

Discussions on Education in Serbia During the COVID-19 Lockdown: A Twitter-Based Analysis^{1, 2}

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The COVID-19 pandemic led to unprecedented changes in different aspects of human life, including a significant impact on education systems. This study aimed to explore the public perception of education during the initial five weeks of emergency remote education (ERE) in Serbia in response to the COVID-19 outbreak. In a five-week timeframe starting from March 17, 2020, we collected tweets on the topic of education using MAXQDA software, resulting in a final dataset of 1,777 tweets. The tweets were analyzed using qualitative content analysis and interpreted through the lens of Cultural-Historical Activity Theory. The results of the research show a

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decreasing trend in the frequency of posts related to education, starting from 1,402 in the first week to 92 tweets in the fifth week. The emotional tone of the tweets was predominantly negative in the first five weeks of the pandemic, with the percentage of tweets with a negative connotation increasing over time. The analysis of the content of the tweets highlights key themes of public discussion and reveals contradictions between ERE and pre-pandemic schooling. The Twitter community praised the use of new tools and teachers' efforts but criticized adherence to rules of conventional schooling, as well as the learning content for being overly demanding and irrelevant. The study results suggest that ERE during the lockdown increased the visibility of teaching, offering potential for democratization of education, while the invisibility of learning created risks to educational equity by obscuring the struggles of learners.

Keywords: COVID-19 pandemic, cultural-historical activity theory, emergency remote education (ERE), social media, education.

Never let a good crisis go to waste

(widely attributed to
Winston Churchill)

Why should we continue exploring the impact of the COVID-19 crisis on education?

A crisis is defined as an event or series of events that disrupts a system's equilibrium, leading to a harmful state of disequilibrium (Lawrence et al., 2024). Understanding the impact of crises on social systems, including education, is increasingly urgent in today's era of "polycrisis" (Lawrence et al., 2024) or "permacrisis" (Deviatnikova, 2023), where overlapping, continuous crises bring heightened uncertainty. Moreover, today's high level of interconnectivity, as Lawrence (2024) points out, differentiates the present from past eras by allowing the consequences of crises to spill over more quickly across regions and systems while simultaneously amplifying global discourses on these challenges. In this article, we will focus specifically on the COVID-19 pandemic and its impact on education, as we argue that it possesses unique characteristics that distinguish it from other crises we have experienced so far.

Firstly, the COVID-19 pandemic necessitated physical distancing measures that made face-to-face interactions seem threatening. Due to these, the initial global response to the COVID-19 outbreak included widespread school closures and the shift towards emergency remote education (ERE) (Bozkurt & Sharma, 2020; Shim & Lee, 2020). The forms of ERE varied by country, encompassing approaches like teaching via online platforms, televised lessons, take-home packages, and radio broadcasts (UNESCO et al., 2020). These approaches, with the exception of online platforms, predominantly supported one-way communication from teachers or schools

to students, leaving significant gaps in interaction. To address these gaps, many educational systems supported use of different/new communication modalities, such as messaging apps, emails, and phone calls (UNESCO et al., 2020). Despite these efforts, regular communication between key educational participants – teachers, students, parents, and administrators – was disrupted during lockdown. This disruption particularly affected participants from low-income countries (UNESCO et al., 2020), and marginalized groups (Hammerstein et al., 2021; Jovanović et al., 2022), leaving many isolated. This breakdown in communication is particularly concerning, as research highlights the critical role of social cohesion, relatedness, and support in fostering recovery during crises (Comfort, 2005; Cutter et al., 2003; Longstaff, 2005; Norris et al., 2008; Saja et al., 2018). School closures disrupted these essential processes, depriving many communities of the resources they relied on to navigate and manage the crisis effectively.

Secondly, though pandemics are not new in human history, the COVID-19 pandemic has been labeled as an unprecedented health crisis due to its massive and global toll (WHO, n.d.). In the context of education, localized crises are often managed through policy learning (Raffe & Spours, 2007) or policy referencing (Steiner-Khamsi, 2006), both referring to instances where policy solutions from other systems inform local responses. However, the COVID-19 pandemic made this process unfeasible by impacting education systems worldwide almost simultaneously, necessitating immediate responses without the benefit of prior knowledge or established models from other contexts. This simultaneous global challenge is underscored by findings from the UNESCO et al. (2020) survey, which revealed that all surveyed countries implemented school closures nearly at the same time in March 2020 with slight regional variations in duration. This concurrent disruption across education systems significantly limited opportunities for policy learning and referencing, as no system had sufficient time to observe and adapt lessons from others.

Thirdly, COVID-19's global reach meant that everyone was affected, though not all experienced it in the same way or to the same degree (Simić, 2024). First-response surveys (e.g., Eurydice, 2022; UNESCO et al., 2020) have shown that, although countries generally managed to ensure the continuation of education by establishing system-level mechanisms for remote learning, they were more or less successful in supporting vulnerable groups of students in accessing remote schooling and receive additional support. The proportion of households or students reporting problems with access to digital devices and/or connectivity during the first round of school closure varied greatly across countries, from 4% in Finland to 30% in Germany and France (Thorn & Vincent-Lancrin, 2021). Later data on the effects of schooling during the first wave of COVID-19 showed greater

learning losses for disadvantaged students compared to their peers in several countries, including England, the Netherlands, the USA, Belgium, France, and Italy (Thorn & Vincent-Lancrin, 2021).

Finally, due to the global nature of COVID-19, we as researchers were participants in the pandemic landscape, which made it particularly challenging to fully articulate and analyze the context in which we operated. Reflecting on these experiences with temporal distance is crucial for developing a deeper and more comprehensive understanding of the dynamics and impact of COVID-19.

All of these aspects contribute to the argument that the COVID-19 crisis had unique features, which strongly impacted education and continue to affect it, making the exploration of its influence on education still a relevant topic.

What should we consider when discussing Serbia's educational response to the COVID-19 pandemic?

Although initial responses to the COVID-19 pandemic were similar across educational systems (Gouëdard et al., 2021), many measures were adapted to each system's unique socio-historical context. Therefore, understanding the specific context allows us to comprehend the rationale behind certain educational measures and their impact.

In the Republic of Serbia, as in many other countries (UNESCO et al., 2020), the COVID-19 pandemic disrupted the second half of the 2019/2020 school year. The education system was forced to adapt quickly by implementing ERE at all educational levels (Rajković et al., 2023). Given that television is the most accessible medium in Serbian households (SORS, 2024), the initial system-wide response involved broadcasting TV lessons on national television services, starting on March 17, 2020 (Plazinić, 2021). The daily schedule for TV lessons was designed to replicate the typical school day before the pandemic, with lessons beginning at 8 a.m. These TV lessons covered the selected general education subjects, following the prescribed curriculum, but were adapted to suit the format of the new medium (Marković Krstić & Milošević Radulović, 2021). In addition to the subject lessons, 42 shorter activities were recorded and broadcast, with a focus on health, physical activity and psychological well-being (Stojanović, 2020). For students without access to online classes or TV lessons, schools were required to provide printed learning materials (Baucal et al., 2022). In April 2020, an online platform was introduced to further support remote learning, offering recordings of the TV lessons along with interactive tests to enhance student engagement (Baucal et al., 2022). These modalities ensured access to education for 95% of primary school students, with 96% of students with disabilities included in some form of ERE (MoESTD & UNICEF, 2020). However, significant disparities were evident among students from the Roma national minority: only 56% participated in TV or online classes, 27%

received alternative forms of support, and 17% were excluded from schooling entirely (MoESTD & UNICEF, 2020). These disparities highlight the unequal impact of ERE on different student groups in Serbia.

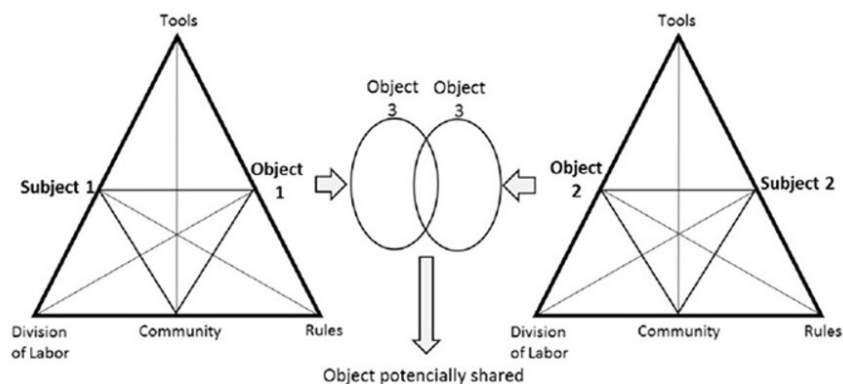
The transition to ERE introduced significant shifts in teaching modalities, exposing gaps in preparedness among educators. Research on online teaching practices in Southeast Europe underscores this challenge, revealing that prior to the pandemic, only 33% of teachers in Serbia had any experience with remote teaching, 12% had no experience, and 55% had limited familiarity (Nikolić & Milojević, 2020). Concurrently, the abrupt changes demanded swift adaptation from educational stakeholders (Gedera et al., 2023), with parents experiencing a particularly expanded role. Baucal et al. (2022) note that parents assumed a plethora of roles, including providing learning support, mediating interactions between students and teachers, monitoring educational activities, and offering emotional support. These challenges were particularly emphasized for parents of children who need additional support (Jovanović et al., 2024).

The previous section shows how the COVID-19 pandemic disrupted the education system, forcing everyone involved to promptly adapt to a situation they had never encountered before. What makes a crisis particularly threatening isn't just the uncertainty it brings, but the education system's inability to adjust effectively to rapidly changing circumstances (Lawrence et al., 2024). Crises like one tend to expose the system's entrenched habits, strengths, and vulnerabilities, and reveal just how prepared (or unprepared) it is to respond to unexpected challenges. To better understand how the Serbian education system adapted to the uncertainty brought by the COVID-19 pandemic, we will use the framework of Cultural Historical Activity Theory (CHAT).

Can CHAT help us understand the impact of COVID-19 on education?

To explore the dynamics of the transition from conventional school education to ERE, we used Cultural Historical Activity Theory (CHAT), a framework that has proven valuable for understanding the collaboration between two or more activity systems (Postholm & Vennebo, 2021). CHAT focuses on the "boundary" between two activity systems and the potential space for crossing it, recognized as a site of learning (Scheme 1). The core thesis of the theory concerns the development of "conceptual tools for understanding dialogue, multiple perspectives, and networks of systems of activity interaction" (Engeström, 2001, p. 135). In other words, it opens up the possibility of examining the extensive transformations that occur when two activity systems aim to achieve a shared object (Barnard, 2010). In the context of our research, we consider conventional school education and ERE as two activity systems whose common object is the stimulation of students' development and learning.

Scheme 1. Contradiction between two activity systems



Note. Source: Mayisela, 2017.

In activity theory, the term contradiction is used to refer to a mismatch within elements, between them, between different activities or different activity systems (Engeström, 2001; Foot, 2014; Wilson, 2014)⁴. However, as authors (Engeström, 2001; Wilson, 2014) emphasize, contradictions are not seen as problems, but rather as potential sources of learning. Contradictions play an important role in the development of activity systems because they represent a “collective mirror” creating opportunities for those involved to identify “sources of disruption” and possible pathways that lead them to expansive learning (Foot, 2014, p. 338).

Over time, the contradictions could become greater obstacles for the subjects, causing them to critically rethink the situation and seek solutions (Wilson, 2014). This happens through the process of expansive learning, which moves from the bottom up, i.e., from abstract to concrete realization. In other words, in order to “resolve” these contradictions, subjects must be willing to question and deviate from existing norms and rules (Engeström, 2001). This willingness leads to the adoption of new tools, new rules and a new division of labor. However, it is not guaranteed that expansive learning and system development will always take place, as contradictions between systems may persist if unrecognized (Wilson, 2014). Similarly, Engeström et al. (1999) emphasize that contradictions are not the only source of change and development, coordination and collaboration can also be key points in creating new and innovative practices and achieving shared objects.

Having all this in mind, we would like to explore how the contradictions emerging from the interaction between pre-pandemic schooling and pandemic-induced ERE have been perceived by the public, a neglected stakeholder in educational research.

4 See also: Batiibwe, 2012; Miles, 2020; Sanino & Engeström, 2018; Yamagata-Lynch, 2010.

Aim of the Study

This study aims to explore the public perception of education in Serbia during the first five weeks of COVID-19 lockdown by analyzing Twitter users' opinions. Specifically, the study addresses two research questions: (1) To what extent was the topic of education prominent in tweets, and what emotional tone accompanied it? and (2) How does the public interpret the contradictions between pre-pandemic school education and ERE during the lockdown?

Method

Social networks have become common platforms for interaction and information exchange, particularly during crises. During such times, social networks saw significant growth in usage, as people turned to them not only for real-time updates but also for social connection, solidarity, and emotional support (Castro Martinez et al., 2021; Nabity-Grover et al., 2020; Vergura et al., 2021). From a research perspective, social networks provide access to rich and dynamic data, offering insight into wider public sentiment and behavior during significant events, like the COVID-19 pandemic. Also, social media posts provide public opinion in (near) real-time, making them valuable for the policymaking process (Vydra & Kantorowicz, 2021). During the pandemic, Twitter in particular, emerged as one of the most widely used platforms, playing a central role in shaping public opinion and disseminating information (Castro Martinez et al., 2021).

Given the advantages of social media data in capturing diverse, spontaneous, and timely expressions of public opinion, we employed Twitter⁵ posts to investigate how the public perceived and responded to changes in education during the first weeks of the pandemic.

Data collection

Data were collected from the social media platform Twitter using MAXQDA software once a week over a five-week period, starting on March 17, 2020. Due to MAXQDA's retrieval limit of 10,000 tweets from the most recent seven days, not all available tweets were included. However, the collected tweets were randomly sampled from the available pool to ensure a reliable representation of common trends in public discourse.

Search queries such as 'teaching', 'learning', 'teacher', 'education', 'school', and 'class' were used to identify relevant tweets, with only tweets from public accounts included in the dataset. In total, 4,617 tweets were collected. After

5 When the data for this study were collected, the platform was known as Twitter; it has since been rebranded as X.

filtering for tweets published in Serbian and those pertinent to the educational context, the final dataset consisted of 1,777 tweets.

Data analysis

The data were analyzed using a deductive qualitative content analysis approach informed by Cultural Historical Activity Theory (CHAT), following the framework of Elo & Kyngäs (2008). The analysis process consisted of four stages.

In the first stage, researchers familiarized themselves with the data and established the tweet as the unit of analysis. In the second stage, a sample of the data was analyzed independently by researchers, who identified manifestations of different elements of the activity system based on CHAT. This initial coding demonstrated a high level of agreement among researchers. Using an inductive approach, segments within each code were further explored to collaboratively define subcodes. This iterative process provided more nuanced definitions of the codes and enhanced the trustworthiness of the analysis. At this stage, an additional code capturing emotional tone was introduced. Following consensus on the coding framework, the remaining data were divided among four researchers for independent coding. In the final stage, the last author [IVŠ] iteratively reviewed coded segments, codes, and interpretations, ensuring the confirmability of the analysis (Lincoln & Guba, 1985). A more detailed overview of the coding system is available in Table 1.

Table 1

Coding system with code definitions and examples of coded segments

Codes	Code definitions	Examples of coded segments
Tools	Mentions of different tools and resources used in educational process, including digital platforms, learning materials, teaching methods, and activities.	<i>Children from Roma neighbourhoods who don't have internet or smartphones receive printed materials in their schools, which, together with lessons on RTS, allow them to follow the classes.</i>
Subject	Mentions and comments on teachers and students as key educational participants engaged in the activity system. These comments could describe the goals, motivations, competencies, emotions, and actions of both students and teachers. Moreover, this code includes descriptions of differences in the learning environments in which the ERE took place.	<i>[...]Actually, they don't complain as much about the 'school' itself, but about the teachers...Probably, the overwhelmed teachers don't have a sense of what needs to be done and what can be done this way, and end up stressing themselves and the students out...</i>
Object	Comments on the aims of the education toward which the activity is directed, including remarks on the relevance, complexity, and appropriateness of the learning content.	<i>Our teacher prepared a special lecture for us because what was on TV for our age group was covered with the children last year. I'm not laughing, I'm shocked.</i>

Codes	Code definitions	Examples of coded segments
Community	Comments describing the actors involved in the activities of the ERE, beside teachers and students.	<i>Respect to every teacher who taught today and will teach in front of the cameras, to all educators. I also understood that a mistake occurred [during televised class], as the mentioned teacher said, to see if the students are following. No, the students are not following, the parents are following and looking for a flaw in everything.</i>
Division of labor	Comments on the division of roles within the ERE community, such as the coordination between different teachers or the complementarity of roles between teachers and parents.	<i>Hey folks, parents, stop sending 100 messages a day to your children's teachers. Take it slow, they don't know how everything works either, they're learning this method of education too. Do you realize that that teacher has 30 kids, and each of you sends them 100 messages a day? You're driving them crazy.</i>
Rules	Comments on the rules, norms, and regulations that constrain or enable the performance of the ERE, such as those related to attendance or appropriate communication times.	<i>Being kicked out of class in 2020: The teacher removed Marko from the group.</i>
Emotional tone	Positive, negative, ambivalent (both positive and negative), or neutral (uncertain tone) statements regarding ERE.	<p><i>Positive: [...]Hats off for the effort to organize online teaching and the invaluable experience the students will gain through this method of work.</i></p> <p><i>Negative: The lack of purpose in online classes is evident in the fact that even students who had 2 [with 1 being the lowest grade] can now easily open their books during a test and still receive an excellent grade.</i></p> <p><i>Ambivalent: This is not just regular distance learning – which I think is a great thing – this is truly an emergency situation in every sense, and it was necessary to adjust the curriculum, not just burden the kids further, like with a working Saturday we are having today.</i></p> <p><i>Neutral: If I turn on my laptop now to do this for school, I'll have to watch an episode as well.</i></p>

Results

The findings presented here portray the frequency and emotional tone of education-related tweets, along with Twitter users' perceptions of the education process in Serbia during the first five weeks of lockdown.

Frequency and Emotional Tone of Education-Related Posts

In the initial week of lockdown, education-related tweets dominated the discourse, accounting for 1,402 posts, or approximately 79% of the total sample (Figure 1). This significant spike highlights the immediate public concern and attention surrounding education during the early adjustment period. However, following this initial prominence, a sharp decline in the number of education-related tweets was observed. This finding illustrates that although the abrupt changes in the educational system initially attracted substantial interest, this focus shifted relatively quickly as the pandemic unfolded and other concerns came to dominate public conversation (Abd-Alrazaq et al., 2020).

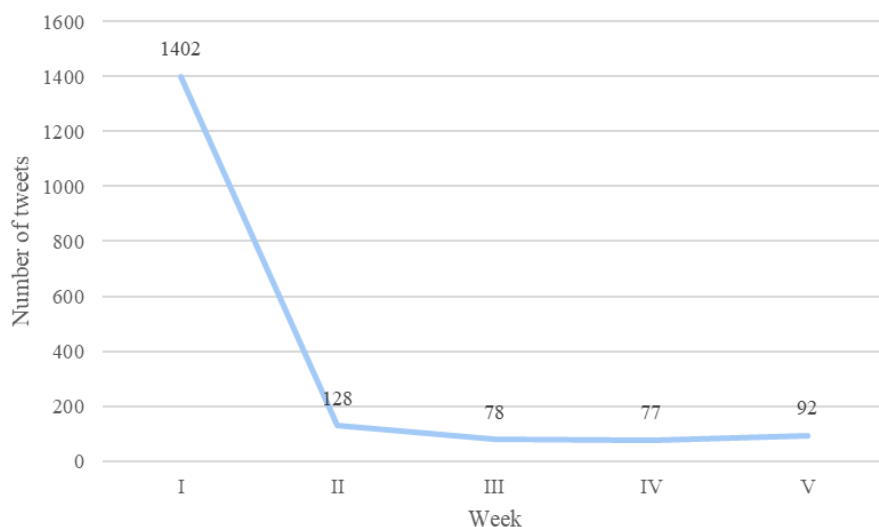


Figure 1. Importance of education in social media discourse

The emotional tone of these tweets also evolved over time. While the emotional tone was predominantly negative throughout the first five weeks of the pandemic (Figure 2), the proportion of negative tweets increased significantly over time, rising from 40.8% in the first week to 66.7% by the fifth week. In contrast, the percentage of positive tweets decreased markedly, falling from 26.7% in the first week to just 12.3% by the fifth week. Nonetheless, caution should be exercised in interpreting this change in sentiment solely as dissatisfaction with education. Wang et al. (2024) found that temporary spikes in negative emotions coincided with significant events, such as high daily infection rates, indicating that the general tone of the broader context may influence the sentiment of posts on specific topics.

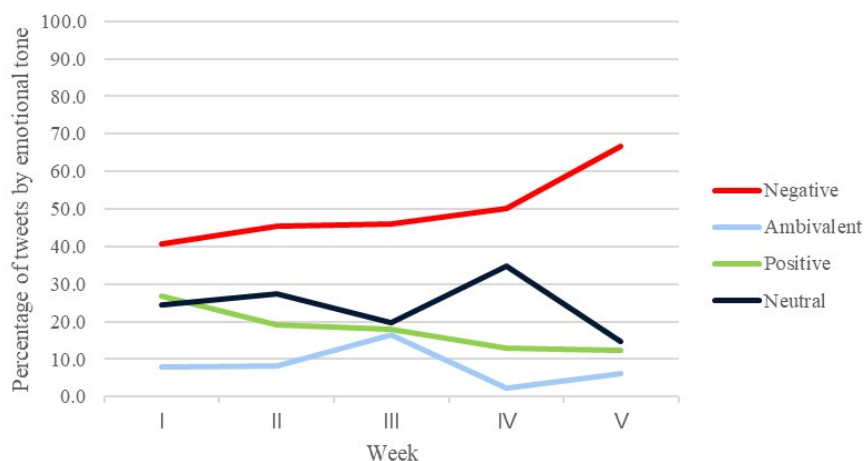


Figure 2. Emotional tone of education-related tweets

Analysis of the most retweeted content over five weeks revealed shifts in prominent topics. In the first week, two types of posts dominated, each receiving 80 – 100 retweets: posts providing general information about the availability of televised lessons and supporting resources, and tweets expressing appreciation for teachers' efforts in delivering TV lessons. By the second week, retweet activity around education-related content had declined, with no posts achieving similar prominence. In the third week, a humorous tweet depicting parents' intense involvement in ERE became popular with over 200 retweets: the sentiment of the post remained positive, highlighting admiration for parents taking on the role of teacher. However, during the fourth and fifth weeks, a shift in sentiment was observed. The most retweeted posts, with approximately 20 retweets each, were critical, focusing on the perceived irrelevance, inaccuracies, or deliberate fabrication of educational content.

COVID-19's Influence on Teaching and Learning

The findings reveal that the changes brought about by the COVID-19 pandemic sparked widespread discussions in the Twitter community on various elements of the education system. Tweets discussing the implementation of new *tools* were the most prevalent and predominantly conveyed a positive emotional tone. These posts often highlighted the novelty of these tools and commended the efforts teachers made to adapt to them. Several tweets emphasized the learning process required to utilize these tools, reflecting on teachers' agency. For instance, one participant shared: "Our

teacher organized everything via Viber, sending materials and tasks daily. Last night, we received Serbian, Math, and English. The kids complete the tasks and send pictures of their work by 3 PM. Teacher will also send videos explaining the lessons.” Conversely, tweets with a negative tone typically criticized the underutilization of available tools, often citing examples where teachers sent learning materials via email instead of exploring the broader capabilities of digital platforms.

The introduction of new tools made the teaching process more visible, while teachers as *subjects*, particularly those delivering TV lessons, were placed in the spotlight. This heightened visibility sometimes subjected them to scrutiny, including negative evaluations of their knowledge, enthusiasm, instructional methods, and even their physical appearance. Such assessments were occasionally expressed with an ironic tone, as seen in a tweet: “*A teacher full of enthusiasm, really knows how to keep the kids’ attention... with that super exciting flat tone. Bet they’re LOVING it 😊.*” However, the majority of tweets actively countered this critical tone, emphasizing support and solidarity for teachers navigating these unprecedented challenges. Many posts acknowledged the difficult circumstances teachers faced, including the stress and lack of preparation for being on camera. For example, one tweet urged compassion: “*Support for teachers who, likely for the first time and with insufficient preparation, stepped in front of cameras. Anyone who has never been in front of a camera cannot imagine how stressful and frightening it can be. So, less complaining and a little more support. That’s what we all need most right now.*” Other tweets expressed admiration for teachers’ professionalism in the new circumstances in a more indirect manner. The most retweeted post in the first week of lockdown captured this sentiment: “*Watching the school program on RTS3, and these teachers are wonderful, truly wonderful. Teaching in an empty classroom while being filmed, especially for someone with no prior experience in recording, is incredible. Hats off to them—they’re amazing.*” These findings highlight the double-edged nature of visibility brought by ERE, where both the professional and personal aspects of teaching were subjected to public scrutiny. While this increased emotional pressure on teachers in an already uncertain situation, it also led to widespread recognition of their efforts.

The new tools not only brought teachers and their teaching practices into focus but also made teaching as *object* of education more visible to both educational participants and the public at large. This visibility often led to critiques regarding the relevance and ideological underpinnings of the curriculum, particularly with regard to topics related to history teaching, as mentioned in the most retweeted post in the fifth week of lockdown: “*If it*

weren't for online teaching, we wouldn't know what nonsense and falsifications being taught to students." Other curriculum-related criticism addressed the amount and complexity of content covered and its appropriateness for specific age groups. One such critique came from a student's brother struggling to assist with an assignment in a field he studied at university: *"I'm helping my brother with his online biology test for elementary school, and I can't answer half the questions even though I graduated from the Faculty of Biology. The teachers who create these tests must be from another planet. They give them sentences with blank spaces where words are missing, and the students are supposed to know which words to fill in."*

As students needed access to online tools, the skills to use them, and specific knowledge to complete tasks, this required the involvement of a wider *community*, including extended family members and friends. As one tweet humorously illustrates: *"Pretty sure every kid in my family as well as the neighbors has called me to set up their e-classroom for online learning. Helped them all out and almost lost my mind doing it 😊"*. As remote learning took place within the home, household members often reluctantly became part of the learning community. This involvement sometimes led to the negotiation of competing needs, which in turn influenced family dynamics. For example, one tweet captured this adjustment: *"Called my sister, and she was like, 'Can't talk, we're recording a music class for the teacher 😊.' Meanwhile, my brother-in-law is jamming on the accordion, and my niece who is in second-grade is belting out the Spring Song 🎵😊"*. In many cases, tweets highlighted how remote learning disrupted the sense of community that existed in pre-pandemic schooling, particularly by isolating students from each other and from their teachers: *"Never thought I'd say this, but I actually miss school. Miss my friends, and yeah, even the worst teachers. Can't deal with this COVID stuff anymore, just give me school back."*

The transition to remote learning also led to an intensification, expansion, and multiplication of roles among educational participants, particularly parents. Families assumed additional responsibilities traditionally handled by schools. The most retweeted posts in the third week following lockdown (Image 1) illustrated how a mother navigated this new reality, juggling between her roles as both a teacher and a parent.

Image 1. Tweet depicting parent taking the role of teacher



Note. Image of a door with a humorous list of rules that a mother — teacher wrote for her children to minimize disruption while teaching an online class.

The involvement of multiple “teachers” – both professional educators and family members – further complicated the process, highlighting the need for better alignment between the school and family system, as well as among different teachers. While these tensions around the division of labor were sometimes expressed humorously, they were frequently accompanied by a sense of overwhelming strain. One tweet captured this sentiment: “No school, so now teachers are making Viber groups for every subject: SERBIAN, ANALYSIS, CHEMISTRY... And now a new one: LET’S DO EXERCISES – PHYSICAL ED. I’m legit crying, this is getting out of hand😭”.

Additionally, the varying teaching plans created a need to coordinate multiple learning modalities (e.g., online platforms, TV lessons, Viber messages), which was often discussed in tweets. Some described how teachers were managing these different modalities on their own. One tweet reflected this frustration: “They’ve completely lost it. The pressure wasn’t this bad when they were going to school. My two kids, in grades 1 and 4, either I can’t organize them, or the teachers just can’t align with RTS, and both are mandatory. Though, after 7 days, they’ve finally settled into it, and it’s much easier now.”

While many tweets highlighted the significant involvement of family members in ERE, they also pointed out how these efforts remained largely invisible to teachers. Furthermore, some tweets expressed confusion about the roles of supporters and learners, with family members depicted not

as learning alongside the child but as learning in place of the child. This suggests that the learners and the process of learning remained largely invisible during this time. Moreover, the physical distance inherent in ERE made it more challenging for teachers to observe students' presence and engagement, further complicating the enforcement of conventional school rules. The contradictions between conventional in-person school rules and the realities of ERE were most apparent in areas such as attendance, participation, communication schedules, and learning assessments. Many tweets humorously highlighted these absurdities: *"Did you know that my child's teacher is marking absences in the Viber group? Like—who wouldn't have come to school today if it weren't for the state of emergency? She's baffled too but says it's what she was instructed to do! Seriously!?"* Since ERE usually took place within the home it also introduced contradictions between the family and school activity systems. Rules governing classroom conduct, such as dress codes or restrictions on eating and drinking, often clashed with the informal and personalized nature of the home environment: *"My godson, listening to a second-grade lesson today, says he likes this new school. "Now I can eat during class!"* 😊

The findings reveal public engagement in discussions about education during lockdown, emphasizing the crisis as a period of significant change. These discussions highlighted the tension between new educational practices and the persistence of old habits of the system, portraying the crisis as a dynamic time of transformation – one that brought frustration and dissatisfaction, but also humor and support.

Discussion

The COVID-19 pandemic was a novel collective experience that brought about uncertainty and a need for adaptation. As researchers in education, we were prompted to explore what was happening with education during this time and what role education played in public discussion throughout the pandemic. Therefore, this study aimed to examine the prominence and emotional tone of education-related discussions on Twitter, as well as the public perception of the contradictions between pre-pandemic schooling and ERE in Serbia during the first five weeks of the COVID-19 lockdown. Due to physical distancing measures during the pandemic, public discussion migrated to social networks, prompting us to turn to Twitter as a platform to explore responses to our research questions.

Our analysis shows that initially education was a prominent topic in tweets during the transition to remote learning but quickly faded as other issues gained attention (Abd-Alrazaq et al., 2020). The emotional tone of tweets was predominantly negative throughout the lockdown and grew

increasingly so over time, consistent with findings from other studies. For instance, Ewing & Vu's (2021) study in Australia noted an initial wave of satisfaction as parents valued the chance to slow down and spend more time with their children. However, frustration and exhaustion soon emerged as dominant themes, reflecting challenges in balancing work with children's educational needs. Similarly, our findings suggest that the initial optimism and interest in online learning quickly gave way to a critical reassessment. As the pandemic unfolded, many began to question the quality of the education system rooted in traditional paradigms. This was further compounded by teachers' continued efforts to incorporate traditional educational tools and rules into the context of ERE.

This leads us to the question, what kind of discussions on education in Serbia did COVID-19 spark among Twitter users, and how have these changes influenced their engagement with education? From a CHAT perspective, the shift to ERE created a new activity system, distinct from pre-pandemic schooling, with altered tools and roles, but a shared goal of promoting student learning and development. The new system comprised new tools – televised lessons and supporting digital tools. Public opinion generally praised the rapid adoption of these tools by teachers, despite their limited prior experience (Nikolić & Milojević, 2020). Teachers were seen as being in a particularly difficult position, stepping away from their usual practice of teaching 30 students behind closed doors to delivering public lessons and managing remote communication. This abrupt shift separated teaching and learning processes, significantly increasing teachers' workloads, particularly the preparation of materials in advance, assessment of student work, and creation of new content. McPherson & Pearce (2022) also observed similar challenges, noting the demand for teachers to swiftly adapt to digital environments while ensuring communication, engagement, and learning outcomes with minimal prior experience in online teaching.

Furthermore, the findings of this study suggest a shift in the division of labor within the new ERE system compared to pre-pandemic schooling. Family members became more actively involved in the teaching-learning process, often intersecting with it. Similar to other studies (e.g., Baucal et al., 2022; Khalid & Singal, 2022; Kurum Tiryakioğlu, 2024), our research found that parents and family members played key roles in establishing the new learning environment. They assisted with setting up e-learning accounts, reorganizing daily routines, monitoring students' progress, clarifying instructions and content, and even participating in completing assignments and tasks.

The disruption of the teaching-learning process, with its temporal and space gap, obscured students' learning progress, making it difficult for teachers to track and support students' learning. Similarly, Lee et al. (2021)

noted that while ERE emphasized teachers' roles and responsibilities, little attention was given to students' contributions. The invisibility of students' learning hindered teachers' ability to conduct formative assessments and adapt their teaching to meet individual needs. The lack of insight into students' progress likely contributed to public perception of disorientation, asynchrony, and inefficiency in teaching practices while also posing risks to educational equity.

Although the new system was seen as distinct, it shared a common object with the old one: supporting development and learning. ERE was built around the existing educational plan and curriculum, delivering the same content through new tools like televised lessons. These tools, however, exposed previously invisible aspects of learning content, sparking public debate about its relevance, accuracy, and complexity. Another contradiction emerged from attempts to directly and uncritically apply old rules to the new system, such as teachers tracking student attendance via Viber groups. These mismatched practices faced strong public criticism, highlighting tensions between pre-pandemic and new educational realities.

Foot (2014) argues that identifying the source of disruption is key to using contradictions as learning opportunities. For example, the notion of the absurdity of applying certain classroom rules to the homeschooling context, as highlighted in some tweets, calls for flexibility and adaptation of these rules to the new educational reality. Nevertheless, public perception during the first five weeks of ERE reveals more about how contradictions evolved than about how they were resolved. Resolving them requires reflection, analysis, and adjustments (Wilson, 2014). However, subsequent educational models in Serbia (e.g., Baucal et al., 2022; Stančić, 2022) show a tendency to quickly revert to the previous system. This persistent reliance on old habits reflects a preference for stability over adaptability, hindering system learning. Lawrence et al. (2024) argue that system rigidity, rather than crisis instability, poses the greatest obstacle to learning during a crisis.

In this context, the crisis can be seen as providing an opportunity for the system to learn, much like it presents potential for advancing the democratization of education. The democratization of education involves the right and opportunity for all relevant stakeholders to participate in discussions and decisions about educational change (Jovanović Kranjec, 2010). It is important to note that ERE modalities, such as TV lessons, have made the educational process more visible, creating an opportunity for various educational participants to discuss and evaluate different segments of the system. Furthermore, social media has proven to be a valuable platform for sharing personal experiences, thoughts, and feelings about both the visible and invisible aspects of education (Zhou & Mou, 2022). While some tweets generated reactions, responses, and were retweeted, reaching a wider

audience, it remains unclear whether this led to constructive dialogue or simply amplified isolated voices. The visibility of education and related public discussion can help policymakers gauge public opinion and shape responses (Vydra & Kantorowicz, 2021). However, this is where power dynamics become crucial, raising the question of whether there is genuine interest in allowing public opinion on education to influence the shaping of educational decisions. This suggests that while ERE and social media presented opportunities for democratization, it remains uncertain to what extent these opportunities were used.

While the educational process became more visible, the learning process itself remained largely invisible, raising concerns about educational equity. Risks to equity arise not only from unequal access to education (Levinson et al., 2022; Torres & Alves, 2024), but also from varying student competencies in regulating their learning, differences in family environments and resources, and unequal availability of teacher and school support.

Concluding remarks

Our research highlights how crises, while disruptive, can serve as catalysts for change, urging educational systems to adapt and creating new opportunities for learning. However, these moments of transformation also expose the system's reluctance to abandon old practices and its challenges in responding swiftly to shifting circumstances. This has significant implications for the current education system as well—it highlights the need to resist the tendency to treat every new change (not just those driven by crisis) as an isolated event, unrelated to other processes. Instead, we should have in mind that each change requires a reshaping of existing practices and the system as a whole to ensure meaningful learning.

One of the most critical implications of our findings is the critique of curriculum design in Serbia. Despite reforms aimed at shifting from content-oriented to outcome-oriented curricula, it seems that old habits remain deeply embedded. Public critiques frequently highlight the curriculum as overly content-heavy, irrelevant to contemporary needs, ideologically biased, and mismatched to students' age. These critiques invite educators and policymakers to reflect on what key concepts children should learn, how these can be made relevant to their lives today, how to encourage critical engagement with diverse narratives, and how to shift the focus from the content of learning to the process of learning itself. On a more positive note, our research identifies the use of online tools as a bright spot during the crisis. These tools are viewed as a means to make learning more relevant, diverse, and differentiated while fostering students' competencies essential for navigating the complexities of the modern world. However, this potential

can only be realized if access to these tools is expanded and if both students and teachers are provided with adequate support to use them effectively and meaningfully.

Our research illustrates the potential of CHAT as a valuable framework for understanding ERE, by providing a lens through which we can anticipate challenges and design responses with built-in safeguards to address these challenges. To expand on our findings, we propose a series of guiding questions that can inform the design and monitoring of education during future emergencies:

- Object: What should be the aim of education in the current context?
- Subjects: Who are the key agents driving these educational aims in a rapidly changing context, and how can we provide them with the necessary support? Who might be negatively impacted by these changes, and what strategies can be implemented to address their needs and ensure equity?
- Community: Who are the other participants involved in the ERE process, and how can we ensure their meaningful participation to promote the democratization of ERE?
- Division of Labor: What roles and responsibilities do other educational participants assume within the ERE, and how can transparency and complementarity of these roles be ensured?
- Rules: What existing norms, rules, or structures need to be revised or adapted to align with the new circumstances?
- Mediating Artifacts: Which current tools and resources can be effectively utilized to support learning and teaching processes? What new tools or practices are required, and how can their implementation and integration into the system be effectively facilitated?

By addressing these questions, educational systems can better anticipate and respond to the challenges of future emergencies, ensuring that crises serve as opportunities for expansive learning rather than sources of further inequity.

In this context, Twitter emerged as a valuable tool for fostering expansive learning by encouraging broader participation and transparency. It facilitated timely and uncensored discussions — key elements for the democratization of education (Gouëdard et al., 2020; Vydra & Kantorowicz, 2021). From a research standpoint, social media offered an effective way to capture real-time experiences of the wider public during the crisis. However, it also raised concerns about the representativeness of the voices shared and the groundedness of the opinions expressed. Additionally, one limitation of the current study is that, while it identified education as a prominent topic in social media discus-

ssions during the first five weeks of ERE in Serbia, it does not provide a clear comparison of this topic's prominence relative to others, as it did not track the overall volume or diversity of Twitter posts.

Since the study focused on the initial phase of ERE implementation, it highlighted the emergence of various contradictions, illustrating how the new circumstances disrupted the system's equilibrium and created opportunities for learning. However, the extent to which the crisis has led to sustainable changes that could be considered true learning, and the form these changes might take, calls for further exploration.

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Diskusija o obrazovanju u Srbiji tokom kovid 19 izolacije: Analiza Tviter objava

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Pandemija kovida 19 izazvala je do sada neviđene promene u različitim aspektima života ljudi širom sveta, uključujući i značajne promene u obrazovanju. Cilj ove studije bio je da istraži kako je javnost u Srbiji doživela promene u obrazovanju koje su nastale kao odgovor na kovid 19 pandemiju. Tokom prvih pet nedelja pandemije, počevši od 17. marta 2020. godine, sistematično smo prikupljali Tviter objave na srpskom jeziku, tematski ograničene na obrazovanje, što je rezultiralo uzorkom od 1.777 tvitova. Tvitove smo analizirali koristeći kvalitativnu analizu sadržaja, a kao okvir za interpretaciju rezultata koristili smo kulturno-istorijsku teoriju aktivnosti. Rezultati istraživanja pokazuju opadajući trend u učestalosti objava koje se odnose na obrazovanje, počevši od 1.402 tvita u prvoj nedelji do 92 tvita u petoj nedelji. Emocionalni ton tvitova bio je uglavnom negativan u prvih pet nedelja pandemije, s tim da je procenat tvitova sa negativnom konotacijom imao tendenciju da raste. Analiza sadržaja tvitova ukazuje na ključne teme koje su privukle pažnju javnosti i otkriva kontradikcije između obrazovanja pre pandemije i obrazovanja na daljinu tokom pandemije. Rezultati pokazuju da je Tviter zajednica pozitivno reagovala na upotrebu novih alata u nastavi, kao i na angažovanje nastavnika u situaciji krize. Najviše kritike bilo je usmereno na sadržaj obrazovanja, koji je često ocenjivan kao preobiman, irelevantan, ideološki obojen i neprilagođen uzrastu učenika. Ova studija ukazuje na to da je obrazovanje na daljinu u situaciji krize učinilo vidljivijim proces nastave, stvarajući prostor za javnu diskusiju o obrazovanju, dok je istovremeno doprinelo nevidljivosti procesa učenja, pojačavajući na taj način rizik po pravednost u obrazovanju.

Ključne reči: kovid 19 pandemija, društvene mreže, obrazovanje na daljinu u situaciji krize, kulturno-istorijska teorija aktivnosti, obrazovanje.

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