

FORMATION OF UKRAINIAN-LANGUAGE COMMUNICATIVE COMPETENCE OF LEARNERS IN THE CONTEXT OF DIGITAL TRANSFORMATION OF THE EDUCATIONAL ENVIRONMENT

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Abstract. The article aims to theoretically substantiate and empirically diagnose the conditions for developing Ukrainian-language communicative competence of learners in a digitally transformed educational environment and to design an evidence-based model integrating linguistic, discourse-pragmatic, digital-multimodal, media-critical, and mediation-reflective dimensions. The study employs secondary quantitative analysis combined with theoretical synthesis. The empirical base includes the Ukrainian national monitoring of Grade 6 and Grade 8 learning outcomes in the Ukrainian language conducted in 2023–2025, the 2024/2025 monitoring of the functioning of the state language in general secondary education, data from the 2022 Programme for International Student Assessment, and evidence from the United Nations Children’s Fund concerning distance learning and learning losses. The results reveal uneven dynamics. The mean Ukrainian-language test score of Grade 6 students increased from 32.25 in 2023 to 34.86 in 2025, an absolute gain of 2.61 points and a relative increase of approximately 8.1%. By contrast, the Grade 8 mean remained almost unchanged: 50.09 points in 2023 and 50.19 in 2025. At the same time, Ukrainian-language self-identification became stronger, whereas the proportion of students consuming Ukrainian-language internet content decreased from 71% in 2022/2023 to 54% in 2024/2025. This discrepancy is interpreted as a digital-language continuity gap between an institutionally supported Ukrainian-language educational environment and learners’ everyday digital practices. The scientific novelty lies in the proposed continuity model, which treats the digital environment not merely as a technical channel for instruction but as a distinct space of language socialisation, online interaction, mediation, multimodal meaning-making, and critical engagement with information. The model includes five interrelated components and a pedagogical cycle consisting of diagnosis, communicative task design, independent production, interaction and mediation, formative feedback and revision, and reflection through an e-portfolio. The practical significance of the study is associated with the possibility of using the model to design Ukrainian-language lessons and courses, authentic digital communication tasks, multimodal projects, assessment rubrics, and responsible scenarios for generative artificial intelligence. It is concluded that the effectiveness of digital transformation in language education should be assessed not by the number of technological tools introduced but by the expansion of meaningful Ukrainian-language interaction, the quality and independence of learner-generated language products, and learners’ ability to act critically, ethically, and appropriately in a multimodal information environment.

Keywords: Ukrainian-language communicative competence, digital transformation, digital educational environment, online interaction, digital multimodal composing, media literacy, learners.

1. INTRODUCTION

The digital transformation of education is fundamentally changing not only the tools used for learning, but also the very conditions under which language identity develops. Whereas communicative competence was mainly developed through oral communication, reading, and writing in relatively stable genres in a traditional educational environment, a significant proportion of language practice today is shifting to digital platforms, social media, messaging apps, learning management systems, collaborative documents, video conferences, and generative artificial intelligence environments. In this context, learners are simultaneously readers, authors, interlocutors, editors, moderators, and creators of multimodal content. Therefore, in our view, Ukrainian-language communicative competence should be considered more broadly than as merely a set of normative linguistic knowledge and traditional speaking, listening, reading, and writing skills.

2. THEORETICAL BACKGROUND

The issue is particularly important to Ukraine. By law, Ukrainian is the official language of the education system (Verkhovna Rada of Ukraine, 2017). However, the actual language socialization of learners extends far beyond the classroom or lecture hall. Language choices within the family, among friends, and, above all, in the digital environment shape the frequency of contact with the language, the range of genres, stylistic models, and verbal interaction habits. According to data from the State Service of Education Quality of Ukraine (2025), 78% of pupils surveyed in the 2024/2025 academic year considered Ukrainian to be their mother tongue, 49% reported speaking exclusively Ukrainian at home, and 44% reported doing so outside school. Meanwhile, the proportion of pupils consuming Ukrainian-language content online was 54%, compared to 71% in the 2022/2023 academic year. Therefore, a strengthening of Ukrainian-language self-identification does not automatically translate into stable Ukrainian-language digital consumption and production.

This contradiction is exacerbated by educational losses and unequal access to high-quality interactions. PISA 2022 recorded a 38-point decline in reading scores in Ukraine compared to 2018; 59% of pupils achieved the basic level of reading literacy, while 29% reached Level 3 or higher (UNICEF, 2023a; OECD, 2023). The 2023–2025 National Monitoring shows that, despite relatively stable average results, pupils find it increasingly challenging to complete tasks requiring analysis, reasoning, transferring knowledge to new contexts, and independent application (State Service of Education Quality of Ukraine, 2026). These operations are of critical importance in modern communication, where text must not only be read, but also assessed, cross-referenced with other sources, rephrased, adapted to the audience, and presented in the correct digital format.

The theoretical origins of the communicative approach are linked to the model developed by Canale and Swain (1980), in which linguistic competence is considered alongside sociolinguistic and strategic components. Further development of this approach in the Common European Framework of Reference for Languages (CEFR) shifted the focus towards an activity-based model, mediation, and online interaction. The CEFR Companion Volume describes digital communication as synchronous and asynchronous, often multimodal, interaction in which participants combine text, images, audio, video, and links (Council of Europe, 2020). This is fundamental to our research: well-developed communicative competence must be demonstrated not only through the correct use of linguistic forms, but also through the ability to act appropriately in a specific situation, maintain dialogue, convey meaning, and produce comprehensible information.

The digital dimension of competence is complemented by the DigCompEdu framework, which links the pedagogical use of technology to communication, collaboration, creating digital content, information, media literacy, the responsible use of technology, and assessment (Redecker, 2017). In language education, a related approach is digital multimodal composing, which involves creating digital

multimodal texts that combine verbal and non-verbal modes. Studies show that such practices can enhance genre awareness, authorial agency, and the communicative focus of writing. However, they require assessment criteria not only for language, but also for the coherence of modes, the creative process, and the message targeting (Hafner & Ho, 2020; Hrynkevych et al., 2020; Jiang et al., 2022; Zhang et al., 2023; Kaganovska, 2026).

Ukrainian educational science has built up a substantial legacy in the field of e-language didactics and the use of digital resources. Kucheruk and Magdych (2020) show the educational potential of digital resources in the competence-based teaching of the Ukrainian language; Meleshko (2017) considers computer games as a means of developing language competence; Blyznyuk and Hotsaniuk (2024) examine the role of digital competence in the training of future teachers, while Blyznyuk (2024) systematizes the current expertise in the use of digital educational resources in teacher training. Recent works focus on using artificial intelligence to create Ukrainian-language media content and to develop professional and communicative competence (Moskovchuk, 2026), as well as using internet-based case-study methods to develop foreign-language communicative competence (Svyrydiuk et al., 2026). Meanwhile, the relationship between the three dimensions – the actual outcomes of Ukrainian language learning, learners' language behavior in the digital space, and the pedagogical design of digital communication – remains under-researched.

This raises a research problem: while digitalization of the educational process may increase the number of channels and the speed of communication, it does not in itself guarantee either a greater use of the Ukrainian language in the digital environment or an improvement in the quality of communication. Moreover, automatic text generation, algorithmic content recommendations, and fragmented information consumption may reduce the amount of independent language production and weaken reflection on the quality of expression. Therefore, the digital transformation of language education should be assessed on the basis of whether it creates more authentic situations of Ukrainian-language interaction, whether it supports independent understanding and content creation, and whether it fosters a critical approach to digital information.

The article aims to provide a theoretical basis and, drawing on publicly available empirical data, to identify the conditions for developing Ukrainian-language communicative competence among learners in a digitally transformed educational environment, as well as to propose a model for its development. To achieve this aim, this study addresses three research questions: 1) what discrepancies can be observed between Ukrainian-speaking self-identification, everyday language use, and digital content consumption; 2) what are the trends in Ukrainian language results among pupils of grades 6 and 8 in 2023–2025; 3) which components and pedagogical mechanisms should be included in a model for developing Ukrainian-language communicative competence in a digital environment.

3. RESEARCH METHODS

The study has a logically mixed but, in terms of sources, secondary structure: a quantitative description and comparison of open educational data is combined with a theoretical synthesis of models of communicative and digital competence. No new surveys or experiments involving learners were conducted. This is essential for a correct interpretation: the results set out below reflect trends identified in national and international studies, while the author's calculations derive from published aggregate data.

The empirical basis consists of four groups of sources. The first group comprises a nationwide monitoring study of the quality of education under martial law carried out in 2023, 2024, and 2025 by the State Service of Education Quality of Ukraine. For Ukrainian language in Grade 6, in three cycles, the results of 5,683, 4,448, and 4,342 participants, respectively, were analyzed; in Grade 8 – 5,645, 4,415, and 4,120 participants. According to the final report, the samples represented 25 regions, and the test forms were created to the same specifications, ensuring the comparability of key statistics (State Service of

Education Quality of Ukraine, 2026). The second group involves monitoring the use of the official language in the educational process during the 2024/2025 academic year, which was the basis of analyzing self-identification, everyday speech, and content consumption (State Service of Education Quality of Ukraine, 2025). The third one is PISA 2022 and OECD/UNICEF materials on reading literacy. The fourth group concerns UNICEF resources on distance learning, absences from lessons, and learning loss factors.

Descriptive statistics and simple index calculations are used for quantitative analysis. For each grade, the mean test scores were further standardized as a proportion of the maximum possible score: $N = (M / M_{\max}) \times 100$, where M is the mean score for the relevant year and $M_{\max}$ is the maximum possible test score. This calculation is used solely to illustrate intra-grade dynamics and does not provide a basis for a direct comparison of the competence levels of Grade 6 and Grade 8 pupils, as the test specifications and content differ. In addition, the absolute change in the average result for 2025 compared with 2023 and the relative rate of change are determined. The change in percentage points and the relative decline are calculated for the consumption of Ukrainian-language online content indicator.

The theoretical synthesis is based on four analytical frameworks: the classical model of communicative competence; the activity-based and mediation-based approaches of the CEFR; DigCompEdu; and research into digital multimodal composition. Scientific works were selected based on their direct relevance to at least one of the following categories: digital language interaction, multimodal text production, the evaluation of digital communication, teachers' digital competence, Ukrainian e-linguodidactics, and the use of artificial intelligence in language education. Particular attention is paid to works published between 2020 and 2026, while the fundamental model proposed by Canale and Swain (1980) remains the theoretical basis for the concept of communicative competence.

From a methodological perspective, the principle of perception, which is based on three main viewing angles, is important as it makes the research more evidence-based and comprehensive. Subject-specific outcomes in the Ukrainian language, speech behavior indicators, and learning format data are not treated as interchangeable variables. They describe different levels of educational reality: what learners know and can do in a test situation; the language they use to identify themselves and communicate; the information environment they are in; and the extent to which their learning interactions are continuous. A comparison of these levels is not intended to establish causality, but rather to identify problem areas that need to be taken into account in instructional design.

The study has limitations. Firstly, national monitoring programs use different samples, instruments and units of measurement, so their indicators have not been combined into a single statistical index. Secondly, Ukrainian language tests measure subject-specific learning outcomes, but do not fully cover spontaneous oral interaction, mediation, or multimodal digital authorship. Thirdly, the main set of figures refers to general secondary education. The proposed model is therefore formulated in broader terms for learners at various levels, but its empirical verification in higher education institutions requires a separate study. Ethical approval was not required for this stage, as only publicly available, aggregated, and anonymized data were used.

4. RESULTS AND DISCUSSION

4.1. Language behavior and the digital environment: signs of a break in continuity

The first set of results reveals a paradoxical trend: while the social and educational standing of the Ukrainian language is strengthening, the digital information space is not showing a corresponding increase in the consumption of Ukrainian-language content. In the 2024/2025 academic year, 78% of pupils stated that Ukrainian was their mother tongue, which is 4 percentage points higher than the previous year. The proportion of those speaking exclusively Ukrainian at home reached 49% (+10 p.p.), and outside school – 44% (+7 p.p.). However, the consumption of Ukrainian-language content online fell to 54% compared with 71% in the 2022/2023 academic year, a decrease of 17 p.p. or approximately 23.9%

of the original figure (State Service of Education Quality of Ukraine, 2025).

In our view, this difference should be interpreted as a digital-linguistic break in continuity, rather than as a direct indicator of insufficient linguistic competence. Self-identification, everyday language, and the language of media consumption are different things. However, for pedagogy, it is important that the digital space where learners spend a significant proportion of their time may not reinforce the Ukrainian-language models being developed within the educational institution. As a result, the language of education may remain predominantly institutional, while digital genres such as comments, short videos, live streams, in-game chat, memes, and fan communities develop within a different linguistic repertoire.

The instability of the learning format provides further context. The next phase of national monitoring revealed that the proportion of pupils learning remotely had fallen from 39% to 24%, and that pupils who continued to learn remotely or in a blended format showed a slower improvement in their results (UNICEF, 2024). A U-Report survey of 2,164 young people aged 14–20 in 2023 found that 51.9% of respondents attributed a decline in their academic performance to online learning, while 55.2% cited fatigue and stress; 64.8% reported missing classes, with reasons including power cuts and air raid alerts (UNICEF, 2023b). These figures do not imply that the digital format is inherently inefficient. Rather, they point to the difference between a planned digital transformation and the enforced remote learning, where technological accessibility, instructional design, and psycho-emotional resources do not always align (Table 1).

Tab. 1

Empirical indicators of the linguistic and digital context in the development of communicative competence

Indicator	Period	Result	Change	Analytical significance
Pupils who consider Ukrainian their mother tongue	2023/2024 → 2024/2025	74% → 78%	+4 p.p.	Strengthening Ukrainian-language self-identification
Speaking exclusively Ukrainian at home	2024/2025	49%	+10 p.p. year-on-year	Growing everyday language use
Communicating exclusively in Ukrainian outside school	2024/2025	44%	+7 p.p. year-on-year	Expanding informal Ukrainian-speaking community
Consumption of Ukrainian-language content on the internet	2022/2023 → 2024/2025	71% → 54%	-17 p.p.; -23.9% of the baseline	The digital-linguistic gap: the online environment does not replicate the positive dynamics of self-identification
The proportion of distance learning in the context of monitoring	first → second monitoring cycle	39% → 24%	-15 p.p.	A return to classroom interaction is considered one of the factors contributing to an improvement in some of the outcomes
PISA: reading literacy	2018 → 2022	-38 points; 59% – baseline in 2022	significant decline	The need to work on understanding, evaluating, and using text in complex contexts

Source: compiled by the author based on data from the State Service of Education Quality of Ukraine (2025), OECD (2023), UNICEF (2023a, 2023b, 2024); the relative changes are calculated by the author

Table 1 shows that the digital environment should be regarded as a separate area of an educational

institution's language policy. If the curriculum develops Ukrainian-language reading and writing skills solely within the learning platform but fails to translate them into digital genres that are meaningful to the learner, the transfer of these skills is limited. This is precisely why it is important not just to 'add technology' to a traditional exercise, but to model the full communicative cycle: audience – purpose – genre – creation – interaction – feedback – editing – publication or reflection.

4.2. Trends in Ukrainian language results for 2023–2025

The second section of the analysis focuses on subject-specific outcomes. According to the results of a three-year monitoring, the mean score for Grade 6 pupils increased from 32.25 points in 2023 to 34.59 points in 2024 and 34.86 points in 2025, out of a maximum of 72 points. The absolute increase was 2.61 points, while the relative increase was around 8.1%. The standardized mean score increased from 44.79% to 48.42% of the maximum possible score. The median increased from 30 to 33 points. Meanwhile, the mode (the most common result) decreased, while the highest score actually achieved dropped from 72 to 70 points. Consequently, a positive trend in the mean score does not imply an equal increase across all sections of the distribution (State Service of Education Quality of Ukraine, 2026).

The picture is different for Grade 8 pupils. The mean score was 50.09 in 2023, 49.31 in 2024, and 50.19 in 2025, out of possible 94 points. The change between 2025 and 2023 was only +0.10 points, or approximately +0.2%, while the median remained at 48 points in all three years. At the same time, the skewness of the distribution increased from 0.26 to 0.38, which the report interprets as an indication of a widening gap between the lowest and highest scores. Such stability in the mean score, combined with a change in the distribution pattern, has significant methodological implications: the mean score can obscure diverse educational trajectories and the need for differentiated digital tasks.

With regard to the development of communicative competence, the final report's conclusion that pupils perform better on tasks involving the reproduction of knowledge than on tasks involving analysis, reasoning, and applying knowledge in a new context is particularly telling. In a digital environment, it is contextualization that determines the quality of communication: it is necessary to understand the other person's intention, distinguish between facts and opinions, integrate information from several sources, rephrase complex content, choose the appropriate tone and style, and explain one's own position. Therefore, an increase in test scores without the systematic development of these skills cannot be a sufficient indicator of digital and communication competence.

A comparison with PISA supports this conclusion. PISA regards reading literacy as the ability to understand, use, evaluate, and interpret texts in order to achieve goals and participate in society (OECD, 2023). This concept is closely related to communicative competence: high-quality Ukrainian-language expression online depends on the ability to interpret someone else's text, critically evaluate the source, and formulate one's own response. Consequently, the educational losses identified in reading should not be regarded as a separate reading problem, but rather as a risk to broader communicative activities (Table 2).

Tab. 2

Trends in Ukrainian language test results in grades 6 and 8, 2023–2025

Indicator	2023	2024	2025	2025 to 2023
Grade 6: sample, persons	5,683	4,448	4,342	–
Grade 6: mean score (max 72)	32.25	34.59	34.86	+2.61 points; +8.1%
Grade 6: standardized mean score	44.79%	48.04%	48.42%	+3.63 p.p.
Grade 6: median / mode	30 / 29	33 / 28	33 / 25	median +3; mode –4

Grade 8: sample, persons	5,645	4,415	4,120	–
Grade 8: mean score (max 94)	50.09	49.31	50.19	+0.10 points; +0.2%
Grade 8: standardized mean score	53.29%	52.46%	53.39%	+0.10 p.p.
Grade 8: median / mode	48 / 44	48 / 40	48 / 41	median 0; mode –3
Grade 8: asymmetry	0.26	0.37	0.38	+0.12

Source: compiled by the author based on data from the State Service of Education Quality of Ukraine (2026); standardized indicators and changes for 2025/2023 are the author's calculations. Standardization was used only for intra-grade dynamics, not for a direct comparison of grades 6 and 8

The obtained results lead to an important methodological conclusion: in digitally transformed language education, subject-specific accuracy must be combined with high-level cognitive practices. A digital task should not require mechanical transfer of an answer into a form or test, but rather reading various sources, discussing their meaning, formulating a position, peer-reviewing, editing, and creating a product for a real or simulated audience. This kind of design is what brings subject-specific knowledge closer to communicative action.

4.3. A model for developing Ukrainian-language communicative competence in a digital environment

The continuity of Ukrainian-language communication can be modeled based on a combination of empirical findings and theoretical frameworks. Its original thesis is that digital transformation should not divide a learner's language experience into academic Ukrainian and digital everyday life. Rather, the educational environment should bridge the gap between normative language proficiency, authentic interaction, and digital culture. The model consists of five interrelated components.

The first component, the linguistic-normative one, encompasses lexical, grammatical, orthographic, orthoepic, and stylistic accuracy. It remains necessary but not sufficient on its own. The second component, the discursive-pragmatic one, involves constructing coherent utterances and choosing genres, tones, and interaction strategies, taking into account the audience and the communicative purpose. The third component, the digital-multimodal one, suggests constructing meaning through the coordinated use of text, images, audio, video, hyperlinks, and spatial design. The fourth component, the media-literate and sociocultural one, encompasses evaluating the reliability of sources, recognizing manipulative strategies, consciously choosing Ukrainian-language content, and adhering to ethical standards and copyright laws. The fifth component, the mediation-reflective one, involves explaining content to others, rephrasing complex information, collaborating, engaging in self-assessment, and consciously improving one's own language output.

The proposed framework aligns with the CEFR's activity-based approach, which considers mediation and online interaction valid modes of communication (Council of Europe, 2020), and with research on digital multimodal composition, which emphasizes the interrelationship between linguistic quality, genre appropriateness, design, and the creative process (Hafner & Ho, 2020; Jiang et al., 2022). Meanwhile, the model specifically incorporates a media-literacy component, since the digital language environment in the Ukrainian educational context is linked to not only educational resources but also information security, competition among language ecosystems, and algorithmically generated content streams.

In this model, a teacher's digital competence is service-oriented rather than technology-centered. What matters is not how many platforms a teacher has mastered, but whether they can choose a

technology that expands the learner's verbal engagement, provides high-quality feedback, supports inclusivity, and does not replace critical thinking with automated responses. This approach aligns with DigCompEdu, where technology is integrated into teaching strategies, assessment, engagement, and the development of students' digital competence, rather than existing as a separate goal (Redecker, 2017) (Table 3).

Tab. 3

The structure of the model of continuity in Ukrainian-language communication in a digital educational environment

Component	Result content	Examples of digital activities	Signs of maturity
Linguistic-normative	Accuracy and appropriateness of lexical, grammatical, orthographic, phonetic, and stylistic devices	Editing a post; language audit of subtitles; creating a topic-specific glossary; annotated error correction	Minimizing systemic errors; informed choice of linguistic form; self-editing ability
Discursive-pragmatic	Constructing coherent utterances according to the audience, purpose, genre, and situation	Forum discussion; email; community post; online debate; collaborative document	Logical flow; coherence; appropriateness to the genre; maintaining a dialogue; appropriate tone
Digital-multimodal	Combining verbal and nonverbal modes to create a clear message	Podcast; video explanation; digital story; infographic; interactive presentation	Semantic consistency between text, audio, and visual elements; accessibility; design expediency
Media-literate and sociocultural	Critical analysis of sources, ethical digital behavior, cultural and linguistic responsibility	Fact-checking; comparing sources; analyzing recommendation feeds; media text criticism	Verifying sources; distinguishing between facts and opinions; proper citation; awareness of language choices
Mediation-reflective	Explanations, rephrasing, collaboration, self-assessment, and improving one's own product	Peer review; summary of a complex text; adaptation for a different audience; e-portfolio	Ability to explain changes following feedback; well-reasoned self-assessment; visible progress between product versions

Source: compiled by the author based on Canale & Swain (1980), Council of Europe (2020), Redecker (2017), Hafner & Ho (2020), Jiang et al. (2022), Zhang et al. (2023), and the results of empirical diagnosis

4.4. Pedagogical mechanisms: from digital tools to communicative action

A model is only practically significant when its components are transformed into a sequence of learning activities. It is reasonable to use the diagnostics – communicative planning – creation – interaction – feedback – editing – reflection cycle. During the diagnostic phase, the teacher determines not only the learner's knowledge of language norms, but also the genres in which the learner actually communicates, sources of digital content, typical writing and speaking difficulties, and the ability to verify information. Such assessments may include short authentic tasks, such as writing a comment on a post, recording a one-minute explanation, editing a portion of a post, or comparing two sources of information.

During the communicative planning stage, the task must have a target audience and a practical purpose. For example, rather than writing a reflective essay, learners could prepare a well-reasoned post for their educational institution's online community, create a short audio explanation for younger pupils instead of retelling a text, or compile a thematic mini-dictionary with examples for a pupil project page

instead of a standalone vocabulary exercise. This change in wording makes language choice functional: vocabulary, sentence structure, style, and text length depend on the actual communicative situation.

The creation stage should involve a procedural approach. According to the research on digital multimodal text creation, evaluating only the final product does not reflect the author's planning, resource search, combination of modes, and editorial decisions (Hafner & Ho, 2020). Therefore, it is reasonable to save drafts, outlines, sources, intermediate versions, and brief explanations of why a learner changed a particular section. In this way, the digital portfolio becomes evidence of the development of competencies rather than an archive of completed work.

Interaction plays a particular role. Synchronous and asynchronous discussions, peer review, and collaborative writing facilitate the transition from individual completion of an exercise to meaning negotiation. In this context, case-based methods are useful, as they allow participants to analyze a problem, formulate a position, compare arguments, and reach a consensus. Recent empirical studies demonstrate the potential of internet-based case studies for developing communicative competence in higher education (Svyrydiuk et al., 2026). In the context of the Ukrainian language, a case study might involve editing a public post, responding ethically to a conflictual online discussion, creating an information campaign, or verifying a dubious post.

Generative artificial intelligence requires a separate methodological framework. It can serve as a conversation partner for practicing various formulations, a tool for comparing stylistic choices, or a source of text for critical editing. Meanwhile, entrusting the system with the task of generating a finished product entirely reduces the amount of independent speech production. UNESCO (Miao & Holmes, 2023) emphasizes the importance of a human-centered, age-appropriate, and safe use of generative artificial intelligence. For language education, this entails at least four rules: to clearly state the system used; to check the factual and linguistic accuracy of the resulting text; to evaluate the author's editing process; and not to disclose personal or sensitive data. Ukrainian research from 2026 also demonstrates the potential of artificial intelligence for generating educational media content, but its effectiveness depends on the teaching scenario and the active role played by learners themselves (Moskovchuk, 2026).

Assessment in the proposed model should be multi-criteria. For traditional written text, the primacy of linguistic accuracy is understandable, but it is not enough for a digital product. The following aspects should be evaluated: 1) linguistic correctness and accuracy; 2) communicative appropriateness with regard to the audience and purpose; 3) discursive coherence and genre appropriateness; 4) consistency of multimodal components; and 5) media literacy, ethics, and the use of sources. The weightings of these criteria may vary depending on the age and the task. It is important that the rubric be made available before the work is completed and that it also be used for self- and peer assessment.

From a pedagogical standpoint, it is important to avoid two extremes. The first is technological maximalism, where each stage of learning becomes a new service without any obvious linguistic benefit. The second is digital minimalism, where technology is only used to post PDF files and tests. The principle of functional sufficiency seems optimal: a digital tool should be used when it creates a new or improved communication situation, provides access to relevant Ukrainian-language texts, enables collaboration, or facilitates meaningful feedback.

The development of Ukrainian-language communicative competence among learners in the context of the digital transformation of the educational environment should be viewed as a sequential cyclical process comprising six interrelated stages.

The first stage, diagnosis, involves identifying the language difficulties of learners, their proficiency in various digital genres, and the nature of their media behavior. To this end, tasks involving the creation of microtexts, recording voice messages, editing texts, and critically analyzing information sources may be used. This stage results in establishing a baseline profile of the learner's communicative competence and identifying personalized goals for its further development.

The second stage provides for the development of a communicative plan. Its purpose is to identify the audience, the purpose, the genre, the communicative role, and the context of the upcoming

utterance. In a digital educational environment, relevant assignments may take the form of case studies, scenarios, digital briefs, or problem-based questions. Implementing this stage helps learners understand the functional purpose of linguistic devices and the need to select them according to the specific communicative situation.

The third stage involves creating one's own language product, which entails independently producing content and constructing it in a multimodal way. These activities may comprise the creation of posts, podcasts, videos, digital stories, infographics, and other formats. This stage yields an important result: not only the creation of a finished, original work, but also the documentation of the individual stages of its development, which makes it possible to trace the logic of linguistic and communicative construction.

The fourth stage involves interaction and mediation. Learners are encouraged to engage in discussion, present arguments, explain their own positions, coordinate content with other participants in the communication, and adapt their messages to the needs of a different audience. To this end, it is reasonable to use forums, video conferences, collaborative documents, and peer assessment. This approach promotes the development of dialogical speech, argumentation skills, the ability to rephrase content, and the flexible use of the Ukrainian language in various communicative situations.

The fifth stage involves feedback and editing. It provides for formative assessment of language output based on specific criteria and its subsequent improvement. In a digital environment, comments and history of edits and document versions can be used for this purpose, as well as - provided they are used under pedagogical supervision - artificial intelligence tools for the critical analysis of the text that has been created. At the same time, it is of fundamental importance to preserve the learner's agency: they should not simply accept the changes suggested by digital tools, but rather explain their own editorial decisions. This results in an improved version of the language output and the ability to justify changes.

The final stage involves reflection and applying the acquired skills to new communicative situations. This stage includes self-assessment, tracking personal progress, and reapplying the learned skills in a new genre or another digital environment. Tools used in this process may include electronic portfolios, reflective notes, and learning analytics methods. The expected outcome is for the learners to become aware of their own communication strategies and to be able to apply the Ukrainian-language communication skills they have acquired beyond the scope of a specific learning task.

Indeed, the proposed cycle is iterative rather than linear. After the feedback and reflection stages, learners can return to refining their communicative intent and reworking or editing their language output. In our view, this cyclical approach best aligns with the logic of a digital educational environment, where communicative competence develops through the continuous production, interaction, assessment, correction, and reapplication of language skills in new contexts.

The practical implementation of the cycle may vary depending on whether it is a school, college, or university, but the underlying logic remains the same: every digital product must be linguistically grounded, targeted, procedurally transparent, and conclude with reflection. For general secondary education institutions, it is particularly important to foster a Ukrainian-language digital environment outside the formal classroom setting: pupil media, podcasts, clubs, community-based digital projects, themed reading groups, and creative communities. This area directly aligns with the recommendations of the State Service of Education Quality of Ukraine regarding the development of high-quality Ukrainian-language media content, online platforms, and language clubs (State Service of Education Quality of Ukraine, 2025).

The findings confirm that the concept of digital transformation in language education must be distinguished from the simple conversion of educational materials into electronic form. While an e-textbook, a test, or a video lesson can improve accessibility, they do not necessarily create a communicative situation. Conversely, a digital environment becomes pedagogically significant when it changes the nature of the activity: it allows addressing a real audience, collaborating, combining modes

of learning, receiving rapid feedback, working with various sources, and taking public responsibility for the quality of one's own expression.

This conclusion aligns with international research on digital multimodal composition. Summarizing the empirical landscape of second-language research, Zhang et al. (2023) show that digital multimodal production is linked to motivation, authorial agency, and the expansion of ways of constructing meaning. However, non-English-speaking contexts are underrepresented in academic literature. That is precisely why the Ukrainian case has unique academic value: the digital environment simultaneously serves as a space for learning, everyday communication, cultural choice, and information resilience.

The positive trend observed in the average test scores of sixth-graders should not lead to overly optimistic simplification. A decrease in the mode as the mean increases suggests a non-uniform distribution of variations. For eighth-graders, the nearly constant average score as asymmetry increases also suggests that using the same tasks for everyone may mask the needs of different groups. This is an argument in favor of adaptive digital design: basic language exercises designed to address specific gaps should be combined with open-ended communication tasks for learners who are ready for more complex analysis and production.

Meanwhile, digital technologies should not be viewed as a universal solution for overcoming educational losses. Data from 2023–2024 shows that forced remote learning coupled with unreliable access to electricity, communication, and a safe learning environment may have affected educational outcomes. Therefore, digital transformation requires adequate infrastructure and pedagogical resources. High-quality synchronous interaction, access to a device, the ability to download material for offline use, an adjusted workload, and human feedback are fundamental rather than peripheral conditions for developing communicative competence.

The issue of the digital language repertoire deserves special mention. The decline in the share of Ukrainian-language content, accompanied by a rise in Ukrainian-language self-identification, may be driven by many factors, including platforms' algorithmic recommendations, the availability of certain content genres, peer group habits, and user interests. It is not possible to determine the weight of each factor based on the available aggregated data. However, what matters in education is the message itself: educational institutions must work with both the language of the lesson and the language of digital practices. Learners creating their own Ukrainian-language content can be one way to transition from passive consumption to active linguistic agency.

The proposed model also changes the logic of assessment. If a digital product contains text, voice, visuals, and links, assessing only spelling undermines the educational goal, while assessing only design negates the linguistic component. Balance is necessary. That is why the criteria of linguistic correctness, communicative appropriateness, discursive coherence, multimodal consistency, and media literacy must be considered simultaneously but with different weights depending on the task. Such a rubric could serve as the basis for further empirical validation of the model.

5. CONCLUSIONS

The results of this study suggest that developing Ukrainian-language communicative competence in the context of digital transformation should go beyond the traditional subject-based approach. The positive trend in students' linguistic self-identification is accompanied by a decline in the consumption of Ukrainian-language online content: in the 2024–2025 academic year, 78% of learners identified Ukrainian as their native language, while the share of Ukrainian-language content on the internet was 54%, which was 17 percentage points lower than in the 2022–2023 academic year. This points to a digital-linguistic break in continuity: Ukrainian may strengthen as a language of education and self-identification, yet it will not automatically dominate digital practices.

An analysis of the 2023–2025 national monitoring revealed varying trajectories in academic performance. In Grade 6, the average Ukrainian language score rose by 2.61 points, or approximately

8.1%, while the change over three years in Grade 8 was only +0.10 points. The stability of the average scores for eighth-graders was accompanied by an increase in the asymmetry of the distribution, and for both age groups, the data requires an analysis of both central tendency and the structure of the scores. Considering the PISA 2022 results and the national monitoring findings, particular attention should be paid to the ability to analyze, reason, evaluate texts, and apply knowledge in new contexts.

The suggested model of the continuity of Ukrainian-language communication encompasses linguistic-normative, discursive-pragmatic, digital-multimodal, media-literate and sociocultural, as well as mediational-reflective components. Its fundamental difference lies in the fact that the digital environment is regarded as an independent space for language socialization, rather than as a technical supplement to the lesson. Competence development is proposed to be organized through a cycle of diagnostics, communicative planning, product creation, interaction, formative feedback, editing, and reflection.

The practical implementation of the model involves the systematic use of authentic Ukrainian-language digital genres, including discussions, podcasts, video explanations, digital stories, collaborative documents, fact-checking, and case study assignments, and the assessment not only of linguistic accuracy but also of relevance, discursive continuity, multimodal coherence, critical examination of sources, and ethical considerations. Generative artificial intelligence can be used as a tool to aid in criticism, comparison, or editing, but not as a substitute for independent language production.

A prospect for future research is the empirical validation of the proposed model at various levels of education. It would be reasonable to develop and test a criterion-based rubric for Ukrainian-language digital communication, conduct a quasi-experiment using e-portfolios and multimodal tasks, and investigate how the intensity of consumption and creation of Ukrainian-language digital content is related to reading, writing, oral communication, and media literacy outcomes. A regional and socioeconomic perspective seems particularly important, as aggregated averages may mask differences in access to digital resources and variations in language ecosystems.

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Попадинець Мирослава, Штепенко Олександра. Формування українськомовної комунікативної компетентності здобувачів освіти в умовах цифрової трансформації освітнього середовища. *Журнал Прикарпатського університету імені Василя Стефаника*, **13** (3) (2026), 204-217.

У статті розглядаються особливості формування українськомовної комунікативної компетентності здобувачів освіти в умовах цифрової трансформації освітнього середовища. Основну увагу приділено взаємозв'язку між розвитком мовленнєвих і комунікативних навичок здобувачів освіти та змінами їхніх цифрових практик, зумовленими поширенням дистанційного навчання, мультимедійного контенту, цифрових платформ і технологій генеративного штучного інтелекту. Розглянуто українськомовну комунікативну компетентність як комплексне утворення, що поєднує мовленнєву, дискурсивно-прагматичну, цифрово-мультимодальну та медіакритичну складові. Проаналізовано результати загальнодержавного моніторингу навчальних досягнень учнів 6-х і 8-х класів з української мови за 2023-2025 рр., моніторингу функціонування державної мови в освітньому процесі за 2024/2025 навчальний рік, міжнародного дослідження якості освіти 2022 р. та матеріали Дитячого фонду Організації Об'єднаних Націй щодо дистанційного навчання і навчальних втрат. Встановлено неоднорідність динаміки навчальних результатів: середній результат шестикласників з української мови зріс з 32,25 до 34,86 бала, тоді як середній результат восьмикласників залишився практично незмінним – 50,09 бала у 2023 р. та 50,19 бала у 2025 р. Виявлено суперечність між посиленням мовної самоідентифікації учнівства та скороченням частки споживання українськомовного контенту в інтернеті з 71% у 2022/2023 до 54% у 2024/2025 навчальному році. Визначено наявність цифрово-мовного розриву між інституційно підтримуваним українськомовним освітнім середовищем і повсякденними цифровими комунікативними практиками здобувачів освіти. Обґрунтовано модель безперервності українськомовної комунікації, відповідно до якої цифрове середовище розглядається як самостійний простір мовленнєвої соціалізації, мультимодального продукування змісту, комунікативної взаємодії та критичного опрацювання інформації. Визначено можливості застосування запропонованої моделі під час проектування уроків і курсів української мови, розроблення цифрових комунікативних завдань, формування електронного портфоліо та здійснення критеріального оцінювання результатів навчання. Підкреслено необхідність відповідального використання генеративного штучного інтелекту в мовній освіті із забезпеченням самостійності мовленнєвої діяльності здобувачів освіти. Доведено, що результативність цифрової трансформації мовної освіти доцільно визначати не кількістю застосованих цифрових інструментів, а рівнем розширення автентичної українськомовної взаємодії, якістю самостійно створеного мовленнєвого продукту та здатністю здобувачів освіти критично й відповідально діяти в мультимодальному інформаційному середовищі.

Ключові слова: українськомовна комунікативна компетентність, цифрова трансформація, цифрове освітнє середовище, онлайн-взаємодія, цифрова мультимодальна композиція, медіаграмотність, здобувачі освіти.