FROM DIGITAL CITIZENSHIP TO A SAFER FUTURE: BUILDING DIGITAL RIGHTS AND LITERACY IN PRIMARY SCHOOLS

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Abstract

In today's society, digital literacy is critical to the safe and responsible use of technology. In the Republic of North Macedonia, students from primary school are increasingly exposed to risks related to the uncontrolled flow of digital information. According to recent research, only 30% of young people have a basic understanding of their digital rights and responsibilities, which makes them vulnerable to misuse of personal data, misinformation and cyber-bullying. Research shows that 40% of students in primary schools in North Macedonia face some form of cyber-bulling, and 60% of them do not know how to react to such situations. These numbers indicate the urgent need to improve digital literacy and awareness of personal data protection.

In recent years, there have been cases of misinformation affecting young people, such as fake news related to health issues or social events. This misinformation not only creates confusion, but also causes fear and panic. Also, many students report cases of online bullying, which further worsens their psychological condition. In order to raise the level of awareness and literacy among students, first of all, we must check the level of skills and knowledge that teachers have and possess and implement them in teaching process. For this purpose, the authors dedicate this paper to research regarding digital rights and freedoms and their implementation in primary schools in the earliest years of education. This paper will identify the needs and shortcomings that teachers have and the way to implement and tech students to digital citizenship, as part of media literacy.

Key words: media literacy, digital rights and freedoms, digital citizenship, teaching process, education

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1. Introduction

Digital media and technology are reshaping how young people learn, communicate, and participate in society. What was once an optional skill set has now become a core part of everyday life: from the way students search for information, to how they interact with peers, to how they understand their rights and responsibilities as members of a digital community. As these technologies advance rapidly, the distinction between the online and offline world grows thinner, and the need for children to understand both the benefits and risks of digital participation becomes increasingly urgent. Today's students navigate an environment filled with endless opportunities for creativity, collaboration, and self-expression. At the same time, they face complex challenges such as misinformation, hate speech, online manipulation, privacy violations, and cyberbullying, issues that can affect their academic performance, emotional well-being, and long-term development. These risks appear earlier than ever before, as children begin using smartphones, social media, and digital learning platforms at a very young age. For many students, the digital world is not a separate space, it is the space in which they grow, socialize, and form their identities.

Because of this, teachers and parents face increasing pressure to help students understand how to behave safely and responsibly online. Schools, traditionally responsible for building foundational literacy and social skills, now also play a crucial role in developing digital judgement, ethics, and resilience. It is no longer enough for students to learn how to operate digital devices, they must also learn how to protect their personal data, verify the credibility of online information, respect others in digital communication, and recognize harmful or manipulative content. This paper focuses precisely on that challenge: the need to introduce structured digital citizenship education in primary schools in the Republic of North Macedonia. By strengthening the digital literacy of teachers, students, and parents, the education system can better prepare young people for a digital future that is safe, responsible, and empowering. The research presented here highlights why a dedicated curriculum, or at minimum, a free elective subject, should be implemented from the earliest grades, ensuring that digital citizenship becomes a continuous and integrated part of every child's learning journey.

2. Definitions From Different Authors On Digital Rights And Freedoms

Digital rights and freedoms are interpreted differently across academic, technological, and institutional frameworks. Each definition highlights specific dimensions of how individuals should engage with digital technologies and how their rights are protected in online environments. Understanding these variations helps educators gain a clearer picture of what digital citizenship includes and why it needs to be integrated into early education. The table below summarizes several influential definitions.

Table 1- Defining digital citizenship

Author/Institution	Definition	Key Focus Areas
Tim Berners-Lee	Digital rights are the rights that allow individuals to access, use, create, and publish digital media or access/use devices and networks.	Access, openness, digital empowerment
Electronic Frontier Foundation[6] (EFF)	Digital rights encompass human rights that allow individuals to access, use, create, and publish digital content and use ICTs freely.	Privacy, free expression, open access, transparency
UNESCO	Digital rights are human rights in the digital environment, including freedom of expression, privacy, access to information, and cultural participation.	Human rights adaptation to digital spaces
David Lyon	Digital rights refer to claims and entitlements regarding the use of ICTs, especially in terms of surveillance, privacy, and data protection.	Surveillance, data privacy, ethical tech use
Julie E. Cohen	Digital freedoms involve access and participation, but also how digital environments and control structures are shaped.	Structural power, autonomy, digital environment design
Lawrence Lessig	Digital freedoms are liberties in digital environments governed by law, code, markets, and norms that impact speech, creation, and association.	Code as law, control structures, digital liberty

Taken together, these definitions show that digital rights and freedoms are not limited to technical access or device usage. They include the ability to protect personal information, express oneself responsibly, engage safely in digital communities, and understand the structures that shape online behaviour. For primary school education, this means digital citizenship must include ethical, social, cognitive, and safety-related skills. Students need to recognize both their rights and their responsibilities when interacting online, which reinforces the need for formal integration into the teaching process.

[6] Electronic Frontier Foundation (EFF)

3. Necessity for Implementation of Digital Citizenship in the Teaching Process in Primary School

Integrating digital citizenship into primary education is no longer optional, it's essential. As young learners increasingly engage with digital technologies, teaching them how to navigate the digital world safely, responsibly, and ethically is critical. Children are accessing smartphones, tablets, and the internet at an early age. Without guidance, they are vulnerable to misinformation, cyberbullying, and privacy violations. Early education sets the foundation for healthy digital habits before bad one's form. Teaching students about online safety (e.g., not sharing personal information, identifying scams) helps protect them. Understanding digital footprints and privacy settings is crucial for long-term online security. Prevention is more effective than correction when it comes to online dangers. Students learn to use devices for learning rather than distraction. Also encourages respectful behaviour in digital communication (e.g., avoiding cyberbullying, plagiarism). Helps shape ethical, respectful future internet users. Also very important are digital literacy skills. It enhances critical thinking about digital content (e.g., evaluating sources, recognizing fake news). And also builds skills necessary for future academic and career success in a digital world. Literacy now includes digital skills, not just reading and writing. The most important part is alignment with curriculum and 21st Century competencies. Digital citizenship aligns with broader goals such as critical thinking, collaboration, creativity, and communication. Many educational frameworks (e.g., ISTE Standards, UNESCO ICT Competency Framework) emphasize digital citizenship. It embeds values and competencies needed for lifelong learning. Schools play a key role in ensuring all students have equal access and understanding of digital tools. Helps bridge gaps for students with less access at home. Promotes digital equity and inclusivity. Teaching digital citizenship in school complements what children learn at home. Encourages dialogue between teachers, students, and parents about digital behaviour and expectations. It also builds a holistic support system for safe digital growth. Implementing digital citizenship in primary school is vital for nurturing safe, respectful, and informed digital users. As digital technologies continue to influence every part of life, teaching these skills early equips students not just to use technology, but to thrive in a connected world.

4. Research and Methodology – The Situation in North Macedonia Schools

The digital transformation of education in North Macedonia, like in many countries, has brought forward the urgent need to integrate digital citizenship into the teaching process at the primary school level. While progress has been made, the implementation is still evolving. The Ministry of Education and Science (MoES) has adopted various digitalization strategies, including:

- National Strategy for the Development of Education 2018–2025
- Digitalization of Education Project (2020 onward)

- Integration of ICT as a compulsory subject from early grades
- However: These policies focus primarily on digital skills (e.g., using computers), not digital citizenship (e.g., online behaviour, ethics, rights).
- Basic ICT skills are taught starting from early grades (typically from Grade 3 onwards).
- Elements of digital safety and responsibility may appear in Civic Education, Informatics, or extracurricular activities.

According to these acknowledgments, authors of this paper made research, about digital citizenship implementations in primary school and level of knowledge that teachers have.

It was made electronic survey that was sent to the teachers in different primary schools in North Macedonia. The survey was used as a data collection method in the research, which through statistical analysis of the data yielded valid results indicating the teachers' prior knowledge, their level of digital citizenship skills, as well as the manner of transmitting information. The population in this research is primary school teachers. While the sample consists of 54 teachers from primary schools in the Republic of North Macedonia. Since the survey had closed and open questions, they were statistically sublimated and processed with graphs and sublimation of the statements by the teachers. Survey is available at the link https://forms.gle/cKKnySJq6mFvo1p47.

At the beginning of the survey, there was a question about media literacy, with which the respondents aimed to answer the question of what media literacy is. The majority of teachers defined the term, but, according to the findings from the field, as well as the rapid progress of technology, constant upgrading and training of teachers is necessary, because media literacy is expanding and becoming complex given the development of technology. The second question refers to the definition of digital rights and obligations and the knowledge of teachers. This question is open and each answer was written by the teachers themselves. The answers are summarized in several points, which can be emphasized that teachers have basic knowledge of the concepts of digital rights and freedoms and that some of them practice them in teaching. However, this number of teachers is quite small, compared to those who do not know about digital rights and freedoms, digital citizenship and their implementation in teaching. Therefore, it is necessary to pay more attention to teachers in terms of training and education as well as the implementation of digital citizenship in teaching. Here are the sublimated answers of question:

- Digital rights and freedoms mean respecting the rules for posting content as well as respecting the freedom of expression of others
- Using digital skills to express opinions and attitudes.
- Free expression on social networks, while knowing the rules for moral and cultural communication
- Digital rights are those human rights and legal rights that enable individuals to access, use, create and publish digital media or access and use computers, other electronic devices and telecommunications networks. The concept specifically refers to the protection and exercise of existing rights, such as the right to privacy and freedom of expression, in the context of digital technologies, especially the Internet

In terms of digital citizenship, the majority of teachers stated that they were not familiar with the concept, while they were familiar with digital rights and freedoms and that they believed that they should be introduced into teaching. Their responses indicate that digital rights and freedoms should be taught in subject teaching and that they are applied in computer science teaching. What is important and should be emphasized in this paper is that we urgently need to introduce a free elective course in the fourth grade, in order to master the concepts of digital citizenship from the earliest years and to implement them throughout the entire teaching process, and not just in certain subjects.

5. Recommendations for Implementation

The Republic of North Macedonia is entering a period where educating students to be safe, responsible, and confident digital citizens is just as important as teaching traditional academic subjects. The research clearly shows that teachers possess partial and uneven knowledge about digital rights, freedoms, and ethical online behaviour. At the same time, primary school students are increasingly exposed to risks such as misinformation, privacy breaches, cyberbullying, and harmful content. These findings highlight the need for a structured national approach that supports teachers, guides students, and involves families and institutions. The following recommendations outline the steps needed to achieve this goal.

5.1. Curriculum Reform and Early Introduction of Digital Citizenship

Digital citizenship should become a clearly defined learning area in the primary school curriculum. The most effective starting point is the introduction of a free elective subject in Grade IV and Grade V. This subject should cover topics such as online safety, responsible communication, digital footprints, understanding algorithms, recognizing misinformation, and knowing one's digital rights. The curriculum should include learning outcomes that are measurable and practical. For example, students should learn how to create strong passwords, how to identify false online claims, how to report inappropriate behaviour, and how to distinguish between personal information and sensitive information. In addition to a separate subject, elements of digital citizenship should be gradually integrated into Civic Education, Macedonian Language, Mathematics, and Informatics. This approach allows students to practice digital citizenship skills in a variety of contexts rather than treating them as an isolated topic.

5.2. Comprehensive Teacher Training and Professional Development

Teachers are responsible for guiding students, yet the data shows clear gaps in their knowledge of digital rights and freedoms. The Ministry of Education and Science should develop mandatory training programs that provide teachers with updated knowledge and practical teaching strategies. Training should include examples of common online risks faced by younger students, simulated classroom scenarios involving cyberbullying or misinformation, and hands-on activities that teachers can immediately apply. These programs should also introduce teachers to European and international frame-

works such as DigComp, DigCompEdu, and UNESCO's Digital Citizenship Competency Model. Understanding these frameworks will help teachers align their lessons with international standards and prepare students for a global digital environment. Ongoing professional development should be encouraged through workshops, online courses, peer mentoring, and collaboration with civil society organizations that specialize in media and digital literacy.

5.3. Development of Age Appropriate and Engaging Student Materials

Students learn best through examples that reflect their daily online experiences. Schools should be provided with teaching materials created for primary grades that include short animated videos, illustrated scenarios, worksheets, digital cards, interactive quizzes, and simple case studies. For example, one scenario could show a student receiving a suspicious message on a gaming platform and asking the class to decide what the safest response would be. Another example could help students compare a reliable information source with an unreliable one. Materials should also include exercises that help children practice empathy and respectful communication online. These exercises can highlight the impact of words on others, the importance of asking for permission before sharing photos, and the difference between joking and harmful behaviour.

5.4. Strengthening the Role of Parents and Guardians

Parents often do not have a clear understanding of the digital activities their children engage in. Schools should organize regular parent information sessions that explain the risks children face online, the importance of privacy settings, the signs of cyberbullying, and strategies for supervising online behaviour in a healthy and non-intrusive way. Schools can also prepare simple printed guides that teach parents how to check app permissions, how to talk with their children about online conflicts, and how to recognize manipulated or misleading content. Improving communication between schools and families ensures that children receive consistent guidance both at home and in the classroom.

5.5. Policy and Institutional Support

Digital citizenship should be included in national education standards and supported by clear institutional guidelines. The Ministry of Education and Science, the Bureau for Development of Education, and school administrations should work together to define responsibilities, implementation timelines, and indicators for success. Policies should encourage collaboration between schools, cyber security institutions, NGOs, and media literacy experts. This collaboration can produce unified teaching materials, national awareness campaigns, and shared resources for teachers and parents. Institutional support also includes regular evaluation of school practices in digital citizenship, monitoring progress, and updating materials and methods in response to technological changes.

5.6. Reducing Digital Inequality and Supporting Inclusive Learning

Not all students have the same level of digital exposure at home. Schools need strategies that ensure equal access to digital knowledge and tools. This may include providing school devices for classroom use, offering after-school digital literacy clubs, creating additional support sessions for students who struggle with digital tasks, and designing learning materials that do not rely on high technological access. Teachers should also be trained to recognize when students come from low access environments and adapt their teaching accordingly, making the classroom a more inclusive space where every child can participate.

6. Conclusion

The integration of digital citizenship into the primary school curriculum in the Republic of North Macedonia is not only a timely educational improvement but also a critical step for preparing students to navigate a rapidly changing digital environment. The findings from this research show that children encounter digital technologies at increasingly early ages, yet teachers often lack sufficient training and structured guidelines to support them in developing safe, ethical, and responsible digital behaviours. This gap creates a vulnerability that can affect students' well-being, learning outcomes, and long-term digital development. Although the country has made meaningful progress in digitalizing education, the focus has remained heavily oriented toward technical ICT skills rather than toward the ethical, social, and cognitive dimensions of digital participation. Issues such as misinformation, cyberbullying, privacy risks, and exposure to harmful content demonstrate that technical competence alone is not enough. Students must learn how to think critically, protect themselves online, respect others in digital interactions, and understand their rights and responsibilities in digital spaces. Introducing digital citizenship in primary schools, combined with structured teacher training and continuous professional development, would help build a generation of informed and responsible digital participants. Strengthening the role of parents and aligning national policies with international standards would further support this transformation. The results of the study clearly indicate that the need for digital citizenship education is urgent and should be addressed through coordinated efforts across schools, institutions, families, and the education system as a whole. Overall, implementing digital citizenship education will help students use technology confidently and safely, while also giving them the knowledge and values needed to contribute positively to a connected society. In a time when digital misinformation and unsafe online behaviour can shape public opinion and influence social life, these competencies are essential for the future of the country's youth and for the broader digital well-being of society.

6.1. Limitations

While the research provides valuable insights, several limitations should be acknowledged to ensure accurate interpretation of the findings.

Limited Sample Size

The study included a sample of 54 primary school teachers. Although the sample offers an initial understanding of teachers' knowledge and attitudes, it cannot fully represent the diversity of all primary schools in North Macedonia. Larger and more regionally balanced samples would be required for more generalizable conclusions.

Self-Reported Data

The survey relied on self-reported information from teachers. Responses may be influenced by personal interpretation, social desirability, or an incomplete understanding of specific digital citizenship concepts. This may result in underestimation or overestimation of teachers' actual competencies.

Lack of Direct Student Data

The research did not include feedback or assessment from students. As a result, the study reflects only the teachers' perspective on digital citizenship and does not directly measure students' experiences, digital behaviours, or levels of risk exposure.

Variability in School Conditions

Primary schools across North Macedonia differ in terms of technological infrastructure, internet access, and teacher preparation. These variations were not analyzed in detail, which limits the ability to assess how existing school conditions influence digital citizenship education.

Absence of Longitudinal Data

The research captures a single point in time and does not measure changes in teacher knowledge or school practices over longer periods. Longitudinal studies would help determine whether training programs or curriculum reforms lead to measurable improvements.

Recognizing these limitations provides an opportunity for future research to build on the findings through larger samples, mixed-method approaches, and deeper analysis of students' digital behaviour and school-level infrastructure. Despite these constraints, the study offers a strong foundation for understanding the current situation and highlights the immediate need for structured digital citizenship education in primary schools.

7. Literature

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Dobri Jovevski is a primary school teacher and mentor teacher with many years of experience in primary education. He works at the Primary School "Ilinden" – Kriva Palanka, where he actively introduces innovative and digital teaching methods and creates an inclusive learning environment. He is the recipient of numerous national and international awards, including "Best Teacher in the Former Yugoslavia" (2018) and "Educator of the Year" in North Macedonia.

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