

Digital security and WhatsApp usage at school according to school administrators: A qualitative research

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Abstract. This research aims to identify the potential risks posed by WhatsApp instant messaging tool used as a communication tool in schools in terms of digital security according to the opinions of school administrators and to develop effective strategies against these risks. For this purpose, the research was conducted with a phenomenological design. In this context, face-to-face interviews were conducted with 12 school administrators at primary, secondary, and high school levels in the Antakya district of Hatay (Turkey). Data were collected through a semi-structured interview form. The data were subjected to content analysis. According to the findings; school administrators emphasized that tools such as WhatsApp provide many advantages in education, but also carry certain security and privacy risks. In this research, in addition to the advantages of the WhatsApp application for schools, its shortcomings in terms of “digital security”; were also revealed and it was suggested that a more secure application should be used for schools.

1 Introduction

The digitalization era, which coincides with advancements in science and technology, continues to influence the educational world [1, 2, 3]. Digitalization is rapidly increasing in today’s schools, where communication between administrators, teachers, and students plays a crucial role [4]. Schools may use instant messaging tools for purposes such as student-teacher communication, teamwork, and coordination among student groups. School administrators use these applications to share developments related to the school, provide preliminary information officially, keep the interest of administrators and teachers alive, maintain general coordination, and increase socialization [5]. These tools can enhance interaction between students and teachers and provide opportunities for rapid communication. Teachers can also use instant communication tools for professional development and meetings [1]. These tools can be effectively utilized for virtual meetings, interaction among educators, sharing updates, and exchanging information on educational policies. Schools have increasingly adopted WhatsApp for faster and more efficient management and communication [6]. WhatsApp continues to maintain its popularity in

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today's educational world [7]. WhatsApp is utilized to assist students in the learning-teaching process by enhancing academic success, increasing participation and motivation in classes, supporting group work, collaboration, or joint projects, and reminding key points related to the subject [8]. Furthermore, according to [9], WhatsApp is a collaborative learning tool that has the potential to improve students' comprehension and academic achievements. Especially with the rise of online education in schools, WhatsApp has become the most preferred application due to its accessibility via smartphones, without the need for complex computers or mobile devices [10, 11]. On the other hand, while the use of WhatsApp in education provides various advantages, it also raises significant debates. Although WhatsApp facilitates rapid information sharing and access, it brings new challenges regarding communication, security, privacy, and access to information. One of these issues is digital security [12, 13, 14]. Another issue is the excessive and inappropriate use of WhatsApp by school principals with an autocratic leadership style [15]. The main focus of this study is to examine the problems school administrators face in WhatsApp communication environments and the solutions they propose.

1.1 Research Questions

The research questions are as follows: (1) What are school administrators' views on digital security? (2) What are the reasons for using WhatsApp, an instant messaging tool, in schools? (3) According to school administrators, what are the challenges of WhatsApp's widespread use? (4) What are school administrators' opinions on digital security policies? (5) What are the effects of WhatsApp on school administration? (6) According to school administrators, what strategies are implemented to increase digital security awareness in schools?

2 Methodology

In this study, phenomenology, one of the qualitative research designs, was used. Phenomenology aims to deeply understand individuals' experiences and the meanings they attribute to these experiences. In this study, the semi-structured interview method was chosen to deeply examine school administrators' experiences and perceptions regarding digital security and WhatsApp use.

2.1 Participants

The study group consists of school administrators from primary, middle, and high schools in the Antakya district of Hatay province during the 2023-2024 academic year. Maximum variation sampling, one of the purposive sampling methods, was used in this research. Participants from different types of schools (primary, middle, and high school) and with various levels of administrative experience were selected to ensure diversity. The study group includes 12 school administrators, consisting of 1 from a primary school, 1 from a middle school, and 3 from high school. Participants volunteered to take part in the study.

Table 1. Participants' demographic information

Participant	Gender	Professional seniority	School level
P1	Male	20	Middle school
P2	Female	7	Middle school

P3	Male	10	Anatolian high school
P4	Male	20	Anatolian high school
P5	Male	14	Anatolian high school
P6	Female	4	Anatolian high school
P7	Male	14	Anatolian high school
P8	Male	22	Primary school
P9	Male	22	Primary school
P10	Male	8	Vocational high school
P11	Female	4	Anatolian high school
P12	Male	24	Anatolian high school

2.2 Data Collection

A semi-structured interview form was used as the data collection tool in this research. The interview form was prepared based on the study's objectives and structured around key themes such as perceptions of digital security, digital security policies, WhatsApp usage, and digital technologies in education. The interviews were conducted in the administrative offices of the school administrators by appointment, lasting between 25 to 40 minutes. The interviews were audio-recorded and later transcribed into written form. The total duration of the interviews was 350 minutes, and the transcriptions amounted to 25 pages of documentation.

2.3 Data Analysis

The collected data were analyzed using content analysis. During the data analysis process, the consistency of the coding conducted by different researchers was checked to increase the reliability of the coding. As a result of the content analysis, five main themes, eight categories, two sub-categories, and 21 codes were identified. The consistency between the coders was calculated as 86% based on the Miles and Huberman formula ($\text{Reliability} = \frac{\text{consensus}}{\text{consensus} + \text{disagreement}}$) [16]. To ensure the accuracy of the research findings, relationships between the data and the identified themes were carefully examined, and the original statements of the participants were included to support the analysis.

3 Findings

This research aimed to identify the potential risks posed by the use of WhatsApp in schools in terms of digital security and to develop effective strategies to address these risks. The findings are organized under five themes: (1) digital security, (2) WhatsApp usage, (3) digital technologies in education, (4) education administration and policies, and (5) digital communication tools. Themes, categories, and codes are listed in Table 2.

Table 2. Theme, category, subcategory, and codes

Theme	Category	Sub Category	Codes
Digital Security	Digital Security Perception	General Security Perception	- It has an important place - Can be increased further - There may be openings - Not finding it safe
		Individual Security Measures	- Password usage - Device security - Safe application use
WhatsApp Usage	Ease of use		- Ease of use - Widespread use
	Communication Efficiency		- Fast flow of information - For notification purposes
	Security and Privacy		- End-to-end encryption - Data security concerns
Digital Technologies in Education	Digital Security Training		- Inadequate security training - Training needs to be increased
	Technological Infrastructure		- Precautions for smart boards and student devices
Education Administration and Policies	Digital Management Policies		- Digital security standards in schools - MEBBIS, E-School - Continuous updates
Digital Communication Tools	The Role of WhatsApp		- Facilitating school management - Fast and practical communication

3.1 Themes

3.1.1 Digital Security

While school administrators generally have positive views on digital security, some concerns were raised. There is a general awareness of the importance of digital security, but some administrators believe that security measures are insufficient. They also expressed that digital security practices in Turkey are not adequate. School administrators maintain personal security through methods such as password management, device security, and the use of secure applications. Although existing digital security policies in educational institutions are generally considered reliable, participants recommended that training should be increased and stricter security protocols implemented. Below are some examples of direct quotes related to this theme:

“There are times when security is compromised if digital security is not ensured by third parties.” (P1)

“Turkcell has an application in this regard. They had a package that alerts you when your passwords are accessed without your knowledge concerning digital security. I subscribed to it.” (P1)

“Apple also introduced a new feature. They ask if you want your information to be accessed because of advertisements. I always say no. I believe iPhone is more secure.” (P2)

3.1.2 WhatsApp Usage

Although school administrators felt secure with WhatsApp's end-to-end encryption feature, they did not feel entirely confident about its security. Additionally, there were concerns about data backup and general data security. Participants indicated that they needed more information and guidance to ensure the secure use of WhatsApp. Below are some examples of direct quotes related to this theme:

"At the moment, WhatsApp is the most advanced among its counterparts. There are other applications, but we've used them in the past, and none can reach as many people simultaneously or have such widespread use." (P3)

"We use WhatsApp at our school because it allows us to quickly notify teachers of incoming messages and provide necessary information swiftly." (P9)

"In terms of security, I still believe there are loopholes. No matter how many precautions you take in the digital world, I believe there will always be a method, a third way." (P3)

3.1.3 Digital Technologies in Education

Regarding digital security training and technological infrastructure, school administrators noted that current training is insufficient and should be increased. More security measures were also emphasized for technological infrastructures such as smartboards and student devices. Below are some examples of direct quotes related to this theme:

"We can see the consequences of security breaches, such as fraud, and other incidents. The power of social media is also evident. We can see how much people suffer when their accounts are stolen. For this reason, I believe digital security is essential and can be further improved." (P6)

"I believe digital security is violated when students carry phones, as children often record and share moments from school, which can harm the school." (P2)

3.1.4 Educational Administration and Policy

In terms of education administration and policies, school administrators emphasized the need for the establishment of digital security standards and the continuous updating of these policies. Below are some examples of direct quotes related to this theme:

"When logging into MEBBIS, using a phone password or QR code increases security." (P6)

"We would like to have a national version of WhatsApp that is more advanced than its counterparts, meeting all our needs, and with effective security policies that we are informed about." (P4)

"If the government creates a national program for instant messaging that ensures security, especially for communication among Ministry of National Education personnel or between ministries, it would alleviate our security concerns." (P5)

3.1.5 Educational Administration and Policy

School administrators noted that WhatsApp facilitates school management and accelerates communication processes. They expressed that WhatsApp is a quick and practical communication tool. Below are some examples of direct quotes related to this theme:

"In WhatsApp, for example, people share common values. In our school group, everyone shares their thoughts and feelings on holidays or important days on the same platform. This creates a certain culture, which I think positively affects staff relationships." (P4)

“WhatsApp accelerates school operations related to school management. It speeds up access to information and facilitates day-to-day tasks more quickly.” (P9)

4 Discussion

In this study, school administrators shared their views on digital security and the use of WhatsApp in schools. The research findings reveal that school administrators see both advantages and risks in using WhatsApp for school-related purposes. While school administrators expressed positive views about digital security in schools, they also raised some concerns. The value of "trust", which has an important place in terms of school management [17], is also needed in the digitalized communication environment. School administrators have mentioned their concerns about ensuring this trust in the WhatsApp communication environment.

School administrators generally considered the digital security practices of the Ministry of National Education to be reliable, particularly noting the security of the Ministry's Information Systems (MEBBIS). This finding suggests that school administrators have a favorable view of the digital security measures implemented by the Ministry of National Education. However, some school administrators felt that current policies are insufficient, a finding supported by other research that recommends that digital security policies should be continuously updated and improved [18].

School administrators indicated that WhatsApp is preferred for its user-friendly interface and ease of use. This finding aligns with other studies that highlight WhatsApp's widespread use and practicality in educational environments [19, 20, 21, 22]. While WhatsApp offers many advantages, such as rapid information flow, effective communication, and ease of use, it also presents certain security and privacy risks. This finding is consistent with other studies conducted on the use of WhatsApp in the field of education [23, 24]. These risks include breaches of data privacy, messages being accessible to third parties, and personal information not being fully protected. These concerns were also identified by Rosen and colleagues [25]. School administrators stated that while the end-to-end encryption feature of WhatsApp provides some reassurance, they do not feel entirely secure. This finding supports the notion that additional security protocols are necessary to safeguard instant messaging tools in educational institutions [26].

Furthermore, school administrators emphasized the need for enhanced security measures for smartboards and student devices. Solutions such as antivirus programs, firewalls, and spyware scanning tools, as mentioned in other research, could be effective in protecting educational institutions from cyber threats [27]. The need to continuously update and improve technological infrastructure to prevent information security issues was also highlighted in our study. Therefore, digital security measures are of critical importance for modern schools.

5 Conclusion

The research findings indicate that school administrators emphasize the importance of digital security and the need to increase awareness in this area. Digital security plays a critical role in educational institutions, but significant deficiencies exist in ensuring this security. Training on digital security in schools is insufficient and should be expanded. School administrators also expressed concerns that adequate digital security measures are not being taken in schools, revealing the need to review digital security policies and practices. The preference for WhatsApp due to its ease of use and communication efficiency underscores the importance of digital communication tools in education. However, concerns about security

and privacy suggest that these tools need to be made more secure, and the development of national alternatives is also essential. According to school administrators, instant messaging applications like WhatsApp enable fast and effective communication in schools, facilitating school management and strengthening relationships among staff. Ensuring the security of digital technologies in education and improving digital management policies will enable school administrators, teachers, and students to work more safely and efficiently in the digital environment. As a result, security concerns regarding the use of WhatsApp in schools were expressed, and the development of a national application was emphasized.

6 Recommendations

Communication through instant messaging applications in schools should be regulated. These rules should clarify when and how messaging is used, how official correspondence is conducted, and what information can be shared. This will help prevent misinformation and misunderstandings.

Regular digital security training should be provided to school administrators, teachers, and students on the secure use of instant messaging applications. These trainings should cover topics such as creating secure passwords, data protection, safe internet use, and protection from social engineering attacks.

School administrators emphasized the need for the development and support of domestic messaging applications. In this context, making domestic applications user-friendly and secure could encourage schools and other public institutions to adopt them. Domestic applications will also be more advantageous in terms of national security and data privacy.

Acknowledgments

This study was produced from a non-thesis master's degree project completed under the supervision of Assoc. Prof. Dr. Tuba YAVAŞ in the Educational Administration Program of Hatay Mustafa Kemal University, Institute of Social Sciences in June 2024. All authors have an equal contribution to the publication. The authors have read and agreed to the published version of the manuscript. The authors declare no conflicts of interest.

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