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METHODOLOGICAL FOUNDATIONS OF USING SOCIAL NETWORKS IN DEVELOPING DIGITAL COMPETENCIES AND DEVELOPMENT OF A MODEL FOR THEIR USE

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Abstract. The article outlines the methodological foundations of using social networks in developing the digital competencies of higher education students and develops an integrative methodological model. The regulatory and legal documents of Uzbekistan, the views of Uzbek pedagogical scholars on the competence-based and technological approaches, DigComp 3.0, DigCompEdu and foreign scholarly sources were subjected to theoretical-integrative analysis. As a result, a model consisting of target, methodological, content, technological, procedural and assessment-outcome blocks is proposed. The operating mechanism of the model is based on an adaptive cycle of "diagnostics — goal setting and design — collaborative digital activity — monitoring — reflection — correction and transfer." The content covers the areas of information and data literacy, digital communication and collaboration, content creation, safety, and problem solving. Pedagogical appropriateness, digital safety, academic integrity, media and information credibility, individualization, reflective management and inclusive collaboration are defined as methodological principles. The model serves to turn incidental activity on social networks into managed activity with measurable learning outcomes, digital products and reflective evidence.

Keywords: digital competence, social network, methodological model, DigComp 3.0, DigCompEdu, media literacy, pedagogical design, Learning Analytics, reflection, correction, transfer.

The digital environment is changing the ways in which knowledge is acquired, and in which people communicate, collaborate and present themselves professionally in higher education. Social networks allow students to connect with scientific and professional communities, exchange information quickly, organize peer review, create a digital story, infographic, podcast or video, and present them to a real audience. However, the popularity of a platform does not in itself produce an educational outcome. Aimless scrolling through a feed, uncritical trust in algorithmic recommendations, fragmented attention, sharing content without sources, and violations of copyright and privacy show that there is a significant gap between digital activity and digital competence.

The Law of the Republic of Uzbekistan "On Education" creates a legal basis for the continuity and effectiveness of education and for the use of modern tools [1]. The "Digital Uzbekistan — 2030" strategy sets the development of human capital and digital skills as a priority alongside the development of digital infrastructure [2]. The laws "On Personal Data" and "On Cybersecurity," in turn, make the choice of an educational platform, account creation, obtaining consent, data minimization and protected access mandatory conditions of methodological design [3; 4]. Therefore,

incorporating a social network into a lesson is not a technical decision but a pedagogical, legal and ethical one.

The relevance of the problem lies in the need not to limit digital competence to the ability to launch individual programs. A student must be able to choose a tool appropriate to the purpose, find and verify reliable information, engage in evidence-based communication, create content in compliance with authorship and licensing requirements, manage risk, monitor their own activity, and transfer a mastered method to a new situation. In the dissertation manuscript provided by the user, these qualities are substantiated as interrelated components of a culture of purposeful, critical, effective, ethical, safe and reflective use [5].

In current practice, some assignments are limited to tool-oriented instructions such as “post to the group” or “find a video on the topic.” If such an assignment does not openly specify the expected competence, the quality criterion for the source, the individual contribution, feedback and the safety rule, then measuring activity takes the place of measuring learning. A methodological model is therefore needed that links the possibilities of the social network with the subject goal, the student’s needs, the method, assessment and reflection in a single system.

The aim of the article is to systematize the methodological foundations of using social networks in developing digital competencies and to develop an adaptive, block-and-cycle model for higher education. Within this aim, the content of digital competence was clarified; national and foreign concepts were compared; methodological principles were defined; the target, methodological, content, technological, procedural and assessment-outcome blocks of the model were described; and an algorithm for implementing the model in practice, its pedagogical conditions and evidence of outcomes were proposed.

The competence-based approach emphasizes the responsible application of knowledge in a specific situation rather than memorizing it. N.A. Muslimov interprets professional competence as an integrative quality of knowledge, skills, experience, motive and responsibility that manifests itself in activity [6]. Sh.S. Sharipov shows that in digital pedagogy the choice of technology must be justified by the didactic goal and student activity [7]. B.X. Xodjayev regards systemic consistency among the goal, content, methods, tools and results of education as a condition of pedagogical effectiveness [8]. These views require that the social network be seen not as the competence itself but as the environment and tool in which competence manifests itself.

The technological approach in Uzbek pedagogy also provides an important theoretical basis for the model. R. Ishmuhamedov, M. Yuldashev and R. Abduqodirov emphasize the role of advance design, active teaching, collaboration and reflection in innovative technology [9]. D.N. Raximova links the potential of social networks for developing students’ information culture with critical selection and responsible use [10]. Thus, developing digital competence does not mean increasing the time spent on a platform; it means organizing an integral sequence of goal, content, activity, evidence and reflection.

DigComp 3.0 describes digital competence in five interrelated areas: information and data literacy; communication and collaboration; digital content creation; safety, well-being and responsible use; and problem identification and solving [11]. The framework treats 21 competences as a unity of knowledge, skills and attitudes, and levels differ by task complexity and the student’s autonomy. Artificial intelligence literacy is embedded not as a separate button or program but across all areas: evaluating

information, creating content, safety, and problem solving. This structure is a convenient basis for defining the content of the model and the diagnostic criteria.

DigCompEdu describes the digital competence of a teacher in the areas of professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners' digital competence [12]. Thus, the teacher's task does not end with demonstrating the functions of a network. The teacher selects an environment appropriate to the purpose, designs the assignment and criteria, reduces digital inequality, moderates communication, ensures safe and inclusive participation, and individualizes support on the basis of evidence.

According to Biggs and Tang's concept of constructive alignment, the expected outcome, the learning activity and the assessment task must be aligned with one another [13]. For example, if the planned outcome is "evaluates a reliable digital source," the student should not simply send a link but should analyze the author, evidence, date, purpose and consistency with other sources and justify their decision. Assessment, too, should measure not the number of posts but precisely the quality of this reasoning. The link between the target, content and assessment blocks of the model is ensured by this concept.

The TPACK framework developed by Mishra and Koehler explains the intersection of technological, pedagogical and content knowledge as an important teacher competence [14]. The same social network performs different didactic tasks in different subjects: in philology it may be a tool for text interpretation and digital storytelling, in the natural sciences for visual evidence and the explanation of experiments, and in pedagogy for case analysis and professional discussion. Choosing a platform detached from subject content multiplies technological novelty but does not deepen learning.

Design-based research envisages iterative testing of a theoretical idea in a real educational setting, redesign on the basis of evidence, and the identification of generalizable design principles [15]. This approach makes it possible to build the model not as a rigid linear guideline but as an open system that includes monitoring and correction. If the student's initial preparation, the nature of the subject or the platform risk changes, the level of the task, the role, the tool and the form of support are adapted as well.

In the Community of Inquiry model, the unity of cognitive, social and teaching presence is the foundation of meaningful online learning [16]. Cognitive presence provides for identifying a problem, gathering evidence, integrating ideas and applying conclusions; social presence provides open, trusting collaboration; and teaching presence provides design, facilitation and guidance. Communication on a social network turns into an educational discussion only when these three elements are brought together.

In the theory of self-regulated learning, the student sets a goal in advance, monitors their own strategy and attention during the activity, evaluates the result against criteria and determines the next step [17]. Feedback, in turn, must answer the questions "Where am I going?", "How am I going?" and "Where to next?" [18]. For this reason, reflection is not only the final part of the model: it manifests itself continuously in a short goal card, a process journal, an interim review, error explanation and a transfer plan.

Systematic reviews that have studied social media as a teaching tool confirm its potential for collaboration, participation and creating an authentic audience, but show that the result depends more

on task design, moderation, support and assessment than on the name of the platform [19]. In studies based on structural modeling, collaboration and interaction through social media were positively associated with satisfaction and performance [20]. These conclusions justify abandoning technological determinism and placing activity and pedagogical management at the center of the model.

The study was based on the methodology of theoretical-integrative review and pedagogical modeling. The corpus of sources included documents of Uzbekistan on education, digitalization, personal data and cybersecurity; works of Uzbek scholars on the competence-based and technological approaches; the dissertation manuscript provided by the user; DigComp 3.0, DigCompEdu, UNESCO, CAST and W3C documents; and foreign studies on social media, self-regulation, collaboration and learning analytics. Sources were selected on the basis of the criteria of direct relevance to the topic, scientific or official status, methodological openness and transferability to higher education.

The analysis was carried out in five steps. In the first step, the categories “digital competence,” “learning activity on a social network,” “pedagogical condition,” “diagnostic evidence” and “expected outcome” were coded in the sources. In the second step, recurring units were grouped into the DigComp areas and the categories of goal, content, method, tool, process and assessment. In the third step, causal-functional relationships among the categories were identified and the blocks of the model were constructed. In the fourth step, the “Goal — Content — Activity — Evidence — Reflection” micro-design constructor and the adaptive cycle were developed. In the fifth step, the practical operating conditions of the model, the assessment criteria and the evidence of outcomes were aligned with one another on the principle of expert logical verification.

In modeling, the systemic, competence-based, activity-oriented, person-centered, reflective and ecological approaches were combined. The systemic approach explains the interaction of the blocks; the competence-based approach, the manifestation of knowledge and skills in a real task; the activity approach, digital products and collaboration; the person-centered approach, the entry level and choice; the reflective approach, self-assessment of one’s own activity; and the ecological approach, the joint influence of the LMS, social network, device, algorithm, legal norms and human roles.

Within this article, no pedagogical experiment with new respondents was conducted. The results are therefore presented as a theoretically grounded methodological proposal. For the empirical testing of the model, it is recommended to combine entry and final diagnostics, A/B situational tasks, a digital product, a rubric, peer review, individual contribution in a group, a reflective diary, a safety audit, a digital portfolio and a transfer task. The statistics of a single platform or the student’s self-assessment alone are not sufficient for a reliable conclusion.

As a result of the integrative analysis, a six-block methodological model aimed at developing digital competencies was developed. The target block of the model defines the expected quality; the methodological block, the approaches and principles; the content block, the competences to be mastered; the technological block, the forms, methods and tools; the procedural block, the adaptive cycle of activity; and the assessment-outcome block, the criteria, levels, evidence and expected change. The blocks are not hierarchical: feedback between goal and outcome continuously improves the process.

The general aim of the target block is to develop students’ competence in the purposeful, critical, creative, effective, ethical, safe and reflective use of social networks in learning, research and

professional tasks. This aim is specified in five operational outcomes: finding and evaluating reliable information; evidence-based digital communication and collaboration; creating content in compliance with copyright; managing privacy, cybersecurity and well-being; and independently identifying a technical or cognitive problem, choosing a tool and transferring the solution to a new situation. The outcomes are expressed in observable verbs and are kept consistent in the assignment and the rubric.

The methodological block covers the systemic, competence-based, activity-oriented, person-centered, reflective and ecological approaches. Seven principles of it were defined: pedagogical appropriateness; media and information credibility; academic integrity; digital safety and well-being; adaptive individualization; reflective management; and integrated and inclusive digital collaboration. UNESCO places critical thinking at the center of media and information literacy [22]. Platform governance recommendations, in turn, require user rights, transparency and the reduction of the risk of harm [26]. The principles serve as criteria for checking all decisions, from the choice of platform to assessment. For example, if a public post is not necessary for a real audience, a closed LMS discussion may be a safer and more appropriate solution.

The content block combines the DigComp 3.0 areas with the subject context [11]. In information and data literacy, the student builds a search strategy and checks the source's author, evidence, date, purpose and consistency with other sources. In communication and collaboration, the student masters network etiquette, evidence-based opinion, role distribution, constructive review and conflict management. In content creation, the student applies genre, audience, multimodality, copyright, open licensing, citation and editing. In the area of safety, the student manages the account, privacy, phishing, digital footprint, response to cyberbullying, and the balance of screen time and attention. In problem solving, the student chooses a tool suited to the need, overcomes a technical obstacle, checks AI output and adapts the strategy in a new situation.

The content must not be confined to a separate "digital literacy" class; it must be embedded in subject assignments. For example, in history, checking a claim in two different sources develops information literacy; in philology, creating a digital story develops content production; in pedagogy, a moderated debate on a case develops communication and collaboration; and in informatics, a privacy scenario develops safety. A single assignment may cover several competences, but if the number of priority outcomes in the rubric is limited, the student's attention is not dispersed.

The technological block is made up of the unity of organizational forms, methods and tools. The forms include microlearning, flipped classroom, project, case, digital storytelling, online debate, peer review, communication with a professional community and a digital portfolio. The methods cover a problem question, lateral reading, fact-checking, role-based collaboration, "think — pair — share on the network," formative assessment, a reflective diary and a transfer task. Tools are chosen by function: the LMS serves for the formal assignment, deadline, rubric and final evidence; the social network for quick communication, collaboration and a real audience; AI for supporting ideas, analysis or editing; Learning Analytics for seeing the process; and the digital portfolio for collecting evidence of development.

If the roles among the tools are not clearly separated, the assignment is duplicated across several channels and the "real source" becomes unclear to the student. Therefore, the full text of the assignment, the criteria, the deadline and the place of submission are kept in the LMS; the link to the

network discussion is given from the LMS; and important decisions are returned to the LMS at the end. When an AI tool is used, the purpose, the prompt, the method of verification and the authorial contribution are disclosed. The UNESCO guidance recommends prioritizing human agency, privacy, equity and pedagogical purpose in generative AI [23].

The procedural block consists of the adaptive cycle "diagnostics — goal setting and design — collaborative digital activity — monitoring — reflection — correction and transfer." In diagnostics, the student's existing experience, access, motive, information literacy and safety risk are identified through a survey, a situational task, previous products and observation. The result is not a ranking but a profile that determines individual support and the complexity of the task. Applying the data minimization principle, personal correspondence or profiles unrelated to the educational purpose are not monitored.

At the goal setting and design stage, the teacher builds the learning unit on the basis of the "Goal — Content — Activity — Evidence — Reflection" constructor. The questions "What will the student be able to do?", "With what content?", "In what activity?", "Which product or behavior is evidence of this?" and "How does the student analyze their own decision?" are answered in a mutually consistent way. The task has a real problem, a defined audience and a success criterion. If necessary, the student chooses the platform, the product format or the group role, but the choice serves the same learning outcome and assessment criterion.

At the stage of collaborative digital activity, students carry out a microcycle of searching for and verifying sources, discussing an idea, creating a digital product, obtaining peers' opinions and reworking. Roles such as author, fact-checker, designer, editor, moderator and reviewer make individual contribution visible. Collaboration does not end with "dividing up the task": members check one another's evidence and decisions and share responsibility for the joint product. Collaborative learning is more effective under the conditions of positive interdependence, individual accountability and analysis of the group process [30].

At the monitoring stage, the teacher observes not the quantity of activity but indicators that lead to the goal. Research on Learning Analytics shows the need to link digital traces with pedagogical theory, data quality and human interpretation [21]. Therefore, the number of logins or posts is not equated with the final grade; they are triangulated with the rubric, product quality, version history, the content of reviews, a short conversation and the student's own comment. Analytics is used to identify the need for early support, inequality in participation or an obstacle in the task, and is not turned into punitive covert surveillance.

At the reflection and correction stage, the student compares the product with the expected outcome, explains strengths and gaps with evidence, and determines the next step. The teacher turns feedback into a clear, actionable editing task. Correction is not the same resubmission for every student: a student who struggled with source verification does a lateral reading microtask; a student whose collaborative contribution is unclear completes a role journal and version history; and a student who made a safety error completes a privacy scenario. In transfer, the mastered strategy is applied independently in another subject, on another platform or in a professional situation.

The assessment-outcome block covers six interrelated criteria: motivational-value; cognitive; operational-activity; communicative-collaborative; reflective; and digital safety. An observable

indicator is set for each criterion. For example, the cognitive criterion assesses the reasoned evaluation of a source; the operational criterion, a tool suited to the purpose and a quality product; the communicative criterion, evidence-based communication and individual contribution; the reflective criterion, analyzing an error and changing strategy; and the safety criterion, decisions on privacy, authorship, AI transparency and well-being. The levels may be expressed as reproductive, functional, independent and transformative.

Determining the level only by an overall average score may conceal a serious gap in safety. For this reason, the model proposes applying a "critical minimum" rule: if the indicators for privacy, academic integrity or responding to harmful content do not reach the minimum threshold, a high result in other criteria does not automatically give a high final level. Assessment combines the product, the process and the decision; the digital portfolio, in turn, shows in sequence the initial work, the revised version, the review, the reflection and the evidence of transfer.

The inclusiveness of the model is ensured on the basis of the principles of Universal Design for Learning and web accessibility requirements. CAST UDL 3.0 recommends creating multiple means of engagement, representation, and action and expression [24]. WCAG 2.2 requires content to be perceivable, operable, understandable and robust [25]. Therefore, subtitles for video, a transcript for audio, alternative text for images, an additional marker besides color, an asynchronous alternative for synchronous activity, and a closed learning space instead of a personal account are planned.

Digital well-being is also part of the methodological outcome. Multitasking and constant notifications can fragment attention and reduce learning effectiveness [28]. For the model, it is recommended to set a "notification window," time blocks, a clear start and end for activities, a limit on the number of platforms, deep work and a rhythm of breaks. Neil Selwyn emphasizes that educational technology should not be interpreted as a neutral solution outside its social, economic and institutional context [29]. Thus, the student's device, internet, language and privacy circumstances are also taken into account as real constraints of pedagogical design.

Implementing the model requires four organizational conditions. First, the role of the social network, the AI regime, and the rules on authorship and data are openly written into the course syllabus and assessment policy. Second, the teacher has training in assignment design, moderation, formative assessment and safety on the basis of DigCompEdu and TPACK [12; 14]. Third, the data flow among the LMS, the social network and the portfolio is minimal and transparent. Fourth, the student is not forced to use a personal account; equal access and an alternative submission route are guaranteed. The OECD notes the need to develop technology, governance, human capacity and evidence-based decision-making together in a digital education ecosystem [27].

Table 1

Structure of the methodological model for developing digital competence

Model block	**Main content**	**Teacher and student activity**	**Expected outcome and evidence**
Target	Purposeful, critical, creative, ethical and safe use	Defining outcomes in observable verbs; individual goal setting	Clear learning outcomes across the DigComp areas

Model block	Main content	Teacher and student activity	Expected outcome and evidence
Methodological	Systemic, competence-based, activity-oriented, reflective and ecological approaches	Checking decisions on platform, support, safety and collaboration against the principles	Appropriate, inclusive and responsible design
Content	Information literacy, collaboration, content, safety and problem solving	Source verification, communication, creation and transfer within the subject task	Digital product, reasoned decision and safe behavior
Technological	LMS, social network, AI, Learning Analytics, portfolio; project, case, review	Separating the roles of tools; designing the task, rubric and alternative access	Activity scenario, rubric, resources and safety protocol
Procedural	Diagnostics, design, activity, monitoring, reflection, correction and transfer	Carrying out the collaborative microcycle; adapting support on the basis of evidence	Process trace, initial and revised product, reflection
Assessment-outcome	Six criteria, four levels, critical minimum and triangulation	Self-, peer and product assessment; checking the portfolio and transfer	Qualitative change at the level of competence and a new individual goal

In practice, the blocks in the table work according to the following algorithm: 1) pairing the subject outcome with a DigComp competence; 2) diagnosing the initial state and risk; 3) building the assignment package on the basis of "Goal — Content — Activity — Evidence — Reflection"; 4) separating the roles of the LMS, the network and other tools; 5) carrying out the microcycle and conducting formative monitoring; 6) assessing on the basis of portfolio evidence; 7) organizing individual correction and transfer to a new situation. At the end of each cycle, the student's new goal is formed, and the model starts again at a higher level of complexity and autonomy.

The scientific and practical novelty of the proposed model lies in combining the social network, LMS, AI, Learning Analytics, academic integrity, digital safety and reflective management into a single adaptive pedagogical system. The model is not tied to a platform: even if the tool changes, the logic of goal, principle, activity, evidence and feedback is preserved. This feature ensures that it can be adapted to different subjects, courses and technical conditions. In empirical testing, the effectiveness of the model should be verified not only by activity indicators but by qualitative change against competence criteria and evidence of transfer.

Using social networks in developing digital competencies is a pedagogical task broader than teaching platform functions. Its methodological basis is defined by the competence-based, systemic, activity-oriented, person-centered, reflective and ecological approaches, and by the principles of pedagogical appropriateness, media and information credibility, academic integrity, safety, individualization, reflective management and inclusive collaboration. If the subject outcome, the digital activity and the assessment evidence are not aligned with one another, activity on the network does not turn into the development of competence.

The developed model combines the target, methodological, content, technological, procedural and assessment-outcome blocks. Its adaptive mechanism works in the cycle of diagnostics, goal setting and design, collaborative activity, monitoring, reflection, correction and transfer. The LMS has a clear function as the field of formal management and evidence, the social network as communication and an authentic audience, AI as an assistive tool, Learning Analytics as early pedagogical support, and the digital portfolio as a tool showing the history of development.

Three conclusions are important for practice. First, every assignment must be designed in the "Goal — Content — Activity — Evidence — Reflection" constructor. Second, assessment must triangulate the product, the process, individual contribution, the safety decision and transfer, and must not conceal the critical safety minimum. Third, a student's personal account, data and constant online presence must not be required at the expense of the educational outcome. In future research, it is appropriate to test the model in quasi-experiments in different subjects and courses, and to conduct long-term monitoring of the reliability of the criteria and of transfer outcomes.

REFERENCES

1. O‘zbekiston Respublikasining “Ta’lim to‘g‘risida”gi O‘RQ-637-son Qonuni. 23.09.2020. URL: https://lex.uz/docs/5013007.
2. O‘zbekiston Respublikasi Prezidentining PF-6079-son “Raqamli O‘zbekiston — 2030” strategiyasini tasdiqlash va uni samarali amalga oshirish chora-tadbirlari to‘g‘risida”gi Farmoni. 05.10.2020. URL: https://lex.uz/docs/5030957.
3. O‘zbekiston Respublikasining “Shaxsga doir ma’lumotlar to‘g‘risida”gi O‘RQ-547-son Qonuni. 02.07.2019. URL: https://lex.uz/docs/4396419.
4. O‘zbekiston Respublikasining “Kiberxavfsizlik to‘g‘risida”gi O‘RQ-764-son Qonuni. 15.04.2022. URL: https://lex.uz/docs/5960604.
5. Primqulova S.B. Raqamli ta’lim muhitida talabalarning ijtimoiy tarmoqlardan foydalanish madaniyatini rivojlantirish metodikasi: pedagogika fanlari bo‘yicha falsafa doktori (PhD) dissertatsiyasi qo‘lyozmasi. — Samarqand, 2026.
6. Muslimov N.A. Kasb ta’limi o‘qituvchilarining kasbiy kompetentligini shakllantirish texnologiyasi. — Toshkent: Fan va texnologiya, 2021.
7. Sharipov Sh.S. Raqamli pedagogika va zamonaviy ta’lim texnologiyalari. — Toshkent: Innovatsiya-Ziyo, 2023.
8. Xodjayev B.X. Umumiy pedagogika nazariyasi va amaliyoti. — Toshkent: Sano-standart, 2022.
9. Ishmuhamedov R., Yuldashev M., Abduqodirov R. Innovatsion pedagogik texnologiyalar. — Toshkent: Fan va texnologiya, 2021.

10. Raximova D.N. Talabalarning axborot madaniyatini rivojlantirishda ijtimoiy tarmoqlarning o‘rni // Ta’lim va innovatsiya. — 2021. — № 1. — B. 67–73.
11. Cosgrove J., Cachia R. DigComp 3.0: European Digital Competence Framework. 5th ed. — Luxembourg: Publications Office of the European Union, 2025. DOI: 10.2760/0001149.
12. Redecker C. European Framework for the Digital Competence of Educators: DigCompEdu. — Luxembourg: Publications Office of the European Union, 2017. DOI: 10.2760/159770.
13. Biggs J., Tang C. Teaching for Quality Learning at University. 4th ed. — Maidenhead: Open University Press, 2011.
14. Mishra P., Koehler M.J. Technological pedagogical content knowledge: a framework for teacher knowledge // Teachers College Record. — 2006. — Vol. 108, no. 6. — P. 1017–1054. DOI: 10.1111/j.1467-9620.2006.00684.x.
15. Design-Based Research Collective. Design-based research: an emerging paradigm for educational inquiry // Educational Researcher. — 2003. — Vol. 32, no. 1. — P. 5–8. DOI: 10.3102/0013189X032001005.
16. Garrison D.R., Anderson T., Archer W. Critical inquiry in a text-based environment: computer conferencing in higher education // The Internet and Higher Education. — 2000. — Vol. 2, no. 2–3. — P. 87–105. DOI: 10.1016/S1096-7516(00)00016-6.
17. Zimmerman B.J. Becoming a self-regulated learner: an overview // Theory Into Practice. — 2002. — Vol. 41, no. 2. — P. 64–70. DOI: 10.1207/s15430421tip4102_2.
18. Hattie J., Timperley H. The power of feedback // Review of Educational Research. — 2007. — Vol. 77, no. 1. — P. 81–112. DOI: 10.3102/003465430298487.
19. Perez E., Manca S., Fernández-Pascual R., Mc Guckin C. A systematic review of social media as a teaching and learning tool in higher education // Education and Information Technologies. — 2023. — Vol. 28. — P. 11921–11950. DOI: 10.1007/s10639-023-11647-2.
20. Al-Rahmi A.M., Shamsuddin A., Wahab E. et al. Social media use in higher education: building a structural equation model for student satisfaction and performance // Frontiers in Public Health. — 2022. — Vol. 10. — Art. 1003007. DOI: 10.3389/fpubh.2022.1003007.