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The Role of Digital Didactics in the Development of the Linguistic Personality in Primary School

Abstract

Introduction. The article considers the role of digital didactics in the formation of the language personality of primary school students. In the context of the digital transformation of education, scientific analysis of the possibilities of digital storytelling, gamification, interactive platforms, and multimodal learning resources for the development of students' vocabulary, communicative activity, and basic language skills is relevant. *Methodology and methods.* The study was conducted in the format of a theoretical and analytical literature review. The Scopus, Web of Science, and Google Scholar databases were used to select scientific publications. The study used comparative analysis, descriptive analysis, and content systematization methods. *Results*. The analysis showed that the impact of digital didactics on the language development of primary school students is manifested in several areas: increasing motivation to read, expanding vocabulary, improving pronunciation, listening, reading, and writing, personalizing learning, and providing instant feedback. *Scientific novelty.* The scientific novelty of the study is the comprehensive systematization of the impact of digital didactics on the formation of the linguistic personality of primary school students in the unity of digital storytelling, gamification, and neurodidactic principles. The article substantiates the role of digital tools in language education not only as a technical resource, but also as a pedagogical system that supports communicative and cognitive development. *Practical significance.* The results of the study are an effective methodological guide for primary school teachers, methodologists, and developers of digital educational resources.

Keywords: digital didactics, linguistic personality, primary school, digital technologies, online learning, artificial intelligence.

Introduction. The modern educational space is undergoing a radical transformation under the influence of digital technologies. This process also affects the content of language education in primary schools, requiring new approaches to developing students' vocabulary, improving their oral and written communication skills, and increasing their communicative activity. Since the primary school period is a crucial stage in the formation of a linguistic personality, the content and methodological foundation of the teaching tools used at this age are of particular importance (Kuhl, 2011; Thomas et al., 2019).

Digital didactics enables the multimodal presentation of educational material, immediate feedback, and the organization of collaborative and personalized learning. In particular, digital storytelling, interactive tasks, gamified exercises, and mobile learning tools are considered promising approaches to developing language skills (Wu & Chen, 2020; Yu & Wang, 2025). However, digital technology alone does not automatically lead to high learning outcomes;

its effectiveness depends on pedagogical goals, age-specific characteristics, and the appropriate management of cognitive load (Howard-Jones, 2014; Sailer & Homner, 2020).

Although digital storytelling, gamification, and neurodidactic principles have been extensively examined as separate areas in current research, their interrelationships in the formation of the linguistic personality of primary school students have not yet been sufficiently systematized. Therefore, a comprehensive examination of the impact of digital didactics on language development is highly relevant. The purpose of this article is to analyze the role of digital didactics in the formation of the linguistic personality of primary school students and to systematize the potential of digital storytelling, gamification, and neurodidactic principles in this process.

Digital didactics is considered a methodological approach that modernizes the learning process through information and communication technologies. Its main characteristics include interactivity, visualization, accessibility, the personalization of student activity, and the presentation of learning content in various formats. The digital environment shapes the student as a content creator rather than merely a receiver of information, thereby creating favorable conditions for the development of a linguistic personality (Wu & Chen, 2020; Yu & Wang, 2025).

Effective language development in early childhood depends on emotional engagement, repeated experience, meaningful context, and multichannel perception. Neurocognitive studies show that early language learning is closely related to complex sensory and social experiences (Kuhl, 2011; Shams & Seitz, 2008). Therefore, the coordinated use of video, audio, text, and action-based elements in digital didactics can support students' language activity. Digital storytelling is an approach based on the creation of a meaningful story through the combination of text, images, audio, animation, and video elements. This method enables the comprehensive development of students' speaking, writing, listening comprehension, and interpretive skills. Digital storytelling has been shown to enhance students' learning motivation, creativity, and critical thinking (Yang & Wu, 2012; Sarıca & Usluel, 2016).

In the context of language learning, digital storytelling encourages students to structure their own thoughts, establish plot connections, and use vocabulary appropriately, rather than simply repeating a prepared text. Studies conducted in school English classes show that digital storytelling has a positive impact on language motivation and learning outcomes (Kuo-Ping et al., 2018). In the CLIL context in primary school, digital storytelling has improved students' English-speaking skills and the quality of collaborative work (Fan & Chen, 2023). In addition, digital storytelling strengthens students' linguistic confidence and increases their willingness to communicate in a foreign language. Multimodal storytelling experiences support emotional engagement, persistence, and oral participation (Shen et al., 2024). In this regard, digital storytelling is considered a productive pedagogical tool for shaping the linguistic personality of primary school students.

Gamification is based on the introduction of game elements-points, levels, rewards, competition, and immediate feedback-into the educational process. Studies show that gamification can increase student motivation, engagement, and learning outcomes (Bai et al., 2020; Sailer & Homner, 2020). In language teaching, gamification is particularly effective for vocabulary acquisition, the consolidation of grammatical patterns, and the activation of short communicative tasks (Dehghanzadeh et al., 2021; Zou et al., 2021).

In primary school, the use of mobile gamified applications has been shown to improve students' achievement and self-efficacy (Rachels & Rockinson-Szapkiw, 2018). Digital game-based language learning can also increase students' willingness to speak and reduce language anxiety (Reinders & Wattana, 2015). However, when used inappropriately, game elements can distract students from the learning content. For this reason, gamification should directly serve the learning objective, and competitive elements should be adapted to students' age and

psychological characteristics (Vandercruysse et al., 2013; Shortt et al., 2023). Neurodidactics considers the learning process in relation to brain function, attention, memory, emotion, and motivation. While modern science recognizes the potential value of neurobiological data in education, it also emphasizes the need to avoid neuromyths (Howard-Jones, 2014; Thomas et al., 2019).

In language education, it is important, from a neurodidactic perspective, to diversify students' sensory experiences, create an emotionally positive environment, and gradually increase the complexity of information. Multisensory learning can simultaneously activate visual, auditory, and tactile channels and support information retention (Shams & Seitz, 2008). Research on early language experience also shows that children's language development occurs most effectively in an environment that is meaningful, repetitive, and grounded in social interaction (Kuhl, 2011). In this sense, digital storytelling and gamification, when combined with neurodidactic principles, form a comprehensive methodological framework that contributes to the development of the linguistic personality of primary school students.

Materials and Methods. This study was conducted as a theoretical and analytical literature review aimed at examining the potential of digital didactics in the formation of the linguistic personality of primary school students. Domestic and international scholarly publications were analyzed using comparative analysis, descriptive analysis, and content systematization. The literature was selected from the Scopus and Web of Science databases, with Google Scholar used as an additional search tool. The main search focused on works published between 2015 and 2025. At the same time, several foundational studies published between 2008 and 2014 on digital learning, multisensory perception, and language development were additionally included to clarify the theoretical basis of the study. The search strategy employed the following keywords and their combinations: digital didactics, digital storytelling, gamification, digital game-based language learning, primary school, elementary education, language development, language skills, neurodidactics, and multisensory learning. During the search process, the Boolean operators AND and OR were used depending on thematic relevance.

The sources were selected according to the following criteria: the article had to be published in a peer-reviewed scientific journal; the journal had to be indexed in the Scopus or Web of Science databases; priority was given to studies published in Q1–Q2 journals; the study had to address the use of digital technologies in education, particularly in the development of language skills; and the educational context had to involve primary school students, children of early school age, or a methodologically comparable age group. As a result of the selection process, 20 scientific publications were included in the final analytical corpus of the study. These publications comprised empirical studies, meta-analyses, systematic literature reviews, and articles of high theoretical significance.

The impact of digital didactics on the language development of primary school students was systematized across the following areas of analysis: types of digital didactic technologies, including online platforms, mobile applications, digital storytelling tools, gamification elements, VR/AR technologies, and AI-based learning resources; digital learning methods, such as game-based learning, adaptive learning, personalized learning, and multimodal tasks; effects on language skills, including vocabulary, listening, reading, writing, pronunciation, and communicative activity; and effectiveness indicators, such as learning motivation, level of participation, improvement in language outcomes, cognitive activity, and student autonomy. Thus, the methodology employed in this study makes it possible to systematically analyze scholarly works related to digital didactics, assess their impact on language education in primary schools, and identify the main research directions within the field.

Results. The conducted literature analysis showed that the influence of digital didactics on the development of the linguistic personality of primary school students is manifested in several interrelated areas. As a result of systematizing

the reviewed scientific works, four main findings were identified.

First, digital didactics increases the interactivity of the learning process and enhances students' linguistic activity. Online platforms, multimedia tasks, digital storytelling tools, and game-based exercises shape students not merely as receivers of ready-made information, but as content creators and active participants in linguistic activity. Digital storytelling, in particular, is effective in developing students' abilities to compose texts, organize ideas, narrate stories, and communicate orally (Yang & Wu, 2012; Sarıca & Usluel, 2016; Kuo-Ping et al., 2018).

Second, digital technologies enable the comprehensive development of language skills. Studies have shown that they have a positive effect on expanding vocabulary and improving listening, reading, writing, and speaking skills. The multimodal nature of digital resources, which combine text, sound, video, and action-based elements, facilitates the perception and processing of information. This corresponds to the age-specific characteristics of primary school students and improves the memorization of language material (Shams & Seitz, 2008; Kuhl, 2011; Wu & Chen, 2020).

Third, gamification and digital game-based learning appear to be powerful factors in enhancing learning motivation. Elements such as points, levels, rewards, competition, and immediate feedback increase students' interest in lessons and motivate them to complete language tasks. Such approaches are especially effective in consolidating vocabulary, reviewing grammatical structures, and organizing short communicative exercises (Rachels & Rockinson-Szapkiw, 2018; Bai et al., 2020; Sailer & Homner, 2020; Zou et al., 2021).

Fourth, the effectiveness of digital didactics depends not on the technology itself, but on its pedagogically targeted use. As the analysis shows, digital tools allow for the individualization of learning, the assignment of tasks according to students' learning pace, and the provision of immediate feedback. However, these opportunities can only be fully realized when teachers' methodological preparation, the quality of assignments, and the balance between the digital environment and traditional language communication are maintained (Howard-Jones, 2014; Thomas et al., 2019; Shortt et al., 2023). In general, the synthesis of the analyzed works revealed three main effects of digital didactics on language education in primary schools: the activation of language activity, increased motivation and engagement, and the personalization and multimodal presentation of learning content. These results demonstrate that digital didactics has significant potential for shaping the linguistic personality of primary school students.

Discussion. The conducted literature analysis showed that digital didactics has considerable potential for developing the linguistic personality of primary school students. However, its effectiveness is determined not merely by the use of technology itself, but also by its pedagogical purpose, content, and age appropriateness. From this perspective, digital didactics should not be regarded as a substitute for traditional teaching, but rather as a component of the educational system that complements it in terms of both content and methodology. Studies often emphasize that digital tools increase students' motivation to learn, enhance their interest in lessons, and create conditions for active participation in language-related activities. For primary school students, educational material must be presented in a visual, interactive, and emotionally engaging manner. For this reason, digital storytelling, game elements, and video and audio materials facilitate the perception of language material. In a digital environment, students do not simply receive ready-made information; they process and reconstruct it, creating their own linguistic products. This directly influences the formation of a linguistic personality, as students develop the ability to express themselves, compose texts, and make communicative choices (Yang & Wu, 2012; Sarıca & Usluel, 2016; Kuo-Ping et al., 2018).

Digital storytelling technology is especially significant. It enables students to create meaningful stories by combining images, sounds, text, and video. Such work develops

language skills not in isolation, but in an integrated manner. For example, a student first understands the text, then plans it, narrates it in writing or orally, and finally presents the completed product. Each of these stages involves reading, writing, speaking, and listening skills. In addition, digital storytelling enhances students' creativity and linguistic autonomy, as they are given a certain degree of freedom in organizing content (Wu & Chen, 2020; Fan & Chen, 2023). Gamification also warrants discussion as an important direction in digital didactics. Elements such as points, rewards, levels, competition, and feedback motivate students to complete tasks and make the learning process more dynamic. Although the motivational potential of gamification is well documented in the literature, its overuse may create methodological risks. If students' attention is focused solely on scoring points or winning rather than on the learning content, the educational goal may become secondary. Therefore, the main function of gamification is not merely to attract students through external rewards, but to gradually involve them in meaningful language activities. The language task itself should remain at the core of the game (Vandercruysse et al., 2013; Bai et al., 2020; Sailer & Homner, 2020).

Another important advantage of digital didactics is its capacity to personalize learning. In primary school, students differ in their language proficiency, learning pace, and cognitive abilities. Adaptive platforms and digital learning tools can modify tasks based on learners' errors, response speed, and level of mastery. This is particularly effective for vocabulary consolidation, the acquisition of grammatical patterns, and the teaching of language material that requires frequent repetition. However, personalization should not rely solely on algorithmic adaptation; teachers' professional supervision and pedagogical judgment remain crucial. Digital systems can support learners' educational trajectories, but they should not control them entirely (Rachels & Rockinson-Szapkiw, 2018; Shortt et al., 2023).

The results of the analysis show that the influence of digital didactics on the formation of a linguistic personality cannot be limited to cognitive achievements alone. A linguistic personality is not merely a student with a rich vocabulary or strong grammatical competence, but also a person who communicates effectively, expresses ideas, and understands cultural and social meanings. In this regard, students' collaborative work, participation in dialogue, exchange of opinions, and creation of a shared product are of particular importance in the digital environment. Digital platforms can support formats such as collective storytelling, collaborative text creation, and online discussions. Such activities contribute to the development of communicative competence and connect language knowledge with social experience.

At the same time, several factors may hinder the pedagogical effectiveness of digital technologies. First, in some cases, digital learning may encourage the frequent use of ready-made answer templates, which can weaken spontaneous speech and independent thinking. Second, prolonged and irregular use of digital devices can negatively affect students' attention span, increase fatigue, and disrupt healthy learning habits. Third, if teachers' digital competence is insufficient, the didactic potential of technology may not be fully realized. Therefore, the introduction of digital didactics should not be limited to an increase in the number of tools alone but should be accompanied by stronger methodological training for teachers. This makes it possible to provide a more balanced interpretation of the advantages of digital tools discussed above.

Neurodidactic principles are an important direction that provides a scientific basis for the digital language environment. Multichannel perception, emotional support, short and structured information, and periodic repetition all correspond to the learning characteristics of primary school students. Digital platforms are well-suited to implementing these principles: sound can be added to text, movement to images, and feedback to tasks. However, when drawing on neurodidactics, it is necessary to distinguish between evidence-based principles and scientifically unfounded "neuromyths." Therefore, when developing digital tasks, linguistic goals, cognitive load, and age-specific characteristics should be considered before

design features (Howard-Jones, 2014; Thomas et al., 2019).

As a result of the comparative analysis of the literature conducted in this study, three basic conditions for the effective use of digital didactics were identified. First, a digital tool should be aimed at a specific linguistic outcome. Second, it should stimulate students' productive language activity, including speaking, writing, presenting, and expressing opinions. Third, digital and traditional forms of teaching should be used in a balanced and complementary manner. Only when these conditions are met can digital didactics become a methodologically sound mechanism for developing the linguistic personality of primary school students. In general, the reviewed scholarly works demonstrate that digital didactics is a promising direction in language education in primary schools. However, its effectiveness lies not in technological innovation itself, but in its pedagogical relevance. While digital storytelling, gamification, and adaptive learning tools can each produce positive results when used separately, they may be more effective when integrated into a unified model that comprehensively supports students' linguistic development. In this regard, future studies should focus not merely on describing individual digital didactic tools, but on empirically verifying their cumulative effect on the formation of a linguistic personality.

Conclusion. The conducted analysis showed that digital didactics has significant pedagogical potential for shaping the linguistic personality of primary school students. Digital storytelling, gamification, interactive platforms, and multimodal learning resources enhance students' language activity, expand their vocabulary, and contribute to the comprehensive development of speaking, listening, reading, and writing skills. In addition, the digital environment enables the individualization of learning materials, the provision of immediate feedback, and the strengthening of students' motivation to learn.

The results of the study revealed that the effectiveness of digital technologies depends not on their quantity, but on their pedagogically justified use. Digital tools produce strong results only when they complement traditional teaching and engage students in active language use. Particularly in the context of primary education, it is important to adapt digital methods to students' age-specific characteristics, cognitive abilities, and specific language-learning goals. At the same time, several limitations should be considered in the use of digital didactics: excessive dependence on technology, the risk of reduced face-to-face communication, and insufficient digital and methodological training among teachers. In this regard, future research should empirically assess the impact of digital tools on speech quality, linguistic autonomy, and the long-term learning outcomes of primary school students. In conclusion, digital didactics is an effective direction for improving language education in primary schools. When organized on a sound methodological basis, it becomes an important educational resource that supports students' communicative competence, creative thinking, and the formation of a linguistic personality.

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