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Networking initiatives as a means of promoting the development of teachers' civic competence

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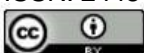
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Abstract
The aim of the article is to evaluate the influence of networking initiatives on the improvement of the level of teachers' civic competence. The results of the analysis revealed that the average scores in all components exceed 50%, which indicates a generally high level of digital competence among Ukrainian teachers. The highest average score is observed in the Communication and Cooperation component (71.5%), and the lowest – in the Creativity and Problem Solving component (59.3%). The obtained results confirm the importance of improving teachers' civic and digital competencies. In particular, a direct relationship between the level of civic competence and participation in networking initiatives, as well as between civic competence and participation in networking initiatives was found. According to the obtained results, networking initiatives have a positive effect on improving the teachers' civic competence. The use of distance educational technologies provides continuous civic education.

Keywords
civic education; pedagogical education; digital technologies; distance education.

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Iniciativas de networking como meio de promover o desenvolvimento da competência cívica dos professores

Resumo

O objetivo do artigo é avaliar a influência das iniciativas de networking na melhoria do nível de competência cívica dos professores. Os resultados da análise revelaram que as pontuações médias em todos os componentes excedem 50%, o que indica um nível geralmente alto de competência digital entre os professores ucranianos. A pontuação média mais alta é observada no componente Comunicação e Cooperação (71,5%) e a mais baixa - no componente Criatividade e Resolução de Problemas (59,3%). Os resultados obtidos confirmam a importância de melhorar as competências cívicas e digitais dos professores. Em particular, foi encontrada uma relação direta entre o nível de competência cívica e a participação em iniciativas de networking, bem como entre competência cívica e participação em iniciativas de networking. De acordo com os resultados obtidos, as iniciativas de networking têm um efeito positivo na melhoria da competência cívica dos professores. O uso de tecnologias educacionais à distância fornece educação cívica contínua.

Palavras-chave

educação cívica; educação pedagógica; tecnologias digitais; educação a distância.

Iniciativas de trabajo en red como medio para promover el desarrollo de la competencia cívica docente

Resumen

El objetivo del artículo es evaluar la influencia de las iniciativas de creación de redes en la mejora del nivel de competencia cívica de los docentes. Los resultados del análisis revelaron que las puntuaciones medias en todos los componentes superan el 50%, lo que indica un nivel generalmente alto de competencia digital entre los profesores ucranianos. La puntuación media más alta se observa en el componente de Comunicación y Cooperación (71,5%) y la más baja, en el componente de Creatividad y Resolución de Problemas (59,3%). Los resultados obtenidos confirman la importancia de mejorar las competencias cívicas y digitales de los docentes. En particular, se encontró una relación directa entre el nivel de competencia cívica y la participación en iniciativas de networking, así como entre la competencia cívica y la participación en iniciativas de networking. Según los resultados obtenidos, las iniciativas de networking tienen un efecto positivo en la mejora de la competencia cívica de los docentes. El uso de tecnologías educativas a distancia proporciona educación cívica continua.

Palabras clave

educación cívica; educación pedagógica; tecnologías digitales; educación a distancia.

1 Introduction

1.1 Relevance

The development of teachers' civic competence is an important aspect of the educational system in view of globalization and the information society. Civic competence

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includes the knowledge, skills, and attitudes needed to actively participate in public life and contribute to democratic processes. Networking initiatives are an effective tool for teachers' professional development, providing an opportunity to share experiences, knowledge, and resources (Morozova, 2020; Wen; Korsun, 2023).

Networking initiatives are group activities organized using digital platforms that allow participants to interact, collaborate, and share information. Examples of such projects include professional social networks, online courses, webinars, forums, and virtual conferences (Kuhl; Pontarolo, 2023; Sheremet *et al.*, 2021). They contribute to the development of professional communities that unite teachers from different countries and regions (Wulan; Tabroni, 2024). Networking initiatives are an important tool for the development of teachers' civic competence, as they enable the exchange of experiences, career growth and involvement in civic life (Konotop *et al.*, 2021).

Competence denotes a general ability or capacity to perform a task effectively, encompassing a broad range of knowledge and skills. In contrast, competency refers to a specific, measurable skill or behavior required for successful task performance. Civic competence consists of four structural components:

1. *The cognitive block* is related to knowledge and methods of obtaining it. This is primarily knowledge about society and its structure: political, legal, social, historical, cultural, etc (Grütter; Buchmann, 2021).

2. *The activity (operational) component* includes the readiness to perform the role of voter, consumer, public and political figure, etc. (Lecompte; Blevins; Riggers-Piehl, 2020).

3. *The axiological component includes values* like humanism, patriotism, freedom, responsibility, respect for rights, traditions, and democratic norms (Tittel; Terzidis, 2020).

4. *The individual component* implies that civic and patriotic feelings cannot be imposed, they cannot be brought up by the purposeful influence of society, the state or school, otherwise it will be simple conformity (Erkaboeva; Musaeva, 2022).

The focus of the research is to study the civic competence of teachers, in particular, the level of their knowledge, skills and attitudes in this area. Special attention will be paid to the influence of the sociocultural context on the development of these

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competencies. One of the key problems of modern education is a vague understanding and application of the concepts of *"competence"* and *"competency"*, which leads to an ambiguous definition of the goals of the educational system.

The aim of the research is to evaluate the effectiveness of networking initiatives in the process of improving the teachers' civic competence.

1.2 Objectives/questions

1. Assessing the level of civic competence of respondents according to international standards.
2. Study of the civic competence of a Ukrainian according to the methodology developed by the authors
3. Assessment of the level of digital literacy according to international standards of education quality.

2 Literature review

Before starting research, prior studies should be reviewed to understand civic competence and assessment practices. These studies highlight key factors, challenges, and the role of technology in improving learning and civic skills.

Snovydovych (2020) explored the concept of *"competency"*, synthesizing Ukrainian and international studies, and proposed a definition based on key characteristics and factors. The research provided a list of essential competencies for young professionals aligned with labor market demands. The study also underscored the significance of soft skills, which are highly valued by employers, while stressing the need for educational programs to adapt to labor market changes. Savchenko and Oleksenko (2023) focused on the role of civic competence in teachers' personal and professional growth. The study introduced an updated content model for professional development courses, combining face-to-face and distance learning modules. Sinyaeva *et al.* (2023) examined the role of information technologies in education, especially for distance learning. The study highlighted platforms such as Moodle, Google Classroom, and Zoom, which allow students to manage their education independently and foster individual development. Pulatbek (2023) detailed how digital educational technologies transform

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foreign language teaching, emphasizing personalized learning, real-time collaboration, and digital skill development. The study demonstrated how these tools enhance student engagement and access to educational resources, ultimately stimulating innovation in language education.

Deacon, Laufer, and Schäfer (2023) explored the role of educational technology in universities post-pandemic. They analyzed organizational factors – such as leadership, infrastructure, and strategy – necessary for implementing educational technologies. Their findings resulted in an organizational framework based on a review of 1,614 articles, highlighting key factors for successful educational technology adoption. Tomé and Coelho (2023) discussed how digital technologies are used in physiotherapy education, analyzing the benefits of tools like virtual environments, simulations, and digital games. Nguyen and Habók (2024) focused on digital literacy in teachers' professional development, reviewing 33 peer-reviewed articles. The study found that scholars are increasingly interested in how teachers use educational technology for professional growth and student support through digital competence.
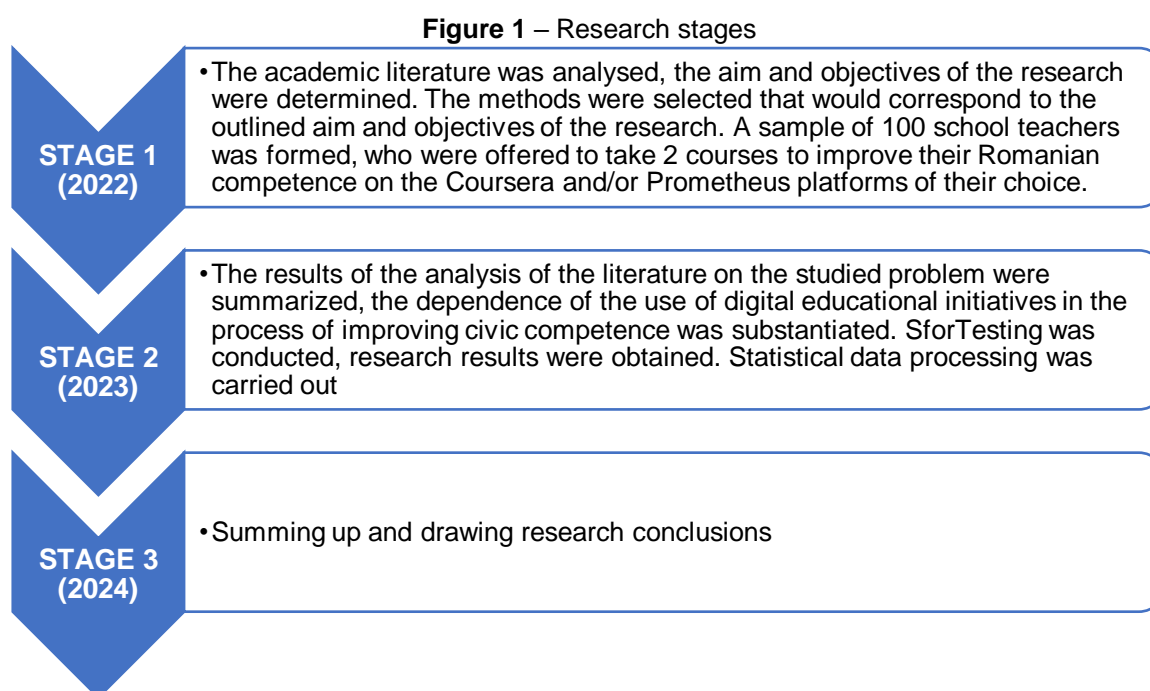
Medne *et al.* (2024) examined the importance of civic competence for sustainable societies, economies, and ecosystems. Their study revealed a lower self-assessed level of civic competence among students compared to other competencies, indicating the need for enhanced educational processes to foster socially responsible citizens. White (2024) analyzed primary school teachers' preparation to teach civics, showing a link between civic awareness and the willingness to engage in teaching political topics. The study demonstrated that strong civic awareness and a commitment to social issues correlate with better civics education. Jansson and Löfgren (2024) investigated how internal and external factors influence civics teachers' assessment decisions, identifying four key objectives: policy implementation, learning improvement, student support, and administrative work.

Thus, we can say that digital and civic competencies are mutually reinforcing. Digital competencies enable people to access, evaluate and use information online effectively. Civic competencies involve active and responsible participation in society. Together, they contribute to informed decision-making, digital citizenship and democratic engagement in the digital age. However, their interconnectedness requires purposeful integration into education and practice.

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Further research should focus on how internal and external factors shape teachers' assessment decisions across different contexts and subjects. Investigating the impact of digital technologies on civic competence development and the effectiveness of educational platforms in civics and physiotherapy is crucial.

3 Methods

The research was conducted in three stages. The content of each stage and its duration is presented in Figure 1.

Figure 1 – Research stages

STAGE 1 (2022)
- The academic literature was analysed, the aim and objectives of the research were determined. The methods were selected that would correspond to the outlined aim and objectives of the research. A sample of 100 school teachers was formed, who were offered to take 2 courses to improve their Romanian competence on the Coursera and/or Prometheus platforms of their choice.

STAGE 2 (2023)
- The results of the analysis of the literature on the studied problem were summarized, the dependence of the use of digital educational initiatives in the process of improving civic competence was substantiated. SforTesting was conducted, research results were obtained. Statistical data processing was carried out

STAGE 3 (2024)
- Summing up and drawing research conclusions

Source: Developed by the authors of the research (2024).

All proposed stages of the research and experimental work were defined. This study is classified as a cross-sectional study: the data are collected once and analysed at the time of collection, with no follow-up or further analysis.

The general population consisted of teachers from Kyiv. The sample was formed from 100 school teachers of the Dniprovskyi and Darnytskyi districts of Kyiv. The sample included persons from 24 to 55 years old who work in schools in the specified districts. The sample was formed by a double blind lottery from the entire teaching staff of the district education department of the specified districts of Kyiv. This composition and

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number of respondents makes it possible to follow the main trends and draw valid conclusions relevant to the aim of the article. The selected teachers were asked to choose two courses on the Coursera and/or Prometheus platforms aimed at the development of civic competence of their choice, based on their own assessment of their gaps in this area of socio-political knowledge.

Data entry and processing was carried out using the Microsoft Excel and SPSS Statistics 19.0. All data are given in absolute (number of answer choices) and relative (% of the number of respondents) values. The study employed the following methods.

1. *The test from International Civic and Citizenship Education Study (ICCS)* organized by the International Association for the Evaluation of Educational Achievement (IEA). The test includes questions measuring knowledge and understanding of the main aspects of civic education, as well as a questionnaire to study attitudes and values (Schulz *et al.*, 2023). The Cronbach's alpha value for the test is 0.79.

2. *The Ukrainian Civic Competence Test*. This test was developed by the authors of the study to assess the level of civic competence among citizens of Ukraine. The test covers various areas, including constitutional rights, democratic processes, participation in public life, as well as the fundamentals of the rule of law and social responsibility. The Cronbach's alpha value for the test is 0.75.

3. European Framework for the Digital Competence of Educator (https://educators-go-digital.jrc.ec.europa.eu). It is a comprehensive framework developed by the European Commission to identify and assess the digital competencies needed by teachers. The Cronbach's alpha value for the test is 0.78.

This study employed the following statistical methods to analyze the data:

1. *Standard Deviation.* The standard deviation was calculated to quantify the variability of responses within each group. This measure provides insights into the dispersion of data points around the mean, aiding in the assessment of data consistency and distribution patterns.

2. *Chi-Square (χ^2) Test.* The χ^2 test was utilized to examine the relationships between categorical variables. Specifically, it was used to determine whether the distribution of two variables, such as teachers' civic competence levels and

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their participation in networking initiatives, was independent or associated. This test is particularly valuable for analyzing the effectiveness of interventions or identifying correlations within diverse datasets.

3. *Cronbach's Alpha.* Cronbach's alpha was employed to assess the reliability of the measurement instruments used in the study. This coefficient evaluates the internal consistency of the items within a scale, ensuring that they coherently measure the intended construct. A Cronbach's alpha value of 0.7 or higher indicates satisfactory reliability, confirming the appropriateness of the tools used for assessing civic competence and related attributes. By combining these statistical methods, the study ensured a rigorous analysis of the data, allowing for reliable and valid conclusions regarding the impact of networking initiatives on the development of teachers' civic competence.

Research participants are guaranteed the protection of their personal data. Informed consent was also obtained from each of them to participate in the research, process the obtained data, and publish the results. Participation in the study was voluntary, without any coercion. The authors do not advertise any products or services and declare no conflict of interest.

4 Results

The first step was the assessment of civic competence according to the ICCS. The results are shown in Table 1.

Table 1 – Assessment of civic competence according to the ICCS

(to be continued)

Component	The average score according to the test result (%)	The mean overall score for EU countries in 2022 (%)	t-test	p-value
Behavioural				
Willingness to vote in elections	62.1	72.4	-5.6	<0.001
Willingness to volunteer in the community	48.9	58.2	-4.7	<0.001
Willingness to participate in protests	23.8	31.2	-4.1	<0.001
Cognitive				
Knowledge about democracy	54.3	62.8	-4.8	<0.001

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Table 1 – Assessment of civic competence according to the ICCS

(conclusion)

Component	The average score according to the test result (%)	The mean overall score for EU countries in 2022 (%)	t-test	p-value
Knowledge of human rights	52.5	58.9	-3.6	<0.001
Knowledge of government work	49.2	55.7	-3.4	<0.001
Affective				
Faith in democracy	64.2	72.1	-4.3	<0.001
Respect for human rights	61.7	68.3	-3.8	<0.001
Confidence in the government	28.3	34.7	-3.2	<0.001

Source: created on the basis of the research results and using data to compare with Schulz *et al.* (2023).

Table 1 highlights significantly lower civic competence among Ukrainian teachers compared to the EU. Willingness to vote, volunteer, and knowledge of democracy, human rights, and government are notably lower. These differences, statistically significant, suggest a need for improving civic education in Ukraine. Table 3 presents the results of the study of civic competence of Ukrainians among school teachers.

Table 2 – The Ukrainian Civic Competence Test

Component	Mean score (%)	Standard deviation	t-test	p-value
Knowledge of democracy and human rights	65.2	12.4	-2.3	0.021
Ability to analyse political information	58.7	14.1	-3.1	0.002
Political Life Participation Skills	49.8	15.3	-4.2	<0.001
Values related to civic responsibility	62.5	13.7	-1.8	0.071

Source: Created on the basis of the research results (2024).

The table presents the results of the test to identify the level of civic competence among Ukrainian teachers in four components. The results of the analysis show that all components show lower average scores than was desired. Table 3 presents the results of studying digital competencies according to international standards.

Table 3 – The results of the assessment of the Ukrainian teachers' digital competence within the DigCompEdu framework

Component	Mean score (%)	Standard deviation
Understanding and critical thinking	68.2	12.4
Creativity and problem solving	59.3	14.1
Pedagogical use of digital technologies	62.7	13.5
Communication and cooperation	71.5	11.8
Personal and professional safety	65.4	13.2

Source: Created on the basis of the research results (2024).

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The table presents the results of the assessment of the teachers' digital competence. The mean scores reflect the percentage ratio of the level of digital competence for each component, and the standard deviation indicates the level of variation in the mean scores.

The problem of the low level of civic competence of Ukrainian teachers is urgent and needs to be addressed systematically. The results of the study indicate a lack of knowledge, practical skills and values necessary for the formation of civic consciousness in students. One of the factors contributing to this is the insufficient emphasis on civic education in teacher training programs. Theoretical foundations, such as human rights, democratic theory, and political philosophy, are often given insufficient attention. Practical skills, such as discussion facilitation and project-based learning, are underdeveloped. In addition, these programs may not fully address contemporary challenges, which limits their effectiveness. These problems persist after school. Teachers often do not have access to systematic professional development opportunities, and schools may have limited resources to provide the necessary materials and tools to effectively teach civic education.

5 Discussion

The study shows that digital initiatives significantly help teachers acquire competencies and improve professional skills. They enable self-development, updating knowledge, and using personalized teaching approaches. Guerrero-Quiñonez *et al.* (2023) and Ebner *et al.* (2023) emphasize the importance of online tools for improving education quality. However, Kolberg-Shah and Shin (2024) and Kawo (2023) note low motivation and poor time management hinder the effectiveness of networking initiatives.

Networking initiatives help build civic competence by promoting active citizen participation and cooperation in public processes (Batubara *et al.*, 2023; Florou; Liagkou; Stylios, 2023). They develop communication, leadership, and cooperation skills, encourage cultural understanding, and support democratic values, contributing to responsible civic engagement (Onah; Pang; Sinclair, 2024; Shahriar *et al.*, 2023).

This study shows that civic competence helps teachers prepare students to be active members of society. It fosters students' understanding of public values and

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democratic principles (Ivaniuk; Oleksiuk; Vyshnevetska, 2021). Teachers with civic competence create an environment of respect and tolerance. They develop students' critical thinking and ability to make informed civic choices. Shapiro (2024) and Ermawati (2024) prove that civic competence also helps teachers design lessons that engage students in public activities. It promotes empathy and understanding of others' needs. Such teachers serve as role models in solving social issues and defending human rights. Discussing and implementing civic competence in the digital sphere should be a priority for the education sector. This includes equipping students with the skills and information they need to participate responsibly and critically in online communities. By developing digital and civic competencies, we can empower people to participate fully in democratic processes, counter disinformation, and contribute positively to online communities.

The study expands the understanding of how digital competence, networking participation, and civic competence are interconnected. It highlights the importance of digital skills for civic engagement and the formation of civic consciousness. Practical implications include developing courses to enhance teachers' digital and civic competence, focusing on using digital tools to foster civic activism. However, the study's limitations include a small sample size and the inability to generalize findings. Additionally, socio-cultural and personal factors influencing digital and civic competence may not have been fully considered.

6 Conclusions

Relevance. The obtained results are of great importance in the context of modern challenges related to digital transformation and the development of civil society. *Findings.* In general, it can be noted that networking initiatives play a key role in the formation of civic and professional competencies among teachers. Improving digital competence contributes to the improvement of the quality of education, creates new opportunities for interactive learning and collaboration, and also expands opportunities for participation in networking initiatives. *Applications.* The results of the study are an important source of information for the formulation of policy in the field of education and the preparation of teachers for modern challenges. *Research results.* Further research should be aimed at

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finding effective mechanisms for increasing the civic competence of teaching staff in institutions of all educational qualification levels.

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