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Primary Education in Wartime: How the Russian Invasion Affected Ukrainian Teachers and the Educational Process in Kryvyi Rih

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Abstract: The ability of children in Ukraine to continue their primary education after the Russian invasion is inextricably linked to the direct providers of education – primary school teachers. This study aimed to clarify the psychological effects of the war on Ukrainian primary school teachers and their everyday educational activities, using teachers in the city of Kryvyi Rih as a case study. The research design included personal and professional data, questions on changes in students and the educational process, Psychological Stress Measure (PSM-9), Oldenburg Burnout Inventory (OLBI), Brief Resilience Scale (BRS), and Miroshnyk Teacher's Roles Self-Assessment Scale (MiTeRoSA) integrated into an online survey conducted three months after the invasion. In the results, primary education in Ukraine during the invasion required teachers (n=495) to make significant changes in their work, namely shifts in schedules, increased workload, conducting remote lessons, providing tutoring for certain students, conducting crisis interventions with a broader range of subjects, and volunteering. The majority of the surveyed practitioners experienced considerable stress due to a significant increase in the amount of time they spent preparing their lessons. The psychological conditions of primary school teachers depended on the number of students who were expelled and new students who had been evacuated from other war-torn regions, the ability of school administrators to re-organize the work for online teaching, and perceived support from colleagues. All of these factors along with resilience were predictors of stress and burnout among teachers in wartime. Teachers experiencing burnout, especially exhaustion, high-stress scores, and low levels of resilience frequently evaluated the performance of their students with more leniency. In addition to a list of typical teachers' roles (MiTeRoSA), teachers indicated frequently taking on the new roles of a 'tutor' and a 'crisis counselor' in response to the war.

Keywords: *primary education; primary school; school psychology; primary school teachers; Russian-Ukrainian war.*

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1. Introduction

Primary education is a core opportunity for children to obtain essential social and subject knowledge, as well as develop important academic skills. Lockheed & Verspoor (1991) reasonably compared primary education with a building block, which allows students to make confident steps towards further education and towards success in their broader life. In Ukraine, primary education is guaranteed to every child by the Constitution and starts between the age of 6 to 8 years old, with classes lasting for four years. Based on the government's Conception of the 'New Ukrainian School', modern primary education in Ukraine focuses on the development of specific abilities and competencies (Savchenko & Lokshyna, 2020), personality-oriented learning, values of childhood, humanized teaching, and creating a modern educational environment that provides students with a sense of security and promotes the development of their creativity (Reshetnyak et al., 2022).

Due to the Russian invasion of Ukraine in February 2022, many families fled their communities and children interrupted their education as they sought safety in western regions of Ukraine or abroad. Some students continued studying remotely in their pre-war primary schools, other students enrolled into new primary schools in their new communities, while others simply interrupted their studies and stopped attending classes as their parents chose to wait out the war. Researchers have emphasized how important it is for children to continue their education during wartime (Manuchehr, 2011). This is particularly important for young children as primary education can be a significant contributor to post-war peacebuilding (Savchenko & Lokshyna, 2020; Vanner et al., 2017).

The ability of schools to provide primary education for Ukrainian children during the war is inextricably linked to the direct providers of education – primary school teachers, whose wishes, competence, responsibility, leadership (Cherepiekhina et al., 2021) and bravery have allowed them to continue teaching, sometimes improvising and creating extraordinary new ways of maintaining contact with their students. Primary school teachers are accustomed to working under pressure during normal peacetime conditions when they must follow a curriculum while developing their professional proficiencies (Blyth, 2017). Primary school teachers in Ukraine experienced multiple new stressors during the Russian invasion, highlighting the importance of monitoring their needs and providing

professional and psychological support so they can continue teaching amidst terrifying missile strikes.

Considering the psychological effects on the population in response to the 2014 Russian occupation of the eastern regions of Donetsk and Luhansk (e.g. Bogdanov et al., 2017; Kuzmenko, 2017; Volchenko, 2018; Poznysh et al., 2019; Lunov et al., 2022; Velykodna et al., 2022), we hypothesized that primary school teachers living in Kryvyi Rih near the front lines, experiencing daily air raid sirens and volunteering to help displaced civilians arriving from other regions of Ukraine would result in acute stress and more psychological burnout, which would negatively affect their ability to teach. As a result, we developed a study to clarify the psychological effects of the war on Ukrainian primary school teachers and their everyday educational activities, using the central Ukrainian city of Kryvyi Rih as a case study.

2. Kryvyi Rih Primary schools in wartime

The Russian invasion began at 4:00 am on the 24th of February 2022, when Ukraine was awakened by a massive Russian missile attack. Kryvyi Rih was struck by a missile that day. Hundreds of more missiles were fired at the city in the coming months, and most were shot down by Ukrainian air defence forces before they struck their targets. When we conducted this research from 16th to 20th May 2022, there was active combat some 40-50 km south of Kryvyi Rih as Russian occupying forces tried to push towards the city.

Two to three hours after the invasion started, school administrators in Kryvyi Rih instructed teachers to work with their classes online and stay in contact with students' parents, as well as provide a description of different kinds of air raid alerts and a list of actions to take in each case. Since primary school teachers and students had already worked online due to COVID-19 lockdowns and had experienced numerous bomb alerts in the two months prior to the Russian invasion, they transitioned easily and conducted online lessons with their students that very same day.

The following day the Ministry of Education and Science of Ukraine published letter N° 1/3276-22 'On the organization of educational process' recommending that local Departments of education and science suspend in-person education at schools and colleges for two weeks due to security reasons. On the 26th of February 2022, school administrations in Kryvyi Rih announced a two-week break for students starting on the 28th of February

so that school workers could transform schools — especially basements — into temporary shelters with round-the-clock duty.

During this period, school teachers with volunteers (often students' parents) re-arranged chairs and added beds to the schools, gathered medical supplies and bottles of water and stayed on duty in the shelters to assist people seeking cover during the air raid alerts. Some people stayed in school shelters for days, especially those with disabilities and families with little children. Some school workers came for their night duties along with their children and relatives. Other groups of teachers were preparing food and weaving camouflage nets for soldiers on the front lines, and collecting clothes for civilians displaced from the Donetsk and Luhansk regions. On the 11th of March 2022, the Department of education and science of Kryvyi Rih extended the original school break by another week.

As of the 21st of March, schools of Kryvyi Rih resumed teaching in an online format with some adjustments to the schedule and the content of the lessons. Every day started at 9:30 am to accommodate students who evacuated westward to the neighboring Central European time zone and also provided an hour for talking so that students could connect. Teachers were asked to avoid war-related topics and images in their lessons, e.g. pictures of red poppies were replaced with pictures of chamomiles in presentations due to the association of red poppies with blood and World War II. If children expressed concern about the invasion, teachers were instructed to reassure them that their families would care for them. In the case of an air raid siren, teachers were told to interrupt the lesson and remind children of the steps they should take to stay safe. After the end of an air raid siren, the teacher and students returned from the shelters to resume their lesson.

3. Methodology

3.1 Theoretical framework

Based on the literature review and the context of wartime Kryvyi Rih, the authors proposed a theoretical framework to understand how the war affected primary school teachers and primary school educational processes (Figure 1).

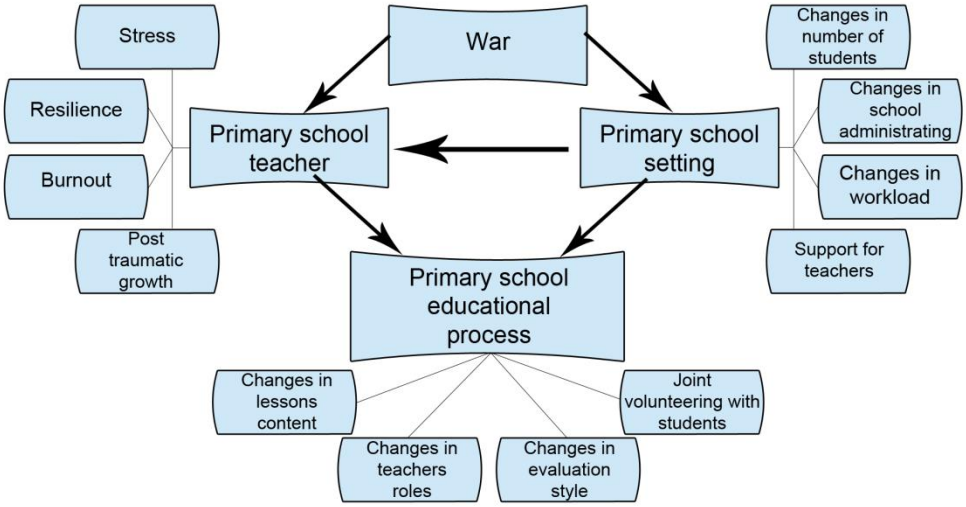


Figure 1 - The theoretical framework of the study.
Source: Author's own conception

Following the proposed theoretical framework, we assessed how the war and the different primary school setting influenced primary school teachers and the educational process provided by them.

3.2 Survey development.

The study was designed as a survey to obtain qualitative and quantitative data on war-related changes in primary school teachers' psychological conditions and educational activities, in order to conduct further content and statistical analyses. Two authors of this paper who work in primary schools — one as a teacher and another as a school psychologist — were first-hand observers of war-related school changes and were involved in the development of the surveys. Based on their personal experiences and observations, as well as under the scope of our study, we constructed a questionnaire for primary school teachers, which included 79 questions as follows:

- questions about the respondent (gender, years of professional experience);

- information about their students (class, i.e. a year of education; changes in the number of students due to the war, e.g. expelled or new students evacuated from other regions);
- open-ended and closed-ended questions about war-related changes in the educational process and work setting (including satisfaction with them);
- Miroshnyk Teacher's Role Self-Assessment Scale, MiTeRoSA (Miroshnyk, 2013; see English version translated from Ukrainian in Appendix A);
- Psychological Stress Measure, PSM-9 (Lemyre & Lalande-Markon, 2009);
- Oldenburg Burnout Inventory, OLBI (Demerouti & Bakker, 2008);
- Brief Resilience Scale, BRS (Smith et al., 2008);
- Post-Traumatic Growth Inventory, PTGI (Tedeschi & Calhoun, 1996).

The Faculty of Psychology and Pedagogics Ethics Board, Kryvyi Rih State Pedagogical University, evaluated and approved this research project.

3.2 Procedure

The researchers collaborated with the Kryvyi Rih Center of Innovations in Education to recruit the participants. They sent announcements to all 145 schools in the city via emails, and school administrations distributed the announcements to primary school teachers. The announcement invited teachers to anonymously volunteer to participate in a study seeking to assess war-related changes in the educational processes. Written consent for participation in the research was gathered from survey responses via Google Form.

3.3 Participants

The minimum number of participants for a survey with 79 questions was estimated to be 395. To reach a confidence level of 99% with a margin of error of 5% required at least 415 primary school teachers participating from a total number of about 1,100 in the city.

A total of 495 primary school teachers from Kryvyi Rih agreed to participate in the survey (a more detailed description of the participants is in Table 1). They responded to an online survey from 16th to 20th May 2022, after almost three months of the Russian invasion.

Table 1 - Sample description

Variable		Number (n)	Percentage (%)
Gender	Female	491	99.2
	Male	4	0.08
Grades	First	128	25.9
	Second	118	23.8
	Third	124	25.1
	Fourth	125	25.3
Work experience (years)	Maximum	56	
	Minimum	1	
	Average	20.45	
	Standard deviation	12.98	

Source: Author's own conception

3.4 Data analysis

The data analysis of this study included descriptive statistics, content analysis, rank correlations, percentiles, sign tests and a comparison of ordinal data and frequencies by non-parametric criteria using IBM SPSS Statistics 23 software. As the proposed inventories and scales were standardized in peacetime, we decided to recalculate their reliability (Chronbach's α) to ensure they are valid for use in wartime.

For every closed-ended question with 'yes' or 'no' responses, the total sample was divided into two groups and compared by the Mann-Whitney U-test in ordinal data or the Pearson Chi-square χ^2-test in case of frequencies. Similarly, the total sample was divided into relevant groups by three or four response options in other closed-ended questions and compared by the Kruskal-Wallis H-test. A comparison of percentages was counted with Fisher's angular transformation φ-criterion. One open question with short narrative responses was analyzed by conducting a quantitative and qualitative content analysis.

4. Results

4.1. Changes in the composition of students

According to 37.8% of the survey respondents, the original pre-war class size —number of students — did not change after the Russian invasion, while others indicated a decrease in the number of students (a) from 1-20% decline (marked by 43.2% of teachers); (b) from 21-50% decline (15.2% of teachers); (c) from 51-70% decline (3% of teachers), and (d) more than a 71% decline (0.8% of teachers). At the same time, 28.3% of the surveyed teachers reported informed that due to the war, they received new students evacuated from other regions. Interestingly, those who received new students in a class indicated a higher percentage of expelled students ($U = 20300$, $p < .01$) and were satisfied more often with how they organized the educational process after the invasion ($\chi^2 = 49.52$, $p < .01$). The percentages of expelled students corresponded to teachers' stress levels, i.e. respondents with higher stress scores mentioned a higher percentage of expelled students ($H = 6.68$, $p < .05$; see the calculation of stress levels in paragraph 4.4).

1% of respondents reported that they had students who were physically injured by the war in their class, and 7.3% indicated that they were working with children whose houses were damaged or ruined. 99.8% of respondents were sure that all their students were alive, and one person responded 'I do not know'.

4.2 Changes in the setting of work

The surveyed teachers evaluated changes in their workload according to five categories with each category having five choices: 'much fewer', 'fewer', 'no changes', 'more', and 'much more' (see Table 2). The respondents indicated that after the Russian invasion, they worked more with students and their parents, spent more time preparing for their lessons and other non-educational work activities, and had fewer professional contacts with colleagues than before. Notably, the workload with preparing for lessons corresponded to teachers' stress levels, i.e. respondents with low-stress levels were less busy preparing lessons and vice versa ($H = 6.88$, $p < .05$).

Table 2 - Changes in teachers' workload due to the Russian invasion (by categories)

Categories of workload	No changes, %	Fewer hours		More hours		Average mean, M***
		%	φ*	%	φ*	
Work with students	26.67	27.07	0.142	**46.26**	6.466**	0.497
Work with students' parents	26.87	29.29	0.834	**43.84**	5.585**	0.483
Preparing for lessons	13.54	15.76	1.038	**70.71**	19.602**	1.075
Professional contacts with colleagues (meetings, councils, supervision, etc.)	**36.97**	**48.28**	3.603**	14.75	8.196**	0.046
Other non-educational work assignments	27.88	28.48	0.205	**43.64**	5.176**	0.636

Notes. % were counted as n of specific responses from the total number (n=495).
* φ was counted as a difference compared to 'no changes'.
** Significance $p < .01$.
*** Response 'fewer' was counted as -1 and 'much fewer' as -2. Response 'more' was counted as +1 and 'much more' as +2. No changes were counted as 0.
Source: Author's own conception

Additionally, 94.1% of teachers said they were involved in volunteer activities: in 32.1% of the cases it was proposed by their school; in 10.5% of the cases it was a personal choice; and in 51.5% of the cases it was both proposed by their school and a personal choice. Interestingly, more experienced teachers tended to volunteer with their school, and less experienced colleagues tended to volunteer according to their personal choice, whilst the middle group chose both options or did not volunteer ($H = 20.256$, $p < .01$). Those who volunteered only according to their personal choice or did not volunteer marked less wartime workload in preparing for lessons ($H = 11.187$, $p < .05$). Finally, those who volunteered only because their schools proposed it for them had the lowest levels of the PTGI scale 'new possibilities' ($H = 11.474$, $p < .01$).

4.3 Changes in the educational process

Questions regarding changes in the educational process focused on changes in the teacher's roles, vocabulary (i.e., the militarization of teaching material), evaluation style, involving students in volunteer activities, teacher satisfaction with how they managed education in wartime, and an optional narrative response for describing any other education-related changes.

As for teachers' roles, we asked the respondents to evaluate themselves twice on a scale of 1 to 5 utilizing the MiTeRoSA (Appendix A): how they used roles before and after the Russian invasion. As a result, following the sign test, all the pre-war roles that were more pronounced ended up losing their levels after the invasion; however, in about half of the responses, we observed no change (see Table 3). Levels of using the roles were weakly negatively correlated with the levels of 'disengagement', OLBI scale (see Table B.1), especially the roles 'partner' ($r = -.319$, $p < .01$), 'facilitator' ($r = -.314$, $p < .01$) and 'mentor' ($r = -.300$, $p < .01$) used after the invasion. The relationships between teachers' roles and other variables in this study are presented in Appendix B.

Some changes in teachers' usage of roles depended on the grade they were teaching, i.e. first, second, third or fourth. Thus, after the Russian invasion, teachers in different grades reported an increase in their taking on the roles of 'proficient in child psychology' and 'partner'. For instance, the role 'proficient in child psychology' increased its significance linearly from the first to the fourth class ($H = 12.953$, $p < .01$), while the role 'partner' increased from the first to the third class and then kept its level without significant changes ($H = 9.696$, $p < .05$).

Table 3 - Changes in usage of teachers' roles before and after the Russian invasion of Ukraine

Teacher's role	no changes		negative changes		positive changes		Sign test
	n	%	n	%	n	%	
Didact	326	65.86	108	21.82	61	12.32	-3.538**
Nanny	221	44.65	202	40.81	72	14.55	-7.793**
Proficient in child psychology	295	59.60	119	24.04	81	16.36	-2.616**

Facilitator	263	53.13	168	33.94	64	12.93	-6.762**
Mentor	282	56.97	136	27.47	77	15.56	-3.974**
Partner	292	58.99	162	32.73	41	8.28	-8.422**

Note. Changes were counted as subtractions of the role's level 'after' from 'before'. ** - $p < .001$
Source: Author's own conception

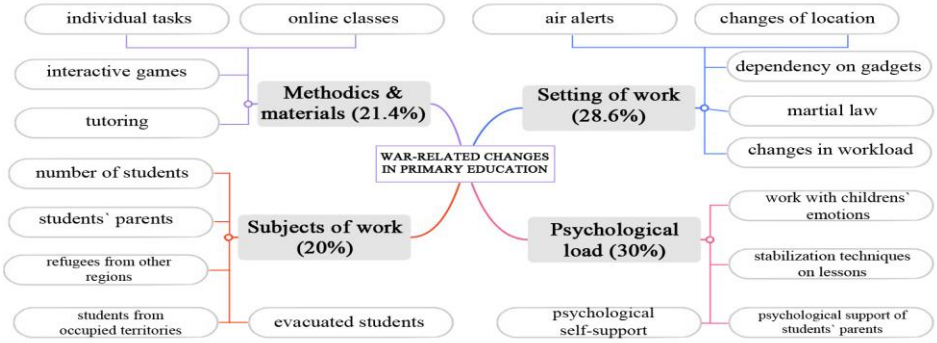
25.5% of teachers reported they began to use military terms in their lessons, e.g. as metaphors to explain something or as examples for actions in mathematics. This was more common for teachers who reported more frequently taking on the roles of 'facilitator' and 'mentor' before the invasion ($U_f = 19566.5$, $p < .01$; $U_m = 20364.5$, $p < .05$) and after the invasion ($U_f = 18931$, $p < .01$; $U_m = 20603$, $p < .05$). This group of respondents also indicated an increase in workload with students' parents ($U = 20487$, $p < .05$) and had significantly higher levels on four PTGI scales, i.e. 'relating to others' ($U = 19493$, $p < .01$), 'new possibilities' ($U = 19867$, $p < .01$), 'personal strength' ($U = 18626$, $p < .01$), 'spiritual enhancement' ($U = 19373.5$, $p < .01$).

29.3% of the surveyed teachers responded that they did not change their usual way of evaluating students, which corresponded to higher levels of self-reported resilience measured by BRS ($U = 21421.5$, $p < .01$). At the same time, 70.5% of respondents admitted that they began to evaluate students' performance with more leniency, which corresponded to a larger decrease in the number of students in their class ($U = 20300$, $p < .01$), higher levels of stress by PSM-9 ($U = 21240$, $p < .01$), as well as higher levels of 'exhaustion' ($U = 20224$, $p < .01$) and 'full burnout level' ($U = 21784.5$, $p < .05$) measured by OLBI. Only one teacher thought they evaluated more strictly due to the war.

38.6% of the survey respondents reported involving their students in volunteer activities related to preparing defences against the invasion. Involving children in volunteer work was more common for teachers who used to be 'partners' before the war ($U = 25199$, $p < .01$). This group was also more likely to indicate a higher increase in workload in the categories 'preparing for lessons' ($U = 25311$, $p < .01$), 'professional contacts with colleagues' ($U = 25248.5$, $p < .01$), and 'other non-educational work assignments' ($U = 24903.5$, $p < .01$). Teachers who involved children in

volunteer activities also had higher levels of post-traumatic growth on three PTGI scales: 'relating to others' ($U = 25316.5$, $p < .05$), 'new possibilities' ($U = 24536$, $p < .01$), 'personal strength' ($U = 25987$, $p < .05$).

There were 55 brief narrative responses (11.1% of the total sample) to the optional open-ended question about any other changes in the educational process in wartime. A content analysis of these responses allowed us to identify 18 categories of changes in educational processes that were mentioned 70 times. These types of changes were consolidated into four broad categories: 'Psychological workload', 'Work setting', 'Methods and materials', and 'Subjects of work' (see Figure 2). The respondents emphasized the intense demands of psychological work with students and their parents, while simultaneously feeling emotionally fulfilled.



Note. 100% is 70 mentions of content units mentioned by 55 respondents.
Source: Author's own conception

Figure 2 - Broad content categories and specific content units of changes in the educational process reported by primary school teachers in narrative responses

94.1% of the surveyed teachers were satisfied with how they managed the educational process in wartime, which was more common for respondents with low stress levels, than those with medium or high stress levels ($\chi^2 = 11.08$, $p < .01$). 71.1% thought that their school administration was 'excellent' in re-organizing work after the Russian invasion, 21% evaluated them as 'good', and 7.7% as 'satisfactorily', while only one person (0.02%) chose the option 'bad' and no one chose 'very bad'. Respondents with low levels of stress were more likely to evaluate their school administration more positively ($H = 11.08$, $p < .01$). Levels of satisfaction with school administrators were weakly negatively correlated with 'dis-engagement', OLBI scale ($r = - .309$, $p < .01$).

4.4 Psychological effects of the war

A summary of the self-reported psychological conditions of the surveyed primary school teachers — average, standard deviation, and reliability of each scale — is presented in Table 4.

Table 4 - Average means of PSM-9, OLBI, BSR and PTGI of the primary school teachers

Inventory | Scale		**Average (M)**	**Standard deviation (σ)**	**Reliability (α)**
Psychological Stress Measure-9 (PSM-9)		32.06	11.20	.742
Oldenburg Burnout Inventory (OLBI)	Disengagement Scale	15.84	3.29	.679
	Exhaustion Scale	18.44	3.47	.705
	Full burnout level	34.27	6.04	.803
Brief Resilience Scale (BRS)		3.07	.53	.627
Post-Traumatic Growth Inventory (PTGI)	Scale 'Relating to others'	24.11	8.20	.912
	Scale 'New possibilities'	16.06	6.21	.886
	Scale 'Personal strength'	14.32	4.82	.867
	Scale 'Spiritual enhancement'	7.04	2.66	.65
	Scale 'Appreciation'	12.63	3.35	.849

Source: Author's own conception

The initial PSM-9 scores were divided into three levels (low scores 9-26; medium scores 27-35; high scores 36-69) according to percentile calculations. As a result, 34.6% of the surveyed teachers were categorized as low stress scores, 32.5% as medium stress scores and 32.9% as high stress scores, which enabled further comparison of these groups. Levels of stress directly corresponded to (lower, medium, higher) scores on OLBI scales (disengagement $H = 38.65$, $p < .01$; exhaustion $H = 96.92$, $p < .01$; full burnout level $H = 82.47$, $p < .01$) and inversely corresponded to levels of resilience ($H = 86.85$, $p < .01$). Not surprisingly, resilience levels were

moderately negatively correlated with burnout ($r = -.402$, $p < 0.01$; scale exhaustion $r = -.434$, $p < .01$) and stress ($r = -.454$, $p < .01$).

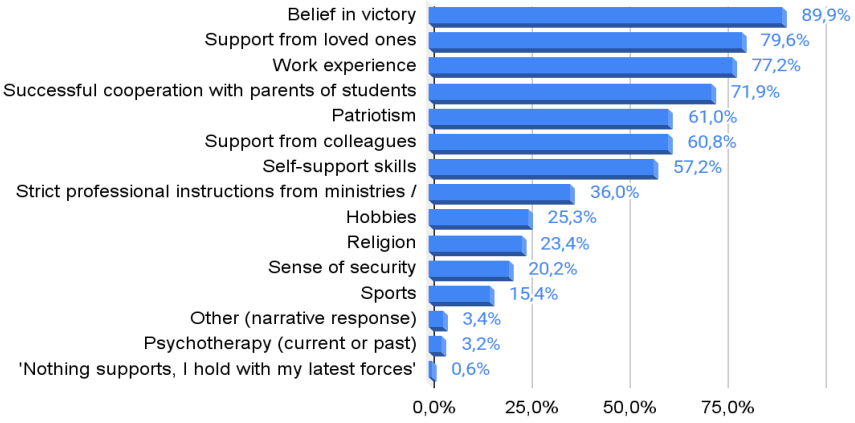
36.2% of teachers responded that they felt burnout, which was associated with with a larger decrease in the number of students because of the war ($U = 21787$, $p < .01$), as well as an increase in workload with students' parents ($U = 24800$, $p < .05$) and preparing for lessons ($U = 24484$, $p < .01$). Interestingly, this group indeed had higher levels on all OLBI scales (disengagement scale $U = 16915$, $p < .01$; exhaustion scale $U = 13240$, $p < .01$, full burnout level $U = 13410$, $p < .01$) and higher levels of stress ($U = 17696.5$, $p < .01$). A rank correlation showed a moderate positive relationship between stress levels and burnout levels ($r = .442$), especially on the 'exhaustion' scale ($r = .486$).

On the contrary, those teachers who responded that they did not feel burnout had significantly higher levels of resilience ($U = 21188.5$, $p < .01$) and were more satisfied with how school administrators re-organized the educational process after the invasion ($U = 23924$, $p < .01$). Moreover, this group had higher levels of using all of the teacher's different roles after the invasion, i. e. 'didact' ($U = 24438$, $p < .01$), 'nanny' ($U = 25087$, $p < .05$), 'proficient in child psychology' ($U = 23975$, $p < .01$), 'facilitator' ($U = 24200$, $p < .01$), 'mentor' ($U = 25420$, $p < .05$), 'partner' ($U = 24882$, $p < .05$). Interestingly, the number of years of professional experience did not correlate with any other variables.

4.5 Supportive sources for teachers

85.7% of the respondents indicated they received enough support from their colleagues, supervisors and school psychologists, whilst 11.9% thought they did not receive enough support, and 2.4% reported that they did not receive any support at all. Those who felt they received enough support from colleagues reported that they used the 'facilitator' role more frequently after the invasion ($H = 6.217$, $p < .05$) and had significantly lower levels of stress ($H = 9.923$, $p < .01$) and burnout measured by all OLBI scales ('exhaustion' $H = 12.885$, $p < .01$; 'disengagement' $H = 14.522$, $p < .01$; 'full burnout level' $H = 16.641$, $p < .01$). Those teachers who reported that they did not receive enough support (not enough or not at all) from colleagues indicated an increase in 'professional contacts with colleagues' workload category ($H = 6.090$, $p < .05$) and were less satisfied with the work of school administrators ($H = 35.547$, $p < .01$). Surprisingly, those who felt no support had the highest levels of resilience and those who felt a lack of support had the lowest levels of resilience, compared to those who thought they received enough support ($H = 9.42$, $p < .01$).

In an effort to identify other sources of support for teachers, there was a question '*What supports you psychologically to work as a primary school teacher in wartime?*' with 15 options (see Figure 3), including 'Other' with space to add a narrative response. Following Figure 3, most (> 50%) of the surveyed respondents indicated at least seven supporting points as the most significant. Still, three teachers responded that they did not feel any support and held with their latest forces (in Ukrainian it means '*I am holding on with all my might*').



Note. 100% is all sample of 495 respondents.
Source: Author's own conception

Figure 3 - Distribution of responses to the question 'What supports you psychologically to work as a primary school teacher in wartime?'

In the narrative responses regarding sources of support, 3.4% of the surveyed teachers mentioned their loving students, warm communication with their class, support from their own children, pride in working as a teacher, a sense of responsibility, stable salary, and garden work at home. For instance, one respondent wrote that on 24 February 2022 she cried a lot before meeting with her students in Zoom; as a result, she had swollen eyes and nose from her tears. And her students met her with the questions, '*Did something happen to you? Where is your smile and your red lipstick?*' Her students' words and vitality helped her to recover emotionally and re-engage with her work.

5. Discussion

These results demonstrated how the Russian invasion led to significant changes in the work of primary school teachers. The surveyed respondents from Kryvyi Rih shifted to educating students remotely on different schedules, often combining it with other volunteer activities in their schools and communities. There was a significant increase in teachers' workload; they worked more hours with students and their parents, spent more time preparing for their lessons and doing other non-educational work activities, and tended to have fewer professional contacts with school colleagues. Two-thirds of teachers began to evaluate students' achievements with more leniency, which was associated with higher scores of stress and burnout levels and lower resilience. None of the variables correlated with teachers' years of work experience.

Although primary school teachers had previous experience working online during the COVID-19 pandemic (Dovzhenko, 2020; Kryshtanovych et al., 2022), they felt especially overwhelmed with preparing for lessons during wartime, which corresponded to higher levels of stress. This was only partly due to the lack of primary school teachers' training in distance education (Zaporozhchenko et al., 2022). The results of this study identified other sources of teacher stress. In narrative responses, teachers described significant individual work with certain students and parents due to problems with Internet connectivity and other electronic devices, trouble finding a quiet place, and difficulties with learning. Teachers had to prepare a 'Plan B' for every lesson due to the frequency of air raid sirens interrupting their classes, and provide individual assignments to students who missed a lesson. In fact, the list of common primary school teachers' roles used in the study (Miroshnyk, 2013) should be expanded to include a new role that appeared in wartime – the teacher as a 'tutor' individually assisting a student's learning.

Following the invasion, teachers described how they had to constantly monitor and manage their own and their students' psychological states. Teachers had to search for effective techniques to stabilize their students, conduct occasional crisis interventions, integrate psychologically-minded games into their lessons, and add an hour of open unstructured discussion into their daily schedule. This new psychological workload increased primary school teachers' total workload, including the amount of time they needed to prepare their lessons. They literally became 'crisis counsellors' for students and their parents, as well as for other people who came to schools seeking safety and shelter. Not surprisingly, almost a third

of the surveyed primary school teachers felt burnout, especially exhaustion, and had high stress scores, though the average means of stress scores in the total sample corresponded with other research conducted in peacetime (Alzahem et al., 2020).

Another significant finding in the results was that almost two-thirds of the teachers had expelled students due to the war, the percentage of which directly corresponded to the teachers' stress and burnout levels and pushed them to evaluate other students with more leniency. We consider this reaction to be a possible sign of teachers grieving for the sudden loss of their beloved students. The topic of grieving in the context of school education has previously focused on students' losses and providing support so that students can come to terms with those losses (Schonfeld & Quackenbush, 2010; Wango & Gwiyo, 2021), and on grieving as an integral part of a teacher's work in response to students approaching graduation (Podsiadlik III, 2019). Teachers experienced significant and sometimes overwhelming war-related grief in response to the sudden disappearance of many students and not knowing if they had fled to safety with their families or been killed during bombings. Teachers' ongoing work in schools and the struggle to survive the invasion meant they had little to no time to mourn these losses. Teachers may have also experienced internal conflict between grief and joy for the students who were expelled and for other students, which also contributed to burnout (Papastylianou et al., 2009).

In this light, it is remarkable that more than a quarter of primary school teachers received new students from other regions of Ukraine, and that these teachers reported higher rates of satisfaction as they attempted to manage educational process in wartime, even though they also had many students who were expelled. It seems like these teachers were comforted by the opportunity to connect with and assist new students.

Several significant findings of this study related to how teachers utilized different roles at school. About half of the respondents did not report changes in their utilization of certain roles, whilst others experienced a decrease in the utilization of certain roles. Utilizing specific roles was more pronounced among those who did not feel burnout, had higher levels of resilience and were more satisfied with the way school administrators adjusted and re-organised the educational process after the Russian invasion. We may assume that the teachers' utilization of different roles in primary schools is about engagement, involvement and dedication, which is the opposite of disengagement. The decrease in teacher utilization of different roles may also be interpreted in terms of role flexibility in response to

changing circumstances, i.e. teachers decreased their use of their common roles in favor of new wartime roles – 'tutor' and 'crisis counselor'.

As for specific teachers' roles, we found that those who used to be 'partners' were more likely to involve children in volunteer activities, which, in turn, positively affected teachers' post-traumatic growth. Interestingly, the teachers' roles of 'facilitator' and 'mentor' were linked with using military terms in lessons, which they were initially recommended to avoid. It seemed as if these teachers were trying to transform the war for students into an intellectual subject, i.e. to count tanks in math and help students be less afraid of them. This question, however, lies beyond the limits of this study.

Those who felt they got enough support from colleagues used the role of 'facilitator' after the invasion more frequently and had significantly lower levels of stress and burnout. Teachers who did not receive adequate support from colleagues felt their professional contacts were exhausting, and they were less satisfied with school administrators. Levels of satisfaction with school administrators were also negatively related to stress and the 'disengagement' scale, which corresponds to previous studies (Koustelios, 2001). This highlights the importance of teachers getting support from school staff in order to be able to better support their students, which we illustrated in Figure 4.

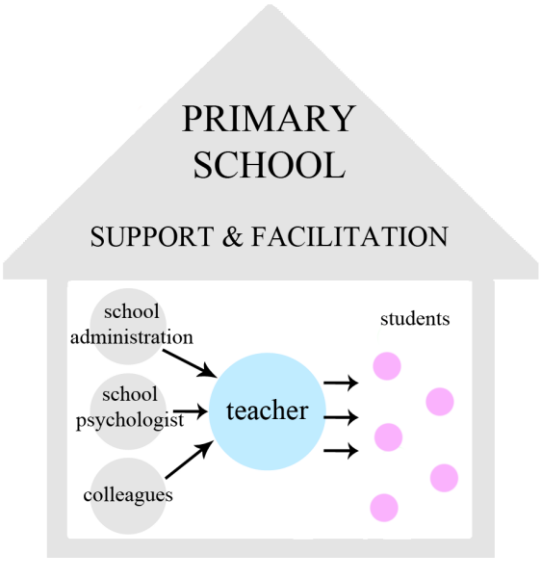


Figure 4 - Scheme of support and facilitation in primary school
Source: Author's own conception

Finally, the post-traumatic growth of primary school teachers appeared to be connected with their subjective experience of being more proactive, i.e. those who volunteered on their own initiative or involved children in these joint volunteering activities also had higher scores on post-traumatic growth scales.

6. Limitations

This study has several limitations. One limitation is the gender distribution of participants. This gender distribution accurately reflects primary school teachers in Ukraine, who are mostly female. As a result, the data likely describes the typical pre-war roles of female teachers, the changes in their wartime roles, as well as the psychological conditions of female teachers. The second limitation relates to the implementation of these findings, as the study describes a distinctive group in a unique crisis and may not be applicable to other groups, i.e. the sample of teachers from Kryvyi Rih may differ significantly from their colleagues in other regions in wartime Ukraine and abroad. Furthermore, the researchers conducting this study are themselves Ukrainians affected by the Russian invasion who are simultaneously studying other Ukrainians in wartime, which may have influenced the research design and data interpretation.

7. Conclusion

Primary education in Ukraine during the ongoing Russian invasion required teachers to make significant changes in their work, namely shifts in schedules, the amount and distribution of workload, conducting classes remotely, tutoring certain students, providing crisis interventions with a broad range of people, and volunteering. Most of the surveyed practitioners were overwhelmed and stressed, particularly with excessive preparation for lessons.

The psychological conditions of primary school teachers were very dependent on the number of expelled students and new students (evacuated from other regions), the ability of school administrators to re-organizing the work well, and teachers' perceived support from colleagues. These factors along with teachers' individual resilience were the main predictors of war-time stress and burnout among teachers. Additionally, teachers' sense of burnout, especially exhaustion, high stress scores, and low resilience levels, pushed them to change and be more lenient in how they evaluated students' performance.

Civil defense experts have generally recommended that civilians find two strong walls in a house and hide between them when there is a risk of artillery fire or combat. A similar saying appeared in Ukraine after the Russian invasion: '*Find two strong walls inside yourself and hide your soul there when it is scary*'. Given our research findings on the stability and flexibility of primary school teachers' roles — including its negative correlation to disengagement — we propose that these teachers found strong internal walls of attachment to students and professional dedication to help them continue teaching their students amidst a horrific war. These internal strengths allowed teachers to maintain close contact with students and their parents so that primary education could continue. We also hypothesize that in about one-third of the study participants, there is a grieving process beyond some of these internal walls and that these teachers will need time, attention and support to mourn the losses they have experienced due to the invasion.

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9. Conflict of interest

We have no conflicts of interest to disclose.

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Appendix A

Miroshnyk Teacher's Role Self-Assessment Scale (MiTeRoSA)

Instruction: Look at the list of school teachers' professional roles below. Please rate them on a scale from 1 to 5 (1 is minimum and 5 is maximum) by the level you use each of them in your typical educational activity.

Teacher's role	1	2	3	4	5
Didact, i.e. someone who explains and teaches.					
Nanny, i.e. someone who cares for.					
Proficient in child psychology, i.e. acute observer of the child's behavior and personality traits.					

Facilitator, i.e. someone who supports and facilitates practical activities of each student and a whole group.					
Mentor, i.e. someone who gives pieces of advice, provides patronage.					
Partner, i.e. someone who organizes and maintains joint activities with their students.					

Note. Miroshnyk, Z. M. (2013). *Methods of research of the role structure of teacher's personality.* Kryvyi Rih, Publisher Roman Kozlov.
Source: Author's own conception

Appendix B

Table B.1 - Matrix of intercorrelations between levels of teachers' roles typical for peacetime and OLBI, BRS, PSM-9 scores

	MiTeRoSA						OLBI			PSM-9	BRS
	Didact	Nanny	Proficient in child psychology	Facilitator	Mentor	Partner	Disengagement	Exhaustion	Full scale		
scale	1	2	3	4	5	6	7	8	9	10	11
1	-	.616**	.543**	.509**	.564**	.454**	-.148**	-.089*	-.137**	.045	.044
2	.616**	-	.529**	.479**	.495**	.427**	-.154**	-.083	-.129**	.057	.048
3	.543**	.529**	-	.681**	.558**	.591**	-.205**	-.128**	-.180**	.067	.050
4	.509**	.479**	.681**	-	.645**	.622**	-.236**	-.103*	-.191**	.046	.106*
5	.564**	.495**	.558**	.645**	-	.603**	-.201**	-.105*	-.173**	.029	.088
6	.454**	.427**	.591**	.622**	.603**	-	-.265**	-.109*	-.214**	.021	.129**
7	-.148**	-.154**	-.205**	-.236**	-.201**	-.265**	-	.560**	.876**	.288**	-.283**
8	-.089*	-.083	-.128**	-.103*	-.105*	-.109*	.560**	-	.876**	.486**	-.434**
9	-.137**	-.129**	-.180**	-.191**	-.173**	-.214**	.876**	.876**	-	.442**	-.402**
10	.045	.057	.067	.046	.029	.021	.288**	.486**	.442**	-	-.454**
11	.044	.048	.050	.106*	.088	.129**	-.283**	-.434**	-.402**	-.454**	-

Notes. * - $p < .05$; ** - $p < .01$.
Source: Author's own conception

Table B.2 - Matrix of intercorrelations between levels of teachers' roles used in wartime and OLBI, BRS, PSM-9 scores

	MiTeRoSA						OLBI			PSM-9	BRS
	Did act	Nanny	Proficient in child psychology	Facilitator	Mentor	Partner	Disengagement	Exhaustion	Full scale		
scale	1	2	3	4	5	6	7	8	9	10	11
1	-	.494**	.439**	.478**	.486**	.410**	-.210**	-.122**	-.195**	-.010	.065
2	.494**	-	.530**	.571**	.553**	.580**	-.221**	-.123**	-.191**	-.033	.041
3	.439**	.530**	-	.722**	.664**	.682**	-.293**	-.165**	-.261**	.007	.063
4	.478**	.571**	.722**	-	.737**	.722**	-.314**	-.181**	-.284**	-.048	.106*
5	.486**	.553**	.664**	.737**	-	.724**	-.300**	-.154**	-.257**	-.008	.047
6	.410**	.580**	.682**	.722**	.724**	-	-.319**	-.198**	-.293**	-.058	.126**
7	-.210**	-.221**	-.293**	-.314**	-.300**	-.319**	-	.560**	.876**	.288**	-.283**
8	-.122**	-.123**	-.165**	-.181**	-.154**	-.198**	.560**	-	.876**	.486**	-.434**
9	-.195**	-.191**	-.261**	-.284**	-.257**	-.293**	.876**	.876**	-	.442**	-.402**
10	-.010	-.033	.007	-.048	-.008	-.058	.288**	.486**	.442**	-	-.454**
11	.065	.041	.063	.106*	.047	.126**	-.283**	-.434**	-.402**	-.454**	-

Notes. * - p < .05; ** - p < .01.
Source: Author's own conception

References

Alzahem, A. M., Alhaizan, Y. A., Algudaibi, L.Y., Albani, R. M., Aljuraisi, A. M., & Alaqeel, M. K. (2020). Psychologic stress and burnout among dental staff: A cross-sectional survey. *Imam Journal of Applied Sciences*, *5*(1), 9-15.https://doi.org/10.4103/ijas.ijas_29_19

Blyth, W. A. L. (2017). *Development, experience and curriculum in primary education*. Routledge. https://doi.org/10.4324/9781315147352

Bogdanov, S., Girnyk, A., Lazorenko, B., Savinov, V., & Solovjova, V. (2017). Psychosocial problems and resilience strategies of children and youth who are living in the front line zone in the East of Ukraine. *Problemy politychnoi Psykhologii* [Problems of Political Psychology], *15*, 1-35.

Cherepiekhina, O., Dysa, O., Turubarova, A., Rukolyanska, N., & Bulanov, V. (2021). Forced Leadership as a Social Psychological Phenomenon in Professionally Successful Women Scientists. *Journal of Intellectual Disability-*

Diagnosis and Treatment, *9*(4), 397-410. https://doi.org/10.6000/2292-2598.2021.09.04.7

Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout and engagement. *Handbook of stress and burnout in health care*, 65(7).

Dovzhenko, T. (2020). Primary Education in Post-Corona Period: New Times - New Trends. *Postmodern Openings*, *11*(2), 51-58. https://doi.org/10.18662/po/11.2/157

Koustelios, A. (2001). Organizational factors as predictors of teachers' burnout. *Psychological Reports*, *88*(3), 627-634. https://doi.org/10.2466/pr0.2001.88.3.627

Kryshtanovych, S., Sych, Y., Mashtakova, N., & Mordovtseva, N. (2022). Features of the Development of Primary Education in the Context of the Impact of COVID-19. *Revista Tempos e Espaços em Educação*, *15*(34), e17157-e17157. https://doi.org/10.20952/revtee.v15i34.17157

Kuzmenko, V. (2017). Diagnostics of individual psychological development specialities of preschool children from families of ATO militaries and internally displaced persons. *Scientific Journal of National Pedagogical Dragomanov University. Series 12. Psychological Sciences*, *6* (51), 243-249.

Lemyre, L., & Lalande-Markon, P-M. (2009). Psychological stress measure (PSM-9): Integration of an evidence-based approach to assessment, monitoring, and evaluation of stress in physical therapy practice, *Physiotherapy Theory and Practice*, *25*(5-6), 453-462. https://doi.org/10.1080/09593980902886321

Lockheed, M. E., & Verspoor, A. M. (1991). *Improving primary education in developing countries*. The World Bank.

Lunov, V., Lytvynenko, O., Maltsev, O., & Zlatova, L. (2022). The Impact of Russian Military Aggression on the Psychological Health of Ukrainian Youth. *American Behavioral Scientist*. https://doi.org/10.1177/00027642221144846

Manuchehr, T. (2011). Education right of children during war and armed conflicts. *Procedia-Social and Behavioral Sciences*, *15*, 302-305. https://doi.org/10.1016/j.sbspro.2011.03.090

Miroshnyk, Z. M. (2013). *Methods of research of the role structure of teacher's personality*. Kryvyi Rih, Publisher Roman Kozlov.

Papastylianou, A., Kaila, M., & Polychronopoulos, M. (2009). Teachers' burnout, depression, role ambiguity and conflict. *Social Psychology of Education, 12*, 295–314. https://doi.org/10.1007/s11218-008-9086-7

Podsiadlik III, E. (2019). *Grieving as a Teacher's Curriculum: Relevant Prose and Postscripts*. Brill.

Poznysh, V. A., Vdovenko, V. Y., Kolpakov, I. E., & Stepanova, E. I. (2019). Application of Art therapy for correction of personal disorders of psychoemotional state of children - inhabitants of radiation polluted territories and children displaced from the armed conflict in the Southeast of Ukraine. *Problemy radiatsiinoi medytsyny ta radiobiolohii [Issues of radiation medicine and radiobiology]*, *24*, 439–448. https://doi.org/10.33145/2304-8336-2019-24-439-448

Reshetnyak, V., Popadych, O., Korchakova, N., Shyshova, O., Shulzhenko, D., & Sichka, V. (2022). Innovations in Primary Education: Neuropsychological Aspect. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, *13*(1), 173-187. https://doi.org/10.18662/brain/13.1/275

Savchenko, O., & Lokshyna, O. (2020). Implementation of the competence idea into the primary education in Ukraine – the reflective analysis based on the European Union benchmarks. *SHS Web of Conferences, 75*, 01003. https://doi.org/10.1051/shsconf/20207501003

Schonfeld, D. J., & Quackenbush, M. (2010). *The grieving student: A teacher's guide*. Paul H. Brookes Publishing.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, *15*(3), 194-200. https://doi.org/10.1080/10705500802222972

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of traumatic stress*, *9*(3), 455-471. https://doi.org/10.1007/BF02103658

Vanner, C., Akseer, S., & Kovinthan, T. (2017). Learning peace (and conflict): the role of primary learning materials in peacebuilding in post-war Afghanistan, South Sudan and Sri Lanka. *Journal of Peace Education*, *14*(1), 32-53. https://doi.org/10.1080/17400201.2016.1213710

Velykodna, M., Deputatov, V., Kolisnyk, L., Shestopalova, O., Shylo, O. (2022). Psychological Service for Ukrainian School Students during the Russian Invasion: Experience of School Psychologists from Kryvyi Rih. *International Journal of Child Health and Nutrition*, *12*(1).

Volchenko, L. P. (2018). Socio-psychological characteristics of the adaptation of schoolers that have the status of internally displaced persons to new conditions of life. *Teoretychni ta prykladni problemy psykhologii* [Theoretical and applied issues of psychology], *3*(1), 91-101.

Wango, G., & Gwiyo, L. M. (2021). When death strikes early as often will: How counsellors and schools can support grieving pupils and students. *Improving Schools*. https://doi.org/10.1177/1365480221996847

Zaporozhchenko, T., Fonariuk, O., Popadych, O., Kliuieva, S., Ashikhmina, N., & Kanibolotska, O. (2022). Distance Education on the Basis of Innovative

Technologies. Problems of the Primary School Teacher Training in Ukraine. *Revista Romaneasca Pentru Educatie Multidimensionala*, *14*(2), 102-117. https://doi.org/10.18662/rrem/14.2/569