

DIGITAL LEARNING LANDSCAPE

in Bosnia and
Herzegovina,
Kosovo,
Montenegro,
and North
Macedonia:

**A policy
analysis**



Funded by the
European Union

UNICEF Regional Office for Europe and Central Asia
Geneva, Switzerland
Telephone: +41 22 909 5111
Email: ecaro@unicef.org
www.unicef.org/ecar

This report was authored by Svetlana Poleschuk (UNICEF Innocenti – Global Office of Research and Foresight) with input from Thomas Dreesen (UNICEF Innocenti), Sarah Fuller, Christina Siina and Lucian Stuparu (UNICEF Europe and Central Asia Regional Office ECARO), Sanja Kabil, Renata Radeka, Sara Saljic , Adin Skalonja (UNICEF Bosnia and Herzegovina), Maja Kovacevi, Ivana Cekovic (UNICEF Montenegro), Kozeta Imami (UNICEF Kosovo), Vera K Mitkovska , Bore Pucoski (UNICEF North Macedonia), under the supervision of Matt Brossard (UNICEF Innocenti) and Nora Shabani (UNICEF ECARO).

Special thanks go to Arjun Upadhyay (EdTech Hub), and Anna Cristina D'Addio (UNESCO) who provided thoughtful feedback as part of the peer-review process.

Cover photo: © UNICEF/UNI321762/Filippov

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of UNICEF and do not necessarily reflect the views of the European Union.

This research is part of the programme 'Mitigation of the impact of COVID-19 on the lives of children and parents in the Western Balkans and Turkey' which has received funding from the European Union.



**Funded by
the European Union**

Contents

1 Executive Summary	4
1.1 Key Findings from the Policy Analysis	4
1.2 Best practices in digital Learning from the Western Balkans	6
1.3 Recommendations for the improvement of digital learning systems	7
2 Introduction	8
2.1 Context	8
2.2 Purpose	8
2.3 Structure	8
2.4 Methods	9
2.5 Limitations	9
3 International and EU policies on Digital Learning and Teaching	10
4 Digital Transformation in the Western Balkans	14
5 Digital Learning Landscape in the Western Balkans	17
5.1 Bosnia and Herzegovina	17
5.2 Kosovo	21
5.3 Montenegro	24
5.4 North Macedonia	28
6 Conclusion and Recommendations	32
7 References	35



1 Executive Summary

© UNICEF/UN0425497/Karahoda

This policy analysis examines regional and national policy and normative documents, and existing literature related to digital learning in Bosnia and Herzegovina, Kosovo¹, Montenegro, and North Macedonia. The report captures the state of the education recovery after the COVID-19 school closures and explores trends, promising practices, challenges, and gaps in digital learning systems and policies. The purpose of the report is to support government partners in the development of national digital learning policies, plans and roadmaps. The preliminary findings from this research have been instrumental in shaping the UNICEF Europe and Central Asia Digital Learning Strategy for 2022-2025.

1.1 Key Findings from the Policy Analysis:

The move of the Western Balkans towards a digital economy and the benefits of digital transformation are promoted by the European Union's (EU) enlargement policy aimed to bring the countries closer to the EU Single Market.

EU commitment and expectation regarding improvement of connectivity, narrowing the digital divide and boosting human capital development

are articulated in a number of policy documents: 2018 *Credible Enlargement Perspective For and Enhanced EU Engagement With the Western Balkans* together with its *Six New Flagship Initiatives*, 2018 *Digital Agenda for Western Balkans*, 2020 *Economic and Investment Plan for the Western Balkans*, and 2021 *Agenda on Innovation, Research, Education, Culture, Youth and Sport*.

Digital competencies in education were advocated by several international and European policies prior to the start of the the COVID-19 crisis:

These include *the European Digital Competence Framework for Citizens* (2013), the *2030 UN Agenda for Sustainable Development* and *the Incheon Declaration and Framework for Action* for the implementation of Sustainable Development Goal 4 (2015), *the European Framework for Digitally Competent Educational Organizations* (2015), *the European Framework for the Digital Competence of Educators* (2017), *Digital Education Action Plan* (2018), *UNESCO's ICT Competency Framework for Teachers* (2018).

The COVID-19 pandemic and the rapid large-scale transition to remote learning necessitated

¹ All references to Kosovo shall be understood in the context of UN Security Council Resolution 1244 (1999).

and accelerated the pace of digitalization and focused the global attention on digital competencies. Several policy documents were adopted in response to the education crisis caused by the school closures: *EU Digital Education Action Plan 2021-2027* (2020), *EU 2030 Digital Compass: the European Way for the Digital Decade* (2021), *UNICEF Strategic Plan 2022–2025* (2021).

In Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia, education systems were unprepared for a rapid shift to remote learning necessitated by the COVID-19 lockdown and school closures. Various digital solutions were implemented by the governments and the international organizations to support the transfer to remote and hybrid learning modalities and to improve the digital competencies of both students and teachers. Remote learning was introduced via social networks, various digital platforms, and TV broadcasting.

National digital learning platforms were developed in Montenegro, Kosovo, and North Macedonia: Digitalna Škola in Montenegro and Shkollat.org in Kosovo are national platforms based on the Learning Passport platform which is a partnership between UNICEF and Microsoft; Schools.mk in North Macedonia is integrated with the EDUINO digital learning platform with materials for pre-primary, primary and secondary schools in several languages as well as professional development materials for teachers.

In Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia, governments are prioritizing digital education reforms to make the education systems more resilient against future shocks. All levels of education management recognize the need for systematic sustainable changes related to digitalization, including improving connectivity and access to digital technologies, development of teachers and students' digital competences,

creating standards for digital content, regulations for remote and blended modalities of teaching and learning, and integration of digital technology in curricula.

















Each of the four focus countries created new policy documents (adopted or in process of adoption) in response to the COVID-19 pandemic and school closures. Kosovo and Montenegro prepared new strategies for digitalization of education to provide standards, frameworks, guidance, and action plans for digital transformation. Bosnia and Herzegovina carried out several in-depth assessments and is the only country (out of four) which has prepared a comprehensive analysis of available ICT infrastructure and technological standards for an education reform. North Macedonia, while still following its 2018-2025 Education Strategy, has started preparations for a new strategy with focus on digitalization.

Scaling teacher training with a focus on integrating technology into teaching has been identified as a crucial need. In Bosnia and Herzegovina, Sarajevo Canton provided upskilling with 4,000 teachers participating in trainings during the school closures in 2020. In Montenegro, the UNICEF Country Office supported the government in upskilling 50 per cent of the country's teaching staff by the end of 2022. In Kosovo, 2,500 teachers were equipped with the basic skills to carry out digital education in 2021. In North Macedonia, 23,000 participants took part in webinars on improving quality teaching and digital learning in 2021.

Each of the four countries are in different stages of implementation of digital learning systems, Table 1. below provides a brief summary of the findings related to the key components of digital learning landscape.²

² Additional information about the framework can be found in Section 2.3, titled "Structure."

Table 1 Post-pandemic digital learning landscape

Digital Learning Landscape Components	Bosnia & Herzegovina	Kosovo	Montenegro	North Macedonia
Connectivity and devices	 72 per cent household connectivity rate; connectivity gaps in schools	 93 per cent household connectivity rate; connectivity gaps in schools	 74 per cent household connectivity rate; connectivity gaps in schools	 82 per cent household connectivity rate; connectivity gaps in schools
Platforms and content	 No national platform for remote learning	 National platform for remote learning (Shkollat/Learning Passport)	 National platform for remote learning (Digital School/Learning Passport)	 Widely used remote learning platform (EDUINO) with full curricular content.
Teacher upskilling and support	 Teacher training in digital skills lacks national-level scope	 Large-scale in-service teacher training in basic digital skills	 Large-scale in-service teacher training in digital skills	 Large-scale in-service teacher training in digital skills
Digital learning policies	 Blended learning guidelines adopted	 Education digitalization strategy drafted	 Education digitalization strategy adopted	 No education digitalization strategy

Legend: High, Medium, Low level of advancement

1.2 Best Practices in Digital Learning from the Western Balkans

- **Understand the existing ICT landscape in schools and develop plans to improve infrastructure in an equitable manner.** In Bosnia and Herzegovina existing ICT infrastructure was analyzed leading to the development of national standards; infrastructure maps were created to

provide policymakers with a quick tool to understand where ICT infrastructure improvements needed to be made.

- **Provide large-scale in-service teacher training to improve digital skills for teachers.** In Kosovo, Montenegro and North Macedonia in-service teacher training was developed at national scale to equip as many teachers as possible with basic digital-pedagogical competencies.

- **Develop the capacity for digital learning content creation.** In North Macedonia an effective system was created to crowdsource, adapt and approve curriculum-aligned education content from teachers. This led to a massive digital library covering all levels of school curriculum in various national languages.
- **Document best practices to share knowledge on improvements in design of digital learning systems.** In Kosovo, the process of the national digital platform implementation was analyzed resulting in a case study report covering implementation challenges, that explored successful solutions, lessons learned, and recommendations to other countries planning to launch a national digital learning platform (Kosovo).

1.3 Recommendations for the Improvement of Digital Learning Systems

- **Develop and adopt a comprehensive strategic vision and policy framework for the inclusive digital learning ecosystem as a key component of overall digitalization.** Education system digitalization is a broad multidimensional process encompassing investments such as high-quality Internet connectivity for schools, procurement of devices, improving teachers' and students' digital skills and competencies, and changes in curriculum and policies. These shifts must be matched by a strong commitment by governments, and coordination and collaboration across various ministries and multiple partners. While systems need to be strengthened, at the same time schools and local education authorities should be empowered to create solutions that best respond to the needs of the school and local community.
- **Given the digital divide, increase efforts to safeguard equity, quality, and inclusiveness of education while introducing digital technologies to the learning process.** Digital technologies must be used with the goal to narrow inequalities, to provide a more flexible response to children's various needs and to reach the most marginalized and often excluded children.
- **Set up a systematic pre-service and in-service teacher training for digital learning including basic digital skills and strategies to integrate digital learning into pedagogy.** Teacher professional training in blended and inclusive digital learning approaches must be intensified and scaled up. Digital competency frameworks should inform teacher training and allow their progression while ensuring effective support for application in the classroom. Given that the lack of digital competencies cannot be fully resolved by short in-service training courses, development of digital skills must be included into pre-service teacher education paired with in service incentives schemes for teachers to upgrade their competencies.
- **Collaborations and exchanges between teachers, learners, parents, and ministry of education officials involved in digital learning nationally and internationally should be enhanced.** Introduction of technology in education requires changes in ways of working at all levels from the classroom to the ministerial level. Developing communities of practice within and across countries can allow stakeholders to hear from others' first-hand experience, best practices and solutions to avoid common pitfalls.



© UNICEF/UNI313778/Georgiev

2 Introduction

2.1 Context

In March 2020, schools were shut down around the world causing an unprecedented interruption of education at its peak putting 9 out of 10 enrolled children out of school (UNESCO 2020a). Education systems around the world were required to adapt quickly to provide continuity of learning using a variety of remote learning modalities including digital learning (Dreesen et al. 2020). This shift to remote learning left many children out of learning process including those from disadvantaged backgrounds, children with disabilities, children on the move, and those living in rural and remote areas (Taulo et al. 2020). In Europe and Central Asia region children missed an average of 105 days of school in 2020 and 2021 (Carnelli and Dreesen, 2022); during the school closures Ministries of Education relied heavily on online platforms to continue learning activities (UNESCO et al. 2021). In this shift to a digital learning environment, additional measures are required to safeguard educational equity, quality and inclusion. As countries recover from school closures, education systems must grapple with reforms related to the use of digital learning that became widespread during the pandemic. To guarantee sustainability of digital learning and to build resilience into education systems, a systematic multidimensional approach is required, which encompasses connectivity, access

to devices, platforms and content, and teacher professional development (Brossard et al. 2021).

2.2 Purpose

The policy analysis examines regional and national policy, normative documents, and existing literature related to digital learning in Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia. The report strives to capture the state of the education recovery in these four countries in the Western Balkans and to understand the trends, promising practices, challenges, and gaps in digital learning systems and policies. By highlighting best practices, challenges, and knowledge gaps for digital learning systems, this report attempts to support the government partners in the development of national digital learning policies, and to inform the UNICEF Europe and Central Asia Digital Learning Strategy 2022-2025.

2.3 Structure

The report starts with an overview of key international and European-level policy documents which guide national policies on digital learning. It then narrows its focus to the digitization and digital learning landscape in the Western Balkans

countries of Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia. The policy analysis addresses five areas which are part of the *UNICEF Reimagine Education Strategy and LearnIn Implementation Model* (UNICEF 2021a): connectivity, devices, platforms, content, teacher upskilling, and support. Connectivity is examined through a review of national Internet coverage and the use of digital technologies in education. The review of digital learning solutions covers the implementation of digital learning platforms and applications. An exploration of existing affordable content and devices sheds light on how the needs of marginalized children are met. Finally, the review seeks to examine current challenges and gaps in teachers' professional training regarding both digital skills and pedagogical competencies. By including an overview of national policies in each country section, the report highlights conceptual and chronological links between relevant national and international policies, helping to map and understand the digital learning landscape.

2.4 Methods

The report was prepared in close collaboration with the UNICEF Country Offices of Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia. These Country Offices helped identify the key policy documents and internal and external research related to digital learning. Interviews were conducted with UNICEF education specialists in each of the four countries about national digital learning systems and programmes. The digital learning solutions explored in depth are the Akelius Digital Learning Course³ in

North Macedonia. The analysis relies on two types of data. The first type comprises a desk review of existing academic, policy, and implementation documents on digital education from 2015 to 2022. This includes guidelines, studies, reports, analyses, assessments, legislative documents, and strategies, focusing on primary and secondary education, digital learning, and COVID-19 response areas such as connectivity, devices, platforms, content, and teacher upskilling. The research also draws upon recent findings from needs assessment surveys, focus group discussions, case studies of digital learning solutions from each of the four countries.

2.5 Limitations

This research study has two key limitations. First, given that only secondary data were used for this study, there was no uniform sampling strategy to approach the four countries; the data available from each country were diverse as such drawing rigorous cross-country comparisons was not possible. Second, given that the digital learning landscape is rapidly shifting, this research provides a single snapshot in time. New policy documents and new research findings were consistently found throughout the research process. In this regard, the final outcome of this report, the mapping of digital learning landscape in Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia, should be treated as an analysis of trends, solutions and challenges in providing quality and inclusive digital education in the recovery period from COVID-19 school closures.

Bosnia and Herzegovina, the Learning Passport in Montenegro⁴ and Kosovo⁵, and EDUINO⁶ in

³ <https://languages.akelius.com/>

⁴ <https://www.digitalnaskola.edu.me/>

⁵ <https://shkollat.org/>

⁶ <http://www.eduino.gov.mk/>

Much before the outbreak of the COVID-19



3 International and EU policies on Digital Learning and Teaching

© UNICEF/UNI323486/Amsellem/Div

pandemic, several international and European policies recognized and advocated for the need to foster digital competencies in education. The UN's *2030 Agenda for Sustainable Development* (UN 2015) promoted the spread of information and communications technology (ICT) to develop knowledge societies and bridge the digital divide. *The Incheon Declaration* stated that ICT must be used "to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision" (UNESCO et al. 2015). The European Commission adopted the *European Framework for Developing and Understanding Digital Competence in Europe* in 2013 (Ferrari 2013), *European Framework for Digitally Competent Educational Organizations* in 2015 (Devine et al. 2015), *European Framework for the Digital Competence of Educators* in 2017 (Redecker 2017), and the first *Digital Education Action Plan* in 2018, updated in 2020 (European Commission 2020a). UNESCO's *ICT Competency Framework for Teachers* was published in 2018 (UNESCO 2018).

The COVID-19 outbreak and the rapid, large-scale transition to remote learning accelerated the pace of digitalization and focused global attention on digital skills as a prerequisite for digital transformation of economies and societies.

The European Commission developed the *Digital Education Action Plan (2021-2027)* (European Commission 2020a) and the *2030 Digital Compass* (European Commission 2021a). On the regional level, the UNICEF Regional Office for Europe and Central Asia (UNICEF ECA) prepared the *Educators' Digital Competency Framework* (UNICEF 2022b) to support governments' commitment to ensuring that educators' pedagogical competencies keep pace with digital transformation while embracing inclusion and diversity.

The policies emerging from the post-COVID-19 phase have an increased focus on teacher professional development and skills as key to education reform. It is generally acknowledged that the sheer existence of digital technology does not ensure its usefulness for teaching and learning. What makes a difference is how the technology is used by the teacher in the classroom and by the students (Brossard et al. 2021). That is why maintaining continuous professional development is essential for teachers. In the policies analyzed in this report, a common trend on sustainability is evident, especially with regards to regular teacher professional development around digital competencies.

Another concern shared by the post-pandemic

policies is how to bridge the digital divide and ensure more inclusive and equitable education. The pandemic exacerbated existing inequalities between developed and developing countries, urban and rural areas, and individuals of higher and lower socioeconomic backgrounds, as well as across genders (UNICEF 2021b). The COVID-19 crisis brought to light the digital divide in the Europe and Central Asia region. While 80 per cent of the population had internet connectivity in urban areas, this is only 60 per cent in rural areas, and even with this connectivity a majority of children did not have access to internet speeds at home that would allow for interactive digital learning (Carnelli and Dreesen, 2021). Post-pandemic

international and European policies have prioritized the improvement of ICT infrastructure and devices to bridge the digital divide. The ten international and regional policy documents selected for the review below are not comprehensive. They were selected based on their foundational nature, their focus on the Europe and Central Asia region, and their focus on a digital education reform. These documents highlight in particular the need for inclusion, quality and equity in education; and the leading role that digital technologies can provide in achieving these goals. Below are short summaries of each of the key international and regional policy documents reviewed in this analysis:

- The Goal 4 of the **2030 UN Agenda for Sustainable Development** (UN 2015) sets a universal education agenda for the period 2015-2030, while the *Framework for Action* outlines how to translate into practice, at national, regional, and global level, the commitment made by 184 Member States in the **Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4** (UNESCO et al. 2015). Access to education, equity and inclusion, gender equality, quality of education, and lifelong learning are identified as the key goals along with strengthening science, technology and innovation. ICTs are required for enhancing “education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision” (UNESCO et al. 2015). It is acknowledged that quality education requires “relevant teaching and learning methods and content that meet the needs of all learners, taught by well-qualified, trained, adequately remunerated and motivated teachers, using appropriate pedagogical approaches and supported by appropriate information and communication technology...” (UNESCO et al. 2015).
- **Promoting Effective Digital-Age Learning: A European Framework for Digitally Competent Educational Organisations** (Devine et al. 2015) aims to address fragmentation and uneven development of education policies across the Member States. It proposes a pan-European framework to enable policy makers to design and integrate digital learning technologies in primary, secondary, technical and vocational education and training (TVET), and tertiary education. The framework covers seven thematic areas: leadership and governance practices; teaching and learning practices; professional development; assessment practices; content and curricula, collaboration, and networking; infrastructure; sector and specific elements. The document acknowledges that digital technologies can constitute a key enabler for achieving quality education. The implementation of digital technologies is seen as a complex process embracing pedagogical, technological, and organizational dimensions. Promoting a common conceptual approach at a European level, the framework is intended to support the European policy-making process in integrating and effectively using digital learning technologies.
- **The European Framework for the Digital Competence of Educators: DigCompEdu** (Redecker 2017) supports national and regional policymakers and stakeholders in equipping citizens with digital competences. The document offers a common frame of reference by proposing 22 elementary digital competences organized in 6 areas: professional engagement, digital resources, teaching and learning, assessment, empowering learners, facilitating learners’ digital competence. Each competence is measured following a progression model to help educators understand their level and where they need support, the levels are: Newcomer, Explorer, Integrator, Expert, Leader, Pioneer.
- **UNESCO ICT Competency Framework for Teachers** (UNESCO 2018) aims to guide pre- and in-service teacher training on the use of ICTs across all levels of education within an education system. The document recognizes that teachers’ competencies are important for integrating ICT into teaching practices, ensuring equity and quality of learning. The framework is comprised of 18 competencies, grouped by six aspects of teachers’ professional practice: understanding ICT in education policy, curriculum and assessment, pedagogy, application of digital skills, organization and administration, and teacher professional learning.

- **Every Child Learns UNICEF Education Strategy 2019–2030** (UNICEF, 2019) sets a clear direction and framework for UNICEF’s work in education towards 2030. The strategy aligns with key frameworks, including the Convention on the Rights of the Child and the Convention on the Rights of Persons with Disabilities, the Sustainable Development Goals (especially SDG 4), and the Incheon Declaration and Education 2030 Framework for Action. The overarching vision of the strategy is that every child should have access to quality learning opportunities. The strategy focuses on achieving three goals: equitable access to learning opportunities, improved learning and skills for all, and improved learning in emergencies and fragile contexts. UNICEF prioritizes digital skills together with foundational, transferable, and job-specific skills for learning and development from early childhood to adulthood. The strategy provides policy and operational guidelines to achieve this vision while allowing flexibility at the country level to address local education needs and context-specific challenges.
- **EU Digital Education Action Plan 2021-2027** (European Commission 2020a) provides a comprehensive overview of challenges met by all levels of the education sector during the pandemic, with a focus on inequality. The document is based on the findings received from an open public consultation organized by the Commission, involving a wide range of stakeholders. Respondents from several Member States confirmed that digital technologies were not adequately integrated into schools before the pandemic, resulting in teachers, learners, parents, and administrators being unprepared for remote learning delivery, particularly in primary and secondary education. The Digital Education Action Plan aims to support national efforts in ensuring inclusive digital education in two areas: fostering the development of a successful digital education ecosystem and promoting digital development skills and competencies for digital transformation.
- **EU 2030 Digital Compass: the European Way for the Digital Decade** (European Commission 2021a) was prepared in response to President von der Leyen State of the Union Address in September 2020. Discussing Europe’s recovery from the COVID-19 pandemic, the President emphasized the need for the “twin green and digital transition,” and a common plan for Europe’s Digital Decade with clearly defined goals for connectivity, skills and digital public services (von der Leyen 2020). The document outlines digital plans for 2030, specifying key milestones, means of achieving the goals, and a monitoring system. It prioritizes four points for the EU’s digital transformation: (1) a digitally skilled population and highly skilled digital professionals; (2) secure, performant, and sustainable digital infrastructures; (3) digital transformation of businesses; (4) and digitalization of public services.
- **The UNICEF Strategic Plan 2022–2025** (UNICEF 2021b) establishes goals for achieving sustainable change for children as part of the Sustainable Development Goals 4, 5 and 8. Issued in September 2021, the Strategic Plan emphasizes response and recovery efforts related to the COVID-19 pandemic. Goal area 2, “Every child, including adolescents, learns and acquires skills for the future” (UNICEF 2021b), aims to address the learning crisis caused by the largest interruption of education in history. The identified results areas for this goal include access to quality learning opportunities, learning, skills, participation, and engagement. UNICEF commits to supporting governments in strengthening the education system, advocating for improved efficiency and effectiveness in public spending, addressing the needs of the most vulnerable children and adolescents, providing equitable access to digital learning solutions and connectivity, and supporting teacher development, scaling up accessible, online and offline digital content and platforms.
- **DigComp 2.2, The Digital Competence Framework for Citizens** (Vuorikari, Kluzer, and Punie 2022) The DigComp offers a standardized terminology for identifying and outlining essential digital competence areas. The framework has evolved over the years, with notable versions including DigComp 2.2 (2022), DigComp 2.1 (2017), DigComp 2.0 (2016), and the original DigComp (2013) focused on developing and understanding digital competencies in Europe. As an EU-wide instrument, it aims to enhance citizens’ digital skills, assist policy-makers in devising supportive policies, and aid in designing education and training initiatives targeting specific groups. The DigComp model encompasses five domains: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving, which are examined across four proficiency levels: foundation, intermediate, advanced, and highly specialized.

- UNICEF ECARO Educators’ Digital Competency Framework** (UNICEF 2022b) builds on existing frameworks from both the regional and global level. It is aligned with the 2030 Sustainable Development Goals, the European Framework for Digital Competence of Educators, UNESCO’s ICT Competency Framework for Teachers. The framework offers a holistic approach for developing educators’ digital competencies in inclusion, diversity, pedagogy, and digital literacy. It provides an overview of 17 digital competencies grouped in four categories: Knowledge Development - Educators’ Pedagogic Skills, Knowledge Application- Learners’ Skills, Knowledge Sharing- Communities of Practice, Knowledge and Communication- Organizational Communication with all Stakeholders. The Framework aims to serve policymakers, school leaders, and teachers to inform the development of regional teacher training strategies on topics related to digital learning and to ensure that that digital transformation is inclusive and equitable.

This section highlights that international and European policies and strategies recognize the importance of digital technologies and competencies in contemporary education and society. These policies propose various approaches and frameworks for integrating digital technologies effectively into education. While these policies support national policymakers and stakeholders, adjustments and contextualization are necessary to accommodate each specific national context.

In digital education reform, national policymakers often face a “legal vacuum” (MON 2020a) due to a lack of national regulatory frameworks governing digitalization. International frameworks and local evidence help outline guidelines for efficient national policy development. The following section examines regional policies and digital transformation implementation in the Western Balkans, exploring their interaction with international and European policies and frameworks.





4 Digital Transformation in the Western Balkans

© UNICEF/UNI1313766/Georgiev

Digitization of Societies and Economies.

The EU's enlargement policy aims to advance Western Balkans countries along the EU path and integrate them more closely with the EU Single Market by enhancing economic connections within the region and with the EU. Each of the policies outlined in this section are in line with the Directorate-General for Neighborhood and Enlargement Negotiations (DG NEAR) mission to take forward the EU's Neighborhood and Enlargement policies with digital transformation and information management as one of the priority areas (European Commission 2020c).

In 2018, the European Commission adopted *A Credible Enlargement Perspective For and Enhanced EU Engagement With the Western Balkans* (European Commission 2018a) together with *Six New Flagship Initiatives* (European Commission 2018b) which aimed to strengthen the rule of law, reinforce engagement on security and migration, enhance support for socio-economic development, increase connectivity, support reconciliation and good neighbourly relations, and facilitate the integration of the Western Balkans into the EU Digital Single Market. To support the latter goal, the European

Commission together with Ministers from six Western Balkan countries—Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia—signed *the Digital Agenda for Western Balkans* (European Commission 2018c) and committed to support the move of the Western Balkans towards a digital economy and the benefits of digital transformation, such as faster economic growth, more access to high skill employees and access to better services. The Agenda aims to enhance digital connectivity, cybersecurity, trust, and digitalization of industry, while also strengthening the digital economy and society, and boosting research and innovation. To promote the implementation of a digital society, support is provided to eGovernment, eProcurement and eHealth services as well as to the development of digital skills. The Agenda was harmonized with the EU strategy for creating a Digital Single Market.

To further this effort of digital integration in 2020, the Regional Cooperation Council launched the Balkan Digital Skills Multi Stakeholder Working Group to develop digital skills strategies for the region and assess digital skills gaps in both central and local government levels across each Western Balkan economy. The group united representatives from the Western Balkan economies and

international organizations active in the digital skills area. To support this need assessment, a mapping of key priority sectors, key strategic documents on digitalization, emerging industries and target groups was published (Labrovic et al. 2021). Additionally, in 2020, the *Economic and Investment Plan for the Western Balkans* (European Commission 2020d) was adopted by the European Commission to accelerate the digitalization of governments, public services, and businesses in alignment with the EU's digital strategy (European Commission 2020b).

In 2021, the *Agenda on Innovation, Research, Education, Culture, Youth and Sport* (European Commission 2021b) was developed. It promotes closer regional economic integration through planned investments in human capital development and digital transformation, in particular in enhancing the quality of education and training; enhancing human capital development; reducing the gender and digital divide; improving mobility and connectivity; fostering cultural and regional cooperation. There is a growing consensus that accelerating and integrating green and digital transitions is necessary to enable structural reforms in the region and strengthen its potential for innovation and growth. Digitalization in the region is further fostered by the *Digital Agenda for the Western Balkans*, the *Digital Education Action Plan*, and initiatives such as [SELFIE \(Self-reflection on Effective Learning by Fostering the use of Innovative Educational technologies\)](#), [HEInnovate](#), [the Digital Education Hackathon](#), [the EU CodeWeek](#), and [the GEANT network](#).

Digitization in Education Across the Western Balkans.

When it comes to digital solutions to enhance teaching and learning, their availability and use depends on national and local policies and practices. Countries develop their digital learning strategies to support teacher training, and content development in alignment with EU strategies and frameworks, as part of the EU integration process (European Commission 2020d). For example, following the principle of alignment, included in the methodology of policy development (Kordić et al. 2018), the *Digital Transformations Strategy* in Montenegro aligns with the EU strategic framework for digitalization, in particular with the 2030 *Digital Compass* (2021), the *European Strategy for Data*

(2020), the *European Skills Agenda* (2021) and the *Digital Education Action Plan* (2020). *Kosovo's Education Strategy 2022-2026* (MESTI 2022) proposes to develop digital competencies with reference to three main EU documents on digital competences: the *European Digital Competence Framework for Citizens*, the *European Digital Competence Framework for Teachers* and the *European Digital Competence Framework for Educational Organizations*. This further shows that alignment with EU policies is not only prevalent in overall digitization strategies but also in how digitization is handled within national education strategies.

The Western Balkans have achieved a high level of ICT access and connectivity, but overall rates remain slightly below the overall level of the EU. In 2019 in the European Union, 90 per cent of households had Internet access, with a connectivity rate between 98 per cent (Netherlands) and 75 per cent (Bulgaria) (Eurostat 2019b). The percentage of households with Internet access in Bosnia and Herzegovina was 72 per cent in 2019 (the lowest rate among the Western Balkans), 74 per cent in Montenegro, 82 per cent in North Macedonia, and 93 per cent in Kosovo. These data demonstrate that while most of the population have access to the Internet, the digital divide remains.

A more significant challenge in the realm of digitization in the region is the percentage of individuals with low digital skills in areas such as information, communication, problem solving, and software skills. In 2019, 59 per cent of individuals living in Kosovo, 50 per cent in North Macedonia, 46 per cent in Bosnia and Herzegovina, had low digital skills⁷ compared to the average of 29 per cent of low digital skills in the EU (Eurostat 2019a). A 2020 Balkan Barometer survey ("Balkan Barometer" 2020) conducted before the pandemic found that an increasing number of residents in the region were becoming aware of the potential of digitalization, with 86 per cent of the population expressing satisfaction with their online connection. However, the survey also showed that only a minority of respondents in the region pursued free online training or self-study (16 per cent) or workplace training (13 per cent) to improve their digital skills relating to computers, software, or applications in the last 12 months.

These data suggest that despite relatively high connectivity rates, many parents lacked the digital

⁷ Please visit this link: https://ec.europa.eu/eurostat/cache/metadata/en/tepsr_sp410_esmsip2.htm to review the statistical indicators Eurostat has utilized for measuring digital skills.

skills needed to help their children with remote digital learning during the pandemic. The percentage of individuals with advanced digital skills is 12 per cent in Bosnia and Herzegovina (the lowest in the Western Balkans and the EU), 26 per cent in Kosovo, 20 per cent in North Macedonia and 34 per cent in Montenegro, all below the EU average of 39 per cent. In conclusion, digitalization is a priority

on the policy agenda for the Western Balkans. From the EU level, there are clear expectations regarding the improvement of connectivity, narrowing the digital divide and boosting human capital development. Even though ICT access and connectivity in the region are relatively high on a global scale, digital skills in the four countries are still well below the EU averages.



© UNICEF/UNI323338/Gevorgyan



5 Digital Learning Landscape in the Western Balkans

© UNICEF/UN0645387/Moldovan

This section offers a comprehensive analysis of the digital learning landscape in each of the four focus countries of this report: Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia. In each country's analysis, Section 1 presents an overview of the education system and discusses the main challenges. Section 2 outlines each country's response to the COVID-19 school closures, with a focus on digitalization and preparedness for digital learning in emergency situations. Section 3 provides an overview of country level policies and strategies related to digital transformation in education, the challenges addressed by these policies, and remaining policy gaps.

5.1 Bosnia and Herzegovina

Learning outcomes are relatively low in Bosnia and Herzegovina, below EU and Western Balkans averages. According to the 2018 PISA results, 54 per cent of 15-year-olds in the country are considered functionally illiterate, as they perform below Level 2 of proficiency (OECD 2019a). Various sources highlight issues contributing to educational challenges in Bosnia and Herzegovina, including insufficient investment in education, a fragmented education system, outdated curricula and teaching methods, insufficient practical training, and inadequate technology usage (ETF

2020; Rustempasic 2021; USAID 2017; Camovic and Becirovic-Karabegovic 2022). An inclusive curriculum (UNESCO 2020b) remains unavailable in Bosnia and Herzegovina. Roma children face extreme disadvantages, with higher poverty rates and lower primary school attendance compared to the majority population (UNICEF 2020c). The 2018 OSCE report highlights the education system's inefficiencies and lack of inclusivity, as it emphasizes segregation based on ethno-national affiliations (OSCE 2018). As a significant transit country on the Balkan migration route since 2018, with over 67,000 refugees and migrants passing through, Bosnia and Herzegovina faces challenges in including migrant children in its education system and ensuring their right to education (Khan 2021; Pečenković and Delić 2022).

5.1.1.1 Bosnia and Herzegovina's Education Response To the COVID-19 Pandemic

During the COVID-19 pandemic, each cantonal MoE quickly introduced different remote learning modalities that included various digital learning solutions. Schools and teachers used various internet-based communication tools such as Viber, Facebook, Google Classroom, MS Teams, and Zoom to engage with children during school closures.

TV classes were broadcasted in several cantons, mainly targeting children in lower primary school. Moreover, some digital platforms were developed during the school closures, such as [e-Nastava](#) in Republika Srpska, [e-Škola](#) in Herzegovina-Neretva Canton, [skole.sum](#) in West Herzegovina Canton,

Posavina Canton and Canton 10 (UNICEF and UNESCO 2020), the web domain edu.ba in Zenica-Doboj Canton (Osmić et al. 2021a). These initiatives provided accessible and inclusive digital learning opportunities for students across the country, although challenges remained in ensuring that all students had access to the necessary technology and Internet connection.

Key Findings for Digital Learning in Bosnia and Herzegovina:



Main achievements for quality and inclusive digital learning:

- Rapidly implemented remote learning during school closures using digital platforms, and TV broadcasting
- Provided professional support for teachers to facilitate the transition from traditional to remote teaching, with ongoing training in blended learning and inclusive education through collaboration between cantonal authorities, universities, and international organizations
- Conducted an analysis of the current ICT infrastructure in the country, developed national standards, and created an interactive map visualization to lay a solid foundation for future digitalization reforms

Main challenges for quality and inclusive digital education:

- Need for improvement in both digital and pedagogical competencies of teachers
- Absence of unified standards across Cantons for quality digital learning (currently under development)
- Unavailability of unified standards for educational provisions targeting vulnerable children
- Fragmentation and decentralization within the education system
- Inadequate mechanisms for systematic monitoring and evaluation of educational outcomes across cantons

Marginalized children including Roma children, refugee, and migrant children were disproportionately affected by school closures with less access to the technology necessary for remote learning. To address this issue, the Akelius digital learning program was launched in 2020 to support English and German language learning for migrant and refugee children in Una-Sana and Sarajevo Cantons. The program was implemented using a blended teaching and learning approach, with digital learning done through tablets implemented in classrooms with teachers in Temporary Reception Centers and in a small number of schools after they reopened (Poleschuk, Soldo, and Dreesen 2022). This initiative has helped to provide access to quality education for these children. Nevertheless, further efforts are necessary to ensure that all marginalized children have equal access to education and the necessary resources to engage in digital learning.

Adapting to online teaching practices involves overcoming challenges that go beyond just providing access to devices and connectivity. This was underscored in a July 2020 household survey conducted in Bosnia and Herzegovina, which included 2,182 households (UNICEF and UNDP 2021). Among the 55 per cent of households that faced difficulties transitioning to remote digital learning, 31 per cent identified the primary obstacle as decreased quality of interaction with teachers through online platforms; 24 per cent cited increased disorganization compared to in-person classroom instruction. A study titled “Children’s Media Habits and Parental Attitudes,” conducted in June/July 2020, corroborated the widespread availability of devices at home. Almost all children resided in households with a smartphone (93 per cent), and over three-quarters had access to a computer (desktop or laptop) (76 per cent) and a Smart TV (73 per cent). The majority of these household devices were accessible to children, particularly televisions (Smart TVs and/or standard TV sets, which were utilized by 95 per cent of children) (UNICEF 2020a).

During the school closures, several cantons (Brcko District, Sarajevo Canton, Tuzla Canton, Una-Sana Canton, West Herzegovina Canton, and Herzegovina-Neretva Canton) organized teacher trainings in partnership with UNICEF (UNICEF and UNESCO 2020). The trainings were conducted via online platforms and reached from dozens to thousands of teachers depending on the cantons. The largest number of participants was in Sarajevo Canton, where 20 virtual workshops were organized between April and June 2020, and around 250 teachers attended each workshop (Tomić 2020). The focus was on teacher skills in the digital environment and the quality of online teaching. In 2021, UNICEF and the Ministry of Education of Sarajevo Canton implemented the project *Professional Development of Teachers and School Management Through Webinars For the Process of Planning Online and Combined Teaching* with the main goal of providing continuous professional support to teachers in carrying out digital education. With the project, a catalog of best online practices was created with the participation of teachers of preschool, primary and secondary schools of the Sarajevo Canton (Panjeta 2021).

5.1.1.2 Key National Policy Documents

The analysis of policy documents in Bosnia and Herzegovina includes key policy documents from the pre and post COVID-19 school closure period. From the pre-COVID-19 period, the *European Training Foundation's Framework* contributed to formalizing digital competencies in education. Post-pandemic reports identified insufficient funding as a cause of inadequate ICT infrastructure in schools. Consequently, new technical standards were established to guide administrators on equipment requirements. Recent reports evaluate teachers' needs, the quality of digital education, and COVID-19's impact on students and female teachers' wellbeing, emphasizing persistent challenges within the national education system. The most salient points of each key national policy document are described below:

Priorities in the Integration of Entrepreneurial Learning and Entrepreneurial Key Competencies in Education in Bosnia and Herzegovina 2021-2030 (ETF 2021) is a policy prepared by the European Training Foundation in cooperation with the Ministry of Civil Affairs of Bosnia and Herzegovina. It acknowledges that education systems should include skills and competencies

that focus on greater adaptation to a fast-changing economy and an inclusive society. The priorities align to the EU framework on key lifelong learning competencies which provide foundation for flexibility and employability in global economy. The document is based on the working paper *Priorities in Integrating Entrepreneurial and Digital Competence Into Education Systems in Bosnia and Herzegovina 2019-2030* (Ministry of Civil Affairs 2018) which highlights the unity of digital and entrepreneurial competencies. This working paper emerged from the discussions with various stakeholders such as the Ministry of Civil Affairs of Bosnia and Herzegovina, all relevant cantonal educational authorities, pedagogical institutes, Agency for Preschool, Primary and Secondary Education of Bosnia and Herzegovina, representatives of educational institutions and teachers.

Analysis of the Existing Elements of ICT Infrastructure For Primary, Secondary and Higher Education in the Administrative Units of Bosnia and Herzegovina (UNICEF and UNESCO 2021a) was prepared within the *Re-imagining Education for Marginalized Girls and Boys during and post COVID-19 in Bosnia and Herzegovina* project (UNICEF, UNESCO, ILO and UN, in the framework of the UN Socio-Economic Response Plan in BiH). The analysis gives an overview of existing ICT infrastructure in use in all administrative units of Bosnia and Herzegovina for primary, secondary, and higher levels of education. This analysis shows that at all levels of education, there is a relatively low number of computer classrooms, and a relatively low number of educational institutions which use more accessible forms of digital technologies in teaching and equipment to work with students with special needs. More than a half of the country's primary schools do not have steady Internet connection and do not have computer classrooms. The equipment rate and internet connectivity in primary and secondary schools is significantly below the OECD average and the recommended national standard (UNICEF and UNESCO 2021b) due to a lack of systematic approach to equipping educational institutions and insufficient budget allocations.

Technical Standards for Tools of Information and Communication Technology in Education Systems in Bosnia and Herzegovina (UNICEF and UNESCO 2021b) prepared within the *Re-imagining Education for Marginalized Girls and Boys during and post COVID-19 in Bosnia and*

Herzegovina project (UNICEF, UNESCO, ILO and UN, in the framework of the UN Socio-Economic Response Plan in BiH) which provided basic technical standards for hardware, software, connectivity, and learning management systems in primary, secondary, and higher education, including equipment for children with disabilities. These standards are based on the mapping of the existing elements of ICT infrastructure and aims to inform future policies for blended learning with the use of technology in the classroom. The [document](#) is available at the Ministry of Civil Affairs' website and shared with all relevant Ministries of Education in BiH. On the basis of this analysis of the existing ICT infrastructure and technical standards, an interactive map was developed and shared with the ministries as a tool for exploring connectivity on the ground and making more equitable decisions.

UNICEF, UNESCO, ILO, and UN Volunteers in Bosnia and Herzegovina conducted **Assessment of the Teachers' Needs in Distance Learning and Blended Learning in Primary and Secondary (and TVET) Schools in Bosnia and Herzegovina During the Coronavirus Pandemic** (Osmić et al. 2021a). The assessment draws on qualitative data from students, teachers, and administrators and brings additional evidence confirming the unpreparedness of the national education system for functioning in the online environment. Teachers reported that the training provided during the pandemic was inefficient and superficial, lacking the depth needed for pedagogy using digital tools, particularly when supporting children with special education needs in a digital environment. Additionally, teachers expressed dissatisfaction with the immediate guidelines issued by authorities. These findings suggest that not only teachers and students, but all educational professionals (school directors, expert associates and other school employees) should possess digital skills to be able to participate in the digital transformation of education. The report highlights the need to equip schools with up-to-date hardware, software, and stable Internet connections; develop standards, guidelines, and evaluation criteria for remote and blended learning; develop new curricula which would be easily adapted to remote and blended learning; and prepare digital textbooks and provide professional support for teachers working with marginalized groups.

Assessment On the Quality of E-learning and Blended Learning in Elementary and Secondary Education (and TVET) in Bosnia and Herzegovina During the COVID-19 (Osmić

et al. 2021b) analyzes the legal, financial and administrative frameworks, pedagogical and methodological approaches, and tools and platforms for implementation of e-learning and blended learning in Bosnia and Herzegovina. A thorough overview of local legislation together with qualitative interviews conducted for the purpose of this study demonstrate that the current laws in Bosnia and Herzegovina do not provide clear instructions on the specifics of remote and blended learning, including conditions, rules, and assessment. The analysis highlights the need for the revision and adaptation of education laws to address digital learning directly. The document contains a detailed overview of all existing education laws in all cantons and how these laws regulate teaching and learning in emergency situations. The study also shows that the ICT equipment, software solutions, and Internet connection for remote and blended teaching are still inadequate and need to be addressed as soon as possible to move forward with digitalization. The allocation of financial resources for equipping schools with computers and platforms should be more efficient, and the education budget needs to be increased to support digital learning.

The implementation of digital learning in Bosnia and Herzegovina since the COVID-19 school closures has led to the development of more comprehensive action plans for the development of digital and blended learning in the country. In 2022 the government of BiH developed **the Guidelines for the improvement of online and blended teaching and learning for the educational system in Bosnia and Herzegovina in the context of quality (and) inclusive education** (BiH MoE, forthcoming). These guidelines, endorsed across cantons, provide clear instructions for utilizing technology for teaching in the classroom. The document builds on previous needs assessment reports, ICT infrastructure assessment and recommended standards and makes a significant focus on guidance for improvement of pedagogical and digital competencies of teachers.

5.1.1.3 Conclusion – Bosnia and Herzegovina

The COVID-19 pandemic has highlighted the existing systemic challenges facing the education system in Bosnia and Herzegovina. The school closures during COVID-19 also brought attention to the urgent need for education reform and digital transformation. The lack of proper ICT infrastructure, limited digital competencies of

school employees, and inadequate curricula all contributed to the challenge of were all challenges in the delivery of digital learning. Strategic planning for digitalization, funding allocation, and ongoing professional development for teachers are crucial

for addressing these challenges and implementing education reform. By taking these steps, the education system in Bosnia and Herzegovina can better prepare for future pandemics and adapt to the changing needs of the 21st century.

5.2 Kosovo

In Kosovo, digital learning has the potential to support children's learning, but several challenges hinder its development. While 96 per cent of the population has access to the Internet (Eurostat, 2019) less than half of children aged 7- 14 years demonstrate basic foundational reading and numeracy skills (UNICEF 2020d). Among the challenges are inefficient spending in the education sector, limited ICT capacity in schools, insufficient teachers' professional development and support for vulnerable children (UNICEF Innocenti 2023c). Inequality in connectivity is also stark among marginalized groups including the Roma, Ashkali and Egyptian youth, with clear gender-based disadvantages: only 75 per cent of young women from Roma, Ashkali and Egyptian communities use computers and 76 per cent have used the Internet, compared to 90 per cent of Roma, Ashkali and Egyptian men (Huibregtse 2018). Despite these challenges, the country has made important improvements in response to the education crisis provoked by the COVID-19 pandemic including the launch of Shkollat.org, the national digital learning platform and the drafting of a new National Development Strategy and Education Strategic Plan (2022-2026) prioritizing digitalization (UNICEF Innocenti 2023c).

5.2.1.1 Country's response to the COVID-19 pandemic

In March 2020, all educational institutions were closed, affecting a total of 345,540 students who attended schools in the 2019/2020 academic year. The Ministry of Education, Science, Technology, and Innovation (MESTI) responded by launching the National Television broadcasting of lessons for grades 1 to 9, which were also uploaded on the MESTI Official YouTube channel. As there was no pre-existing national digital learning system, the Ministry of Education provided various digital learning platforms (offered in Albanian, Serbian, Turkish, and Bosnian) for remote learning, in addition to daily classes broadcasted on national television during the pandemic (UNICEF 2020b):

Key Findings for Digital Learning In Kosovo:



Main achievements for quality and inclusive digital education:

- Implemented rapidly during school closures, remote learning using free online platforms and TV broadcasting
- Introduced Shkollat.org as the national digital platform providing education for all children in Kosovo with curriculum-aligned content in multiple languages
- Provided professional development training for teachers to cover basic digital skills
- Developed a new Education Strategy (2022-2026) prioritizing digitalization and including the use of the Shkollat.org platform as the national approved and curricula aligned learning platform

Main challenges for quality and inclusive digital education:

- Limited ICT capacity in schools
- Insufficient teachers' professional development, particularly in pedagogical skills and quality inclusive teaching practices
- Inefficient spending in the education sector
- Insufficient support for vulnerable children
- Limited national policies on digitization, guidelines for schools, teachers, parents and students

[Early Childhood Education Platform](#) - The online learning platform, created in collaboration between the Ministry for Education and Science, UNICEF and Save the Children, to support parental involvement in early developmental and learning activities for children in the age group 0-6 years

[E-learning Platform](#) - The foremost digital learning platform, entailing video lessons, which were also broadcasted daily on the national television RTK

[Inclusive Distance Learning Platform](#) - The digital learning platform for children with disabilities and special needs.

During the school closures, teachers and students in Kosovo used various digital platforms including Viber, Zoom, WhatsApp, and Google Classrooms for educational purposes (UNICEF Innocenti 2023c). To cope with the sudden shift, recording lessons and distributing electronic learning materials via email were among the impromptu solutions at the beginning of the pandemic. After being closed for a period of six months, schools in Kosovo reopened in September 2020, adopting a hybrid model of in-person and remote learning modalities. According to a rapid socio-economic impact assessment of COVID-19 in Kosovo conducted by UNDP, UN Women, UNFPA and UNKT (Petrač and Jusufi 2021), 96 per cent of children were able to participate in remote learning, and the households had largely favorable views of the learning opportunities provided during the confinement. Of the 4 per cent who did not participate, reasons included: multiple children sharing the same device, lack of equipment or Internet connectivity, no access to TV signal.

A survey conducted by UNICEF in February 2021 asked 2,308 teachers across Kosovo about their familiarity with digital technologies and experience with remote teaching. Almost a year after the initial closure of schools, 82 per cent of respondents felt comfortable or very comfortable using digital devices such as tablets, laptops, or smartphones, while 61 per cent used digital devices often or very often for remote teaching. Zoom and Viber were among the most popular applications for remote teaching (82 per cent and 69 per cent of teachers used them correspondently), while only 2 per cent of teachers took advantage of Microsoft Teams (Antonowicz 2021). These findings suggest that although many teachers have achieved good levels of digital skills, further support may be necessary to effectively integrate digital technologies in the classroom. UNICEF, in partnership with the Ministry of Education, has taken steps to address the digital skills gap among teachers in Kosovo. Out of the total number of teachers in the country, which is 23,234 (ASK 2020), UNICEF and the Ministry identified 2,500 teachers who lacked any form of professional training in digital learning. These teachers were provided with basic digital skills training on the Shkollat.org platform. Shkollat.org

provides ongoing support for teachers through video tutorials, guides, and on-site training sessions planned for each year. Thematic discussions are organized with students to explore how Shkollat.org can be better used in the classroom.

To standardize digital learning experiences across the education system, Shkollat.org Kosovo's national digital learning platform that was launched in February 2021. The development of the platform was led by MESTI supported by UNICEF. The platform serves as a one-stop location for digital learning, providing curriculum-aligned content and communication tools for teaching and learning. It integrates curriculum-aligned content for primary and secondary school (grades 1-9) with non-formal skills development programs for youth. It allows every teacher and student access digital content via a unique user profile (about 200,000 users in February 2022 out of 345,000 unique accounts available). Currently, over 8,000 video learning lessons are available in Albanian, Bosnian, Serbian, Turkish, and Roma languages (UNICEF Innocenti 2023c). UNICEF expanded its skills building flagship initiatives, UPSHIFT, PONDER and PODIUM, formally accredited in 2020 by the MESTI, through uploading their content onto Shkollat.org and bringing the programmes to upper secondary schools. To increase the platform's uptake in schools, UNICEF supported the deployment of Shkollat.org in four municipalities by providing training for teachers, securing Internet connectivity for schools, and increasing access to devices for marginalized children and youth, including those with disabilities.

5.2.1.2 Key National Policy Documents

Three pre-pandemic policy documents, the *National Development Strategy (2016-2021)*, the *Curricular Framework of Pre-University Education of the Republic of Kosovo (2016)* and the *Kosovo's Education Strategic Plan 2017-2021 (2016)* are selected to map the country's digital learning policies. These documents do not include any action plans for the integration of digital technologies in the classroom, and digital skills are not recognized as core skills in the *Curricular Framework*. Post COVID-19 school closures Kosovo has prepared a new National Development Strategy and Education Strategic Plan, with digitalization as the key priority area. What unites pre- and post-pandemic documents is their focus on teacher professional development to improve education quality.

In line with priorities of economic and institutional reforms necessary for Kosovo's integration into

the European Union, the **National Development Strategy (2016-2021)** (NDS 2016) identifies human capital as its first pillar and education as one of the country's top priorities. The key areas requiring action in education include increased inclusion of children in pre-school institutions; improved quality of teaching in the primary and secondary education; improved correlation between skills acquired in education and labor market needs; strengthened mechanisms of accountability and certification in the education system; improved expenditure planning in the education system. However, the PISA assessment results of 2015 raised serious concerns about the quality of education, with the underlying causes identified as the low qualification of teachers and low quality of content. The outlined solutions aim to strengthen the capacities of teachers and accountability mechanisms.

Based on the *European Competences Framework for Lifelong Learning*, the **Curricular Framework of Pre-University Education of the Republic of Kosovo (2016)** (MESTI 2016a) is a key document for the education system in Kosovo. Prepared long before the COVID-19 pandemic, the framework (even in its earlier version of 2011) acknowledges the need for digital competencies as a condition for successful integration into digital economy. However, digital competencies are not differentiated or explained alongside others such as communication and expression, thinking, learning, life, work and environment, personal and civic competencies.

The **Kosovo's Education Strategic Plan 2017–2021** (MESTI 2016b) was the key guiding document of the education sector in Kosovo in the period 2017-2021. It has seven strategic objectives aimed at improving the education system, including participation and inclusion, management of education system, quality assurance, teacher development, teaching and learning, vocational education and training and adult education, and higher education. In particular, the plan aims to enhance teaching quality sustainably and to maximize learning through quality teaching, implementing competency-based curricula and using high-quality teaching resources. However, the plan acknowledges that technical conditions in schools are inadequate to scale up digital technologies in teaching, and that teacher skills for putting digital technologies in use for quality teaching are not fit for purpose. In 2019, a mid-

term evaluation of the plan's implementation (Mehmeti, Boshtrakaj, and Mehmeti 2019) concluded that most schools in Kosovo failed to offer adequate conditions for learning, including libraries, labs, computers, and textbooks; broadband Internet was widely provided, but its use in learning processes was limited; although investment was made by partner organizations such as the World Bank and USAID, no serious mobilization of resources was noticed by the MESTI to improve ICT capacities in schools.

UNICEF Kosovo is currently supporting the development of a new **National Development Strategy** and **a new Education Strategy (2022-2026)** (MESTI forthcoming), which will cover early childhood education, pre-university education, vocational training and adult education, and higher education. The main objective of the new education strategy is to use digital technologies to improve services and quality in education, in line with digital transformation. The strategy identifies five specific objectives around digitization, including the digitalization and integration of data and services, the development and use of digital teaching materials in order to increase the quality of teaching and learning, the provision of opportunities for effective use of information and communication technology, the development of digital competencies in all parties, and the establishment of institutional mechanisms that enable effective and efficient digitalization.

5.2.1.3 Conclusion – Kosovo

In Kosovo when schools closed due to the COVID-19 pandemic, teachers were forced to use various communication methods such as WhatsApp, Viber, Facebook, Zoom, and Google to organize remote learning. To provide a more coordinated approach, MESTI responded by developing the national digital learning platform Shkollat.org to provide education for all children in Kosovo. To ensure sustainability, MESTI developed a new Education Strategy with digitalization as a key focus area. The new strategy incorporates the previous policy work on social inclusion and provides clear action plans of how digital technologies can make education more equitable and inclusive. The need of investment in teachers' professional development is widely recognized by key stakeholders as a key barrier to improvements in education.

5.3 Montenegro

In Montenegro, PISA results show that only 56 per cent of students achieved a minimum Level 2 proficiency in reading, compared to the OECD average of 77 per cent (OECD 2019b). According to the report written by the UNICEF in cooperation with the Ministry of Education of Montenegro (Nikolić-Vučinić, et al. 2019), teaching practices in schools continue to be traditional, content-focused and requiring reproduction of knowledge. Despite the adoption of various policies to promote contemporary educational concepts, these innovations are yet to be effectively implemented

in schools and classrooms. A considerable number of conservative teachers resist adopting new educational challenges, favoring teacher-directed instruction over adaptive practices (OECD 2020).

In Montenegro, teacher training courses and programs are provided by the Bureau for Education Services and the Centre for Vocational Education (MPNKS 2021). These courses are mandatory for obtaining and renewing work licenses, as well as for career progression (European Commission, n.d.). However, challenges remain in ensuring the relevance of trainings and implementing a comprehensive system for monitoring teachers' competencies. The survey *Teachers in Montenegro and the Internet* (UNICEF and IPSOS 2019) sheds light on teachers' digital competencies before the pandemic. 98 per cent of teachers are active Internet users, 89 per cent use smartphone, and 76 per cent use personal computers on everyday basis. Additionally, 91 per cent of teachers agree that using the Internet for teaching purposes improves the quality of teaching. However, teachers' knowledge of how digital technologies can be used in the classroom is limited. Only 6.5 per cent use it to organize group work for students and even less teachers use multimedia for teaching and learning purposes in the classroom.

The SELFIE survey (summarized in the Strategy for Digitalization of Education (MPNKS 2021)) also provides insight into school and teacher capacities in the use of digital technologies. Just before the closure of schools due to the COVID-19 pandemic in March 2020, 197 primary and secondary schools (out of 211) underwent self-evaluation, and 203 schools participated in the survey during the 2020/2021 school year. Among the key factors negatively affecting the use of digital technologies in schools, school administrators and teacher mentioned lack of digital equipment, insufficient financial resources, unstable or slow internet connection.

Improving the quality of education for marginalized children, including those with disabilities, Roma children, refugees, and migrants, is also a crucial challenge in Montenegro. To address this issue, the country has implemented the *2019–2025 Inclusive Education Strategy* (Nikolić Vučinić et al. 2019), which aims to improve the quality of inclusive education by providing cross-sector support and strengthening school policies, culture, and practice. In 2021, Montenegro Bureau for Education in cooperation with UNICEF issued a guide for teachers *Improving the Quality and Inclusiveness of Education in the Digital Environment* (Zavod za

Key Findings for Digital Learning in Montenegro:



Main achievements for quality and inclusive digital education:

- Implemented systematic reforms to improve the quality and inclusiveness of education for the past two decades, laying the foundation for a digitalization reform
- Enhanced the system of teacher professional development through large-scale training in digital literacy and digital pedagogies
- Quickly introduced remote learning during school closures through the support of free online platforms, TV broadcasting, national study platform, and various portals to assist the needs of various actors in the education process
- Launched a national platform for learning, teaching, communication, and cooperation in the digital environment called Digital School
- Adopted the Strategy for Digitalization of the Education System 2022-2027 with Action Plan 2022-2023 by the government

Main challenges for quality and inclusive digital education:

- Ineffective teaching training for modern and digital learning concepts, particularly for marginalized groups
- Limited participation of students from vulnerable groups in education
- Inefficient allocation and distribution of funds for education
- Lack of strong ICT infrastructure in schools

školsstvo and UNICEF 2021) which demonstrates the national government's commitment to improve inclusiveness as well the government's acknowledgement that digital environment requires specific policies. Additionally, various policies advocate inclusion of Roma and Egyptian populations: *Strategy for Improving the Position of Roma and Egyptians in Montenegro 2008-2012 and 2012–2016*, the *Strategy for Social Inclusion of Roma and Egyptians in Montenegro 2016-2020 and 2021-2025* (MPLJMP 2021) with action plans. In 2022, UNICEF published a report on the educational situations and outcomes of different groups of children in Roma settlements (UNICEF 2022a), indicating a national drive to promote inclusiveness.

5.3.1.1 Country's response to the COVID-19 pandemic

According to a UN report, 97 per cent of school-age children took part in remote learning during the pandemic in Montenegro (UN 2020). 98 per cent of households with children of school age (6–18 years old) had a TV set, 79 per cent a computer/laptop and 49 per cent had a tablet with the Internet connection. However, the digital divide remained a challenge, particularly for children in rural areas and the northern region. Remote teaching often relied on Viber and other communication applications, while the UčiDoma portal launched by the Ministry of Education, Science, Culture and Sports provided teaching materials covering the national curriculum. All recorded classes were posted on the YouTube channel #UčiDoma and broadcasted on several TV channels (UNICEF Innocenti 2023b). As a result of this momentum, a coordinated approach led to the development of various digital learning platforms during and after the pandemic, including:

- [Digital School](#) with the support of Microsoft provides a digital learning environment, Office 365 and Teams for schools
- Portal for teachers <http://www.skolskiportal.edu.me/created> fostering professional collaboration was further adapted to the needs of users during the pandemic so that teachers could publish their lectures, exchange their ideas, knowledge and experiences, share information on the usage of ICT in teaching, and cyber security
- Portal for parents www.dnevnik.edu.me, supported by the mobile application eDnevnikME, allows parents to monitor their child's grades, absences and behavior, communicate with the school administration, schedule parent meetings, and receive other relevant information

- Portal www.podaci.edu.me improves cooperation between the Ministry of Education, Science, Culture and Sports and its institutions

During 2020-2021, Wi-Fi was installed in all schools in Montenegro, with school level and regional ICT coordinators responsible for network maintenance to support the implementation of the Digital School project (Digitalna Škola 2020). The Institute for Textbooks and Teaching Aids started developing quality standards for digital textbooks and other digital teaching materials. Despite these efforts, several challenges persist, such as the need to equip schools with up-to-date computers and software. The increase of coverage and modernization of information and telecommunications is included as an operational objective in the new Strategy for Digitalization of Education (MPNKS 2021).

A needs assessment conducted by UNICEF Montenegro in summer 2021 demonstrated a change in use of digital technologies, after the school closure period. The survey found that pre-school teachers generally agree that digital technologies make their jobs easier (61.1 per cent out of 95 participants), that digital content improves the quality of their work (93.7 per cent totally or partially agree), and that the use of digital content in teaching allowed for personalized instruction for children with special educational needs (87.4 per cent totally or partially agree). However, almost half (48 percent) of pre-school teachers reported a lack of Internet access at their workplace, while just 7 percent of primary and secondary teachers reported this issue. Pre-school classes were found to be mostly equipped with TV sets, while primary and secondary education classes had TV sets, projectors, and laptops, with many teachers bringing their own laptop to the classroom. Regarding the use of platforms and applications, the majority of pre-school teachers reported using search engines, email, MS Word, Viber, and YouTube daily or occasionally in their educational work, while Zoom and MS Teams were less frequently utilized. The majority of primary and secondary teachers utilized MS Teams daily for communication. The survey was followed up by the focus groups with students having special education needs and their parents. Analysis of the qualitative data determined key recommendations which were later included in policies (see the overview of the policy documents below). In particular, respondents highlighted that it is not enough for teachers to have basic computer skills, more training is needed so they are confident with their technologies use in their teaching practice. Also, the learning materials

should include clear explanations of the learning objectives which would make the learning progress more understandable not only for teachers, but also for children and parents.

In 2020, in response to the Ministry's request, the UNICEF Montenegro provided training for teachers on using Office 365, MS Teams, and making remote classes more interactive. The training continued in 2021, aiming to improve the quality of teaching through the use of digital technologies. Working closely with teachers to identify their needs, UNICEF Montenegro prepared a new training package with the objective to train 50 per cent of the country's teaching staff by the end of 2022. The training comprised of three modules related to improving the quality and inclusiveness of education in the digital environment and focused on Digital School.

Montenegro has made significant progress in reforming its education system and promoting inclusive and equitable quality education. Yet, the COVID-19 pandemic came as shock for the system of education in Montenegro. No digital learning strategy or policy existed before the pandemic. In response to this, Montenegro launched several online resources to support teachers, students, parents, school administrators and ministries. In December 2021, the Digital School was inaugurated, as the national platform for learning, teaching and cooperation. This official national platform aims at strengthening the quality and inclusivity of education after the COVID-19 pandemic. At the same time, insufficient professional development of teachers and limited availability of ICT tools in schools have remained among the key factors which slow down the progress of education reforms in Montenegro (UNICEF Innocenti 2023c).

5.3.1.2 Key National Policy Documents

Montenegro has shown a strong commitment to improving its education system through the development of a strategic and legislative framework. The starting point for the policy overview is the *Strategy for Digitalization of Education (2022-2027)* adopted in December 2021. The strategic objectives and plan of actions for digital education in Montenegro are based on a comprehensive situation analysis. This analysis identifies gaps and challenges that need to be addressed to move the education system forward. This document demonstrates an enhanced awareness of the need for digitalization and a commitment to take tangible actions for digital

reform. The Strategy is built into the *Strategy for Digital Transformation in Montenegro 2022-2026* which provides a plan for digital reform for the whole Montenegrin society. Among pre-pandemic policies, three documents are selected: the *National Strategy for Sustainable Development 2030*, the *Strategy for the Information Society Development 2020*, and *Montenegrin Framework Program of Key Competencies*.

The National Strategy for Sustainable Development 2030

(MORT 2016) acknowledges education as one of the fundamental prerequisites for sustainable development and defines necessary management measures such as provision of comprehensive, inclusive and quality preschool education; improvement of the educational and scientific component in higher education; improvement of lifelong learning, non-formal education and adult's education, with a focus on the vulnerable groups. The action plan includes steps such as increase investment in efficiency and quality of basic and secondary education; increase number of qualified teachers; improvement of the quality of initial education for teachers; promotion of programs that encourage tolerance and problem solving through dialogue as well as inclusion of vulnerable groups; continuous innovation of curricula in basic and secondary education; equal access to quality technical, vocational and tertiary education; increased research and development expenditures; increased IT literacy of young people and adults.

The Strategy for the Information Society Development 2020

(MIDT 2016) aims to align with the EU standards set out in the *Digital Agenda 2020* and the *Digital Single Market Strategy*. The strategy focuses on several priorities such as the development of broadband internet infrastructure, cybersecurity, the growth of digital skills, digital business, e-education (growth of the proportion of available computers per student in schools; the growth of the percentage of teachers trained to work on computers and skilled in the field of cybersecurity), e-health (growth of percentage of e-prescriptions and e-referrals); e-inclusion (the elimination of digital divide between urban and rural areas and the divide based on income, social and demographic characteristics); e-government (growth of the number of citizens who communicate electronically with the public administration and use e-services); research, innovation, and development (growth of the percentage of the scientific and research institutions in the field of ICT). Challenges and actions for digital learning include equipping schools with computers and internet, training

teachers on how to use and apply technologies in teaching, and introducing more IT subjects in the school curriculum.

Montenegrin Framework Program of Key Competencies (EPRD 2020) was prepared within the project *Integration of Key Competencies in Education System of Montenegro* and was co-financed by the European Union and the Government of Montenegro. The Framework includes digital competencies alongside literacy, language, mathematic, personal and social, civic, entrepreneurial, and cultural competencies. Digital competencies include information and digital literacy; communication and cooperation (including active citizenship and social inclusion); creation of digital content (including programming); security (including digital well-being and cybersecurity); problem solving and critical thinking. This framework of digital competence is based on the EU framework of key competencies for lifelong learning (Eur-Lex 2018). The framework presents a clear description of educational outcomes required for pre-school, primary, secondary, and higher levels of education. However, the framework does not include any system for monitoring how key competencies are integrated in teaching and learning. Despite this limitation, the Framework serves as a building block for the structured integration of key competencies in all levels of education in Montenegro.

A Guide for Teachers Improving the Quality and Inclusiveness of Education in the Digital Environment (Zavod za školstvo and UNICEF 2021) was prepared in collaboration between UNICEF and Montenegro Bureau for Education within the project *Improving the Quality and Inclusiveness of Education in the Digital Environment*. The project aimed to provide training for 1,200 teachers to enhance their digital-pedagogical competence. The guide emphasizes that the traditional teaching approach does not suit the needs of the 21st century, as new competencies are required. Even if schools become equipped with new hardware and software, without digital competencies neither teachers nor students would use these resources effectively. The guide supports teachers in three areas: (1) learning and teaching in the digital environment; (2) education in the digital environment- support for teachers and cooperation with students; (3) creating individualized pathways of learning. The guide clarifies key learning concepts and the importance of using digital technologies to improve teaching and learning, it provides an overview of instruments to support students and to involve parents in the learning process, it gives

practical recommendations of how to set up MS Teams to organize the learning process and school management.

Strategy for Digital Transformation in Montenegro 2022-2026 with Action Plan 2022-2024 (MJUDDM 2021) is a comprehensive plan that covers all aspects of Montenegrin society, from public administration to academia and civil society. The strategy is aligned with the strategic commitments of the European Union, which clearly laid out “green” and “digital” as the central development goals of the entire European region. The strategy and its detailed action plan are focused on two key goals: enhancing Montenegro’s digital transformation capacity and increasing the digital awareness and competitiveness of Montenegrin society. The core of the strategy is the physical and technological modernization of the country’s infrastructure which is a prerequisite for digital transformation. The second pillar of the strategy encompasses education and training, from the pre-primary level through university, in digital skills and awareness of the benefits of the technologically supported solutions. One of the most important challenges identified in the situation analysis is the lack of digital competence at several levels (employees in private and public organizations, students, and the general public). The Strategy articulates the government’s commitment towards improving digital knowledge and skills for vulnerable groups of citizens in the process of lifelong learning and the commitment towards increasing availability of ICT equipment for vulnerable groups to overcome the digital divide (subsidies for the purchase of computer equipment are declared as operational objectives in the Strategy’ Action Plan).

Strategy for Digitalization of the Education System 2022-2027 with Action Plan 2022-2023 (MPNKS 2021) recognizes the important role of digital technologies for the development of social and economic potentials of society. The policy shows clear government intent and national focus on systematic process of digitalization of the educational system and identifies three objectives: improving the education information system, development and improvement of the digital ecosystem, and development and improvement of digital skills and competences. Inclusiveness of education is also a key objective of the strategy, with the development of digital educational content for children with special educational needs and training of teachers for the application of ICT in working with them. The strategy addresses three critical challenges: the dilapidation and underutilization of the information system,

insufficient conditions in educational institutions for digitalization, and a low level of digital skills and competencies of students and teachers. The government was supported by UNICEF to conduct a mapping of key issues affecting the provision of quality inclusive learning, including offline and online blended learning, and to develop guidelines for the digitalization of education. The analysis of the Montenegro system of education and its challenges draws on desk review, analysis of SELFIE research, and focus group discussion with representatives of five target groups, including ICT coordinators, school directors, teachers, parents, representatives of educational institutions.

5.3.1.3 Conclusion - Montenegro

Montenegro's strategic and legislative framework on digitization in education is the most developed of the four Western Balkan countries examined in this research. Various policy documents promote the importance of inclusive and equitable quality education for the country's sustainable development. Digitalization for all sectors of economy and society had been regarded as

an important driver of change even before the COVID-19 pandemic. When schools closed in 2020, Montenegro was able to build on existing digital learning initiatives. Modernization of the ICT infrastructure and development of digital competence for all levels of employees are now part of the new national strategy for digitalization. New policies have been developed to prioritize the improvement of ICT capacities, the narrowing of digital divide, and the provision of ongoing professional development for teachers in digital competence and pedagogy. Digital School, the Montenegro version of the Learning Passport, has been launched as the national digital learning platform for the country. However, the challenge of limited digital competencies cannot be fully addressed by short in-service training courses. Inclusion of digital competencies into pre-service teacher education and ongoing coaching is required. The *Framework Program of Key Competencies* (EPRD 2020) includes clear objectives for digital competency acquisition, but lacks an action plan or monitoring system. Despite this, Montenegro's commitment to digitalization and education is a promising step towards inclusive and equitable quality education for all.

5.4 North Macedonia

In North Macedonia, PISA results from 2018, show that the countries performance in learning was much lower than international benchmarks. Only 45 percent of students achieved level 2 proficiency in reading (compared to the OECD average of 77 percent), 39 percent in mathematics (compared to OECD's 76 percent), and 51 percent in science (compared to OECD's 78 percent). Several challenges hamper quality and inclusive digital learning including limited ICT capacity in schools, lack of strategic and normative documents on digital learning, and insufficient support for vulnerable children. When the COVID-19 pandemic hit, teachers took impromptu decisions to reach children which included the use of email, Zoom, Facebook, and Viber to share engage with and share content with students. Over time, there was a transition to national digital learning platforms, with teachers gradually shifting towards Schools.mk (the national platform for distance learning) and the EDUINO platform, which was developed through a collaboration between the Ministry of Education and Science, UNICEF, and other partners during the 2020/21 school year. Gradually, EDUINO platform became a successful digital solution to support

students, teachers, and parents. The experience of EDUINO crowdsourcing high quality education content is among the key success stories that other countries can learn from in the digitalization of education systems (UNICEF Innocenti 2023a).

5.4.1.1 Country's response to the COVID-19 pandemic

During the pandemic, primary and secondary schools transitioned to remote learning and the national TV broadcaster began broadcasting activities for pre-school and lectures for primary education (UNICEF Innocenti 2023a). Teachers improvised innovative solutions to continue teaching. A survey "Experience and Attitudes towards Distance Learning introduced during the COVID-19 pandemic" was launched by the Ministry of Education and Science, Bureau for Development of Education, UNICEF, British Embassy in Skopje and partner Reactor-Research in action (Reactor – Research in action 2020). Carried out in two phases, in summer 2020 and November–December 2020, the survey provided information on the country's response to the school closures. The survey collected responses from principals, teachers, students, and parents alongside

Key Findings for Digital Learning in North Macedonia:



Main achievements for quality and inclusive digital education:

- Introduced remote learning with the support of free online platforms and TV broadcasting during the school closures
- The Ministry of Education developed an effective system for crowdsourcing and quality assuring digital education content from teachers aligned with the national curriculum.
- Launched EDUINO an online-learning platform to support the education process with curriculum aligned digital learning materials for pre-primary, primary and secondary school in five official languages as well as teacher professional development.

Main challenges for quality and inclusive digital education:

- Limited ICT capacity in schools hindered effective implementation of digital learning
- Inadequate support for vulnerable children, including those with special educational needs, made it difficult for them to access digital learning resources and participate fully in online classes
- Lack of clear strategic and normative documents on digital learning

qualitative data from focus group discussions and in-depth interviews with key target groups and representatives of vulnerable categories. According to the survey⁸, at the beginning of the pandemic, most teachers prepared presentations (e.g. Power Point) and shared educational content from various sources and websites or sent students/parents information about textbook pages to learn. Reflecting on the difficulties faced during the remote learning in the second semester of 2019/20, 48 per cent of students complained that teachers only gave them homework without teaching the lessons. Teachers reported that at the beginning of

the pandemic, sending out information to students/parents on which pages from the textbooks they needed to learn was a common practice, which significantly shrank with the mass implementation of MS Teams in teaching. The survey findings suggest that the change in pedagogical practices took place alongside the change in teacher's general digital competency and access to equipment. However, qualitative interviews with school principals revealed that the schools were unable to provide teachers with computers and stable Internet connection when teachers worked from home during school closures. That means that teachers needed to find a way to procure their own devices for themselves as well as to equip their own children with computers and Internet access necessary for learning.

At the end of the academic year 2019/20, teachers used mostly email, Zoom, Facebook, and Viber, and EDUINO (58 per cent), the national education platform which saw increased development during COVID-19, as well as telephone calls and SMS exchange (56 per cent). Throughout the COVID-19 school closures, the national eco-system for digital learning developed various tools that students and teachers could utilize going forward for different specific uses, with EDUINO at the center going forward.

EDUINO (<http://www.eduino.gov.mk/>) is an online-learning platform created as a direct and urgent response to the school closures during the COVID-19 pandemic and the need to develop localized digital learning content. EDUINO was developed in cooperation with the Ministry of Education and Science of the Republic of North Macedonia, Ministry of Labor and Social Policy, Bureau for Education Development, the Government of United Kingdom, UNICEF, and other partners. The platform provides educational materials for pre-primary, primary and secondary school students in five official languages: Macedonian, Albanian, Turkish, Bosnian and Serbian. EDUINO is not only a response to COVID-related challenges, but also a significant step in improving the education system (UNICEF Innocenti 2023c). The need for such a platform was identified in the Education Strategy for 2018-2025 (MRK 2018) where a fully operational e-platform with up-to-date teaching and learning resources available to all staff at all educational levels, children, students and learners was included as one of the deliverables in the action plan. The EDUINO platform offers teachers the opportunity to engage in crowdsourcing and professional development. The platform contains about 5,000 video lessons which

⁸ Combined research findings from the survey "Experiences and Attitudes about Distance Learning: Initial findings from the survey carried out with school directors, teachers and parents" May and December 2020. The first round of the survey was published (Reactor – Research in action 2020).

have been crowdsourced from over 1,000 teachers and then verified and approved by the Bureau for the Development in Education to ensure the quality of the content and compatibility with the curriculum (UNICEF Innocenti 2023a). These videos were also used to create the EDUINO on TV programme which for a whole school year broadcasted video lessons according to a nationwide teaching schedule (MON 2020b), expanding access for children with limited internet connectivity.

Such an approach enables teachers to develop flexible pedagogical solutions to meet students' different needs and capacities and to collectively respond to educational challenges. Co-creation and collective action are promoted through productive collaboration between the teachers and the state administration. The platform also provides tools for teacher professional development, including video tutorials, tools, and webinars on various topics (UNICEF Innocenti 2023a). In 2021, EDUINO platform hosted webinars on student drop-out prevention, interdisciplinary approach, building a school climate and culture, creative learning through play for preschool and primary education students, designer thinking as a method in teaching, and many other topics. Teachers whose videos are approved by the Bureau for Development of Education are awarded with six hours of professional development, which fits to the local laws regulating teachers' professional development and career advancements. To stimulate the teachers even further, [the EDUINO Ambassadors](#) initiative was introduced. The teachers who contributed the most with video lessons or educational games get a public recognition as EDUINO Ambassadors as well as access to professional training and licenses for educational digital tools. The Bureau for Development in Education sets the selection criteria depending on the needs and the situation (UNICEF Innocenti 2023a).

EDUINO Ambassadors interviews revealed that teachers are motivated to use the platform because it encourages their creativity and allows them to produce their own content and learning materials (UNICEF Innocenti 2023a). Teachers appreciate the communicative aspect of EDUINO, which enables them to receive feedback and encouragement from a wider audience, boosting their motivation to teach. Teachers recognize EDUINO as a vibrant professional community. Finally, teachers are stimulated to contribute to the EDUINO digital library because they believe their teaching materials will remain.

The development of teacher support within the EDUINO platform was crucial, given that at the start of the pandemic, only 38 per cent of teachers received clear or sufficiently clear guidance from the Ministry of Education and Science on how to deliver remote learning, while 54 per cent received support from the Pedagogical service. A significant number of teachers identified equipment, digital educational materials adjusted to the teaching units, digital learning content, and training on how to use digital platforms, as well as assessment of students in the digital environment, as the areas where they needed support. For the next academic year during the pandemic, 64 per cent received support from the Ministry, and 71 per cent from the Pedagogical service. While less teachers requested support, their needs were mostly related to equipment, digital educational materials adjusted to the teaching units, and training on the use of platforms adjusted to test the students' knowledge.

5.4.1.2 Key National Policy Documents

North Macedonia has not begun drafting or adapting any new digitalization strategies in the two years after school closures during COVID-19. The existing Education Strategy, which was adopted prior to the pandemic, identified various challenges such as limited ICT capacities in schools, inadequate digital competence among teachers, and the absence of national standards for the use of digital technologies in education. The most significant policy document developed in response to the COVID-19 situation is the "Concept for Developing Systems for Distance Learning in Primary and Secondary Schools." While this document offers basic guidelines for remote and blended learning, it primarily serves as a starting point for future discussions on policy work related to education reform.

The Republic of Macedonia Education Strategy For 2018-2025 and Action Plan (MRK 2018)

outlines six pillars of the education system: pre-school, primary, secondary, vocational, higher education, and adult learning. Within these pillars, Priority #3 focuses on "Ensuring Digital Literacy and Wide Use of ICT in Education and Training." This priority encompasses various measures, including the incorporation of ICT in the learning process, establishment of a unified digital platform for teaching, learning, and methodological resources, creation of specialized mathematical/ ICT gymnasiums or ICT classrooms for computer science and mathematics, and introduction of modern ICT qualifications at the VET level. These

measures were formulated in response to several challenges faced by the national education system, such as the absence of ICT use standards in the education process, insufficient teacher training, limited utilization of available software, inadequate computer equipment in schools, and the lack of a unified digital platform for teaching and learning. The action plan also includes the development of national standards for primary and secondary education, aligning with EU guidelines. These standards are expected to encompass digital competence alongside other essential generic competencies, such as effective communication in native and foreign languages, mathematical proficiency, basic scientific and technological competencies, learning-to-learn skills, social and civic competencies, initiative-taking and entrepreneurial spirit, as well as cultural awareness and expression.

Concept For Developing Systems For Distance Learning In Primary And Secondary Schools in the Republic of North Macedonia

(MON 2020a). This document was prepared by a working group established by the Minister of Education and Science, with support from the USAID Youth Ethnic Integration Project, UNICEF North Macedonia, and the Macedonian Center for Civic Education. This national guidance aims to address various challenges exposed during the pandemic, including the absence of strategic and normative documents on digital learning, inadequate theoretical and practical pedagogical knowledge

for remote learning, limited digital competence among stakeholders involved in remote learning, and insufficient ICT equipment in schools. The document emphasizes three pillars of the remote learning process: education policy, educational technology, and pedagogy. In terms of policies, it proposes crucial amendments to existing education laws to regulate digital learning. Additionally, the document provides an overview of major digital resources available in the country, advocates for the establishment of a national digital learning platform, and offers basic guidelines for planning and implementing digital teaching, as well as monitoring and assessing students in a digital environment.

5.4.1.3 Conclusion – North Macedonia

















In North Macedonia, access to equipment and internet were major challenges for students during remote learning with children from lower socioeconomic groups being less likely to access. Only half of poor households report having a computer or laptop. The EDUINO platform was quickly developed to respond to the pandemic, offering hundreds of teacher professional development tools and webinars. The development of new strategic and normative documents for digital learning is a priority, and discussions have started for drafting a new Education Strategy with a focus on digitalization. The new strategy and other related initiatives aim to address the challenges faced by the education system and ensure that all students have equal access to education.

6 Conclusion and Recommendations

This research *THE DIGITAL LEARNING LANDSCAPE: Bosnia and Herzegovina, Kosovo, Montenegro, and North Macedonia* provides an overview of the current state of digital learning in the four countries of the Western Balkans. Specifically, it explores how these countries are working towards digitalization of education and identifies challenges and gaps in the development of digital learning ecosystems that may impact the provision of inclusive and equitable learning opportunities for marginalized groups of children.

The COVID-19 pandemic exposed the lack of preparedness in education systems to continue functioning during school closures. Despite various improvised measures to maintain learning continuity, numerous children were left behind, unable to access remote education. Marginalized groups, including children from

Table 1 Post-pandemic digital learning landscape

Digital Learning Landscape Components	Bosnia & Herzegovina	Kosovo	Montenegro	North Macedonia
Connectivity and devices	 72 per cent household connectivity rate; connectivity gaps in schools	 93 per cent household connectivity rate; connectivity gaps in schools	 74 per cent household connectivity rate; connectivity gaps in schools	 82 per cent household connectivity rate; connectivity gaps in schools
Platforms and content	 No national platform for remote learning	 National platform for remote learning (Shkollat/Learning Passport)	 National platform for remote learning (Digital School/Learning Passport)	 Widely used remote learning platform (EDUINO) with full curricular content.
Teacher upskilling and support	 Teacher training in digital skills lacks national-level scope	 Large-scale in-service teacher training in basic digital skills	 Large-scale in-service teacher training in digital skills	 Large-scale in-service teacher training in digital skills
Digital learning policies	 Blended learning guidelines adopted	 Education digitalization strategy drafted	 Education digitalization strategy adopted	 No education digitalization strategy

Legend: High, Medium, Low level of advancement

disadvantaged backgrounds, those with disabilities, and those residing in rural and remote areas, encountered difficulties in accessing educational resources, exacerbating the pre-existing digital divide and reinforcing inequalities. It is imperative to now confront these challenges and prioritize reforms in digitalization to guarantee that all children have access to inclusive, equitable, and high-quality learning opportunities.

The COVID-19 pandemic accelerated the pace of digitalization of education within Western Balkan countries. The EU's enlargement policy supports the Western Balkans' move towards a digital economy and the benefits of digital transformation. Despite high levels of ICT access and connectivity in the region, a significant digital divide persists, with many marginalized communities lacking access to digital technologies and individuals lacking basic digital skills. The analysis demonstrates that each of the four countries are in different stages of implementation of digital learning systems, Table 1. below provides a brief summary of the findings related to the key components of digital learning landscape.

In response to the COVID-19 pandemic and school closures, each of the four focus countries has created new digital learning policy documents (adopted or in the process of adoption). Kosovo and Montenegro have prepared new strategies for the digitalization of education, intending to provide standards, frameworks, guidance, and action plans for digital transformation. Montenegro stands out with its adopted education digitalization strategy, providing a clear framework for the country to follow in order to effectively implement and support digital learning initiatives. Kosovo has made progress with a drafted strategy that, while not yet formally adopted, indicates progress towards defining goals and priorities for digital learning. Both Bosnia and Herzegovina and North Macedonia currently lack a comprehensive education digitalization strategy, which could result in less coordinated and slower adoption of digital learning practices and resources. However, Bosnia and Herzegovina has conducted several in-depth assessment studies, and standing out as the only country among the four to have prepared a thorough analysis of available ICT infrastructure and technological standards for education reform. Bosnia and Herzegovina has developed national technical standards and infrastructure maps, providing policymakers with the evidence needed to understand where ICT improvements and updates should be made. While North Macedonia continues to follow its 2018-2025 Education Strategy,

preparations have begun for a new strategy with a focus on digitalization.

The ICT infrastructure among the four Western Balkan countries varies, with Kosovo having the highest household connectivity rate and Bosnia and Herzegovina having the lowest. However, all four countries face a common challenge in providing consistent internet access in schools. Efforts to bridge these gaps in school connectivity will be essential for improving the digital learning landscape in the region.

Beyond infrastructure, the digital learning platforms and content that can be accessed for education system are critical for a well-functioning digital learning system. Kosovo, Montenegro and North Macedonia have national digital learning platforms, which aim to provide a consistent digital learning experience across the country. Digitalna Škola in Montenegro and Shkollat.org in Kosovo are national platforms based on the Learning Passport partnership between UNICEF and Microsoft. North Macedonia stands out with its widely used digital learning platform EDUINO, which includes full curricular content for pre-primary, primary and secondary schools in several languages as well as professional development for teachers. This comprehensive resource allows students and educators to access a complete range of educational materials, ensuring a more robust and consistent digital learning experience.

Teacher training on integrating technology into teaching practices has been identified as a crucial need for education digitalization. Bosnia and Herzegovina provided professional support for teachers offering ongoing training in blended learning and inclusive education through collaboration between cantonal authorities, universities, and international organizations. Sarajevo Canton provided trainings for 4,000 teachers in basic digital skills during the school closures in 2020. However, teacher training initiatives in the country for digital learning are limited in scale or fragmented, potentially leading to inconsistencies in teacher preparedness and proficiency. Kosovo, Montenegro, and North Macedonia have developed in-service teacher training at a national scale to equip as many teachers as possible with basic digital-pedagogical competencies. In 2021, Kosovo equipped 2,500 teachers with the basic skills to carry out digital learning. Montenegro and North Macedonia offered even more extensive teacher training, covering a greater portion of their teaching staff. In Montenegro, the UNICEF Country Office supports the government's goal of upskilling 50 per cent of

the country's teaching staff by the end of 2022. In North Macedonia, 23,000 participants took part in new webinars on improving quality teaching and digital learning in 2021.

Based on the analysis of the digital learning landscape in the Western Balkans, the following **recommendations for policymakers can be proposed to improve digital learning systems:**

- **Develop and adopt a comprehensive strategic vision and policy framework to establish an inclusive digital learning ecosystem as a systematic approach to digitalization.** The digitalization of education systems is a wide-ranging and multidimensional process encompassing ICT infrastructure, high-quality internet connectivity for schools, procurement of devices, teachers' and students' digital skills and competences, curriculum and policy changes, which requires a strong government commitment. Coordination and collaboration across various ministries and multiple partners are essential.
- **Given the existence of the digital divide, intensify efforts to ensure equity, quality, and inclusiveness in education when integrating digital technologies into the learning process.** It is crucial to utilize digital technologies in a manner that seeks to reduce inequalities, offer a flexible response to diverse needs of children, and reach those who are often marginalized and excluded. Consequently, digital learning systems should be designed with the explicit objective of reaching the most marginalized populations from the very beginning.
- **Set up a systematic pre-service and in-service teacher professional development program that aligns with the requirements of digital transformation.** Strengthen and expand teacher professional training in the effective use of digital learning, whether it is utilized in the classroom or in remote settings. Teacher training should be guided by digital competency frameworks, enabling progression while ensuring adequate support for application in the classroom.
- **Enhance collaboration and exchange among teachers, learners, parents, and other stakeholders involved in digital learning, both nationally and internationally, in order to share best practices.** The development of a community of practice will facilitate knowledge sharing between countries at varying levels of digitization, enabling them to learn from one another.

7 References

- Antonowicz, Laetitia. 2021. "Reimagine Education with the Learning Passport Platform: The Case Of Kosovo." UNICEF Kosovo.
- ASK. 2020. "Education Statistics in Kosovo 2019/20." Kosovo Agency of Statistics; Ministry of Education and Science.
- "Balkan Barometer." 2020. Public Opinion. Sarajevo: Regional Cooperation Council.
- Brossard, Matt, Marta Carnelli, Stephane Chaudron, Rosanna Di-Gioia, Thomas Dreesen, Daniel Kardefelt-Winther, Céline Little, and Jean Luc Yameogo. 2021. "Digital Learning for Every Child: Closing the Gaps for and Inclusive and Prosperous Future." Policy Brief. UNICEF Office of Research – Innocenti.
- Camovic, Dženeta, and Jasmina Becirovic-Karabegovic. 2022. "Educational Quality of Early Childhood Education in Bosnia and Herzegovina." *European Journal of Educational Research* 11 (4): 1923–36.
- Carnelli, Marta, and Thomas Dreesen. 2022. "Reopening with Resilience. Lessons from Remote Learning during COVID-19: Europe and Central Asia." UNICEF Office of Research – Innocenti.
- Devine, Jim, Yves Punie, Panagiotis Kampylis, European Commission. Joint Research Centre, and Institute for Prospective Technological Studies. 2015. *Promoting Effective Digital-Age Learning: A European Framework for Digitally Competent Educational Organisations*. LU: Publications Office of the European Union.
- Digitalna Škola. 2020. "DIGITALNA ŠKOLA: Digitalno Okruženje Za Rad, Komunikaciju i Učenje Na Daljinu Koncept i Okvir Digitalne Škole [The Digital School: Digital Environment for Work, Communication and Distance Learning. The Concept and Framework of the Digital School]."
- Dreesen, Thomas, Spogmai Akseer, Matt Brossard, Pragya Dewan, Juan-Pablo Giraldo, Akito Kamei, Suguru Mizunoya, and Javier Santiago Ortiz. 2020. "Promising Practices for Equitable Remote Learning. Emerging Lessons from COVID-19 Education Responses in 127 Countries." Innocenti Research Brief. UNICEF Office of Research – Innocenti.
- EDUINO. n.d. "EDUINO Ambassadors." <www.eduino.gov.mk/eduino-ambasadori>, accessed 27 March 2023
- EPRD. 2020. "Crnogorski Okvirni Program Ključnih Kompetencija [Montenegrin Framework Program of Key Competencies]." Podgorica: EPRD Consortium.
- ETF. 2020. "Bosnia And Herzegovina: Education, Training And Employment Developments." European Training Foundation.
- . 2021. "Prioriteti u integraciji poduzetničkog učenja i poduzetničke ključne kompetencije u obrazovne sustave u Bosni i Hercegovini (2021– 2030) [Priorities in the integration of entrepreneurial learning and entrepreneurial key competencies in education in Bosnia and Herzegovina (2021-2030)]." Sarajevo: Ministry of Civil Affairs of Bosnia and Herzegovina; European Training Foundation.
- Eur-Lex. 2018. "Council Recommendation of 22 May 2018 on Key Competences for Lifelong Learning (Text with EEA Relevance)." Document 32018H0604(01).
- European Commission. 2018a. "A Credible Enlargement Perspective for and Enhanced EU Engagement with the Western Balkans." European Commission.
- . 2018b. "EU-Western Balkans: Six Flagship Initiatives." European Commission.
- . 2018c. "European Commission Launches Digital Agenda for the Western Balkans." June 2018.
- . 2020a. "Digital Education Action Plan 2021-2027: Resetting Education and Training for the Digital Age." COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. European Commission.
- . 2020b. *Shaping Europe's Digital Future*. LU: Publications Office of the European Union.

- . 2020c. “Strategic Plan 2020-2024 Directorate-General for Neighbourhood and Enlargement Negotiations- DG NEAR.”
- . 2020d. “An Economic and Investment Plan for the Western Balkans.” COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. European Commission.
- . 2021a. “2030 Digital Compass: The European Way for the Digital Decade.” COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS.
- . 2021b. “A Western Balkans Agenda on Innovation, Research, Education, Culture, Youth & Sport.” Publications Office of the European Union.
- . n.d. “Montenegro: Continuing Professional Development for Teachers Working in Early Childhood and School Education.”
- Eurostat. 2019a. “Households- Individuals’ Level of Digital Skills.” <https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I__custom_355577/default/table>, accessed 27 March 2023.
- . 2019b. “Households- Level of Internet Access.” <https://ec.europa.eu/eurostat/databrowser/view/ISOC_CI_IN_H/default/table>, accessed 27 March 2023.
- Ferrari, Anusca. 2013. *DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe*. Edited by Yves Punie and Barbara Brecko. LU: European Commission. Joint Research Centre. Institute for Prospective Technological Studies.
- Huibregtse, Ada. 2018. “Perspectives of Roma, Ashkali and Egyptian Youth on Decent Work Opportunities and Challenges in Kosovo.” International Labour Organization.
- Khan, Rownak. 2021. “The Right to Education Should Be Granted to All Refugee and Migrant Children.” *UNICEF Bosnia and Herzegovina* (blog). 2021.
- Kordić, Zorka, Tamara Srzentić, Marko Mrdak, Željko Vukčević, Mila Brnović, Jovana Bulatović, Almedina Vukić, Kristina Perazić, and Marko Savić. 2018. “Methodology for Policy Development, Drafting and Monitoring of Strategic Planning Documents.” Podgorica: Department for Coordination, Alignment and Monitoring of the Implementation of Strategy Documents defining Public Policies.
- Labrovic, Jelena, Ivana Kovacevic, Djordje Krivokapic, Erjon Mucaj, Maja Sotra, and Predrag Topic. 2021. “Digital Skills Needs and Gaps in the Western Balkans- Scope and Objectives for a Fully-Fledged Assessment.” Regional Cooperation Council.
- Leyen, Ursula von der. 2020. “State of the Union 2020- President von Der Leyen’s Speech.” European Commission.
- Mehmeti, Selim, Lindita Boshtrakaj, and Furtuna Mehmeti. 2019. “Mid-Term Evaluation: Implementation of Kosovo Education Strategic Plan 2017–2021.” Prishtina: Kosovo Education and Employment Network – KEEN.
- MESTI. 2016a. “Korniza Kurrikulare e Arsimit Parauniversitar Të Republikës Së Kosovës [Curricular Framework of Pre-University Education of the Republic of Kosovo].” Ministry of Education Science & Technology.
- . 2016b. “Kosovo Education Strategic Plan 2017-2021.” Prishtina: Ministry of Education, Science and Technology.
- . 2022. “(Draft) Kosovo Education Strategy 2022-2026.” Ministry of Education, Science, Technology and Innovation.
- . forthcoming. “(Draft) Kosovo Education Strategic Plan 2022-2026.” Prishtina: Ministry of Education, Science and Technology.
- MIDT. 2016. “Strategy for the Information Society Development 2020.” Podgorica: Ministry For Information Society And Telecommunications.
- Ministry of Civil Affairs. 2018. “Prioriteti u integraciji poduzetničke i digitalne ključne kompetencije u obrazovne sustave u BiH (2019- 2030) [Priorities in the integration of entrepreneurial and digital key competences in educational systems in BiH (2019- 2030)].” Sarajevo: Ministry of Civil Affairs.

- MJUDDM. 2021. "Strategija Digitalne Transformacije Crne Gore 2022-2026 Sa Akcionim Planom 2022-2024 [Strategy for Digital Transformation in Montenegro 2022-2026 with Action Plan 2022-2024]." Ministry Of Public Administration, Digital Society And Media.
- MON. 2020a. "Concept For Developing Systems For Distance Learning In Primary And Secondary Schools in the Republic of North Macedonia." Skopje: Ministry of Education and Science.
- . 2020b. "EDUINO on Television." Republic of North Macedonia Ministry of Education and Science. 2020.
- MORT. 2016. "Nacionalna Strategija Održivog Razvoja Do 2030 Godine [The National Strategy for Sustainable Development 2030]." Ministry of Sustainable Development and Tourism.
- MPLJMP. 2021. "Strategija Socijalne Inkluzije Roma i Egipćana [Strategy for Social Inclusion of Roma and Egyptians in Montenegro] 2021-2025." Ministry of Justice, Human and Minority Rights.
- MPNKS. 2021. "Strategija Za Digitalizaciju Obrazovnog Sistema 2022-2027 s Akcionim Planom 2022-i 2023 [Strategy for Digitalization of the Education System 2022-2027 with Action Plan 2022-2023]." Ministry of Education, Science, Culture and Sports.
- MRK. 2018. *The Republic of Macedonia Education Strategy For 2018-2025 and Action Plan*. Skopje: Ministry of Education and Science of the Republic of Macedonia.
- NDS. 2016. "National Development Strategy 2016–2021." Prishtina: Republic of Kosovo Government.
- Nikolić Vučinić, Arijana, Tamara Milić, Anita Marić, Jelena Knezevic, Jasmin Lukačević, Senka Klikovac, Aleksandra Trailović Šljivančanin, Irena Bogićević, and Danilo Boskovic,. 2019. "Montenegro Inclusive Education Strategy 2019-2025." Podgorica: UNICEF; Ministry of Education of Montenegro.
- Nikolić-Vučinić, Arijana, Ivana Mrvaljević, Olivera Nikolić, Veljko Tomić, Vesna Bulatović, Nada Durković, Aleksandar Vujović, et al. 2019. "Pisa 2015 Results and Education Policy Recommendations." Podgorica: UNICEF Country Office in Montenegro; Ministry of Education of Montenegro.
- OECD. 2019a. "Programme for International Student Assessment (PISA). Results from PISA 2018. Country Note: Bosnia and Herzegovina." Organisation for Economic Co-operation and Development.
- . 2019b. "Programme for International Student Assessment (PISA). Results from PISA 2018. Country Note: Montenegro." Organisation for Economic Co-operation and Development.
- . 2020. *Education in the Western Balkans: Findings from PISA*. PISA. Paris: OECD Publishing.
- OSCE. 2018. "'Two Schools Under One Roof' - The Most Visible Example of Discrimination in Education in Bosnia and Herzegovina." Organization for Security and Co-operation in Europe.
- Osmić, Amer, Ivana Zečević, Sanel Huskić, Srdjan Dušanić, and Lamija Husić. 2021a. "Assessment of the Teachers' Needs in Distance Learning and Blended Learning in Primary and Secondary (and TVET) Schools in Bosnia and Herzegovina During the Coronavirus Pandemic."
- . 2021b. "Assessment on the Quality of E-Learning and Blended Learning in Elementary and Secondary Education (and TVET) in Bosnia and Herzegovina during the COVID-19." Banja Luka and Sarajevo: UNICEF; UNESCO.
- Panjeta, Almir. 2021. "The Best of Teaching Practices in One Place." 2021.
- Pečenković, Vildana, and Nermina Delić. 2022. "Inclusion of Migrant and Refugee Children in the Education System: Exploring and Overcoming Language and Social Boundaries in the Una-Sana Canton, Bosnia and Herzegovina." *Journal of Borderlands Studies*, July, 1–18.
- Petrak, Laura, and Nora Jusufi. 2021. "Rapid Socio-Economic Impact Assessment of COVID-19 in Kosovo." Prishtina: UNDP, UN Women, UNFPA, UNKT.
- Poleschuk, Svetlana, Andrea Soldo, and Thomas Dreesen. 2022. "Unlocking Learning: The Use of Digital Learning to Support the Education and Inclusion of Refugees and Migrant Children in Bosnia and Herzegovina." Florence: UNICEF Office of Research – Innocenti.
- Reactor – Research in action. 2020. "Experiences and Attitudes about Distance Learning: Initial Findings from the Survey Carried out with School Directors, Teachers and Parents. June 2020." Ministry of Education and Science, Bureau for Development of Education, UNICEF, British Embassy in Skopje.

- Redecker, Christine. 2017. *European Framework for the Digital Competence of Educators: DigCompEdu*. Edited by Yves Punie. Luxembourg: Publications Office of the European Union.
- Rustempasic, Dzenana. 2021. "The E-Learning in Bosnia and Herzegovina Classrooms." In *Education at the Intersection of Globalization and Technology*, edited by Sharon Waller, Lee Waller, Vongai Mpofu, and Mercy Kurebwa, 134–214. IntechOpen.
- Taulo, Wongani Grace, Jessica Bergmann, Thomas Dreesen, and Dita Nugroho. 2020. "Unlock Education for All: Focus on Children Furthest Behind." Background paper prepared for the Save Our Future white paper Averting an Education Catastrophe for the World's Children.
- Tomić, Slađan. 2020. "Online Learning – an Opportunity to Improve the Quality of the Educational Process." *UNICEF Bosnia and Herzegovina* (blog). 2020.
- UN. 2015. "Transforming Our World: The 2030 Agenda for Sustainable Development." Resolution adopted by the General Assembly on 25 September 2015. United Nations.
- UNESCO. 2018. *UNESCO ICT Competency Framework for Teachers: version 3*.
- . 2020a. "Education: From School Closure to Recovery." COVID-19 Recovery. 2020.
- . 2020b. "Global Education Monitoring Report 2020: Inclusion and Education: All Means All." Paris: UNESCO.
- UNESCO, UNICEF, The World Bank, and OECD. 2021. "What's Next? Lessons on Education Recovery: Findings from a Survey of Ministries of Education amid the COVID-19 Pandemic."
- UNESCO, UNICEF, UNDP, UNHCR, World Bank, and UN Women. 2015. "SDG4-Education 2030, Incheon Declaration (ID) and Framework for Action. For the Implementation of Sustainable Development Goal 4, Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All."
- UNICEF. 2019. *Every Child Learns UNICEF Education Strategy 2019–2030*. UNICEF.
- . 2020a. "93% of Children in Bosnia and Herzegovina Have Access to Smartphones." *UNICEF Bosnia and Herzegovina* (blog). 2020.
- . 2020b. "LIVING THE PANDEMIC AS A NEWBORN, ADOLESCENT AND YOUTH. Assessment of the Impact of COVID-19 on Children and Women in Kosovo." UNICEF Kosovo.
- . 2020c. "Situation Analysis of Children in Bosnia and Herzegovina."
- . 2020d. "Statistical Snapshot: 2019-2020 MICS in Kosovo & 2019-2020 MICS with Roma, Ashkali and Egyptian Communities in Kosovo." UNICEF Kosovo.
- . 2021a. "LearnIn Implementation Plan 2020 – 2025." UNICEF Regional Office for Europe and Central Asia.
- . 2021b. "UNICEF Strategic Plan 2022- 2025." United Nations Children's Fund.
- . 2022a. "Education Pathways in Roma Settlements: Understanding Inequality in Education and Learning. Findings from MICS6 in Kosovo, Montenegro, North Macedonia and Serbia."
- . 2022b. "Educators' Digital Competency Framework." UNICEF Regional Office for Europe and Central Asia.
- UNICEF, and IPSOS. 2019. "Teachers in Montenegro and the Internet." UNICEF Montenegro, Ipsos Strategic Marketing.
- UNICEF, and UNDP. 2021. "Social Impacts of COVID-19 in Bosnia and Herzegovina."
- UNICEF, and UNESCO. 2020. "Rapid Situation and Needs Assessment- Education in Bosnia and Herzegovina (Phase II)." UNICEF Bosnia and Herzegovina and UNESCO Bosnia and Herzegovina.
- . 2021a. "Analysis of the Existing Elements of ICT Infrastructure for Primary, Secondary and Higher Education in the Administrative Units of Bosnia and Herzegovina." UNICEF; UNESCO.
- . 2021b. "Technical Standards for Tools of Information and Communication Technology in Education Systems in Bosnia and Herzegovina." UNICEF; UNESCO.

USAID. 2017. "Brief Overview of Main Challenges in Primary and Secondary Education in Bosnia and Herzegovina."

Vuorikari, Riina, Stefano Kluzer, and Yves Punie. 2022. *DigComp 2.2, The Digital Competence Framework for Citizens: With New Examples of Knowledge, Skills and Attitudes*. LU: European Commission. Joint Research Centre.

Zavod za školstvo, and UNICEF. 2021. "Vodič Za Nastavnike/Ce UNAPREĐIVANJE KVALITETA I INKLUZIVNOSTI OBRAZOVANJA U DIGITALNOM OKRUŽENJU [A Guide for Teachers Improving the Quality and Inclusiveness of Education in The Digital Environment]." Podgorica: Montenegro Institute of Education; UNICEF.

unicef  | for every child