important place in this regard." (12K)

Students' Technology Responsibility

In this section, the sub-themes of acquiring knowledge, self-confidence, technology curiosity, awareness of responsibilities, and active use of technology are included under students' technology responsibility, another theme obtained from teachers' opinions.

Table 7. *Sub-Themes, Frequency and Participant Status of Students on the Theme of Technology Responsibility*

Themes	Sub-Themes	*f*	Participant
Students' Technology Responsibility	Acquiring Knowledge	1	13K
	Self-Confidence	1	4K
	Technology Curiosity	1	3K
	Awareness of Responsibilities	5	3K, 5K, 6K, 7K, 13K
	Active use of Technology	2	4K, 11K

Getting information

Today, technology helps provide fast access to information. In addition, due to the increase in the information resources in the digital environment, it is seen that students do not have problems in reaching resources. Here, the student should be given responsibility for accessing the right information from the right source. The views of the participants regarding these views are given below.

> *"Another issue that I care about the most is gaining knowledge. Technology offers us the opportunity to access a huge world of science quickly. However, students should be imposed with the responsibility of accessing the right information from the right source (13K)."*

Self-Confidence

It is effective for students to have a sense of responsibility in their self-confidence. Children should be given responsibilities following their age group. The views of the participants regarding these views are given below.

> *"Confidence in children and sense of responsibility are directly related to each other. The self-confidence of a child who develops a sense of responsibility increases at the same rate. Teachers and parents need to assign responsibilities appropriate to the age of their children and evaluate the task they will assign well (4K)."*

Technology Curiosity

It is now very difficult to keep up with the speed of technological developments in today's world. In place of every new technological device produced, new ones with different features expressed as "upper model" are produced shortly. It is seen that keeping up with this rapid change has become a race in many of our societies. This race is also reflected in the students. The views of the participants regarding these views are given below.

> *"Now, there is a ridiculous rule that everything newis good. My phone is seven years old, and I don't plan to change it as long as it works. An educational leader should tell us that when new technology comes out, what we have is not obsolete; it is okay to use it as long as it works. Otherwise, you will continue to queue overnight for a new model phone as the new generation does (3K)."*

Awareness of Responsibilities

Students need to be aware of the dangers they may encounter in the online world and learn to protect themselves. Thanks to the conscious use of technology, students will be aware of the dangers of abuse and fraud. It should be explained that the virtual world, like the real world, has its own rules. They should be explained that they will make mistakes if these rules are not followed. The student should know what the consequences of their actions in the digital environment will cause. The views of the participants regarding these views are given below.

> *"The primary responsibility of students in the online world is to protect themselves. They need to protect themselves against all kinds of abuse and situations that may lead to economic difficulties (such as widespread internet fraud) and the dangers that they may be complicit in any crime (13K)."*

> *"They should realise that the online world is not virtual and should be able to explain this. They should talk about the harms of taking on other, wrong roles in the online world. It should be explained that what is done in the online world is not for free, as in real life, there are good or bad consequences. Knowing the consequences of their actions creates a responsibility for the student (3 K)."*

"To give students a sense of responsibility, examples from life should be given. They should be mixed with the realities of life, and they should be made to feel responsible for making healthy decisions when they are adults (5K, 6K, 7K).

Using Technology Actively

To better read the outside world, i.e. their environment, the society or institution they belong to individuals need to know the online world and use them actively when deemed necessary. The views of the participants regarding these views are given below.

"To restructure education and training at school on this basis, thus ensuring that students are necessarily intertwined and enable them to use technology effectively (4K)."

"To instil a sense of responsibility in children, it is necessary to keep them active in the online world. Being active is not only using games etc., which is the result of the online world, but also contributing to their writing and coding skills (11K)".

DISCUSSION AND CONCLUSION

This section gives a discussion, conclusion, and suggestions based on the findings obtained from the interviews with the administrators and teachers.

Educational leaders need to be role models for students, teachers, and parents in using technological leadership effectively and correctly. It is also understood here that technological leadership should not be considered separate from educational leadership (Avolio et al., 2014; Bush, 2008; Peleg, 2012). Especially in technology ethics, educational leaders should set an example of behaviours to be exhibited in the digital world and how online communication networks should be used and should act following the ethical rules required by the digital world. However, informative studies should be carried out in educational environments to allow students to learn how to benefit from information resources in the online world because the rapid development of technology has both positive and negative aspects. While this situation creates opportunities, it can also bring risks (Livingstone& Helsper, 2009). For students to be digital citizens, act according to technology ethics, and make these ethical behaviours permanent, it is also necessary to adjust in the curricula. In addition, students may unwittingly face cybercrime while using technology. Being informed about the attitudes and behaviours that would constitute a crime in the online world will prevent such criminal behaviours. Educational institutions should take all necessary security measures not to cause any negativity in this regard. The technological equipment within the institution must be protected following the security protocols. In addition, by using secure access networks within the school's boundaries, students can be safely connected with the online world, and their sense of curiosity can be satisfied.

It has become an accepted fact as a result of much research that technological developments aiming to serve humanity, facilitate people's work in daily life, and share the right information with the masses do more harm than good to individuals when they are used outside of their intended use or excessively (Basalla, 2010). Due to the fast communication feature and ease of access to technology and the internet, malicious people can engage in unlawful and inappropriate behaviors in the digital environment. By informing students about the wrongful use of technology, the negative effects of technology can be minimised. Educational leaders should know that they and their students are legally responsible for solving problems related to the misuse and abuse of technology and how they can solve them when they arise. It is known that malicious adults will abuse children using the internet (Sharples et al., 2009). In addition, educators need to reach all members of society to raise awareness about digital citizenship (Ribble & Miller, 2011). School and environmental cooperation are important so that students are not affected by the negative effects of technology. The school should identify any

problems experienced by the students arising from using technology on time and, when deemed necessary, establish a cooperation and communication network between the students, parents, and the guidance service. In addition, parents should constantly communicate with their children about the potential dangers they might encounter. In addition, it should be determined which social network and e-mail account children use, and they should be checked randomly. Computers should be in common areas as much as possible, not in children's private rooms (DeFranco, 2011). Although important problems are encountered if precautions are not taken, many parents may be reluctant to understand the importance of the problem and provide training and information on technology use and misuse (Ribble & Miller, 2011). Since children, young people, and even unconscious users may face unexpected and unwanted threats, dangers, and situations in the internet environment, it is necessary to focus on eliminating these problems. Relevant state institutions and organisations should pay more attention to the issue. Educators and parents should have information on the subject or increase their knowledge. Furthermore, children and youth should be trained and followed on the subject (Canbek & Sağıroğlu, 2007). In addition, a common path can be followed to prevent these harms by contacting various non-governmental organisations struggling to raise awareness about the technology. Since this situation is not only within the school's boundaries, but also necessary to use secure network access in all online environments.

Real-life threats are at the root of all possible threats to be encountered on the internet. All risk headings for the internet are situations that can be encountered in real life. Therefore, just as we make efforts and set rules to protect our children from all these dangers in real life, we can also minimise the risks of the virtual world by learning to use the internet consciously, safely, and effectively and by teaching children this. We can offer children education, communication, and having a good time (Information Technologies and Communications Authority, 2019). Supporting students' ability to fulfil their responsibilities in the digital world and thus increasing students' self-confidence is among the duties of the educational leader. The educational leader is also responsible for providing the necessary opportunities for students in the institution to have the equipment required by the age and supervising this (Totolo, 2007). Organisational efficiency can be achieved by improving the technological leadership competencies of educational leaders, increasing the quality of educational activities, and gaining lifelong learning skills (Blau & Shamir-Inbal, 2016). In an effective educational institution, the leader should lead students to make the right distinction between the digital world and the real world, be aware of their roles and responsibilities in both worlds, and actively use technology to benefit them. When the harms and gains of technology are evaluated together, students and parents should exhibit digital citizenship behaviours together. As a digital citizen, the educational leader should lead the other stakeholders of the school and be a role model for students, teachers, and parents. Education leaders should be open to innovation and continuous development in digital citizenship and the correct use of technology. In this context, educational administrators and policymakers should put forward short, medium, and long-term policies to train educational leaders equipped with the skills required by the age and who can take technological leadership in educational organisations.

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