



METHODOLOGY FOR DEVELOPING INFORMATION COMPETENCE IN PROSPECTIVE HISTORY TEACHERS THROUGH MULTIMEDIA TECHNOLOGIES

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Abstract

This article proposes a methodology for developing information competence in prospective history teachers through multimedia technologies in the context of pedagogical higher education in Uzbekistan. Information competence is understood as the ability to identify information needs, locate relevant historical sources, evaluate their credibility, interpret evidence, and communicate findings ethically. The proposed methodology integrates digital archives, interactive historical maps, documentary materials, timelines, and multimedia presentations into inquiry-based learning. It connects technological skills with historical thinking, source criticism, and pedagogical decision-making. The article adopts a conceptual and methodological approach, drawing on competence-based education, constructivist learning, and principles of multimedia learning. Learning activities progress from guided source analysis to independent investigation and the design of multimedia teaching resources. Assessment focuses on source selection, contextual interpretation, corroboration, responsible attribution, and the educational value of students’ multimedia products. Particular attention is given to instructional scaffolding, access to digital resources, and the preparation of university instructors. The proposed framework provides a basis for designing learning activities and assessment criteria; its effectiveness requires subsequent empirical evaluation. The article argues that multimedia technologies can support information competence when their use is guided by clear learning objectives and systematic engagement with historical evidence.



Keywords: Information competence, prospective history teachers, multimedia technologies, historical thinking, digital literacy, source criticism, inquiry-based learning, pedagogical education.

MULTIMEDIA TEXNOLOGIYALARI VOSITASIDA BO‘LAJAK TARIX O‘QITUVCHILARINING AXBOROT KOMPETENTLIGINI

RIVOJLANTIRISH METODIKASI

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Annotatsiya:

Ushbu maqolada O‘zbekistondagi pedagogik oliy ta’lim sharoitida multimedia texnologiyalari vositasida bo‘lajak tarix o‘qituvchilarining axborot kompetentligini rivojlantirish metodikasi taklif etiladi. Axborot kompetentligi axborotga bo‘lgan ehtiyojni aniqlash, tegishli tarixiy manbalarni izlab topish, ularning ishonchliligini baholash, dalillarni talqin qilish hamda olingan natijalarni axloqiy me‘yorlarga muvofiq bayon etish qobiliyati sifatida tushuniladi. Taklif etilayotgan metodika raqamli arxivlar, interaktiv tarixiy xaritalar, hujjatli materiallar, vaqt chiziqlari va multimedia taqdimotlarini tadqiqotga asoslangan ta’limga integratsiya qiladi. Unda texnologik ko‘nikmalar tarixiy tafakkur, manbalarni tanqidiy tahlil qilish va pedagogik qaror qabul qilish bilan bog‘lanadi. Maqolada kompetensiyaviy ta’lim, konstruktivistik yondashuv va multimedia orqali o‘rganish tamoyillariga tayangan konseptual-metodik yondashuv qo‘llaniladi. O‘quv faoliyati o‘qituvchi rahbarligidagi manba tahlilidan mustaqil tadqiqot va multimedia o‘quv resurslarini yaratishga bosqichma-bosqich o‘tadi. Baholashda manbalarni tanlash, tarixiy kontekstni hisobga olish, dalillarni o‘zaro tekshirish, manbalarga to‘g‘ri havola berish hamda yaratilgan multimedia mahsulotlarining ta’limiy qiymatiga e’tibor qaratiladi. Pedagogik qo‘llab-quvvatlash, raqamli resurslardan foydalanish imkoniyati va universitet o‘qituvchilarining tayyorgarligi alohida ko‘rib chiqiladi. Taklif etilgan metodikaning samaradorligi keyingi empirik tadqiqotlarda tekshirilishi lozim. Maqolada multimedia texnologiyalaridan



foydalanish aniq o'quv maqsadlari va tarixiy dalillar bilan tizimli ishlashga asoslanganda axborot kompetentligini rivojlantirishga xizmat qilishi asoslanadi.

Kalit so'zlar: Axborot kompetentligi, bo'lajak tarix o'qituvchilari, multimedia texnologiyalari, tarixiy tafakkur, raqamli savodxonlik, manbalarni tanqidiy tahlil qilish, tadqiqotga asoslangan ta'lim, pedagogik ta'lim.

Introduction

Preparing prospective history teachers requires more than developing subject knowledge and classroom management skills. Teachers must also learn to navigate information environments in which historical documents, scholarly interpretations, audiovisual narratives, and misleading claims circulate together. Their professional competence depends on identifying relevant evidence, assessing its reliability, and transforming it into meaningful learning experiences. Information competence therefore occupies an essential place in pedagogical education. For history teachers, it encompasses searching for sources, examining authorship and purpose, interpreting evidence within its historical context, comparing competing accounts, and communicating reasoned judgments while observing ethical standards in the use and presentation of information.

Multimedia technologies offer opportunities to connect these abilities with practical learning activities. Digital archives provide access to historical documents, while interactive maps help students examine geographical relationships and territorial changes. Audio recordings, photographs, documentary films, and timelines can represent different dimensions of the past. However, access to varied media does not automatically produce informed historical understanding. Students may accept visually persuasive materials without questioning their origins or confuse an engaging presentation with a substantiated explanation. Consequently, multimedia use must be organized around historical inquiry, source evaluation, and deliberate instructional decisions rather than the technical production of attractive educational materials.

Within pedagogical universities in Uzbekistan, this issue can be addressed through the relationship between disciplinary preparation and future teaching practice. Prospective history teachers need opportunities to investigate historical



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questions and design activities that help school learners investigate similar questions at an appropriate level. Such preparation should consider the languages of available resources, differences in students' digital experience, and possible limitations in access to equipment or reliable connectivity. A methodology must remain adaptable to these conditions. It should enable purposeful work with both online resources and locally stored materials, ensuring that technological requirements support participation rather than restrict learning opportunities.

The conceptual basis for this methodology brings together competence-based education, constructivist learning, historical thinking, and multimedia learning principles. Competence-based education emphasizes the application of knowledge in meaningful situations. Constructivist approaches position students as active interpreters who develop understanding through investigation and interaction. Historical thinking directs attention to contextualization, evidence, perspective, and the comparison of accounts. Multimedia learning principles encourage the purposeful combination of verbal and visual representations while limiting unnecessary cognitive demands. Together, these perspectives support learning activities in which students investigate questions, justify source choices, construct interpretations, and reflect on how multimedia can communicate historical knowledge responsibly and effectively.

The central problem addressed in this article is how to translate these perspectives into a coherent methodology for prospective history teachers. The proposed approach connects progressively demanding inquiry tasks with instructional scaffolding, collaborative analysis, multimedia resource creation, and assessment based on observable performance. Its purpose is to establish pedagogical conditions and practical procedures through which information competence can be developed within history teacher education. The article examines how learning objectives, selected technologies, classroom activities, and assessment criteria can be aligned. It also considers the distinction between technical proficiency and critical engagement with evidence, providing a conceptual foundation for subsequent empirical evaluation.

The article adopts a conceptual methodological approach to designing instruction for prospective history teachers. It develops a proposed teaching framework rather than reporting an implemented intervention or measuring changes in



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student performance. The unit of analysis is the learning activity through which students locate, evaluate, interpret, and communicate historical information. The design draws on competence-based education, historical inquiry, constructivist learning, and multimedia learning principles. These perspectives inform the alignment of intended outcomes, instructional tasks, and assessment criteria. No participants were recruited, no experimental groups were established, and no quantitative findings are presented as evidence of the framework's effectiveness. Information competence is operationalized through five interconnected dimensions: recognizing information needs, retrieving relevant materials, evaluating sources, constructing evidence-based interpretations, and communicating findings responsibly. Each dimension is translated into observable student actions. For example, retrieval involves selecting search terms and explaining why particular materials address a historical question. Evaluation requires examining authorship, date, purpose, provenance, and supporting evidence. Interpretation involves contextualizing documents and comparing accounts. Responsible communication includes accurate attribution, distinguishing evidence from inference, and acknowledging uncertainty. Technical skills are incorporated across these dimensions, allowing their assessment in relation to historical reasoning rather than as isolated measures of software proficiency.

The proposed instructional sequence comprises orientation, guided investigation, collaborative interpretation, independent production, and reflection. During orientation, the instructor introduces a historical problem and demonstrates how to formulate researchable questions. Guided investigation uses selected documents and multimedia materials to model source evaluation. Collaborative interpretation asks small groups to compare evidence and discuss conflicting explanations. Independent production requires students to develop a multimedia teaching resource, such as an annotated timeline, documentary commentary, or interactive map. Reflection then focuses on the reliability of selected information, the justification of interpretive choices, and the suitability of the resource for a defined school learning objective.

Multimedia resources are selected according to historical relevance, traceable provenance, accessibility, and instructional purpose. Visual and verbal elements



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should complement one another without introducing unnecessary information. Tasks include explicit prompts directing students to distinguish original historical evidence from later representations. In the Uzbekistan university context, implementation planning should consider resource language, equipment availability, and connectivity. Downloadable materials and shared devices can support participation where continuous internet access is unavailable. Instructors should provide equivalent routes to completing core inquiry tasks so that assessment reflects students' reasoning and information practices rather than differences in access to particular applications or devices.

Assessment is designed around an analytical rubric addressing question formulation, source relevance, credibility evaluation, contextual interpretation, corroboration, attribution, and pedagogical suitability. Student portfolios would contain search records, annotated sources, draft interpretations, completed multimedia resources, and reflective statements. Feedback should identify weaknesses in reasoning and guide revision before final assessment. For subsequent empirical evaluation, the framework could be implemented with baseline and final inquiry tasks of comparable difficulty. Independent assessors could apply the same rubric, while observations and interviews could examine implementation. Such evaluation would require informed consent, appropriate data protection, and transparent reporting of limitations before claims about educational effectiveness are made.

The outcome of this conceptual analysis is a proposed instructional framework connecting information competence with historical inquiry and multimedia production. Because the framework has not been implemented or empirically evaluated, the results describe its components and intended relationships rather than measured improvements in student achievement. The framework positions multimedia technologies as resources for investigating historical questions and communicating interpretations. Its structure links five competence dimensions with progressively independent learning activities and observable assessment criteria. This alignment provides a basis for planning instruction, examining student work, and identifying areas requiring further guidance within university courses preparing prospective history teachers.



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The first design outcome is a progression from instructor-supported source analysis to independent educational resource development. Early activities introduce manageable historical questions and a limited collection of materials with identifiable origins. Students practice explaining why a source is relevant and what its limitations might be. Subsequent activities introduce conflicting accounts, incomplete evidence, and differences between primary documents and later representations. The final production task requires students to select evidence and explain their choices within a multimedia resource. This progression is intended to make increasing intellectual responsibility visible while maintaining support for students who need additional practice or guidance. The second outcome concerns the relationship between media formats and historical reasoning. Different resources are assigned distinct instructional purposes. Historical maps support examination of spatial relationships, while timelines organize chronology and allow students to compare developments. Photographs and recordings provide opportunities to investigate perspective, selection, and representation. Documentary excerpts become objects of analysis through questions about narration, editing, and evidential support. Digital archives support searches for traceable documents. Within the framework, students must justify how a selected format contributes to answering their historical question. Visual appeal alone therefore does not satisfy the criteria for a successful teaching resource.

A third outcome is an assessment structure that separates evidence of information competence from the appearance of technical sophistication. The proposed rubric considers whether students formulate focused questions, retrieve suitable sources, evaluate credibility, contextualize evidence, and corroborate interpretations. It also examines attribution and pedagogical suitability. A technically simple presentation could meet these criteria if its reasoning is clear and well supported. Conversely, a polished product could require substantial revision if it contains unsupported claims or unreliable sources. Portfolio materials make intermediate decisions available for assessment, enabling instructors to examine the inquiry process alongside the completed resource and accompanying reflective statement.



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The final design outcome is a set of implementation conditions suited to adaptable use in pedagogical universities in Uzbekistan. These include instructor modelling, accessible source collections, structured peer discussion, opportunities for revision, and alternatives for students with limited technological access. Resource language and the intended school audience are treated as considerations in task design. Together, these conditions define how the methodology could be integrated into existing history and teaching methods courses. They also establish questions for later investigation, including whether students transfer evaluation skills to unfamiliar sources and whether improvements in multimedia production correspond to stronger historical reasoning across different tasks.

The proposed framework suggests that the educational value of multimedia depends on the quality of the inquiry surrounding its use. Access to historical images, recordings, and digital documents creates opportunities for investigation, but these materials still require critical interpretation. A central implication is that information competence should be developed through explicit attention to evidence, provenance, and context. When students explain how a source supports a claim, technology becomes part of disciplinary reasoning. When tasks emphasize presentation quality without requiring such explanations, multimedia production may reveal little about students' ability to evaluate information or develop defensible interpretations of the past.

The relationship between information competence and historical thinking deserves particular attention. General information skills, such as searching and checking authorship, are necessary but insufficient for historical inquiry. Students must also consider how the circumstances of production shape a document's meaning and how later interpretations reflect different questions or perspectives. A source can be authentic while remaining selective, inaccurate, or unrepresentative. Likewise, disagreement between accounts does not necessarily indicate that one account should be discarded. The methodology therefore treats credibility evaluation as a contextual judgment supported by comparison, rather than a checklist that classifies materials as reliable or unreliable.

For pedagogical universities in Uzbekistan, the framework offers a way to connect students' disciplinary learning with their preparation for school teaching. Producing a multimedia resource requires prospective teachers to consider what



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learners should understand, which evidence is appropriate, and how explanations can be made accessible. However, simplifying material for a school audience should not remove uncertainty or turn contested interpretations into unquestionable facts. Teacher educators consequently need to examine both historical accuracy and instructional suitability. Tasks can invite students to explain their adaptations, allowing assessment to consider whether accessible presentation preserves the distinction between evidence, interpretation, and unsupported assertion.

Implementation also involves balancing guidance with independence. Modelling can make unfamiliar evaluation procedures visible, particularly when instructors demonstrate how they revise an initial interpretation after encountering contradictory evidence. Excessive guidance, however, may leave students dependent on preselected sources and predetermined answers. Support should therefore decrease as students demonstrate readiness to formulate questions and justify decisions. Collaborative work can expose students to alternative readings, but participation requires careful organization so that individual reasoning remains visible. Search records, annotations, and reflections can help instructors identify contributions and provide targeted feedback without relying exclusively on the quality of the group's final product.

Several limitations constrain the interpretation of the proposed outcomes. The framework has not been tested, and its practicality may vary with course schedules, instructor preparation, resource availability, and students' existing knowledge. Its assessment criteria also require clear performance descriptors and agreement among assessors before they can support consistent judgments. Future research should examine implementation across more than one task and investigate whether learning transfers to unfamiliar materials. Comparisons should distinguish improvements in software use from improvements in evidence evaluation. Student interviews and classroom observations could explain difficulties encountered during implementation and help refine the methodology before broader claims are advanced.

Developing information competence in prospective history teachers requires a methodology that connects technological activity with the interpretation of historical evidence. The framework proposed in this article organizes that



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connection through explicit learning objectives, progressively demanding inquiry tasks, and assessment of observable decisions. Its central contribution is the alignment of information retrieval, source evaluation, contextual interpretation, corroboration, and responsible communication within multimedia learning activities. This alignment gives teacher educators a practical basis for designing instruction while preserving the disciplinary demands of history. Multimedia resources serve an educational purpose when students can explain their relevance, limitations, and contribution to historical understanding.

The methodology emphasizes progression from supported investigation to independent production. Instructor demonstrations introduce ways of questioning sources and identifying the evidence needed to address a historical problem. Guided and collaborative activities then provide opportunities to practice these procedures and encounter alternative interpretations. Independent multimedia tasks require students to apply their learning through the selection, organization, and explanation of historical information. Reflection makes the reasoning behind these decisions available for discussion and revision. Across this progression, independence should develop in response to demonstrated competence, with additional support available when students experience difficulties in evaluation, interpretation, or the communication of evidence.

Assessment should examine both the process of inquiry and the resulting educational resource. Search records, annotated documents, draft interpretations, and reflective statements can reveal decisions that remain hidden in a finished presentation. The proposed criteria prioritize historical relevance, contextual understanding, corroboration, accurate attribution, and pedagogical suitability. Technical execution matters insofar as it supports these aims and enables learners to engage with information. This approach allows instructors to recognize strong reasoning in simple products while identifying weaknesses in visually sophisticated materials. It also creates opportunities for feedback that addresses specific information practices and encourages students to revise unsupported or unclear interpretations.

In pedagogical universities in Uzbekistan, implementation should be sensitive to differences in access, language, prior experience, and instructional conditions. Carefully selected source collections, downloadable resources, shared equipment,



and flexible production formats can make the core inquiry activities more accessible. Teacher educators also need opportunities to develop their own approaches to multimedia selection and the assessment of historical reasoning. Integration into existing history and teaching methods courses may provide a manageable starting point. Such integration should retain clear expectations for evidence use and give students opportunities to connect university investigation with the learning needs of future school pupils and classroom contexts.

The proposed methodology remains a conceptual contribution whose effectiveness requires empirical investigation. Subsequent studies should examine changes in information competence using comparable inquiry tasks, transparent assessment procedures, and evidence from student work. They should also investigate transfer to unfamiliar sources and distinguish technical improvement from stronger historical reasoning. Observations and participant accounts can clarify the conditions that support or obstruct implementation. With this qualification, the framework provides a foundation for further instructional development and research. Its educational aim is to prepare history teachers who use multimedia thoughtfully, evaluate historical information critically, and guide learners toward informed, responsible engagement with the past.

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