KYIV SCHOOL OF ECONOMICS

MA PROGRAM IN PUBLIC POLICY AND GOVERNANCE

THESIS

"RETHINKING THE ROLES OF TEACHERS: HOW HAS EMERGENCY REMOTE TEACHING DUE TO COVID-19 TRANSFORMED TEACHERS' PERCEPTIONS OF THEIR ROLES IN UKRAINE?"

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Abstract. COVID-19 pandemic forced Ukrainian teachers to operate in a new and unfamiliar online setting, thus laying bare the teaching profession's vulnerabilities across various disciplines and geographical locations. It also amplified inequality of opportunity to such public good as quality education. A grounded theory methodological approach was adopted to discover how emergency remote teaching transformed urban and rural, math-science and humanities teachers' perceptions of their roles. Semi-structured interviews in four Lviv oblast schools helped discover that teachers' collaboration, family engagement, (in)availability of ICT infrastructure, and students' self-study skills and motivation influence teachers' perceptions of their roles. Findings of this exploratory research also reveal that blended education can strengthen teaching and learning and suggest its integration into Ukrainian schools.

Keywords: COVID-19 pandemic, emergency remote teaching (ERT), teachers' perceptions, teachers' roles, math-science and humanities, urban-rural, blended-learning.

Word Count: 11960

INTRODUCTION

The unexpected onset of Coronavirus disease (COVID-19), “characterized as a pandemic” by WHO Director-General on March 11, 2020 (WHO, 2020, para. 7) has affected education at an unprecedented scale. About 1.5 billion children worldwide, including in Ukraine, have experienced disruption and interruption to their education, which jeopardized the equal opportunity to receive quality education (INEE, 2020). Governments worldwide struggled with the transition to alternative modes of schooling to ensure that teaching and learning continued. To prevent a coronavirus outbreak in the country, the Ukrainian government authorized the closure of schools on March 12, 2020 and extended it further until the end of the 2020 Spring semester (Cabinet of Ministers of Ukraine, 2020).

The global crisis pushed schools to switch to emergency remote teaching (ERT) and forced teachers to adapt in-person instruction to an online environment with few resources and often without training. Teachers' lack of experience, preparation, and pedagogical strategies to teach online made the transition to ERT especially difficult (Bergdahl & Nouri, 2020; Gyampoh et al., 2020; König et al., 2020; Marshall et al., 2020; Nazarenko et al., 2020; United Nations, 2020; Zhang et al., 2020). Before the COVID-19 pandemic, Ukrainian teachers practiced traditional face-to-face instructor-led classroom teaching. Under ERT conditions, teachers were challenged to redesign their curriculum immediately, adjust to a new classroom environment and adopt new instruction methods in lesson delivery, thus striving to achieve positive learning outcomes in a new and unfamiliar setting (Ministry of Education and Science of Ukraine, 2020).

Before the COVID-19 pandemic, teachers faced numerous challenges, which were a matter of acute public concern. In Ukraine like in many countries, many schools lagged behind the transformation processes in education, leaving teachers and students to operate in low-quality teaching and learning environments. The conditions were often intensified by teachers' turnovers (Preston, 2011), teachers' lack of motivation and low job satisfaction (Lawrent, 2019; World Bank Group, 2019), low prestige and attractiveness of the teaching profession in the society (Kahkonen, 2018; Sachs, 2003), teachers' lack of knowledge and proficiency in information and communications technology (ICT), outdated methodology and lack of instructional proficiency within the critical pedagogy, unequal access and availability of educational resources (IT infrastructure, up-to-date course books, and instructional materials), the disparity in teachers' training and teachers' quality within the rural-urban continuum, and other (Di Pietro et al., 2020; Endriyati et al., 2019; Monk, 2007; Ministry of Education and Science of Ukraine, 2020; Pérez, 2020; World Bank Group, 2019).

The Ministry of Education and Science of Ukraine (MES) demonstrated its commitment to maintaining Ukraine's vision for high quality and equitable education for all with its launch of the *New Ukrainian School* (NUS) policy for reform in 2016 (Ministry of Education and Science of Ukraine, 2016). The NUS requires a “massive shift in terms of how teachers deliver

instruction and interact with students" (World Bank Group, 2019, p. 22). While some progress has been made on the implementation of the reforms, the decline in the teaching profession's prestige in Ukraine and the rural-urban gap within teaching conditions remain to be a continued concern (Kahkonen, 2018; Ministry of Education and Science of Ukraine, 2020; Nazarenko et al., 2020; Samokhin, n.d).

COVID-19 pandemic exacerbated existing challenges in education, underlined and laid bare the teaching profession's vulnerabilities, and inefficiencies in teaching and learning outcomes. Emergency remote teaching questioned the traditional face-to-face teaching and learning (Azorın, 2020, Kaden, 2019; Kidd & Murray, 2020; Sahlberg, 2020; Shamir-Inbal & Blau, 2021) and led to various levels of resentment among teachers across different discipline areas and geographical locations. This current study aims to explore Ukrainian teachers' experiences with emergency remote teaching and to discover how these experiences shaped teachers' perceptions of their roles in reference to the subject (math-science and humanities) and the urban-rural area.

LITERATURE REVIEW

The unprecedented worldwide schools' closure during the COVID-19 pandemic caused the abrupt transition to emergency remote teaching, characterized by Kaden (2019), as the "most traumatic and transformative event of the modern era" (p. 1). To describe curriculum delivery in these unique circumstances, the researchers recommend avoiding the term 'online teaching' as it requires careful planning and deliberate attention to the development of online courses, usually taking from six to nine months before its delivery (Bozkurt & Sharma, 2020; Hodges et al., 2020; Naffi et al., 2020; Ní Shé et al., 2019). Hodges et al. (2020) suggest using the term 'emergency remote teaching' (ERT) as "a temporary shift of instructional delivery to an alternative delivery mode due to crisis circumstances...that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated" (p. 6).

Teachers were confronted with the need to alter their traditional classroom roles to online instructional designers. Although the governments worldwide took actions to maintain teaching and learning continuity, the literature highlights certain shortcomings and deficiencies. Lack of pedagogical skills in remote and distance learning methodology, lack of soft, managerial, and technical skills, insufficient professional development support for teachers, lack of learning management systems, lack of adequate digital devices for learners and teachers, and limited access to the Internet and online resources put a strain on teachers and students (Bergdahl & Nouri, 2020; Bozkurt et al., 2020; Dvir & Schatz-Oppenheimer, 2020; Gyampoh et al. 2020; Mukhter & Chowdhary, 2020; Perrotta & Bohan, 2020). It significantly contributed to factors causing students' learning loss and jeopardized the quality of educational services. Rasmitadila et al. (2019) state that such difficulties caused some teachers "to lose confidence and enthusiasm" about their profession (p. 100). Dvir and Schatz-Oppenheimer (2020) point out that working from home eliminated barriers between teachers' personal and professional life and pressured teachers to work longer hours. ERT led teachers to start reconsidering their "role, goals of teaching" (Dvir & Schatz-Oppenheimer, 2020, p. 650).

As schooling occurred in a turbulent time and was shaped by a crisis, both orthodox and innovatory teachers were compelled to adapt the curriculum to circumstances. Two major theories describe the teachers' roles in curriculum delivery, constructivism (student-centered) and behaviorism (teacher-centered). Constructivists adhere to differentiation in learning, individualized approach, cooperative learning, where new knowledge builds upon the acquired knowledge, placing a teacher to be a mediator and a guide of the process. Behaviorists, in contrast, view a teacher as a primary source and transmitter of knowledge, who is in charge of the instructional delivery (Bichelmeyer & Hsu, 1999; Serin, 2018). Furthermore, the teaching approach can be selected based on the discipline, whether it is humanities or math and sciences. Some scholars suggest that the constructivists' approach is more prevailing within the humanities subjects (Baeten et al., 2010), while mathematics and science teachers may find their roles revolving within the behaviorism paradigm (Umugiranezaat et al., 2017). Nganga

and Kambutu (2017), however, state that when teachers are being deprived or limited with professional development opportunities and lack innovative and digital teaching resources, they tend to adhere to teacher-centered strategies.

While many governments, including Ukraine, normatively adopt the constructivism paradigm, some authors observe that teachers still operate within the behaviorism paradigm (Azorın, 2020; Bulvinska & Chervona, 2019; Jabbour, 2013; Johnson et al., 2020; Liu et al., 2006; Mpho, 2018). Azorin (2020), in his study about Spanish education amid COVID-19 pandemic, concluded that the Spanish curriculum emphasized the teacher-centered approach. The author also observed a lack of networking among many teachers and teachers' low ICT competence, making it more difficult to cope with teaching during the pandemic and leaving some teachers behind (Azorın, 2020).

Many scholars call for a paradigm shift in education toward the constructivism approach, stating that it is more suited to prepare students better for the globalized world and 21st-century knowledge-based economy (Nganga, & Kambutu, 2017; Sabbah et al., 2016; Tobias & Duffy, 2009). However, some claim that there is no difference in a particular method, as students' learning outcomes do not necessarily correlate with either behaviorism or constructivism approach to teaching (Cobern et al., 2010; Ottman, 2007; Wilkinson & Wong, 2014). Some scholars state that the teacher-centered approach is still influential and can have positive effects on students' learning (Fischer & Hänze, 2019; Magliaro et al., 2005). A recent study by Andersen and Andersen (2017) contributes to the debate, stating that student-centered pedagogy may reinforce "inequality of educational opportunity" (p. 12). In their study of schools' institutional strategy in Denmark with a sample of more than 56,000 students in 825 schools, authors discovered that student-centered pedagogy presupposes that students receive knowledge from home. It, therefore, "may place greater value on the knowledge derived from the home," and learning opportunities largely depend on family support (Andersen & Andersen, 2017, p. 10). It marginalizes and leaves behind the students with lower socio-economic family status and/or education levels who are unable to receive adequate learning support at home. It, thus, creates consequences for greater educational inequality (Andersen & Andersen, 2017).

Furthermore, the nature of teaching in rural and urban areas can be different. Teachers in rural areas are often academically less prepared in comparison with urban teachers. Rural schools lack modern textbooks, IT equipment, and "guidance and counselling programs" (Preston, 2006, p. 30) that support teachers in cultivating innovative pedagogy skills, prevent burnout, and increase satisfaction with the profession (Preston, 2006). Also, rural schools face staff shortages, and teachers take multi-subject specialized positions outside of their specialization (Tyshchuk & Alekankina 2020; World Bank Group, 2019). The geographical proximity of professional development opportunities influences teachers' experiences and, in many cases, benefits more urban teachers, as urban teaching involves "opportunities of

location" (Preston, 2006, p. 139). If not properly addressed, it can put a teaching workforce at risk in the long run.

Although it is widely agreed that the teachers can no longer be only the providers of knowledge, "many parties, both outside and within teacher education, see teaching merely as a delivery of curriculum" (Shing et al., 2015, p. 41). In the light of globalization and neoliberalism ideals, many countries with performant education systems allude to "teachers as an important vehicle for change" and stress the need for teachers to collaborate with different stakeholders to perfect their teaching and prepare their students for the market changes (Lee & Tan, 2018, p. 11). Mooi (2010) brings the concept of "envisionary" teachers (p. 1818), who are called to "understand global interactions and to be prepared for global competition and realities in order to keep abreast with the educational development" (p. 1819).

Indicating that the teaching profession lost prestige and lacks trust in society, Sachs (2003) embraces the concept of the "activist teaching profession" (p. 3) with the strong emphasis of teachers' role in the "social capital, engagement, collective action, transformative politics and strategic positioning" (p. 9). Teachers are also considered to be "key promoters for equity and well-being in society" (Virtanen et al., 2017, p. 13).

As revealed in the 2020 Global Education Monitoring Report, only a few countries had the "basic infrastructure to focus on the pedagogical challenges of online approaches to teaching and learning" during ERT (UNESCO, 2020a, p. 61). Ukraine is not an exception. Teachers were already under-trained and -resourced, and the crisis exacerbated lesson delivery. According to the 2020 Prosvit and 2020 CEDOS studies on distance education practice in Ukraine during the national lockdown in March-May 2020, the lack of preparation to teach online was a significant barrier to effective remote teaching (Nazarenko et al., 2020; ProSvit, 2020). The findings from Ukraine's Ministry of Education and Science and Institute of Educational Analytics report tell us that the forced lockdown posed serious obstacles to quality teaching and learning in Ukraine. Besides pedagogical challenges, insufficient ICT competencies, and lack of equipment, many Ukrainian teachers lacked support and guidance on remote and distance learning methodology. In some cases, the instruction was stopped or reduced to sending assignments via Viber and other means (Ministry of Education and Science of Ukraine, 2020). "Boring, outdated and incomprehensible textbooks" became an issue, which otherwise could be mitigated during face-to-face classroom teaching (Ministry of Education and Science of Ukraine, 2020, p. 216).

COVID-19 pandemic also placed a heavier burden on rural teachers (Petryshyn, 2020). It significantly contributed to students' learning loss and hampered teachers' satisfaction with the profession. The urban-rural disparity of education and unequal access to educational services that pre-dated pandemic in Ukraine (Mohylnyi, 2019; Muliavka & Oksamytyna, 2015; Nazarenko et al., 2020) became more visible and more vexatious.

Significance of the Study

As "free public education was created to build equality" (Hopgood, 2020, para. 10), its mission remains up to date and is vital for Ukraine. While a school remains a primary institution to sustain equal opportunity to education, the teachers are its most important vehicle to deliver this fundamental human right with an acceptable level of quality. The crisis reminded us of teachers' critical roles in society (UNESCO, 2020b) and revealed considerable "inequalities in human development opportunities" (Jaramillo, 2020, p. 30) driven by location and teachers' capabilities to perform their duties well. Teaching is not only an art of effectively imparting knowledge; teachers also "prepare the human resource for future development of the nation" (Zarzolawmi & Hazarika, 2019, p. 5399). If teachers lack the tools, skills, and support to do it properly, this mission may be under threat. It may also hinder Ukraine's "transformative paradigm shift needed to position Ukraine's human capital for inclusive growth" (World Bank Group, 2019, p. 101).

COVID-19 pandemic highlighted the teaching profession's vulnerabilities and amplified inequalities of opportunity to deliver and receive such public good as quality education within a rural and urban continuum. Therefore, it is crucial to study teachers' experiences with ERT to identify challenges in their profession and to explore teachers' perceptions of their roles in order to provide education policymakers data to draw policy lessons.

The role of a teacher and emergency remote teaching find a wide representation in the academic discourse. However, it has not yet been explored whether emergency remote teaching has transformed teachers' roles in Ukraine. The current study aims to explore Ukrainian teachers' experiences with ERT and to discover how these experiences shaped teachers' perceptions of their roles in reference to the subject (math-science and humanities) and the urban-rural area. It also seeks to generate a theory about the role of a teacher in Ukraine, and by doing so, the study aims to fill the void in the literature.

The following research questions have been raised in this study:

- How do teachers from urban and rural areas perceive their roles?
- How do math-science and humanities teachers perceive their roles?
- How does emergency remote teaching during pandemic change teachers' perceptions of their roles?

I hypothesize that emergency remote teaching, discipline, and urban-rural area (X) potentially influence teachers' perceptions of their roles (Y).

RESEARCH DESIGN

To understand Ukrainian teachers' experiences with ERT and to explore the teachers' perceptions of their roles, this study adopted the exploratory qualitative research inquiry. Qualitative research is appropriate "for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (Creswell & Creswell, 2018, p. 51). The value of exploratory research is that it can "establish the baseline information" (Ali, 2020, p. 17) for future research and can build a theory that can be tested on similar cases in the future (Hesse-Biber, 2017, p. 298).

I approached this study with a constructivist worldview, in which "individuals seek understanding of the world in which they live and work" (Creswell & Poth, 2018, p. 20). Constructivists believe that the reality is "socially constructed," and the researchers construct the knowledge interpreting the "multiple realities" of an event (Merriam & Tisdell, 2017, p. 9). The researchers, who embrace this belief system, look at the participants' experiences and perspectives as "important sources of knowledge" (Hesse-Biber, 2017, p. 53).

The exploratory design helped me get deep insights into the research questions. Since I entered the study without a predetermined theory, I applied the grounded theory methodological approach. This method is beneficial when the researcher seeks to explain the phenomenon "grounded in the views of participants" (Creswell & Creswell, 2018, p. 62), and the existing theories do not adduce it. Inductive in its nature, "the theory develops from the data and not by the testing of deductively formulated hypotheses" (Scott & Usher, 2011, p. 49). The purpose of this grounded theory was to get deep insights into urban and rural, math-science and humanities teachers' reflections on teaching during March-May 2020 COVID-19 lockdown, and to discover whether this experience influenced Ukrainian teachers' perspectives on their roles. At the beginning of the research, it was known that the ERT had been one of the most traumatic events for teachers and caused much resentment among teachers that might have influenced teachers' perceptions of their roles. It might have also impacted math-science and humanities teachers in various ways, and teachers who were based in rural and urban communities might have had different experiences with ERT. Therefore, when exploring teachers' perceptions of their roles, I considered emergency remote teaching, subject and urban-rural area variables as potentially influencing teachers' views of their roles. Since at the chosen sites most of the teachers were of the female gender, I interviewed female teachers to avoid any differences in perspectives that could have been caused by gender. However, this can be researched in the future.

Data Collection

With the help of the grounded theory, the researcher explores a phenomenon, records the rich data, categorizes and codes it, and identifies a theory that develops from the data (Creswell & Creswell, 2018). To collect the data, I utilized the case study approach, because case study allows the in-depth exploration of the phenomenon and "provides the researcher with a holistic understanding of a problem, issue, or phenomenon within its social context" (Hesse-Biber, 2017, p. 269). I employed the non-probability purposive sampling within a single case study. I was aware that the generalizability of findings within this type of sampling would be limited as a chosen group of teachers might not represent a general population. However, this study aimed not to identify a statistically generalizable report, but to receive rich data from the teachers. The richness and depth of information have a bigger value during this exploratory research.

In purposeful sampling, the researcher may intentionally select the participants and sites that the researcher believes will provide rich information (Creswell & Creswell, 2018, p. 228). I selected two rural schools and two urban schools in Lviv oblast. Lviv oblast was selected for this study because I had a ten-year history of professional collaboration with the schools in this oblast. It made it easy for me to enter the research field with an already established rapport, which is important for the qualitative grounded theory approach (Creswell & Creswell, 2018). Furthermore, Creswell and Creswell (2018) recommend identifying the gatekeeper to help the researcher win trust with the interviewees. In this study, I reached out to such gatekeepers as the school directors or influential teachers to connect me with other teachers.

Since this study is exploratory in nature, in-depth semi-structured interviews were most applicable to gather information from the participants (Hesse-Biber, 2017, p. 95). Creswell and Poth (2018) also state that "interviews play a central role in the data collection in a grounded theory study" (p. 228). The interview protocol was developed and employed for the interview. I conducted a pilot interview to test the questions and make appropriate adjustments. To adhere to ethical procedures, I received consent from the participants to record the interviews. Before interviewing, I informed teachers about the study's goal and voluntary participation in the study. CAQDAS, the computer-assisted qualitative data analysis software, has been utilized to analyze the data from the interviews. The interviews have been conducted in the Ukrainian language; the transcripts have been prepared in Ukrainian. The data analysis was done in the English language. I applied the sense-for-sense translation strategy to make it more reader-oriented and to "capture the function of the original by devising a TL [target language] domestic pattern" (Farghal, 2013, p. 30).

The study focused on middle and high school teachers because teachers within these grade levels prepare students for further education and/or career paths. I focused on subjects that represented the humanities and math-science areas (history, English language, mathematics, and chemistry). Since I sought to explore teachers' reflective experiences, I looked for teachers with cultivated skills to observe and make sense of their experiences. I selected teachers who had at least five consecutive years of teaching experience and practiced

teaching during March-May 2020. I adopted the stance of Wolff et al. (2016), who claimed that "experts' perception appears to be more knowledge-driven whereas novices' appears more image-driven" (p. 243). With little teaching experience, novices are limited in their ability to fully interpret the events. In contrast, expert teachers' experience “allows for focused noticing, directing attention to relevant, informative areas" (Berliner, 2001, as cited in Wolff et al., 2016, p. 245).

Researcher’s Role

My personal and professional experience could shape my perceptions of teachers' roles and the teaching profession. I had been closely cooperating with Ukrainian teachers for more than ten years at my job, both in class and out of the class settings (lesson planning and delivery, extra-curricular activities, and community service-learning projects). I believed I knew the teaching profession's context; teachers had been openly sharing with me their stories and reflections throughout the years of close collaboration. My personal assumptions and biases might have shaped the way I understood and interpreted the data. However, I tried to ensure the objectivity of the research to the best of my ability.

RESULTS

Data Collection and Analysis

The grounded theory study has been conducted in four schools in Lviv oblast – two schools in rural areas and two schools in urban areas. I have entered the research field and recruited participants through the gatekeepers, Director in one school, and teachers-leaders in three other schools. To collect the data, I conducted semi-structured interviews. Within each school, four teachers have been identified for the interviews. Teachers were selected based on the subject of instruction (math and chemistry; English language and history) and tenure of a minimum of five years of teaching experience.

The interview protocol has been adjusted based on a pilot interview and recommendations from my thesis supervisor (Appendix A). The following questions guided the Interview protocol as most applicable for answering the research questions:

- How do Ukrainian teachers describe their experiences with ERT, challenges, and opportunities throughout the process?
- How do Ukrainian teachers describe the process of curriculum redesign and delivery during ERT?
- How do Ukrainian teachers describe achieving positive learning outcomes throughout ERT?
- How do teachers describe relations with students during ERT?
- How do Ukrainian teachers describe the collaboration with their fellow teachers during ERT?

I conducted sixteen interviews during March 9-15, 2021. In respect of social distancing during the COVID-19 pandemic, the interviews were held via Zoom, Viber, or cell phone at the time and date convenient for the interviewees. The interviews lasted from seventeen to forty-one minutes. Before the beginning of each interview, I informed the participants about my study's goal, principles of anonymity and confidentiality, voluntary participation in the study, and participants' right not to answer a question and withdraw from any interview stage. The interview period coincided with the continuing pandemic period, followed by the lockdown in Lviv oblast. Therefore, I have obtained participants' verbal consent to participate in the study, record interviews, and use participants' responses and quotations for analysis and findings dissemination. Theoretical saturation was reached during the twelfth interview.

Each interview has been transcribed and coded with a number to avoid any biased stance of the researcher and to protect participants' anonymity (Creswell & Poth, 2018, p. 141) (Appendix B). For data analysis, I used the MAXQDA computer software program. I have implemented a traditional grounded theory approach to coding – open, axial, and selected, as recommended by Strauss and Corbin (1990, 1998) (Creswell & Creswell, 2018). I have examined the text for significant ideas, statements, and information at the open coding stage. I also applied in-vivo coding during this phase (participants' actual words or phrases) (Appendix

C). After constantly comparing and contrasting code segments, I have attempted to build and connect the categories and subcategories that categorized teachers' experiences with ERT and were related to teachers' perceptions of their roles (axial coding) (Appendix D). Axial coding allowed me to reveal the differences in teachers' perceptions of their roles among urban and rural teachers, and math-science and humanities teachers (Appendix E). Then, I have applied selective coding, where I have integrated the codes categories and subcategories to the broader themes that were relevant to all teachers' perceptions of their roles (urban and rural area, math-science and humanities subjects). It allowed me to build a "Role of a Teacher" model (Appendix F).

At the initial stage of conducting interviews and throughout data analysis, I engaged in memo-writing, which helped me organize my thoughts and reflect on the data. Memo-writing constitutes an essential part of the grounded theory process, as it allows the researcher to engage in the constant analysis of comparing and contrasting data (Hesse-Biber, 2017, p. 413). It also helps 'increase level of abstraction' of the coding (Charmaz, 2014, p. 283).

Findings

Four central Units (themes) emerged from the study:

1) Shared experiences of teachers, regardless of the urban-rural area and subject of instruction.
2) Urban and rural teachers' perceptions of their roles.
3) Math-science and humanities teachers' perceptions of their roles.
4) "Role of the Teacher" Model.

The model has been constructed based on teachers' perceptions of their roles as a result of a grounded theory selective coding analysis.

1. Shared experiences of teachers, regardless of the urban-rural area and subject of instruction

During the extensive coding and data analysis, it has been discovered that all teachers shared a lot of similar experiences with ERT. The following 8 (eight) code categories that emerged from the study are related to teachers' shared experiences: challenges, benefits, teachers' self-directed learning, curriculum design and delivery, relations with students, relations with parents, learning outcomes, and assessment.

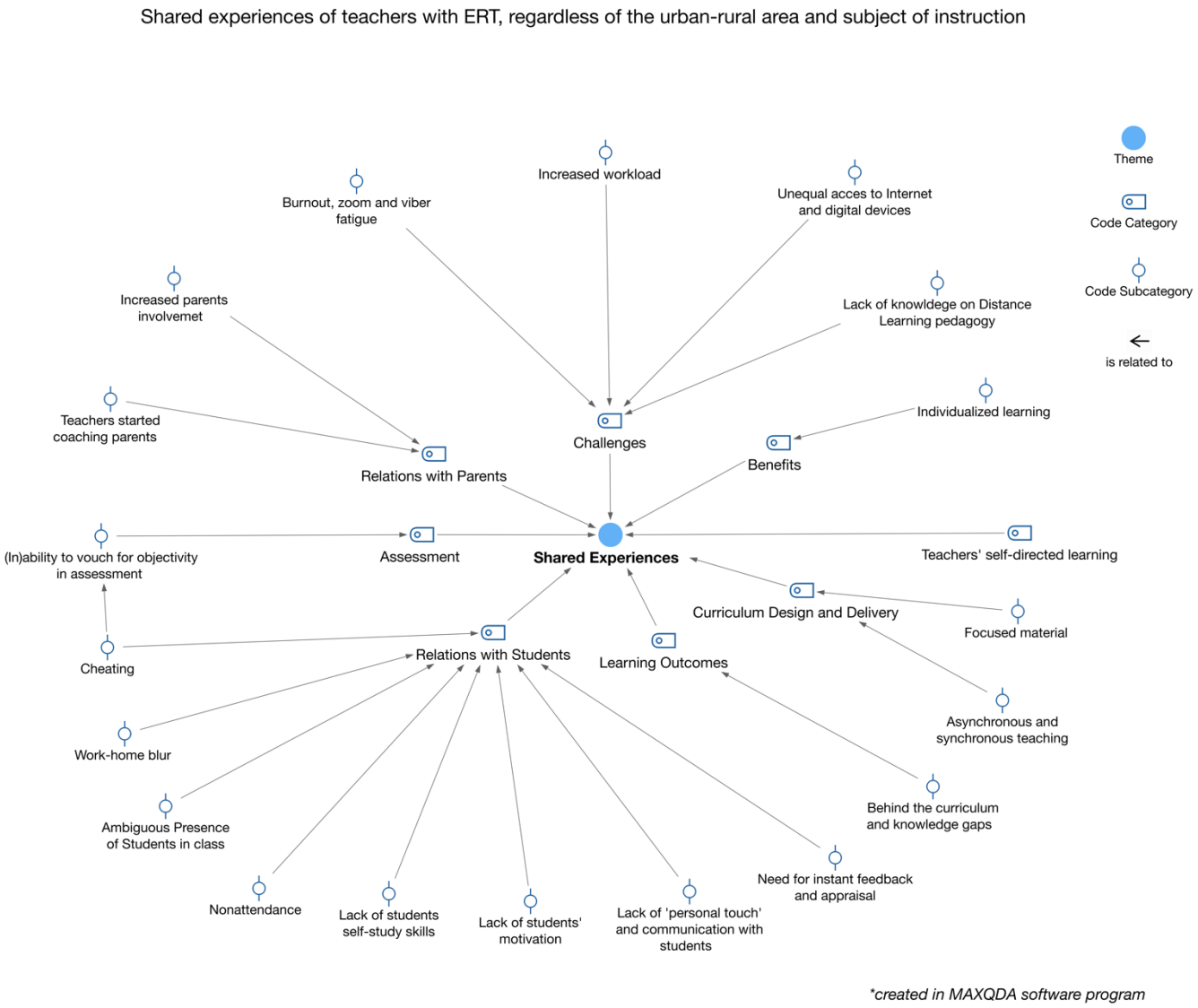


Figure 1. Shared teachers' experiences regardless of urban-rural area and subject of instruction.

Challenges

Teachers disclosed that the whole teaching process during March-May 2020 was highly stressful and daunting. The abrupt interruption of in-classroom schooling perturbed teachers and made them more vulnerable as they transitioned to a new teaching environment. Participants' responses describe emergency remote teaching in the following way:

> *"It has been a chaos at the beginning, as no one knew what to do" (T2);*
>
> *"Catastrophe. It has been a total disaster in March…we did not know where to start from...When I recall March, it was something terrifying, both for students and teachers. We faced severe challenges… I caught myself thinking: "Lord, why did I even start working at school? How can I deal with all of that?" (T9).*

Because of the lack of instructional knowledge in distance education, teachers found themselves "attached" to the computer or cell phone as they were adjusting to the inevitable necessity of teaching in a new space. Teachers were constantly adapting the content material to the reality they faced, often sacrificing the expected deliverables and simplifying the curriculum. Consequently, teachers' workloads significantly increased concerning lesson planning, homework checks, and communication with students and parents. Some teachers' views on their workloads are as follows:

> *"It seems you are online 24 hours; the maximum time that I spent on the phone was 14 hours per day...I would spend 2-3 hours preparing the presentation for a lesson…I usually had 5-6 lessons, and I needed to make a presentation for each lesson. I spent 2 hours preparing only one presentation. And I am not even talking now about homework checks. It was 'fun'…" (T16);*
>
> *"My workload significantly increased. It was outside of normal working hours. I would receive messages from students in the evenings. Besides, I had to communicate with their parents in the evenings. It was intense… Also, I had to work on the computer constantly – I was attached to it... Typing, sending documents to Viber...Receiving children's homework... children took pictures of their homework; the pictures were of different quality... It was a huge technological problem for me, and it also affected my health" (T7);*
>
> *"It felt as if I was in a reality show. I was constantly under watch... Parents…Children... Never-ending questions… Once at 11 pm when I decided to try to sleep, I received a text message from a student saying 'I can't fall asleep, and I decided to submit my homework to you. Did you like it? Did I say it right?" (T3).*

Hurdles associated with students' unequal access to the Internet and electronic devices caused students to drop out of classes and prevented teachers from ensuring students' equal opportunity to receive an appropriate education during the lockdown. Some teachers describe this as follows:

> *"Out of 24 students in class, about 50% could join the zoom lesson. Others did not have access to Internet" (T9);*
>
> *"Some students did not have Internet at home. Besides, there were families with 3-4 siblings and not enough gadgets for all. Parents had to make a choice which child would use the gadget" (T13);*
>
> *"Due to the lack of Internet access, there were students who did not join the lessons from March till May" (T16);*
>
> *"Children had problems with zoom. Some laptops or phones were not compatible with zoom" (T8).*

Teachers reported that they felt being under constant pressure during the ERT. Increased feelings of burnout, Viber or zoom fatigue, often associated with the abundance of work duties, new roles ascribed to instructional design, technology use, and unbalanced schedule frazzled them. Teachers describe it as follows:

> *"It was so difficult and stressful for me that I was constantly running a high temperature. I was worried that I got infected with coronavirus, but that was my body's reaction to stress because I was constantly attached to the computer, Internet, and Viber…. I did not even have time to eat or drink; I had to be in front of the computer dealing with various technical issues... Often Internet would disconnect, and I would start connecting children all over again... ... You find yourself constantly under pressure; you're in a survival mode" (T3);*
>
> *"It was so emotionally and physically exhausting... you were thrown into the river, and you have to learn to swim, trying not to lose it. The amount of work increased drastically comparing to my regular workload... you check homework on the phone, and you constantly zoom it in and out… it takes so much time and energy" (T16);*
>
> *"When I would hear a text-sound on Viber, I could not stand looking at the phone anymore" (T6);*
>
> *"To be completely honest, I did not see any positive moments in that experience; we all were depressed" (T1);*
>
> *"I was in a constant state of exhaustion and felt under pressure" (T15).*

Self-Directed Learning

Many of the participants felt that they entered a new teaching field with a lack of knowledge about distance learning methodology. However, being already overwhelmed with the work and stress, teachers strived to ensure the continuity of teaching. Teachers took the initiative to self-educate themselves and searched for learning opportunities to equip them with knowledge and skills in distance education. Teachers describe it as follows:

> *"I was worried at the beginning – how will I ever deliver a lesson? - but I started watching a lot of educational videos on YouTube, and I learned by making mistakes. I tried and failed, but then it worked out. I could use the whiteboard in the zoom, learned how to make a presentation, and share a screen" (T3);*
>
> *"I was searching for any online courses that would help me learn how to construct and deliver lessons. I found the course on digital learning on the osvita.ua website. I learned how to create google forms, google Classroom and set up a zoom video class" (T2);*

"Despite the age, we all threw ourselves into learning new skills. It was a matter of determination; one of my colleagues is twice older than me, approaching 70. When we returned to school in September, some classes had been relocated to the online environment. One day, the internet was unstable in our school, and this 70-year-old teacher said: 'no worries. I will share the wi-fi from my cell phone hotspot'. You know, when a 70-year-old shares wi-fi through the cell phone hotspot... it's something unbelievable. We learn so quickly" (T13).

Benefits

Although shifting to the virtual classroom caused a lot of frustration and emotional burden on teachers, at the same time, it demonstrated teachers' resilience and elevated some enthusiasm about the future of education in Ukraine. One teacher expressed the opinion that ERT experience challenged teachers to reconsider their views on education, and the teachers started questioning the conventional approach to teaching.

"Modern world is ways ahead of what we do at school. The 45-minute lesson, textbook, grades, etc., - is not even 20th; it is the 19th century. How do children search for the information? Where do they communicate? Google, Facebook, Instagram, YouTube, etc. We need to catch up and change the ways we teach students (T13).

Another teacher stated:

"*I teach 21st-century kids through the 19th century means the knowledge that I do not even know whether they [students] will even use in life … I teach in a school with a chalk and board, but children want to explore and experience, but there's no equipment for that... Honestly speaking, it has been much easier during distance learning. I would give them a video to watch, we discussed it in class. I could show them historical places, walk them there virtually. I could do what I can't do with chalk and board" (T2).*

Some teachers emphasized the advantages of distance education, most frequently stating that it gives students an opportunity for individualized learning. Students could choose their own pace in learning and it allowed them to prepare better for the external independent testing (EIT). Students could acquire greater autonomy of their learning with teachers performing the roles of learning facilitators and guides. Teachers describe it as follows:

"It was an ideal period for EIT preparation. Students could focus on what they needed. They immersed themselves in preparation for EIT ... Now I ask students how

they feel about going online, and 11th graders tell me, 'we look forward to it.' It's because they focus on what they need, not what they have to study" (T9);

"11th graders are excited about distance learning because they can use this time to prepare for EIT" (T12);

"Senior graders are happy with distance learning. They wait for it now... They know what subjects they can skip and what subjects they need to invest their time and effort" (T5).

Curriculum design and delivery and Learning outcomes

In curriculum design and delivery, teachers redefined their view on teaching and learning and implemented a focused approach to curriculum delivery. Challenged by the uniqueness of the circumstances, teachers utilized the 'less is more' approach to curriculum revision. To prevent widening the knowledge gap, teachers shortened and simplified the program to the best extent possible. Teachers describe it as follows:

"Everything had to be changed, and curriculum needed to be changed as well. I simplified everything as much as I could" (T5);

"I gave them paragraphs to read, and a problem to solve, very similar to what I showed during the lesson. I wanted students to learn at least something" (T6);

"I spent so much time shortening the material and lesson plans. I approached it from the position of 'less is more" (T16).

Even though teachers attempted to utilize a combination of synchronous and asynchronous instruction, it was time-consuming for teachers to familiarize themselves with different platforms for online teaching. Some teachers stated that their initial teaching was limited only to Viber; some could integrate the synchronous teaching using such applications as zoom, google meet, or skype. Despite teachers' efforts in ensuring the continuity of teaching and learning, they expressed concern for students' learning loss. Teachers describe it as follows:

"In my 10th grade history class, I held lessons via Viber video for the children to be able to comment on the topic. What can I say?...Zoom conferences, Google classrooms – we did not have any clue about it at the beginning" (T2);

"We did not know how to organize teaching at the beginning, we even sent zoom passcodes to students through Viber. Later, we created email accounts for everyone. We learned it quickly and the school transferred online quickly" (T11);

"When we returned to school in September, I noticed children were significantly behind the curriculum. It seems they are familiar with general concepts, but I saw the

need to start all over again when I did knowledge checks. In my subject [math], everything is connected; if you miss a couple of topics, you can't really go further. I spent about three weeks catching up, still not sure whether or not it was enough time" (T16);

"It was unreal not to expect the learning loss. All students were behind the curriculum... Maybe in the ideal world, where there is a small number of students in class, all of them are motivated, do homework, and have access to the internet, you can make it work. But it's only in theory, the real-life practice gives us a different picture" (T13).

Relations with Students

Students' home and school blur have intensified teachers' already unbalanced workloads. Students seemed to be challenged by home-based learning and could not draw boundaries between school and home. Students quickly developed a habit of texting teachers following their rhythms. The revealed statements demonstrate that it contributed to teachers' emotional distress and exhaustion:

"It was difficult because children did not understand any time limits. They write at 10 pm, 11 pm and after 1 am... I was telling them – you can't do that, I also need some rest and sleep, and I have my own family" (T6);

"It was challenging, as children could not understand when to rest and sleep and when to study" (T7);

"Students did not see a distinction between home and school. It was difficult for them to understand when school starts as they were sitting at home in their pajamas" (T3);

"I ended up turning off the sound on my phone for the night. Waking up in the morning, I'd notice students' messages arriving late at night, far after midnight" (T4).

Students' lack of self-study skills and low motivation were pronounced by many teachers. It hindered teaching and learning processes. Teachers were perplexed with students' inability to self-organize during home-based learning. Teachers describe it as follows:

"*Only children who had an experience with Olympiad participation were not behind. We face a big problem – children do not have the skills to study themselves. Because the success of distance learning depends on learners' ability to self-organize and self-study… Two or three students know how to do it, work with a book, consult a teacher, and reach out to parents. I wish they had these skills, then the outcomes would be different" (T8);*

"Even the straight-A students lost motivation. When I asked them why they did not do homework, they simply said, "I lost motivation" (T16).

Another factor that obstructed the effectiveness of education during ERT, as expressed by teachers, was students' ambiguous presence in virtual lessons. Teachers describe it as follows:

"*Once I finished a lesson in the zoom and noticed that some children did not disconnect. I was curious and stayed in zoom. I asked: "Yurchyk, where are you? Turn on your camera." Kolya stayed online too. And you know, Kolya fell asleep. They connected to make me happy with their presence at the lesson…" (T6);*

"Many [students] turned off the cameras. They say they are present, but it does not mean they are really present and follow you" (T16).

Teachers also found nonattendance to be one of the main problems. They explained that students' absences had been caused not only by limited access to the internet, but also the lack of motivation among students. Teachers describe it as follows:

"Half of the class simply did not attend lessons. They do not come to class… by doing this, they lose the opportunity for education" (T8);

"Children did not have any motivation to study and join lessons – out of 35 students, 15 attended" (T2);

"This period was challenging for everyone, but we are adults, we can self-motivate. It's more difficult with students, as to study you need to be motivated. I did not see it" (T7).

In addition, the issue of academic dishonesty has been raised by teachers. They found it very concerning, as due to the students' extensive cheating practices teachers were not able to vouch for objectivity in assessment. Teachers describe it as follows:

"I understood they cheated and searched for answers online… In my class, each one of them was cheating on the tests and assignments" (T1);

"I simply put grades, but I did not know how objective I was... I could not check whether they did it themselves" (T2);

"I could see that those who did assignments themselves had lower grades than those who cheated. They shared answers via Viber with each other. But I did not have any influence on that. I could not confront the student, as I did not have any evidence or proof of cheating" (T3);

"They are so sincere… they would contact me and tell me 'there are no answers to your test on the Internet'…Do they think they were cheating, and the teacher did not know it? I was telling them, 'it's a silly thing you do. You will receive a good grade, but you will not have knowledge'" (T6);

"Assessment was challenging. We had to be loyal because there were children, who were absent for the whole semester. But I had to grade students... Grading was not objective… In most cases, one or two students did an assignment. In the best-case scenario, all the rest copied it from them. Some students did not even want to copy from their peers" (T16).

Teachers frequently stressed that they struggled with the lack of communication and personal touch with children, as virtual communication could not substitute physical classroom interaction. Students, in their turn, sought for more interaction, instant feedback and teachers' attention. Teachers describe it as follows:

"I lacked interaction with students, when I write on the board and turn to the children – I see who understands and who does not...Virtual class does not give you this feeling. You can't catch it virtually" (T1);

"24:20, a time when a student submitted a writing assignment, and in 20 minutes (24:40), I receive another message "have you already checked it?" (T5);

"They submitted the assignment in google classroom but did not stop there. They also sent it to me via Viber adding some emojis; everyone wanted immediate reaction and appraisal. I could not praise one student only. I had to praise everyone. It was a patience test for me (T14);

"They kept messaging me non-stop. Telegram, Viber, everywhere they could find me. They even reached me on Instagram...I was telling our director – a little bit longer and I can be a part-time psychologist" (T16).

Relations with parents

Data derived from the study demonstrates an increased need for family engagement, which in the past was limited to primarily administrative and organizational affairs. In contrast, now teachers found themselves in a new role of coaching parents on supporting their children with home-based learning, counseling parents on providing emotional support to children, and training parents in technology use. Teachers describe it as follows:

"I'd explain distance learning in the following way "Family raises a child and school provides quality education services. It relates only to distance learning... These

two branches, the school, and the family, need to collaborate. If one side fails, it makes no sense" (T9);

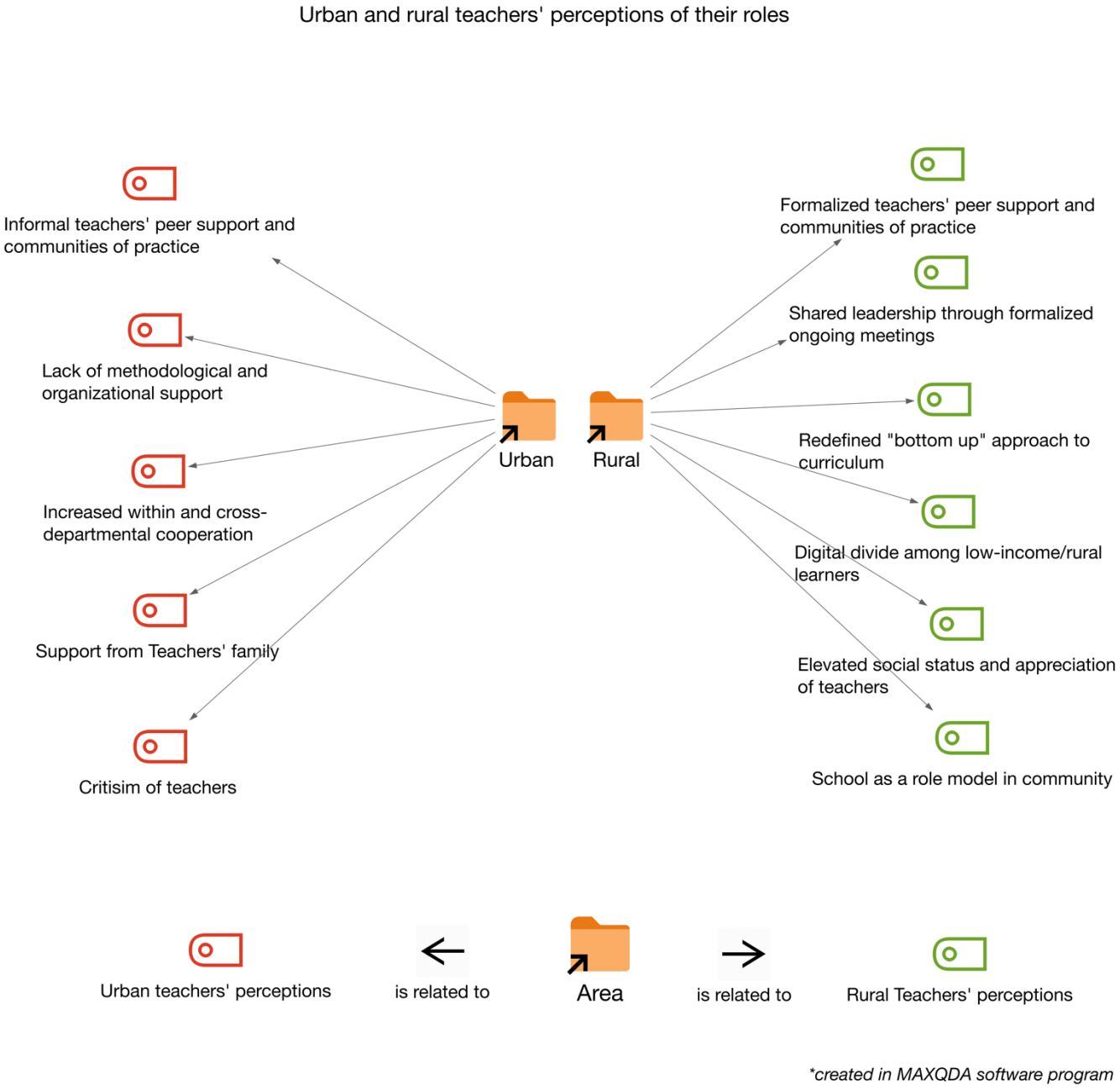
"Parents' engagement was crucial. As soon as parents became involved, their [students'] results become better... Those parents who ignore the children's learning process - it reflects on children" (T8);

"I had more conversations with parents, explained the need to do homework, trained them to install zoom, etc. (T3);

"This whole situation was so difficult for parents – they put on the hat of a teacher and a parent. They called me so often, and I needed to coach them" (T16).

It can be concluded that students' self-studying skills and motivation, combined with family support, affect the success (failure) of the curriculum's delivery.

2. Urban and rural teachers' perceptions of their roles



**created in MAXQDA software program*

Figure 2. Urban and rural teachers' perceptions of their roles

Urban teachers' opinions draw attention to the lack of methodological and organizational support with distance learning pedagogy among urban teachers. It pushed teachers to turn to other sources for help, such as members of their own families, and to form informal communities of practice and peer support groups both within and outside their departments. The training they got was limited to informatics teachers' lessons, which happened with a significant delay closer to the end of the 2020 spring semester. Teachers describe it as follows:

> "*There was no support from our methodologists. My husband helped me with the preparation of the lessons. Methodologists themselves had no idea of how teaching and learning should have looked like… Together with other teachers, we created the non-formal support group, where we started sharing different materials, tests, etc. In the beginning, the group included teachers from our school. Still, it extended later to other teachers from the community… Only in June, we heard of training on distance learning organized by the Lviv In-Service Teacher Training Institute. Still, it was very competitive to get in. Only 10 teachers were accepted" (T2);*
>
> *"…and nobody taught us, neither local methodologists, nor the ones from the In-Service Teacher Training Institute. We had no information. This semester [2021 spring semester], the informatics teachers gathered us and started showing us how to work online. I do not know why they [school] did not do something similar to us back then [2020 spring semester]. Now, I participate in the training at the In-Service Teacher Training Institute. I really hope they will teach us on distance learning" (T5);*
>
> *"Teachers helped each other. We learned on our own, and I am so grateful to my colleagues" (T8).*

Already being under-resourced and -trained, urban teachers experienced criticism of their performance during the lockdown. Teachers did not feel that it was objective and unbiased feedback, as they entered the online space with a lack of prior knowledge and preparation to teach online. One teacher describes it as follows:

> "*Nobody provided any resources or trained us, but everyone demanded something from the teachers. In the end, we were severely criticized… saying that teachers did so poorly, teachers do not understand that Viber is not a learning platform... But where would we learn this from? I am not embarrassed to admit that I needed to learn it... You should train teachers first and then demand something from them. But probably the school was pressured from the above…" (T2).*

Rural teachers reported that school directors provided ongoing support to beleaguered faculty as they dealt with rigorous situations. Teachers were engaged in collaborative decision-making, which positively impacted teachers' acquisition of new skills and encouraged them to redefine their approach to curriculum design and delivery. Formally organized meetings and peer-to-peer trainings resulted in teachers' greater autonomy to introduce needed changes. As stated by teachers:

> *"At the beginning we fully adhered to the national curriculum, because we had to do it by the law. However, then we held a meeting and informally made a decision – let the program requirements remain on paper – we need to work under the current conditions, and we adjusted the curriculum based on the need and the situation" (T14);*
>
> *"When we realized the lockdown would last long, we immediately started looking for alternative platforms, and we managed to do it because we worked as a team, as a family…. We educated each other. We learned together. If I had to be alone in this process, I would have failed. We even conducted teachers' attestation in zoom!" (T9);*
>
> *"I am so grateful to our Director, who led by example. We had teachers' meetings every other day in the beginning. Because each teacher had their own ups and downs, we searched for answers together. For example, what do you put in the grade book if the students miss the class? What to do when your internet goes down?.. As we talked to each other, we realized that we were not alone with our problems. Other people had similar issues. We dealt with stress together, because if you couldn't do your work properly, you started blaming yourself. It was important to see that other people had similar challenges, and it was not your fault. It started solely as the Director's initiative. We faced the "unknown" and the "unknown" scares people… These meetings helped us deal with the situation" (T14).*

The digital divide among students from rural areas and low socio-economic status was more pronounced by the teachers in rural schools. Some teachers faced the necessity to deliver paper-based instruction to students who were left behind due to the lack of internet or digital devices. A teacher describes it as follows*:*

> *"Our school serves three neighboring villages. There are some areas where even cell phone coverage does not work, not even mentioning the Internet. Besides, children from poor families… They did not have any access to resources. They never attended online lessons. We would take a car and drive to their homes to deliver writing assignments, and then we would return to pick up the homework. We did it because the buses did not run, everything stopped. We, as teachers, had to do it. It was our moral obligation…" (T12).*

While urban teachers experienced criticism of their performance from outside parties, rural teachers, on the opposite, felt more respect and appraisal for their work. One teacher describes it as follows:

> "*I feel that people started appreciating teachers more…people realized how much is being done at school and how much effort teachers put into working with students… This appreciation serves as some sort of compensation to us for our work, the recognition of the teacher in society" (T14).*

Finally, the study revealed an interesting observation that characterized rural teachers' response to the ERT – school has a special status in a village, best described by a teacher as:

> "*We had to quickly react and revisit our approach to teaching and learning. Everybody in the community turns to the school. People thought 'If the school can get it right, we will be okay" (T9).*

Based on the study results, it can be stated that teachers' collaboration, both through formal and informal communities of practice, influences teachers' perceptions of their roles.

3. Math-science and humanities teachers' perceptions of their roles

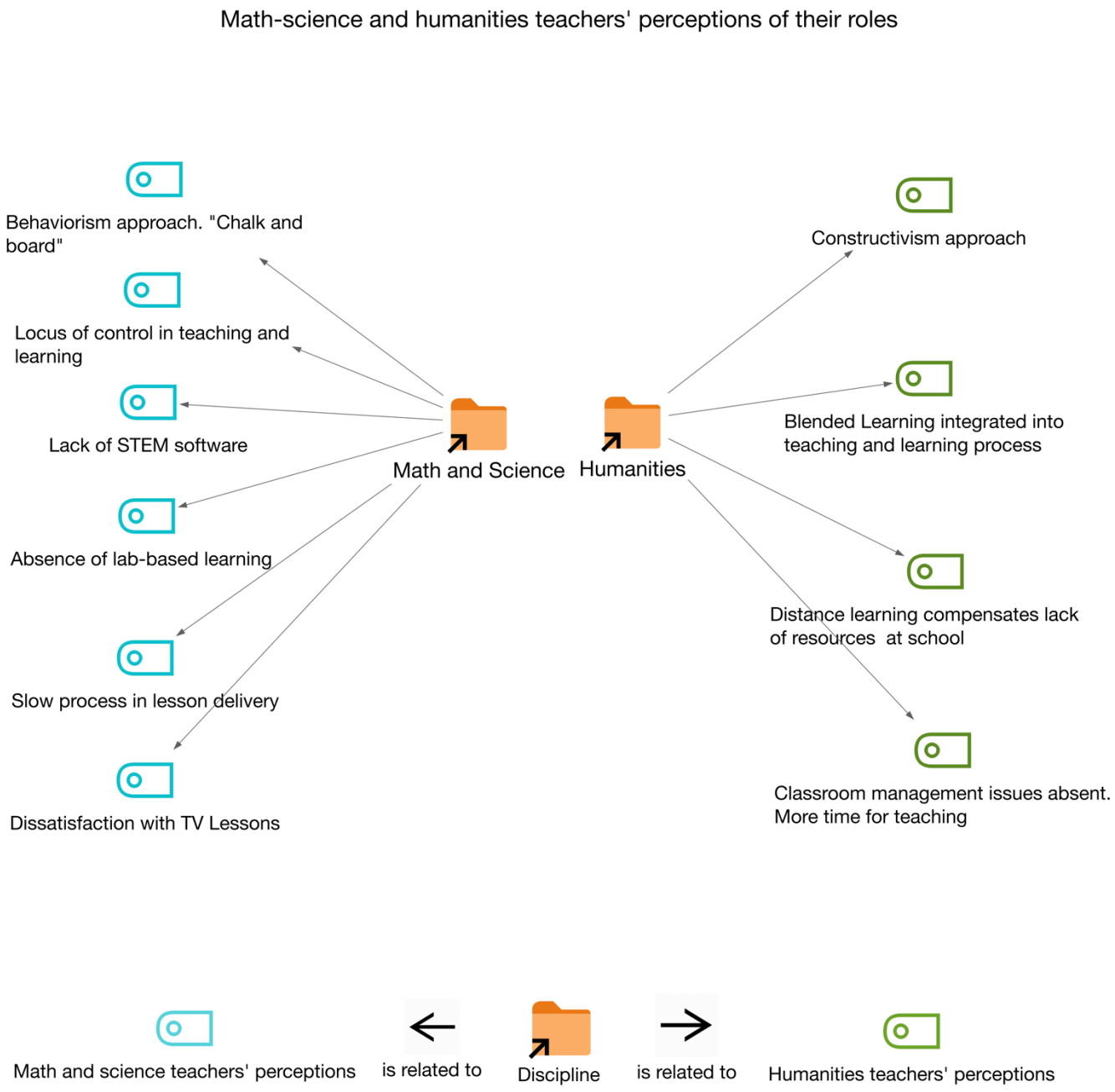


Figure 3. Math-science and humanities teachers' perceptions of their roles

The study reveals major differences among math-science and humanities subjects' teachers' perceptions of their roles in the context of curriculum design and delivery. When asked to describe their experience with lesson planning and online teaching, the math and

science teachers repeatedly stated the disadvantages of distance education, as described by a teacher:

> *"Math requires only face-to-face teaching and learning. A teacher needs to write formulas and draw figures on the blackboard, not on the screen or interactive boards. Otherwise, students will not be able to do anything by themselves. They will not know how to draw a geometric figure, as the computer will do it for them. When you take chalk and start drawing a parallelogram on the board, only then you learn it…I need a blackboard, chalk, and audience" (T4).*

Another teacher stated:

> *"My subject [math] – well, it's 90% replication of knowledge…and only face-to-face education serves the goal of mastering it. I explain the tasks to them, I give them a set of problems, and they need to solve it under my guidance" (T1).*

Teachers mentioned they did not diversify their lessons with interactive activities, stating:

> *"I did not even consider that. No group work activities. Even for homework or tests I gave them very easy problems to solve, similar to what I covered in class" (T6).*

Also, math and chemistry teachers raised their concerns about teachers' locus of control on the lesson. It is more typical for teachers who embrace a behaviorism approach to teaching, where the teacher's role is key and central, and direct instruction is associated with the teacher's control of the teaching and learning process. Teachers describe it as follows:

> *"There was not enough time for me during the lesson. I could not understand whether students were taking notes. I could not control the learning process" (T1);*
>
> *"I always set time limits for their assignments. I needed to control the process" (T4);*
>
> *"Classroom discipline is vital for my subject [chemistry]. I do not even start a lesson before I set a discipline in class" (T12).*

Math and chemistry teachers experienced a burden of slow lesson delivery caused by the lack of STEM-specific software. Teachers also reported the inability to conduct laboratory experiments, which deprived students of quality education. Teachers express it as follows:

"45-minute virtual classroom period was not enough time for me. Children were so slow following me and writing after me. It was drastically little time for me. There's a Math input panel in google meets, but I could not properly write mathematical formulas…" (T1);

"In my subject [chemistry], I needed to type symbols and equations. It took me so much time to type it, changing the language, looking for symbols. There should be software for it. We did not have it, and it was a very challenging and complicated task to do" (T8);

"I could not do any lab work… I have equipment in school, but no matter how many videos I send them - if they do not try doing an experiment once, they will never remember it. This was the hardest part" (T12);

"No labs for me. I just could not do it" (T15).

Math and chemistry teachers also looked for alternative ways to deliver information to children and turned to the video lessons broadcasted on national TV. However, they did not find it to be satisfactory. Teachers describe it as follows:

"MES recommended some lessons on TV. It did not work for me; it did not correspond to the content that I covered" (T12);

"I was so disappointed and frustrated with the TV Chemistry lessons introduced by MES. It was inappropriate... first of all, the flaw of instruction… you do not explain chemistry in a rush… the side comments of so-called students were inappropriate. Students do not behave like that in class. It devalued the role of a teacher completely. "Oh…cool… I did not know the chemistry was so cool... if I knew it, I would have attended chemistry lessons in schools." What messages do we send to our children? Why do they do it? Zabolotskyy's lessons were not well structured. He rushed through it. You need to give students good, thorough explanations. Chemistry is a difficult subject to comprehend" (T8).

English language and history teachers frequently emphasized the advantages of distance education. They prioritized interactive activities during virtual lessons, engaged students in project-based learning, and attempted to develop students' ICT skills, as well as such life competencies as creativity, team-work, and critical thinking. Teachers describe it as follows:

"I managed to incorporate different activities into the lesson. I could do more than in a face-to-face class because I was not distracted by disciplinary classroom management issues. If I needed to unmute someone, I did it. We agreed on the zoom etiquette, and students followed it. Also, I could develop students' ICT skills…they created audios and videos; we did quests. Students created their own presentations and

were engaged in public speaking. They even sang rap in English. They were more satisfied because they could get more out of the lesson in comparison with school-based learning" (T3);

"It was interesting and engaging. We had a lot of discussions on history topics. I could show them different videos and we debated on it. They questioned each other. We played the 'hot potato' game, and they loved it" (T10).

In addition, humanities teachers voiced that distance learning compensated them for the lack (absence) of technology resources in school. It allowed for more creativity, and teachers felt they could contribute to a lesson with more diversified activities rather than managing class discipline as compared to the lessons in school. Teachers describe it as follows:

"When I have only a blackboard and chalk, and children need to see and to visit a place virtually, it's challenging. We don't have interactive boards and projectors at school, and distance learning was much easier for me in that sense" (T2);

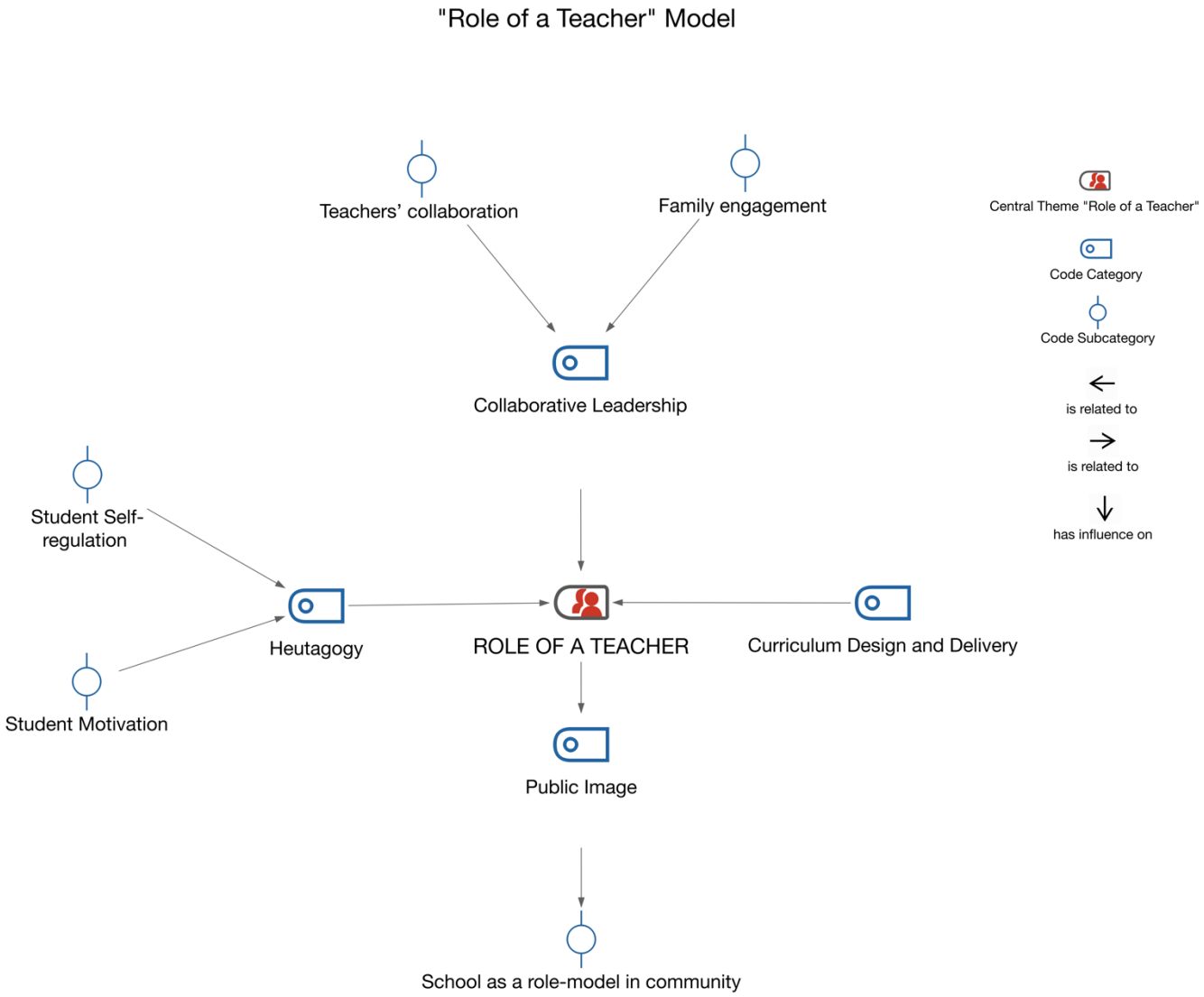
"School has not supplied me with adequate resources to qualitatively deliver the content of my subject [English]. Children were more satisfied with my lessons during the lockdown. Even parents stopped by the computer screen and peeked into our lessons; it was fun and interactive" (T3).

Identifying positive attributes of distance education, humanities teachers started incorporating its elements into classroom teaching. It strengthened the teaching and learning process. Teachers describe it as follows:

"You can get the best result with blended learning. When we meet with students synchronously (video) and then deliver content asynchronously. You can support students better with their learning" (T10);

"I use it for homework, and they like it... Creating the video, music, or asking students to describe the text with pictures. It's so interesting for them" (T3).

It can be concluded that math and science teachers' perceptions of their roles lay within the behaviorism teaching paradigm, whereas English language and history teachers' perceptions of their roles lay within the constructivism teaching paradigm, which can be elucidated by teachers' statements about lack of ICT infrastructure and its necessity for quality instruction in a pedagogical environment. Therefore, the (in)availability of ICT infrastructure impacts teachers' style and role in curriculum delivery (teacher-centered or student-centered approach).



*created in MAXQDA software program

4. 'Role of a Teacher' Model

Figure 4. 'Role of a Teacher' Model

The model has emerged from the themes that have been relevant to all teachers' perceptions of their roles, regardless of urban-rural area and subject of instruction.

Based on the study results, it can be suggested that collaborative leadership (teachers' communities of practice, partnership among teachers and parents/caregivers) influences the way teachers perceive their roles. Teachers' collaboration and mutual support, both emotional

and pedagogical, contribute to successful teachers' performance. Once not limited to administrative and organizational affairs, active family engagement helps form alliances among parents and teachers, resulting in improved students' achievement and better learning outcomes.

Teachers' perceptions of their roles are shaped by the mode of curriculum design and delivery and build upon the principles of heutagogy, a theoretical approach in education that emphasizes learners' self-management skills and capabilities and aims to prepare students as lifelong learners (Blaschke, 2012; Hase, 2016). Flexibility in curriculum delivery, individualized learning, combined with students' academic motivation, self-management, and self-determination in learning, as believed to be important elements in the heutagogy approach to education, helps prepare learners for the intricacies of the real world (Blaschke, 2012). These skills, once acquired, can break barriers between secondary and post-secondary education and can smooth students' transition to the latter.

Therefore, collaborative leadership, curriculum design and delivery, principles of heutagogy in education contribute to the construction of teachers' perceptions of their roles. It, therefore, influences teachers' public image. The image that teachers hold in the community strengthens the school's role as a critical community player and a transformative social change agent.

DISCUSSION AND RECOMMENDATIONS

The purpose of this grounded theory was to get deep insights into urban and rural, math-science and humanities teachers' reflections on emergency remote teaching during the COVID-19 lockdown in March-May 2020 and to discover whether this experience influenced Ukrainian teachers' perspectives on their roles.

Described by teachers as "*chaos"* (T2) and "*catastrophe*" (T9), ERT presented a number of challenges for teachers, fluctuating from lack of knowledge in distance learning pedagogy and low digital confidence to teachers embracing new roles in interacting with families.

The new reality was met with a mix of emotions, ranging from teachers' fear for their health, exhaustion, distress, and emotional burnout to a feeling of professional obligation and commitment to continue teaching in a time of uncertainty. Because teachers received limited organizational guidance and meager methodological support, as most pronounced among urban teachers, the initial instruction was often restricted to asynchronous teaching through Viber. Urban teachers approached ERT from the *"sink or swim"* position (T3), which motivated them to immerse themselves in self-directed learning. Teachers proactively searched for educational videos on YouTube and reached out to their peers for advice and guidance, which resulted in the establishment of informal communities of practice. However, shared examples of rural teachers demonstrate that formalized teachers' collaboration and bottom-up decision making eased and expedited teachers' transition to a more or less normalized, organized, and structured method of teaching during March-May 2020. Rural teachers engaged in collective and inclusive decision-making; frequent check-in calls and video conferences during ERT empowered teachers to take leadership roles in the curriculum design and delivery and enhanced teachers' satisfaction with job performance. The study concludes that teachers' collaboration, both through formal and informal communities of practice, influences teachers' perceptions of their roles.

Teachers' responses indicate that teachers were faced with the need to perform roles of a content manager, online instructor, and technician, often challenged to guide zoom usage to their colleagues, students, and parents. These new roles that emerged out of necessity pushed teachers to embrace new responsibilities. It resulted in a considerable increase in teachers' workloads. Teachers needed to adjust syllabuses, redesign lesson plans, create new instructional materials for online instruction. The study affirms that lack of digital competence and knowledge in distance learning methodology can leave some teachers behind, directly affecting students' inequality of opportunity to quality education.

Research findings suggest that math and science teachers use the teacher-centered approach to instruction, whereas humanities teachers operate in the student-centered paradigm. These findings are supported by math and science teachers' statements, such as *"I need chalk and board, and audience" (T1), "my subject is 90% replication of knowledge" (T4)*, and the claimed importance of teachers' control over the teaching and learning process. Such

sentiments are more typical for teachers who adopt the behaviorism paradigm (Magliaro et al., 2005; Serin, 2018).

On the other hand, the humanities teachers spoke of unitizing interactive activities and project-based learning during ERT. In developing the lesson plans, they were directed by the need to cultivate students' real-life skills and competencies. Humanities teachers also shared control over the lesson with students by establishing partnerships and work ethics agreements, which is prevalent in the student-centered teaching paradigm (Serin, 2018). The study results support previous research findings of studies conducted by Baeten et al. (2010) and Umugiranezaat et al. (2017). Baeten et al. (2010) stated that the constructivism approach is more prevailing within the humanities field. Umugiranezaat et al. (2017) suggested that mathematics and science teachers might function within the behaviorism paradigm.

While humanities teachers highlighted the benefits of teaching and learning from home, stating that it compensated for the lack of ICT resources at school and allowed for more creativity, math and chemistry teachers claimed that such a model was not suitable for them. The absence of STEM software prevented them from quality instruction. The study, therefore, suggests that (in)ability of ICT infrastructure may impact teachers' style and role in curriculum delivery (teacher-centered or student-centered approach). The problems associated with STEM software call for the government's immediate attention and action, as without proper digital infrastructure, students' learning loss will be exacerbated during out-of-class teaching and learning.

Study findings also show disparities among access to the Internet and technology, both for teachers and students; however, the rural teachers express a more significant concern in this regard. Teachers indicated that some students abruptly attended online lessons, and some even dropped out of school for the lockdown period. As stated by Leacock and Warrican (2020), "equity implies that individuals have access to what they need to be successful" (p. 4). When teaching and learning were limited to teachers' sporadic in-person delivery of paper-based learning materials, it aggravated the inequality for students' educational opportunity. It deprived students of opportunities for academic success.

During the interviews, it was evident that schools need to foster a culture of academic integrity and honesty and revisit or introduce cheating intolerance policies. Teachers voiced an alarming concern about students' intensive cheating, as described by one teacher:

> *"5% of the students sent in their assignments with mistakes. Others submitted it already without mistakes. After the first cohort of students submitted their assignments and received my feedback, the rest started turning in the corrected assignments. And this was a problem because I could not fairly assess them" (T4).*

As supported by teachers' statements, students' academic dishonesty resulted in teachers' inability to vouch for objectivity and fairness in assessment.

The issue of students' self-management has become salient during the study. Teachers were perplexed by the unexpectedly high lack of students' self-study skills and low motivation. One teacher explained that *"teacher is like a tug that pulls students in their learning. They [students] are used to having everything organized for them: schedule, daily routine" (T9).* The study reveals that students' dependency on teachers can prevent many students from being able to self-study and self-organize. It can hinder and create challenges for students as they transition to college life and adulthood.

The study uncovered an increased need for family engagement, which in the past was limited to primarily administrative and organizational affairs. In contrast, now teachers found themselves in a new role of coaching parents on home-based learning and emotional wellbeing. It can be concluded that parents' involvement affects success (failure) of curriculum delivery and students' (in)equality of opportunity to education. Study shows that even if the children had access to Internet and devices, their attendance and homework completion correlated with parental attitude to distance learning and education in general. One teacher described it in the following way:

> *"There was a female student in my class, whose family moved to the village for the period of lockdown. Her mom refused to take any books with them and to install the Internet in the house. At the same time, there was another family who also moved to the village during quarantine. Parents purposefully installed the Internet in the house. Both families had resources to ensure their children were not deprived of education, but one parent decided to do it, and the other refused. Children copy their parents' attitude to schooling... Parents are the key vehicles for students' learning" (T6).*

Teachers' experiences with ERT allowed me to get insights into teachers' perceptions of their roles in Ukraine and to reflect on the educational public good provision in regard to the teachers' workforce. Based on the study results, it can be concluded that COVID-19 pandemic threatened teachers' professional capability to provide quality teaching. However, the study revealed a promising finding that the integration of the blended learning approach to traditional face-to-face education can be attractive to some teachers, especially teachers of humanities subjects. It can enforce teachers' flexibility in building their curriculum around the issues that are relevant for students' current needs and are concurrent with real-life issues. Although distance education cannot substitute face-to-face education, the utilization of blended learning (e.g., flipped classroom) can strengthen schooling's effectiveness, once combined with access to Internet and availability of technology among teachers and students, enhanced students' self-studying skills and teachers' proficiency with blended learning methodology.

Some teachers recognized the advantages of blended learning and acknowledged its application in their current teaching practice after the lockdown in March-May 2020. Teachers describe it as follows:

"These days, once we tried using blended learning, we cannot go back to traditional schooling. Blended learning intensifies face-to-face education, and we started implementing its elements. We did not do it before the lockdown, but now we see its benefit" (T10);
"Even now, as we're back to school, I use elements of distance learning. It is so convenient. I use google classroom for homework or tests. I do not have to print anything – children enter the google class and complete the assignments. It's so cool" (T11).

The study concludes that teachers' perceptions of their roles depend on collaboration among teachers, and partnerships among teachers and parents; they are related to the mode of curriculum delivery and principles of heutagogy. It, therefore, affects the public image of a teacher and, consequently, the school. Since the current research did not analyze parents' perceptions of teachers' roles, further research is needed to explore families' perspectives before suggesting recommendations to policymakers. The recommendations will be suggested in the realm of curriculum delivery.

Therefore, based on the study results, I would like to provide the following policy recommendations:

- Shift the focus of initial teacher preparation from face-to-face classroom practice to hybrid schooling. Student-teachers are usually trained to operate in traditional classroom environments. However, the current circumstances dictate the need to revise this approach and to integrate blended and distance learning methodology to the initial teacher preparation programs.

- Revisit the in-service teacher training and professional development approaches. Develop high-quality professional development programs that prepare teachers' workforce for blended-learning education, enhance teachers' digital competences, and include heutagogy approaches to teaching (help teachers support students' socio-emotional skills, such as motivation and self-study skills). The government should prioritize the allocation of appropriate resources (e.g., STEM software and digital infrastructure) to schools.

- This study confirms teachers' readiness, especially teachers of humanities subjects, to integrate a blended-learning approach to traditional schooling both in urban and rural schools. It is recommended to incorporate a flexible approach to curriculum delivery models that permits different subject teachers to choose among the most suitable teaching models.

Although the concept of emergency remote teaching implies its temporality with the expectation to return to traditional schooling (Hodges et al., 2020), the ERT has not been short in duration, leaving the Ukrainian teachers to operate in the limbo of online and face-to-face education. If policymakers do not adequately address teachers' challenges associated with ERT, the ERT ripple effect may negatively influence Ukraine's human capital growth.

Limitations and Further Research Recommendations

To ensure internal validity, I have stated my own biases that I brought to the research. I also purposefully numbered each interview transcript to limit my own biases of the participants and to exclude the "tendency for the interviewer to see the respondent in his or her own image" (Cohen et al., 2007, p. 150). Creswell and Poth (2018) recommend "having a peer review or debriefing of the data and research process" (p. 341). Therefore, I debriefed the data and reviewed the coding with the Instructor of participatory monitoring and evaluation at Colorado State University.

However, the external validity of this research is limited. Additional cross-regional research is needed to clarify whether these results can be applied to a general population of teachers in other oblasts of Ukraine.

Also, the geographical limitation could have affected the study results. Since Lviv oblast is bordering other countries, school graduates often pursue higher education in such countries as Poland, Hungary, Romania, and others. It may be an external factor, which has not been considered in this study, but can potentially influence teachers' perceptions of their roles. Further research may help identify whether such peculiarity of a border oblast affects teachers' perceptions of their roles.

The research explored teachers' experiences with ERT and how ERT influenced teachers' perceptions of their roles. ERT has been a highly emotional experience, and it is unknown whether teachers' perceptions of their roles remain unchanged within time. It is recommended to conduct similar research in the future to confirm or reject the study findings. Also, future research is suggested for data triangulation with directors, parents, and students' perceptions of teachers' roles.

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APPENDICES

Appendix A. Interview Protocol

Інтерв'ю із вчителями середньої та старшої ланки ЗЗСО

ПІБ:
Посада:
Населений пункт (село чи місто):
Номер телефону:
Дата проведення інтерв'ю:

Вступна частина

Добрий день! Мене звати Оксана Шабас, я проводжу дослідження про вплив дистанційного навчання спричиненого пандемією COVID-19 в березні-травні 2020р на сприйняття вчителями їх ролей. Мені важливо почути точку зору фахівців – вчителів середньої та старшої ланки ЗЗСО. Дякую, що відгукнулись і готові допомогти.

Наша зустріч є довірчою: результати дослідження буде подано в узагальненому вигляді без використання Вашого імені. Для зручності при аналізі нашої розмови, я записуватиму її на диктофон, проте сам запис буде використовуватись мною лише з дослідницькою метою під час аналізу отриманої інформації. Після опрацювання отриманої інформації цей запис буде видалений.

Для мене немає правильних чи неправильних відповідей, мені важлива саме Ваша думка і я сподіваюся на щирість Ваших відповідей. Ви можете відмовитися від участі в нашій бесіді в будь-який момент, не відповідати на будь-які запитання без пояснення причин, та встановити обмеження на використання інформації.

Наша бесіда триватиме близько до 40 хв. Якщо у Вас є до мене питання перед початком інтерв'ю, буду рада відповісти.

Почнімо!

Основна частина з запитаннями

1. Розкажіть про Ваш досвід викладання під час карантину.

2. Розкажіть, як ви планували та проводили уроки під час дистанційного навчання на карантині.

3. Розкажіть, як змінилося Ваше спілкування та робота з учнями під навчання на карантині.

4. Чи достатньо на Вашу думку учні засвоїли навчальну програму під час онлайн навчання?

5. В порівнянні із навчанням офлайн, як відрізнялася дисципліна під час онлайн уроків?

6. Розкажіть про Вашу співпрацю та спілкування з колегами-вчителями під час карантину

7. Опишіть роль вчителя в сучасних умовах трьома словами.

Дякую Вам за те, що Ви погодилися взяти участь у цьому дослідженні!

Appendix C. Codebook. Open Coding

Code System	Frequency
Code System	495
acceptance of reality in distance learning	1
did not have prior knowledge in DL	3
easier to teach with computer at home	2
image of teacher in society	1
cooperation among teachers	1
breaking stereotype of teachers' image	1
students' imagination building	2
grading	2
hard - constantly on the phone	3
integration of blended learning	2
skills to self-study	3
need for appraisal among children	2
revisited view on curriculum	2
parents started appreciating teacher	3
В більшості випадків зробили вигляд, що зрозуміли.	1
need to motivate students to study by themselves	1
Director's support ongoing	2
increased workload- time to prep for a lesson	3
access to students physically deliver resources	1
children did not attend	2
hard to type formulas + figures	3
Students copy after teacher	2

	theory but no practice in lab	1
	creativity building in students	2
	need for parents involvement	3
	organized meetings at school	2
	more teachers' meetings - structured	7
	more time for different activities	2
	kids did not want to show themselves on zoom	1
	attached to computer	1
	need for self-study skills	1
	Synchronous learning	3
	School/teacher – important how dealt with ERT	1
	motivation issues	1
	not fair comments about how Ts handled ERT	1
	integrate blended learning now	4
	diversified activities for interaction	4
	more children from low-income families-hard time	1
	motivation - low	1
	more project-based learning	1
	lack of understanding from parents of DL – need to explain	2
	Appreciate more	2
	School as role model in community	1
	Teachers taught each other	8
	challenged kids to say how they understand	2
	benefit: students can prepare for ZNO	2
	teacher буксир, який тягне учня	1

	benefits of blended learning	3
	revised approach to curriculum delivery	1
	individualized approach to lessons	5
	Proactive looking for platforms, videos, etc	4
	realized viber - not efficient - need synchronous +platforms	3
	synchronous	1
	three villages coverage: no access to adequate internet + cell	3
	Катастрофа.	2
	cooperation among Teacher and Parents increased	3
	learning about distance ed	2
	questioning why in profession	1
	teachers train each other	2
	technical support from colleagues	2
	unattendance – children loose opportunity to receive knowledge	2
	now i try to develop self-study skills	1
	children can’t self-study	4
	need for more parents’ support	3
	Inadequate MES videos	4
	critical thinking development	1
	better cross-dept cooperation	1
	partially засвоїли	1
	can’t give proper individualized feedback	2
	reaching out to students – psychological support	1
	hard to type/draw formulas, etc	3

	lack of computer knowledge	2
	referring to TV lessons but did not work	1
	no platform for distance learning	3
	coaching parents on home-based learning	3
	other teachers helped	1
	reached out to teachers of other subjects more	1
	Did not understand how to org the process	2
	lack of understanding from parents of DL – need to explain	2
	withing department communication	1
	learning loss	2
	sleeping in zoom	2
	no engagement in zoom – off camera	2
	TV lesson – did not work	1
	knowledge gaps	1
	no labs	4
	трохи кривлячи душею ти щось там перевіряла. Ставила оцінки..	1
	То вайбер як пікає, я вже не могла дивитися.	1
	need for instant feedback	6
	students can choose to learn what they need	1
	additional time to prepare interactive activities	1
	comfortable for teacher	2
	chalk and board	4
	teachers' control of lesson	2
	serious subject	1
	no interactive activities	1

	Students’ messages at night	6
	blur home and work	6
	lack of self-study skills	3
	assessment objectivity due to cheating	6
	gaps in knowledge – behind	6
	surviving	2
	delayed training from informatics teacher	2
	increased time for HW check and grading	10
	Need for parents’ involvement	1
	personalized instruction	3
	beneficial for students – they get more from Teacher	1
	less time to manage discipline – more for learning	2
	setting code of conduct at the lesson	2
	interactive activities at the lesson	3
	кожен має свій own pace	2
	beneficial for students – they get more from Teacher	1
	Started coaching parents	9
	need to be in charge of the process	1
	unbalanced workload	1
	confusion of studying at home	1
	Students’ skills development in self-study	1
	Students’ skills development in digital learning	1
	additional assignments	2
	increased workload	10
	no gadgets at school	1
	comfortable at home	2

	interactive presentations for lessons	3
	І спочатку було страшно і трудно	1
	devices and platform challenges	3
	Criticism of teachers	2
	Internet challenge	10
	started using elements of online learning	3
	distance learning compensates lack of school resources	2
	Я дітей 21 століття вчу засобами 19 століття тих знань, які вони…	1
	teachers' informal support group	2
	no methodological support	3
	оцінки були поставлені з неба	1
	increased parents' attention	7
	unattendance	8
	lack of motivation among students	9
	Personalized learning	2
	Zno prep	2
	Support from Teachers' family	4
	Did not understand how to organize the learning process	3
	Teacher started self-directed learning	7
	zoom rules agreements with kids	3
	lack of digital infrastructure - teacher	3
	had no idea how to organize the teaching and learning	3
	different digital tools _students	2
	lack of Instructional design knowledge	5
	Asynchronous: viber	7

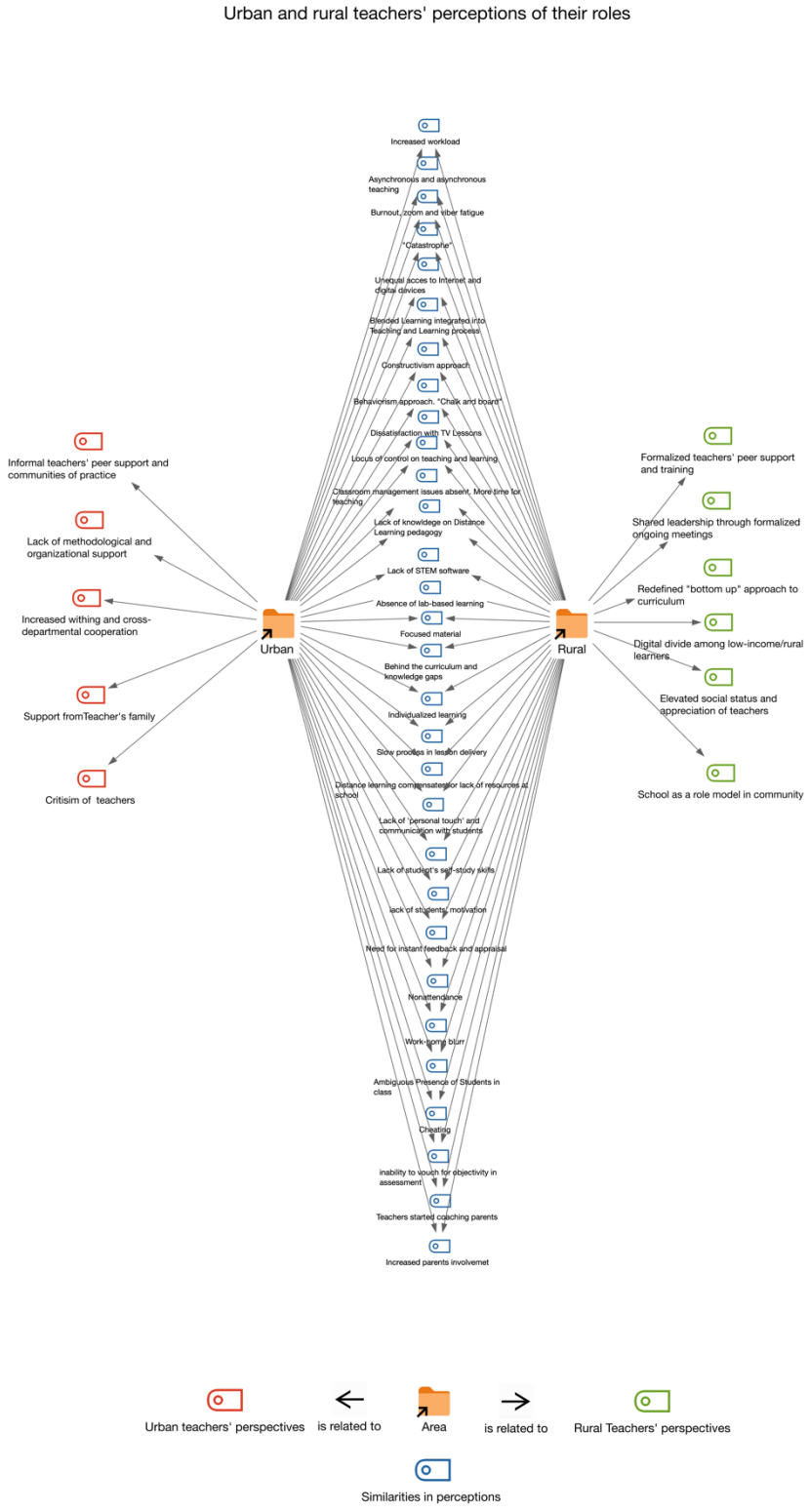
	Usage of videos + other resources	3
	Це був блєф – ми робили вигляд, що ми вчимо, діти робили вигляд	1
	хаос, ніхто не знав, що робити	1
	No contact information of kids	2
	Transfer knowledge	6
	Consulting colleagues on technical issues	3
	emotional support among colleagues	2
	slow lesson delivery	2
	no control over the learning process	4
	lack of communication with students	2
	lack of interactions_turned off cameras	3
	behind the curriculum	6
	passive engagement of Students	5
	no personal touch	6
	Rules setting for HW	2
	Increased time for lesson prep	10
	Cheating	12
	Simplified material	14
	lack of time to conduct a lesson	2
	student's self-study	3
	lack of communication with Students	6
	replication of knowledge	5
	Ts started communicating more	3
	emotional challenge	10

Appendix D. Codebook. Axial Coding

Code System. Categories and subcategories	Frequency
Code System	388
EXPERIENCE	0
Teacher's self-directed learning	5
Support from Teachers' family	5
CHALLENGE	0
"Catastrophe"	5
Burnout, zoom and viber fatigue	13
Lack of methodological and organizational support	8
Criticism of teachers	5
Increased workload	25
Unequal access to Internet and digital devices	18
Digital divide among low-income/rural learners	5
BENEFITS	0
Individualized learning	9
Blended Learning integrated into Teaching and Learning process	8
Distance learning compensates lack of resources at school	5
ASSESSMENT	0
Inability to vouch for objectivity in assessment	7
COOPERATION WITH COLLEAGUES	0
Shared leadership through formalized ongoing meetings	6
Informal teachers' peer support and communities of practice	8
Formalized teachers' peer support and communities of practice	8
Increased withing and cross-departmental cooperation	6
CURRICULUM	0

Dissatisfaction with TV Lessons	6
Slow process in lesson delivery	6
Lack of STEM software	8
Behind the curriculum and knowledge gaps	15
Constructivism approach	12
Asynchronous and asynchronous teaching	16
Classroom management issues absent. More time for teaching	6
Focused material	16
Absence of lab-based learning	4
Behaviorism approach. "Chalk and board"	9
Locus of control on teaching and learning	8
Redefined "bottom up" approach to curriculum	5
Lack of knowledge on Distance Learning pedagogy	10
PARENTS	0
Increased parents' involvement	11
Teachers started coaching parents	8
School as a role model in community	4
Elevated social status and appreciation of teachers	5
RELATIONS WITH STUDENTS	0
Cheating	18
Work-home blur	10
Ambiguous Presence of Students in class	12
Lack of 'personal touch' and communication with students	10
Lack of student's self-study skills	11
Need for instant feedback and appraisal	8
Nonattendance	11
Lack of students' motivation	13

Appendix E. Differences in urban and rural, math-science and humanities teachers' perceptions of their roles



Math-science and humanities teachers' perceptions of their roles

Appendix F. Teacher' 'Role of a Model