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THE RELATIONSHIP BETWEEN TEACHER EXPERIENCE AND HIGHER EDUCATION TEACHERS' ICT AND AI USE: CASE OF UKRAINE

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Abstract: The integration of artificial intelligence (AI) and information and communication technology (ICT) into education is reshaping pedagogical practices and challenging conventional teaching paradigms amid the world's rapid digitization. This study examines how sociodemographic characteristics, particularly prior teaching experience, are associated with Ukrainian university educators' use of ICT and AI. The study provides insights into how crises impact digital adoption by looking at educators' responses throughout three instructional phases: face-to-face education, wartime, and predicted post-war practice. Teaching experience was positively associated with both long-term adoption goals and the frequency of ICT use, although the identified relationships were weak. At the same time, additional research is needed to confirm such conclusions regarding AI.
These findings highlight the significance of contextual factors, including digital infrastructure, institutional support, and professional development, in influencing educators' use of technological innovation and are consistent with larger trends in the literature. In addition to providing insightful information on resilience, adaptability, and the changing role of digital pedagogy in times of systemic upheaval, the study offers important empirical evidence from a high-stakes educational setting.
Keywords: ICT, artificial intelligence, teacher experience, face-to-face education, wartime

1. INTRODUCTION

The systematic introduction of information and communications technologies (ICT) and artificial intelligence (AI) tools into the educational space has become the object of attention of numerous scientists (Hatlevik, 2017; Yarovenko et al., 2024; Vivas-Urias et

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al., 2026; Brodny & Tutak, 2026) who are investigating both the benefits and risks of this process, as well as possible directions for its further evolution. The integration of ICT and AI has significantly transformed modern education, including the dynamics of classroom learning (Kusnadi et al., 2025; Ingaldi et al., 2026). AI-based solutions contribute to the individualization of the educational process and reduce the burden on administrators, but at the same time raise important questions about the protection of private information, the objectivity of algorithms, and moral responsibility in decision-making. Issues of ethical use of AI and ICT also play an important role (Bentley et al., 2023; Kommineni et al., 2025; Haley & Burrell, 2025). Experts emphasize the need to update curricula to develop digital and AI literacy and relevant competences, which will enable both teachers and students to act effectively in the modern digital environment (Zhang and Zhang, 2024; Li et al., 2026; Lualhati, 2026).

There is no consensus in the scientific literature on the influence of teachers' experience on their perceptions regarding to the incorporation of AI and ICT tools into the educational process (Keržič et al., 2021; Artyukhov et al., 2024; Pollifroni et al., 2025; King, 2026). This issue cannot be viewed solely through the lens of the “digital natives”/“digital immigrants” approach, as teaching experience, which increases with age, often correlates with teachers’ ability to innovate in the educational process.

Some studies have examined the relationship between educators' digital competence and their attitudes towards the use of AI in education and the development of relevant competences (Choi et al., 2023). For example, the research results by Lucas et al. (2024) demonstrated that trust in AI decreases when knowledge about AI is limited, even despite a certain level of digital competence among educators. Other researchers also draw similar conclusions (Chounta et al., 2022; Kritikos et al., 2025). Furthermore, Celik (2023) notes that technological knowledge allows teachers to evaluate AI solutions more effectively. Teachers' intention to teach AI is also predicted by their level of trust in their ability to do so (López-Costa et al., 2025; Bedoui & Adouane, 2024).

The relevance of the study is also highlighted by the fact that, in the context of the Russian-Ukrainian war, the state of higher education in Ukraine, in particular, the use of digital platforms to preserve the educational process, attracts special attention from researchers and policymakers. Ukrainian universities have demonstrated exceptional adaptability, representing their resilience (Alieksieieva et al., 2025; Artyukhova et al., 2025).

The purpose of this study was to assess how the use of ICT and AI tools in teaching and/or learning in Ukraine is associated with teaching experience. The following research question was formulated:

Is Ukrainian professionals' prior teaching experience associated with how they employ the aforementioned ICT and AI technologies throughout the teaching and/or learning process?

2. METHODOLOGY OF RESEARCH

The study was based on a survey questionnaire developed for a broader research project covering four stages of the educational process (face-to-face education, the COVID-19 pandemic, the war, and the post-war period). The present article reports results for three of these stages:

- Stage 1: during F2F (face-to-face) education;

- Stage 2: during the war;
- Stage 3: following the end of the conflict (as anticipated or planned by respondents).

The analysis presented in this article is limited to the items on the frequency of use of nine ICT and AI tools during the teaching and/or learning process (distance learning platforms, video conferencing tools, tools for creating surveys and/or tests, social media tools, messengers, MOOCs, platforms for designing digital learning resources, cloud technologies and AI tools), rated for each stage on a 5-point scale from 1 (not at all) to 5 (very often), and to four sociodemographic questions (gender, age, teaching experience and discipline). The remaining parts of the questionnaire are outside the scope of this article; the complete instrument is available from the corresponding author upon reasonable request. The survey was anonymous and conducted via Google Forms between 10.10.2023 and 24.01.2024. Those who agreed to participate in the survey and had professional connections to Ukrainian universities were eligible. The sample included university staff.

Both statistical and descriptive analysis were used to analyse study data. For quantitative (measurable) variables, descriptive statistics were generated; for categorized (nonmeasurable) variables, the count (n) and percentage (%) of individuals with a particular trait were displayed. Given the ordinal nature of the data (5-point rating scales and teaching experience measured in ordered categories), non-parametric methods were applied. The relationship between teaching experience and the frequency of use of individual ICT and AI tools was assessed using Spearman's rank-order correlation coefficient (R), with its significance verified by the t-test ($t(N-2)$); $p < 0.05$ was adopted as the level of statistical significance. Descriptive statistics (mean, standard deviation, median, quartiles, range, 95% confidence interval and standard error) are reported for each teaching-experience group to illustrate the direction of the identified relationships; differences between the groups are described descriptively and were not tested separately.

There were 458 respondents from university staff in all, with women making up the majority (91.92%). The sample consisted of 458 participants, including 421 women (91.92%) and 37 men (8.08%). Regarding age, 61 participants (13.32%) were aged 17–25, 50 (10.92%) were aged 26–30, 118 (25.76%) were aged 31–40, 121 (26.42%) were aged 41–50, 83 (18.12%) were aged 51–60, and 25 (5.46%) were over 60 years old. In terms of teaching experience, 26 participants (5.68%) had experience up to one year, 115 (25.11%) had 2–4 years, 87 (19.00%) had 5–10 years, 83 (18.12%) had 11–20 years, 146 (31.88%) had more than 20 years, and one participant (0.22%) had more than 30 years of experience. Concerning work discipline, 38 participants (8.30%) worked in life sciences, 26 (5.68%) in social sciences, 98 (21.40%) in informatics, 58 (12.66%) in mathematics, 82 (17.90%) in philology, 194 (42.36%) in primary education, 50 (10.92%) in humanities, 17 (3.71%) in technology, 9 (1.97%) in sport, and 8 (1.75%) in other disciplines.

3. RESULTS

3.1. Stage 1: during F2F education

At stage 1 (during F2F education), the frequency with which respondents used ICT and AI tools, such as distance learning platforms, during the teaching and/or learning process was found to have positive and statistically significant relationships of weak strength,

according to the results of Spearman's rank order correlation analysis: R = 0.15; t(N-2) = 3.16; p < 0.01; video conferencing tools: R = 0.14; t(N-2) = 3.11; p < 0.01; survey and/or test development tools: R = 0.17; t(N-2) = 3.72; p < 0.001, MOOCs: R = 0.13; t(N-2) = 2.75; p < 0.01 and platforms for designing digital learning resources: R = 0.11; t(N-2) = 2.39; p < 0.05; and a weak and statistically significant negative relationship between the experience of the above-mentioned respondents and their frequency of use of instant messaging for communication: R = -0.11; t(N-2) = -2.31; p < 0.05. Thus, respondents with longer teaching experience used the above-mentioned tools more frequently, except for instant messaging, which was used more often by those with less experience. Distance learning platforms were used less frequently in the group with experience up to one year than in the other groups (M_1 = 2.73; SD_1 = 1.4; other groups: from $M_{2–4}$ = 3.38; $SD_{2–4}$ = 1.48 to $M_{>20}$ = 3.78; $SD_{>20}$ = 1.37) and video conferencing tools (M_1 = 2.65; SD_1 = 1.57; other groups: from $M_{2–4}$ = 3.38; $SD_{2–4}$ = 1.51 to $M_{>20}$ = 3.75; $SD_{>20}$ = 1.56). The more experience the respondents had in teaching, the more often they used survey and/or test development tools (from M_1 = 2.58; SD_1 = 1.6 to $M_{>20}$ = 3.61; $SD_{>20}$ = 1.17). MOOCs tools were used less frequently by respondents with less than four years of experience (M_1 = 2.27; SD_1 = 1.48 and $M_{2–4}$ = 2.4; $SD_{2–4}$ = 1.29) than in the other groups (from $M_{11–20}$ = 2.7; $SD_{11–20}$ = 1.39 to $M_{5–10}$ = 3.03; $SD_{5–10}$ = 1.28); similar to platforms for designing digital learning resources (M_1 = 2.19; SD_1 = 1.41 and $M_{2–4}$ = 2.5; $SD_{2–4}$ = 1.4; other groups: $M_{11–20}$ = 2.7; $SD_{11–20}$ = 1.54 to $M_{5–10}$ = 2.94; $SD_{5–10}$ = 1.54). On the contrary, instant messaging for communication was used more frequently by respondents with experience of 1 year and 5-10 years (M_1 = 4.46; SD_1 = 0.81 and $M_{5–10}$ = 4.43; $SD_{5–10}$ = 0.91) than in the other groups (from $M_{11–20}$ = 4.01; $SD_{11–20}$ = 1.23 to $M_{2–4}$ = 4.23; $SD_{2–4}$ = 1.21).

For the other three ICT and AI tools, there was no significant association with teaching experience in stage 1. Across the different groups distinguished by the aforementioned teaching experience, the frequency of use of social media tools ranged from M_1 = 3.38; SD_1 = 1.47 to $M_{11–20}$ = 3.82; $SD_{11–20}$ = 1.19; cloud technologies ranged from M_1 = 2.65; SD_1 = 1.38 to $M_{2–4}$ = 3.4; $SD_{2–4}$ = 1.39; and AI tools ranged from $M_{>20}$ = 1.93; $SD_{>20}$ = 1.1 to $M_{5–10}$ = 2.36; $SD_{5–10}$ = 1.36. The Spearman rank order correlation analysis revealed that there was no statistically significant relationship between the respondents' teaching experience and how frequently they used technologies like social media during face-to-face instruction: R = 0.03; t(N-2) = 0.62; p = 0.539; cloud technologies: R = -0.03; t(N-2) = -0.62; p = 0.534 and AI tools: R = -0.09; t(N-2) = -1.96; p = 0.051 (Table 1).

Table 1
Relationship between respondents' teaching experiences and how frequently they utilize different ICT and AI throughout the educational process in the F2F education stage

	Teaching experience (years)	**Descriptive statistics - How frequently various ICT and AI are used throughout the educational process (Stage 1: during F2F education)**						**Correlation of Spearman rank order**
		Mean ± Standard deviation	**Median [Q25 - Q75]**	**Min. - Max.**	**Confidence interval**		**Stand error.**	
					-95.00%	**+95.00%**		
Distance learning platforms	1 (n = 26)	2.73 ± 1.4	3 [1 - 4]	1 - 5	2.16	3.30	0.27	R = 0.15; t(N-2) = 3.16;
	2-4 (n = 115)	3.38 ± 1.48	3 [2 - 5]	1 - 5	3.11	3.66	0.14	
	5-10 (n = 87)	3.59 ± 1.39	4 [3 - 5]	1 - 5	3.29	3.88	0.15	

	Teaching experience (years)	Descriptive statistics - How frequently various ICT and AI are used throughout the educational process (Stage 1: during F2F education)						Correlation of Spearman rank order
		Mean ± Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Stand error.	
					-95.00%	+95.00%		
	11-20 (n = 83)	3.42 ± 1.55	4 [2 - 5]	1 - 5	3.08	3.76	0.17	p < 0.01
	> 20 (n = 147)	3.78 ± 1.37	4 [3 - 5]	1 - 5	3.56	4.01	0.11	
Video conferencing tools	1 (n = 26)	2.65 ± 1.57	2 [1 - 4]	1 - 5	2.02	3.29	0.31	R = 0.14; t(N-2) = 3.11; p < 0.01
	2-4 (n = 115)	3.38 ± 1.51	4 [2 - 5]	1 - 5	3.10	3.66	0.14	
	5-10 (n = 87)	3.47 ± 1.53	4 [2 - 5]	1 - 5	3.14	3.80	0.16	
	11-20 (n = 83)	3.39 ± 1.68	4 [2 - 5]	1 - 5	3.02	3.75	0.18	
	> 20 (n = 147)	3.75 ± 1.56	5 [2 - 5]	1 - 5	3.49	4.00	0.13	
Tools for creating surveys and/or tests	1 (n = 26)	2.58 ± 1.6	2 [1 - 4]	1 - 5	1.93	3.22	0.31	R = 0.17; t(N-2) = 3.72; p < 0.001
	2-4 (n = 115)	3.1 ± 1.36	3 [2 - 4]	1 - 5	2.84	3.35	0.13	
	5-10 (n = 87)	3.33 ± 1.4	4 [2 - 5]	1 - 5	3.03	3.63	0.15	
	11-20 (n = 83)	3.36 ± 1.43	4 [2 - 5]	1 - 5	3.05	3.67	0.16	
	> 20 (n = 147)	3.61 ± 1.17	4 [3 - 5]	1 - 5	3.42	3.80	0.10	
Social media tools	1 (n = 26)	3.38 ± 1.47	4 [2 - 5]	1 - 5	2.79	3.98	0.29	R = 0.03; t(N-2) = 0.62; p = 0.539
	2-4 (n = 115)	3.77 ± 1.21	4 [3 - 5]	1 - 5	3.55	4.00	0.11	
	5-10 (n = 87)	3.8 ± 1.16	4 [3 - 5]	1 - 5	3.56	4.05	0.12	
	11-20 (n = 83)	3.82 ± 1.19	4 [3 - 5]	1 - 5	3.56	4.08	0.13	
	> 20 (n = 147)	3.8 ± 1.17	4 [3 - 5]	1 - 5	3.61	3.99	0.10	
Messengers	1 (n = 26)	4.46 ± 0.81	5 [4 - 5]	3 - 5	4.13	4.79	0.16	R = -0.11; t(N-2) = -2.31; p < 0.05
	2-4 (n = 115)	4.23 ± 1.21	5 [4 - 5]	1 - 5	4.00	4.45	0.11	
	5-10 (n = 87)	4.43 ± 0.91	5 [4 - 5]	2 - 5	4.23	4.62	0.10	
	11-20 (n = 83)	4.01 ± 1.23	5 [3 - 5]	1 - 5	3.74	4.28	0.14	
	> 20 (n = 147)	4.06 ± 1.19	5 [3 - 5]	1 - 5	3.87	4.26	0.10	
MOOCs	1 (n = 26)	2.27 ± 1.48	2 [1 - 3]	1 - 5	1.67	2.87	0.29	R = 0.13; t(N-2) = 2.75; p < 0.01
	2-4 (n = 115)	2.4 ± 1.29	2 [1 - 3]	1 - 5	2.16	2.64	0.12	
	5-10 (n = 87)	3.03 ± 1.28	3 [2 - 4]	1 - 5	2.76	3.31	0.14	
	11-20 (n = 83)	2.7 ± 1.39	2 [2 - 4]	1 - 5	2.39	3.00	0.15	
	> 20 (n = 147)	2.85 ± 1.24	3 [2 - 4]	1 - 5	2.65	3.05	0.10	
Platforms for designing digital learning resources	1 (n = 26)	2.19 ± 1.41	2 [1 - 3]	1 - 5	1.62	2.76	0.28	R = 0.11; t(N-2) = 2.39; p < 0.05
	2-4 (n = 115)	2.5 ± 1.4	2 [1 - 4]	1 - 5	2.24	2.75	0.13	
	5-10 (n = 87)	2.94 ± 1.54	3 [1 - 4]	1 - 5	2.61	3.27	0.17	
	11-20 (n = 83)	2.7 ± 1.54	3 [1 - 4]	1 - 5	2.36	3.04	0.17	
	> 20 (n = 147)	2.87 ± 1.38	3 [2 - 4]	1 - 5	2.65	3.10	0.11	
Cloud technologies	1 (n = 26)	2.65 ± 1.38	2.5 [1 - 4]	1 - 5	2.09	3.21	0.27	R = -0.03; t(N-2) = -0.62; p = 0.534
	2-4 (n = 115)	3.4 ± 1.39	4 [2 - 5]	1 - 5	3.14	3.66	0.13	
	5-10 (n = 87)	3.18 ± 1.48	3 [2 - 5]	1 - 5	2.87	3.50	0.16	
	11-20 (n = 83)	3.07 ± 1.34	3 [2 - 4]	1 - 5	2.78	3.37	0.15	
	> 20 (n = 147)	3.14 ± 1.31	3 [2 - 4]	1 - 5	2.93	3.36	0.11	
AI tools	1 (n = 26)	2.15 ± 1.41	2 [1 - 3]	1 - 5	1.59	2.72	0.28	R = -0.09; t(N-2) = -1.96; p = 0.051
	2-4 (n = 115)	2.28 ± 1.36	2 [1 - 3]	1 - 5	2.03	2.53	0.13	
	5-10 (n = 87)	2.36 ± 1.36	2 [1 - 4]	1 - 5	2.07	2.65	0.15	
	11-20 (n = 83)	2 ± 1.18	2 [1 - 3]	1 - 5	1.74	2.26	0.13	
	> 20 (n = 147)	1.93 ± 1.1	2 [1 - 3]	1 - 5	1.75	2.10	0.09	

Source: own elaboration

3.2. Stage 2: During the war

Regarding stage 2 (during the war), the Spearman rank order correlation analysis revealed a weak, statistically significant positive relationship between respondents' teaching experience and how frequently they used tools like distance learning platforms during the educational process. $R = 0.25$; $t(N-2) = 5.55$; $p < 0.001$; video conferencing tools: $R = 0.23$; $t(N-2) = 5.06$; $p < 0.001$; survey and/or test development tools: $R = 0.2$; $t(N-2) = 4.25$; $p < 0.001$; MOOCs: $R = 0.13$; $t(N-2) = 2.76$; $p < 0.01$; platfroms for designing digital learning resources: $R = 0.17$; $t(N-2) = 3.73$; $p < 0.001$; and the existence of a negative and statistically significant weak strength relationship between the experience of the respondents aforementioned and their frequency of use of AI tools: $R = -0.14$; $t(N-2) = -2.91$; $p < 0.01$. The directions of these correlations indicate that respondents with longer teaching experience used all the above-mentioned tools more frequently at stage 2 - except for AI tools, which were used more frequently by those with less experience. Respondents with experience up to one year were less likely than the other groups to use tools such as distance learning platforms at Stage 2 ($M_1 = 3.81$; $SD_1 = 1.39$; other groups: from $M_{2–4} = 4.1$; $SD_{2–4} = 1.18$ to $M_{>20} = 4.73$; $SD_{>20} = 0.64$); video conferencing tools ($M_1 = 3.62$; $SD_1 = 1.55$; other groups: from $M_{2–4} = 4.04$; $SD_{2–4} = 1.27$ to $M_{>20} = 4.66$; $SD_{>20} = 0.73$); survey and/or test development tools ($M_1 = 2.73$; $SD_1 = 1.54$; other groups: from $M_{5–10} = 3.66$; $SD_{5–10} = 1.43$ to $M_{>20} = 4.2$; $SD_{>20} = 0.9$); MOOCs ($M_1 = 2.35$; $SD_1 = 1.44$; other groups: from $M_{2–4} = 2.82$; $SD_{2–4} = 1.37$ to $M_{5–10} = 3.41$; $SD_{5–10} = 1.36$) and platforms for designing digital learning resources ($M_1 = 2.19$; $SD_1 = 1.41$; other groups: from $M_{2–4} = 3.01$; $SD_{2–4} = 1.5$ to $M_{>20} = 3.5$; $SD_{>20} = 1.29$). On the contrary, AI tools were used at stage 2 by those with up to 4 years of experience more frequently ($M_1 = 2.85$; $SD_1 = 1.57$ and $M_{2–4} = 3.02$; $SD_{2–4} = 1.44$) compared to groups with more teaching experience (from $M_{>20} = 2.46$; $SD_{>20} = 1.28$ to $M_{11–20} = 2.65$; $SD_{11–20} = 1.38$).

No statistically significant relationship was found between teaching experience and how often Stage 2 respondents utilized the other tools. In the different groups distinguished by the experience mentioned above, the frequency of use of social media tools ranged from $M_1 = 3.88$; $SD_1 = 1.28$ to $M_{> 20} = 4.27$; $SD_{> 20} = 0.87$; of instant messaging for communication - from $M_{11–20} = 4.24$; $SD_{11–20} = 1.02$ to $M_{5–10} = 4.45$; $SD_{5–10} = 0.86$; and of cloud technologies - from $M_1 = 3.04$; $SD_1 = 1.8$ to $M_{2–4} = 3.78$; $SD_{2–4} = 1.29$, respectively. The Spearman rank order correlation analysis results show that there is no statistically significant link between the respondents' frequency of using social media tools and their teaching experience: $R = 0.01$; $t(N-2) = 0.15$; $p = 0.883$; Instant messaging for communication: $R = -0.04$; $t(N-2) = -0.86$; $p = 0.392$; and cloud technologies: $R = 0$; $t(N-2) = 0.03$; $p = 0.978$ (Table 2).

Table 2

Relationship between respondents' teaching experience and how often they employed various ICT and AI technologies throughout the educational process during the war

	Teaching experience (years)	**Descriptive statistics - How frequently various ICT and AI technologies are used throughout the educational process (Stage 2: during the war)**						**Correlation of Spearman's rank order**
		Mean ± Standard deviation	**Median [Q25 - Q75]**	**Min. - Max.**	**Confidence interval**		**Stand error.**	
					-95.00%	**+95.00%**		
Distance learning platforms	1 (n = 26)	3.81 ± 1.39	4.5 [3 - 5]	1 - 5	3.25	4.37	0.27	R = 0.25; t(N-2) = 5.55; p < 0.001
	2-4 (n = 115)	4.1 ± 1.18	5 [3 - 5]	1 - 5	3.88	4.31	0.11	
	5-10 (n = 87)	4.23 ± 1.1	5 [4 - 5]	1 - 5	4.00	4.46	0.12	
	11-20 (n = 83)	4.2 ± 1.2	5 [4 - 5]	1 - 5	3.94	4.47	0.13	
	> 20 (n = 147)	4.73 ± 0.64	5 [5 - 5]	2 - 5	4.62	4.83	0.05	
Video conferencing tools	1 (n = 26)	3.62 ± 1.55	4 [3 - 5]	1 - 5	2.99	4.24	0.30	R = 0.23; t(N-2) = 5.06; p < 0.001
	2-4 (n = 115)	4.04 ± 1.27	5 [3 - 5]	1 - 5	3.81	4.28	0.12	
	5-10 (n = 87)	4.1 ± 1.24	5 [4 - 5]	1 - 5	3.84	4.37	0.13	
	11-20 (n = 83)	4.08 ± 1.18	5 [3 - 5]	1 - 5	3.83	4.34	0.13	
	> 20 (n = 147)	4.66 ± 0.73	5 [5 - 5]	2 - 5	4.54	4.78	0.06	
Tools for creating surveys and/or tests	1 (n = 26)	2.73 ± 1.54	3 [1 - 4]	1 - 5	2.11	3.35	0.30	R = 0.2; t(N-2) = 4.25; p < 0.001
	2-4 (n = 115)	3.72 ± 1.33	4 [3 - 5]	1 - 5	3.48	3.97	0.12	
	5-10 (n = 87)	3.66 ± 1.43	4 [2 - 5]	1 - 5	3.35	3.96	0.15	
	11-20 (n = 83)	3.92 ± 1.32	4 [3 - 5]	1 - 5	3.63	4.20	0.14	
	> 20 (n = 147)	4.2 ± 0.9	4 [4 - 5]	2 - 5	4.06	4.35	0.07	
Social media tools	1 (n = 26)	3.88 ± 1.28	4 [4 - 5]	1 - 5	3.37	4.40	0.25	R = 0.01; t(N-2) = 0.15; p = 0.883
	2-4 (n = 115)	4.19 ± 1.08	5 [4 - 5]	1 - 5	3.99	4.39	0.10	
	5-10 (n = 87)	4.15 ± 1.25	5 [4 - 5]	1 - 5	3.88	4.42	0.13	
	11-20 (n = 83)	4 ± 1.07	4 [3 - 5]	1 - 5	3.77	4.23	0.12	
	> 20 (n = 147)	4.27 ± 0.87	4 [4 - 5]	2 - 5	4.12	4.41	0.07	
Messengers	1 (n = 26)	4.38 ± 1.06	5 [4 - 5]	1 - 5	3.96	4.81	0.21	R = -0.04; t(N-2) = -0.86; p = 0.392
	2-4 (n = 115)	4.38 ± 1.09	5 [4 - 5]	1 - 5	4.18	4.58	0.10	
	5-10 (n = 87)	4.45 ± 0.86	5 [4 - 5]	2 - 5	4.27	4.63	0.09	
	11-20 (n = 83)	4.24 ± 1.02	5 [4 - 5]	1 - 5	4.02	4.46	0.11	
	> 20 (n = 147)	4.38 ± 0.96	5 [4 - 5]	1 - 5	4.22	4.54	0.08	
MOOCs	1 (n = 26)	2.35 ± 1.44	2 [1 - 4]	1 - 5	1.76	2.93	0.28	R = 0.13; t(N-2) = 2.76; p < 0.01
	2-4 (n = 115)	2.82 ± 1.37	3 [2 - 4]	1 - 5	2.56	3.07	0.13	
	5-10 (n = 87)	3.41 ± 1.36	4 [3 - 4]	1 - 5	3.12	3.70	0.15	
	11-20 (n = 83)	2.99 ± 1.33	3 [2 - 4]	1 - 5	2.70	3.28	0.15	
	> 20 (n = 147)	3.24 ± 1.26	3 [2 - 4]	1 - 5	3.04	3.45	0.10	
Platforms for designing digital learning resources	1 (n = 26)	2.19 ± 1.41	1.5 [1 - 3]	1 - 5	1.62	2.76	0.28	R = 0.17; t(N-2) = 3.73; p < 0.001
	2-4 (n = 115)	3.01 ± 1.5	3 [2 - 4]	1 - 5	2.73	3.28	0.14	
	5-10 (n = 87)	3.3 ± 1.53	4 [2 - 5]	1 - 5	2.97	3.62	0.16	
	11-20 (n = 83)	3.25 ± 1.49	3 [2 - 5]	1 - 5	2.93	3.58	0.16	
	> 20 (n = 147)	3.5 ± 1.29	4 [3 - 5]	1 - 5	3.29	3.71	0.11	
Cloud technologies	1 (n = 26)	3.04 ± 1.8	3.5 [1 - 5]	1 - 5	2.31	3.77	0.35	R = 0; t(N-2) = 0.03; p = 0.978
	2-4 (n = 115)	3.78 ± 1.29	4 [3 - 5]	1 - 5	3.54	4.02	0.12	
	5-10 (n = 87)	3.67 ± 1.44	4 [2 - 5]	1 - 5	3.36	3.97	0.15	
	11-20 (n = 83)	3.6 ± 1.35	4 [3 - 5]	1 - 5	3.31	3.90	0.15	

	Teaching experience (years)	Descriptive statistics - How frequently various ICT and AI technologies are used throughout the educational process (Stage 2: during the war)						Correlation of Spearman's rank order
		Mean ± Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Stand error.	
					-95.00%	+95.00%		
	> 20 (n = 147)	3.69 ± 1.25	4 [3 - 5]	1 - 5	3.49	3.90	0.10	
AI tools	1 (n = 26)	2.85 ± 1.57	3 [1 - 4]	1 - 5	2.21	3.48	0.31	R = -0.14; t(N-2) = -2.91; p < 0.01
	2-4 (n = 115)	3.02 ± 1.44	3 [2 - 4]	1 - 5	2.75	3.28	0.13	
	5-10 (n = 87)	2.63 ± 1.38	3 [1 - 4]	1 - 5	2.34	2.93	0.15	
	11-20 (n = 83)	2.65 ± 1.38	3 [1 - 4]	1 - 5	2.35	2.95	0.15	
	> 20 (n = 147)	2.46 ± 1.28	2 [1 - 3]	1 - 5	2.25	2.67	0.11	

Source: own elaboration

3.3. Stage 3: after the war

The respondents' teaching experiences were linked to predictions of how frequently specific tools will be used throughout the teaching and/or learning process at Stage 3 (post-war). The aforementioned experience and the intended frequency of usage of distant learning platforms were shown to have positive and statistically significant weak strength connections, according to analysis utilizing Spearman's rank order correlation approach.: $R = 0.1$; $t(N-2) = 2.25$; $p < 0.05$; video conferencing tools: $R = 0.1$; $t(N-2) = 2.21$; $p < 0.05$; and survey and/or test development tools: $R = 0.15$; $t(N-2) = 3.28$; $p < 0.01$; and a weak, statistically significant negative relationship between the above experience and the planned frequency of use of instant messaging for communication: $R = -0.1$; $t(N-2) = -2.09$; $p < 0.05$. This indicates that after the conflict, respondents with greater teaching experience intended to use video conferencing tools, survey and/or test development tools, and remote learning platforms more frequently, and instant messaging for communication less frequently. The more experience the respondents had in teaching, the more often they planned to use video conferencing tools (from $M_1 = 3.46$; $SD_1 = 1.14$ to $M_{>20} = 3.93$; $SD_{>20} = 1.05$). Respondents with the shortest teaching experience, not exceeding one year, planned to use distance learning platforms at stage 3 with less frequency than the other groups ($M_1 = 3.54$; $SD_1 = 1.14$; other groups: from $M_{5–10} = 3.75$; $SD_{5–10} = 1.24$ to $M_{>20} = 4.04$; $SD_{>20} = 1.02$) and survey and/or test creation tools ($M_1 = 3.31$; $SD_1 = 1.35$; other groups: from $M_{5–10} = 3.91$; $SD_{5–10} = 1.12$ to $M_{>20} = 4.23$; $SD_{>20} = 0.9$) and more often from instant messaging for communication ($M_1 = 4.54$; $SD_1 = 0.76$; other groups: from $M_{>20} = 4.01$; $SD_{>20} = 1.15$ to $M_{11–20} = 4.25$; $SD_{11–20} = 0.94$).

For the other ICT and AI tools, there was no significant relationship between respondents' teaching experience and the predicted frequency of use at stage 3. In the various categories identified by the previously indicated experience, the anticipated frequency of social media tools usage ranged from $M_1 = 4.08$; $SD_1 = 1.09$ to $M_{2–4} = 4.17$; $SD_{2–4} = 0.95$; MOOCs - from $M_1 = 3$; $SD_1 = 1.41$ to $M_{5–10} = 3.74$; $SD_{5–10} = 1.22$; platforms for designing digital learning resources - from $M_1 = 3$; $SD_1 = 1.33$ to $M_{11–20} = 3.83$; $SD_{11–20} = 1.09$; cloud technologies - from $M_1 = 3.38$; $SD_1 = 1.3$ to $M_{2–4} = 3.96$; $SD_{2–4} = 1.17$; and from AI tools - from $M_1 = 3.08$; $SD_1 = 1.32$ to $M_{2–4} = 3.54$; $SD_{2–4} = 1.24$, respectively. Spearman's rank-order correlation analysis revealed no statistically significant link between the respondents' anticipated postwar frequency of using ICT and AI technologies, such as

social media tools, and their teaching experience: R = -0.01; t(N-2) = -0.11; p = 0.914; MOOCs: R = 0.01; t(N-2) = 0.22; p = 0.829; platforms for designing digital learning resources: R = 0.02; t(N-2) = 0.5; p = 0.617; cloud technologies: R = 0.01; t(N-2) = 0.21; p = 0.836 and AI tools: R = -0.06; t(N-2) = -1.3; p = 0.193 (Table 3).

Table 3

The frequency with which respondents employed different ICT and AI tools throughout the educational process in the postwar era was correlated with their teaching experience

	Teaching experience (years)	**Descriptive statistics - How frequently various ICT and AI technologies are used throughout the educational process (stage 3: after the war)**						**Correlation of Spearman's rank order**
		Mean ± Standard deviation	**Median [Q25 - Q75]**	**Min. - Max.**	**Confidence interval**		**Stand error.**	
					-95.00%	**+95.00%**		
Distance learning platforms	1 (n = 26)	3.54 ± 1.14	3.5 [3 - 4]	1 - 5	3.08	4.00	0.22	R = 0.1; t(N-2) = 2.25; p < 0.05
	2-4 (n = 115)	3.82 ± 1.16	4 [3 - 5]	1 - 5	3.60	4.03	0.11	
	5-10 (n = 87)	3.75 ± 1.24	4 [3 - 5]	1 - 5	3.48	4.01	0.13	
	11-20 (n = 83)	3.94 ± 1.18	4 [3 - 5]	1 - 5	3.68	4.20	0.13	
	> 20 (n = 147)	4.04 ± 1.02	4 [3 - 5]	1 - 5	3.87	4.21	0.08	
Video conferencing Tools	1 (n = 26)	3.46 ± 1.14	3 [3 - 4]	1 - 5	3.00	3.92	0.22	R = 0.1; t(N-2) = 2.21; p < 0.05
	2-4 (n = 115)	3.69 ± 1.14	4 [3 - 5]	1 - 5	3.48	3.90	0.11	
	5-10 (n = 87)	3.72 ± 1.21	4 [3 - 5]	1 - 5	3.47	3.98	0.13	
	11-20 (n = 83)	3.86 ± 1.07	4 [3 - 5]	1 - 5	3.62	4.09	0.12	
	> 20 (n = 147)	3.93 ± 1.05	4 [3 - 5]	1 - 5	3.75	4.10	0.09	
Tools for creating surveys and/or tests	1 (n = 26)	3.31 ± 1.35	4 [2 - 4]	1 - 5	2.76	3.85	0.26	R = 0.15; t(N-2) = 3.28; p < 0.01
	2-4 (n = 115)	3.97 ± 1.03	4 [3 - 5]	1 - 5	3.77	4.16	0.10	
	5-10 (n = 87)	3.91 ± 1.12	4 [3 - 5]	1 - 5	3.67	4.15	0.12	
	11-20 (n = 83)	4.02 ± 1.07	4 [3 - 5]	1 - 5	3.79	4.26	0.12	
	> 20 (n = 147)	4.23 ± 0.9	4 [4 - 5]	2 - 5	4.08	4.38	0.07	
Social media tools	1 (n = 26)	4.08 ± 1.09	4 [3 - 5]	1 - 5	3.64	4.52	0.21	R = -0.01; t(N-2) = -0.11; p = 0.914
	2-4 (n = 115)	4.17 ± 0.95	4 [4 - 5]	2 - 5	4.00	4.35	0.09	
	5-10 (n = 87)	4.1 ± 1.06	4 [4 - 5]	1 - 5	3.88	4.33	0.11	
	11-20 (n = 83)	4.16 ± 0.85	4 [4 - 5]	2 - 5	3.97	4.34	0.09	
	> 20 (n = 147)	4.15 ± 0.97	4 [4 - 5]	1 - 5	3.99	4.31	0.08	
Messengers	1 (n = 26)	4.54 ± 0.76	5 [4 - 5]	2 - 5	4.23	4.85	0.15	R = -0.1; t(N-2) = -2.09; p < 0.05
	2-4 (n = 115)	4.21 ± 1.05	5 [3 - 5]	1 - 5	4.02	4.40	0.10	
	5-10 (n = 87)	4.22 ± 1.09	5 [4 - 5]	1 - 5	3.99	4.45	0.12	
	11-20 (n = 83)	4.25 ± 0.94	5 [4 - 5]	2 - 5	4.05	4.46	0.10	
	> 20 (n = 147)	4.01 ± 1.15	4 [3 - 5]	1 - 5	3.83	4.20	0.10	
MOOCs	1 (n = 26)	3 ± 1.41	3 [2 - 4]	1 - 5	2.43	3.57	0.28	R = 0.01; t(N-2) = 0.22; p = 0.829
	2-4 (n = 115)	3.36 ± 1.22	3 [3 - 4]	1 - 5	3.13	3.58	0.11	
	5-10 (n = 87)	3.74 ± 1.22	4 [3 - 5]	1 - 5	3.47	4.00	0.13	
	11-20 (n = 83)	3.45 ± 1.1	3 [3 - 4]	1 - 5	3.21	3.69	0.12	
	> 20 (n = 147)	3.37 ± 1.18	3 [3 - 4]	1 - 5	3.18	3.57	0.10	
Platforms for designing digital	1 (n = 26)	3 ± 1.33	3 [2 - 4]	1 - 5	2.46	3.54	0.26	R = 0.02; t(N-2) = 0.5; p = 0.617
	2-4 (n = 115)	3.66 ± 1.26	4 [3 - 5]	1 - 5	3.43	3.89	0.12	
	5-10 (n = 87)	3.68 ± 1.25	4 [3 - 5]	1 - 5	3.41	3.95	0.13	
	11-20 (n = 83)	3.83 ± 1.09	4 [3 - 5]	1 - 5	3.59	4.07	0.12	

	Teaching experience (years)	Descriptive statistics - How frequently various ICT and AI technologies are used throughout the educational process (stage 3: after the war)						Correlation of Spearman's rank order
		Mean ± Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Stand error.	
					-95.00%	+95.00%		
learning resources	> 20 (n = 147)	3.62 ± 1.09	4 [3 - 5]	1 - 5	3.44	3.80	0.09	
Cloud technologies	1 (n = 26)	3.38 ± 1.3	3.5 [3 - 4]	1 - 5	2.86	3.91	0.25	R = 0.01; t(N-2) = 0.21; p = 0.836
	2-4 (n = 115)	3.96 ± 1.17	4 [3 - 5]	1 - 5	3.74	4.17	0.11	
	5-10 (n = 87)	3.82 ± 1.25	4 [3 - 5]	1 - 5	3.55	4.08	0.13	
	11-20 (n = 83)	3.87 ± 1.09	4 [3 - 5]	1 - 5	3.63	4.11	0.12	
	> 20 (n = 147)	3.89 ± 1.09	4 [3 - 5]	1 - 5	3.71	4.07	0.09	
AI tools	1 (n = 26)	3.08 ± 1.32	3 [2 - 4]	1 - 5	2.54	3.61	0.26	R = -0.06; t(N-2) = -1.3; p = 0.193
	2-4 (n = 115)	3.54 ± 1.24	4 [3 - 5]	1 - 5	3.31	3.77	0.12	
	5-10 (n = 87)	3.26 ± 1.24	3 [2 - 4]	1 - 5	3.00	3.53	0.13	
	11-20 (n = 83)	3.2 ± 1.22	3 [2 - 4]	1 - 5	2.94	3.47	0.13	
	> 20 (n = 147)	3.27 ± 1.13	3 [2 - 4]	1 - 5	3.08	3.45	0.09	

Source: own elaboration

4. DISCUSSION

The collected data are consistent with the findings of Prasetya et al., who noted that teachers' attitudes towards the use of AI in the educational process are largely determined by their pedagogical experience. Individuals with long teaching experience tend to show a more favorable attitude towards technological innovations than their colleagues with less experience (Prasetya et al., 2024). These results also echo previous studies that show that the presence of professional experience significantly affects teachers' ability to adapt educational resources according to students' educational needs (Karataş et al., 2024; Diaz et al., 2025). However, it should be emphasised that all the relationships identified in this study were weak ($|R| \leq 0.25$), which means that teaching experience accounts for only a small part of the variation in the frequency of use of ICT and AI tools; the results should therefore be interpreted as associations rather than causal effects.

However, teaching experience may also be associated with other characteristics, including age, academic discipline, digital competence, institutional support, and access to technological infrastructure. As these potential confounding factors were not simultaneously controlled for in the present analysis, the observed associations cannot always be attributed to teaching experience alone.

The limitations of this study are mainly due to its reliance on data reported directly by respondents, which can be distorted by various types of bias, including the use of a voluntary, non-random sample. That may have introduced self-selection bias, as educators who were more interested in or experienced with digital technologies may have been more likely to participate.

Other limitations are also related to the sample distribution by gender and academic discipline, with women representing 91.92% of respondents and a substantial proportion of participants working in primary education. Therefore, the findings should not be interpreted as fully representative of the entire Ukrainian higher education teaching population.

Moreover, the nature of the study covers only a single point in time, which limits the ability to draw definitive causal conclusions and make predictions. To better understand the contextual realities encountered by university instructors, longitudinal methodologies and qualitative methods can be used in future research to partially alleviate these constraints. Overall, this research adds to the expanding corpus of literature by providing empirical data from a unique national context under extreme duress. Ukrainian educators' ability to adapt to technological demands amid war underscores the resilience and transformative potential of higher education systems in crisis. The fact that more experienced teachers plan to continue using key digital tools post-war suggests that temporary adaptations may result in long-term pedagogical shifts.

5. CONCLUSION

The frequency with which teachers at Ukrainian universities use ICT and AI tools during F2F education, during the war, and in the anticipated post-war period is associated with their teaching experience.

Ukrainian professionals with longer teaching experience more frequently use the aforementioned ICT and AI tools during the educational process; these include MOOCs and platforms for designing digital learning resources (during F2F education, and during the war), as well as distance learning platforms and tools for video conferencing and creating surveys and/or tests (at each stage). A similar conclusion is also consistent with studies (Wang et al., 2023; Shankar et al., 2025).

At the same time, teaching experience may also be associated with other characteristics, including age, academic discipline, digital competence, institutional support, and access to technological infrastructure. As these potential confounding factors were not simultaneously controlled for in the present analysis, the observed associations cannot be attributed to teaching experience alone.

This study supports the notion that effective digital transformation in education depends on a complex interaction of environmental, institutional, and human elements rather than being purely a function of experience.

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