

EXAMINING THE INFORMATION SECURITY ATTITUDES AMONG PRIMARY SCHOOL-AGED CHILDREN

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ABSTRACT

The pilot research aimed to assess the digital competencies and information security knowledge of primary school students in the district of the Educational District Center of North Budapest, Hungary. This research was a quantitative study based on a questionnaire, and a total of 952 responses were received. The research examined the issue from three different perspectives. Data were received from the parents of the children, the educators, and the children themselves. The results of the research showed that children have their favourite applications, parents try to adapt to the challenges, and teachers are uncertain and expect help. The students have some digital competencies, but there are still many shortcomings in terms of information security knowledge. Based on the results, it is recommended to pay more attention to information security education both in schools and in home education by parents. Additionally, there is a need to improve educational materials and tools. This study presents the findings of the research.

KEY WORDS

information security, data protection, education, survey, primary school-aged children

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INTRODUCTION

Information security is the complex process of protecting information from unauthorised access, use, leakage, destruction, modification and disruption. Information security was taken for granted 10-15 years ago, but today it is not the case. It is a constant fight to protect our data and information on a daily basis. It is therefore very important to pay attention not only when information security is compromised, but also to provide complex, preventive protection [1, 2]. Today's school-age population will enter the labour market in approximately 6-10 years. Our future is closely linked to the socialisation of this age group. We have a responsibility towards them, and it is part of our responsibility to provide them with appropriate responses to the challenges generated by digital technology. In addition, it is important to have a good approach that is in line with their perceptions, values, behaviour, norms, attitudes and habits [3].

Raising awareness of information security from primary school age is necessary as the spread of cybercrime is a cause for concern [4] and children who are active online should not be left unprotected.

The research of Óbuda University identifies benchmarks for the responsible interaction with this age group based on their feedback.

RELATED WORK

The present article discusses the findings of the “Digió” research project conducted at Óbuda University, which aimed to evaluate the digital competencies of primary school students in the educational district of North Budapest, Hungary, specifically in Újpest¹.

The results of the study showed that the majority of primary school students in the North Budapest region had a good level of digital literacy, with most students using digital technologies regularly. However, the study also identified areas for improvement, particularly in the areas of online safety and digital skills. The findings also highlighted the need for more support and training in digital literacy education among teachers.

METHODOLOGY

The research employed a quantitative approach based on a questionnaire, and the study received 952 responses from parents, children, and teachers, of which 880 were deemed relevant and cleaned data.

The North Budapest region has a population of approximately 93,000 people, with 5,911 primary school students in the age range of the study. The project intended to investigate the digital skills, attitudes, and experiences of these students regarding digital technologies.

The methodology of this study used a questionnaire to gather data on several topics related to digital literacy, including online safety, internet usage, digital skills, and attitudes towards technology. The questionnaire was administered to parents, children, and teachers, and the responses were analysed using quantitative statistical methods.

The research study on children's use of mobile phones also examined the attitudes and opinions of parents regarding their children's mobile phone usage. The study found that 77.5% of the parents surveyed were female, while 22.5% were male. This suggests that women are more likely to be involved in managing their children's mobile phone usage.

The study also found that the majority of parents in the examined population were members of the X or Y generation. This is not surprising as these generations are more likely to have young children.

RESULT AND DISCUSSION

THE USE OF MOBILE PHONE

The use of mobile phones has become increasingly common among people of all ages, including children. As mobile phones have become more affordable and accessible, parents have started to offer their children mobile phones at a younger age. However, there are concerns about the impact that mobile phone usage can have on children's health and well-being.

A research study was conducted to investigate the use of mobile phones among children. The study focused on a particular population and aimed to investigate the age at which children receive their first mobile phone, the frequency and duration of mobile phone usage, and the most popular applications used by children.

The findings of the study revealed that 62% of the children in the examined population received their first mobile phone between the ages of 8 and 11. This suggests that a significant proportion of children are given their own mobile phones at a relatively young age. Interestingly, approximately 8% of the children already had a mobile phone before the age of 5. This highlights the trend of introducing technology at an early age.

The study also found that 10% of the responding children do not have a mobile phone. This may be due to the fact that some parents are hesitant to give their children mobile phones, or that some families may not be able to afford them.

In terms of usage patterns, the study found that 72% of children use their phones for at least one hour a day. This suggests that mobile phone usage is a regular part of children's daily routine. However, it is important to note that 10.2% of the children use their phones for more than four hours per day. This highlights the need for parents to monitor their children's mobile phone usage and set appropriate limits.

Own phone at the age of 11 international overview

Internationally, we see that children have access to their personal smartphones by the age of 11. In the UK 71% of children have their own phone by this age [5], in France 77% [6] and in Hungary 82%, Figure 1. This poses significant challenges to their information security awareness and practices. These statistics underscore the urgent need for comprehensive information security education for children aged 7-14. Early use of personal devices requires proactive measures to ensure that young people have the skills to navigate the online world safely, and to promote secure communication and skilful information processing.

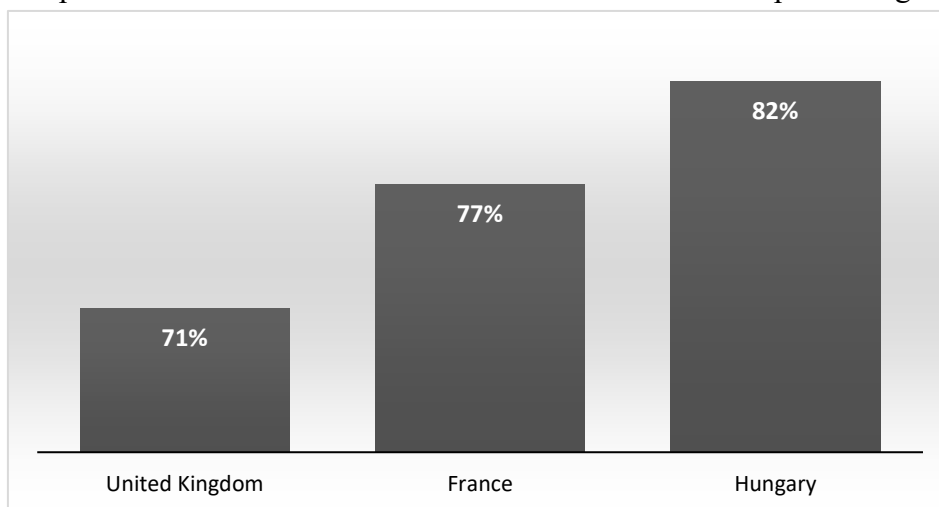


Figure 1. Own phone at the age of 11.

The most popular applications

Among children, the most popular applications are YouTube, Messenger, TikTok, Spotify, and Viber. The study found that YouTube is by far the most popular of these applications, being used daily by practically 9 out of 10 children. This suggests that children are using mobile phones for entertainment and social purposes, rather than just for communication.

The most popular app in all three countries surveyed is the YouTube. While in France and the UK the most popular messaging service is WhatsApp, in Hungary it is Viber.

SAFETY AWARENESS AMONG CHILDREN

The research study on children's use of mobile phones also revealed some concerning observations regarding their security measures. The study found that 47.8% of children surveyed expressed fear that their social media accounts would be hacked. This suggests that children are aware of the potential risks associated with online activities. Additionally, nearly 2% of the surveyed children reported having had their accounts hacked, highlighting the importance of implementing appropriate security measures.

However, the study also found that 16.9% of the surveyed children did not set any security measures on their phones. This is concerning as it leaves their devices vulnerable to hacking and other security breaches. Parents and educators should educate children on the importance of setting up security measures on their devices, such as passwords and two-factor authentication or the privacy settings [7].

On a positive note, the study found that in case of any problems, 50% of the surveyed children ask for help from their parents. This suggests that parents play an important role in ensuring their children's safety and well-being when it comes to mobile phone usage. Parents should continue to be involved in their children's mobile phone usage and provide guidance and support where necessary.

CYBERBULLYING IS PRESENT

Young people's experiences of bullying were a pressing issue before the pandemic and continue to be a problem that needs to be addressed effectively [8]. In this regard, the European Paediatric Association and the Health Behaviour in School-aged Children Surveillance report shows that this phenomenon is high among both girls and boys and is steadily increasing, with the primary school age group being strongly affected [9]. In Italy, 7 % of young girls and 5 % of young boys reported that they were involved in cyberbullying or cybervictimization [10]. A survey by the University of Óbuda found that 10% of primary school children have experienced some form of online bullying. This trend has already been observed in research in the UK in 2016, where a limited number of studies with primary school-age pupils showed that many of them regularly use mobile phones and the internet, and some primary school children are involved in cyberbullying (as perpetrators and/or targets) [11].

Increasing trends in cyberbullying victimisation indicate an urgent need for more digital literacy and online safety education [12].

PARENTAL REVIEW

In terms of their attitudes towards children's mobile phone usage, the study found that 45,5% of parents consider less than one hour of internet usage for children to be ideal, Figure 2. This suggests that many parents are aware of the potential negative effects of excessive mobile phone usage on their children's health and well-being.

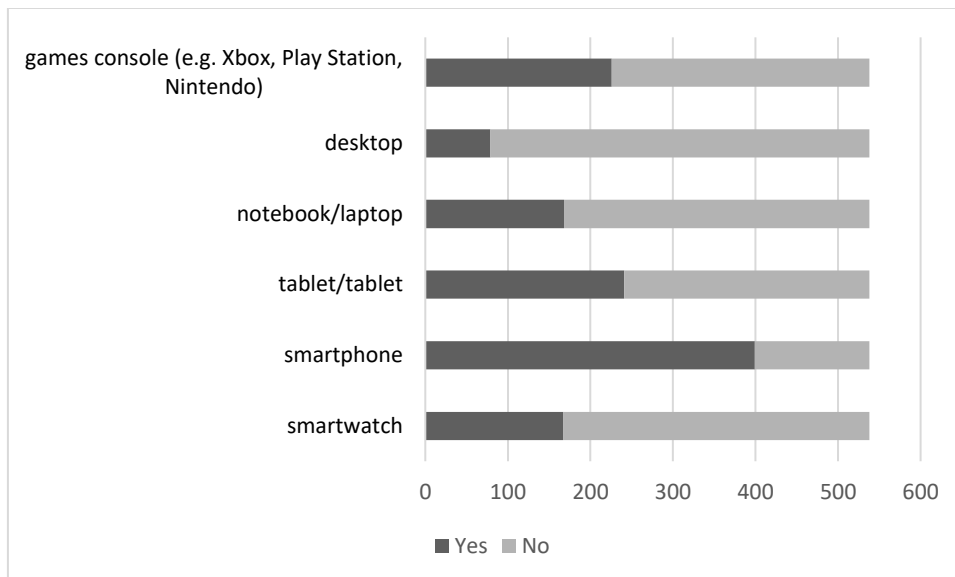


Figure 2. Does your child have a digital device?

Additionally, the Hungarian study found that 12% of parents would only give a smart device to their child after the age of 14. This suggests that some parents are hesitant to introduce mobile phones to their children at a young age and prefer to wait until their children are older and more responsible.

The present research found that 99,5% of parents would limit the amount of time their child spends using their phone. A study from three years ago showed that if someone spends a lot of time communicating on their phone, they will spend less time on face-to-face interactions on the same day [13].

WHAT TEACHERS WANT

The research study on children's use of mobile phones also examined the perspective of teachers on information security issues. The study found that 58,3% of teachers do not consider themselves prepared to talk to children about information security issues. This suggests that there may be a need for more training and support for educators on how to address cybersecurity challenges in the classroom.

Additionally, the study found that 62% of teachers would require regular information sessions on internet security, indicating a desire for ongoing education and professional development in this area. Areas of support requested:

- involvement of an "external" expert in youth Internet safety. E.g.: experts from voluntary organisations,
- inviting and involving a lawyer who is involved in Internet issues,
- regular information sessions organised in the school,
- training of teachers on the subject,
- educational publications, brochures to be discussed,
- good textbooks on the subject,
- the presence of a (permanent) teacher colleague with expertise in the subject.

No phone

Interestingly, almost 6% of teachers suggest that children should not use the internet at all. While this approach may seem extreme, it highlights the importance of considering the potential risks and benefits of digital technologies for children and the need for balanced and informed decision-making.

CONCLUSION AND FUTURE WORK

Within the framework of the “DigiÓ” research project conducted at Óbuda University, we gained significant insights into the digital competencies of primary school students, particularly in the northern region of Budapest. The findings of the study offer valuable insights into the use of mobile phones among children. It suggests that a significant proportion of children gain access to mobile phones at a young age, and mobile phone usage becomes an integral part of their daily routine. The main objective of several information security research projects is to explore ways to enhance users’ information security decisions [14] and the links between safe online behaviour and compulsive internet use [15]. In the future, the “DigiÓ” research can provide a starting point for further research in this topic.

Nowadays, awareness-raising is of paramount importance. In order to defend against the rapidly growing number of cyber-attacks, the cyber security awareness of everyday people needs to be significantly increased [16].

The research underscores the importance of security awareness among parents and children concerning mobile phone usage. Parents need to play an active role in educating their children about potential online dangers and implementing appropriate security measures to ensure their safety and well-being. This underscores the necessity for greater awareness and education regarding the legal framework governing cybersecurity, especially concerning children.

Parents can greatly benefit from information and guidance outlining their legal rights in protecting their children from online threats, as well as avenues for reporting online harassment and other digital crimes.

Furthermore, it is evident that educators are receptive, supportive, and able to recognize the existence of cybersecurity challenges for children. However, they require assistance and support to effectively address these issues in the classroom. By providing ongoing education and resources for educators, they can be empowered to equip children with the necessary knowledge and skills to navigate the online realm safely and securely.

Additionally, further research could explore the impact of mobile phone usage on the social and societal development of children. Understanding these patterns of mobile phone usage among children can help develop interventions and educational programs that promote responsible mobile phone usage among them.

Ultimately, it is imperative to adopt a comprehensive and collaborative approach to addressing cybersecurity challenges, involving parents, educators, law enforcement, and other stakeholders. Through concerted efforts, it can be ensured that children have safe and positive experiences when using mobile phones and other digital technologies.

REMARK

¹DigiÓ” is an acronym - “digital Óbuda University” research which was conducted by a doctoral student at Óbuda University Doctoral School on Safety and Security Sciences between 15.11.2023 – 06.12. 2023. Research coordinated by Lajos Záhonyi.

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