

STUDENTS' RESEARCH ACTIVITIES IN THE EDUCATIONAL PROCESS OF THE NEW UKRAINIAN SCHOOL

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Summary

This study analyses the theoretical and methodological foundations of organising pupils' research activities in the New Ukrainian School and identifies its role in the formation of key competences and the personal development of learners in the context of contemporary educational reforms. The relevance of the study is highlighted by the need to implement a competence-based model of learning, focused on the development of critical thinking, creativity, independence, innovation and pupils' capacity for lifelong learning and informed career choice. The conceptual foundations of inquiry-based learning have been analysed, along with the characteristics of implementing competence-based, activity-based and STEM approaches in the modern educational process, and their impact on the development of pupils' research competence has been identified. Modern approaches to organising research activities through the development of independent learning skills, problem-based and project-based learning, support for creatively gifted pupils and the fostering of sustained motivation for scientific inquiry are summarised. It has been established that the systematic implementation of research-based teaching methods contributes to the development of cognitive activity, information, communication and digital literacy, critical thinking, the ability to analyse and interpret information, work in a team and present the results of one's own work. It has been demonstrated that the integration of research activities into the educational process of the New Ukrainian School (NUS) fosters the development of competent, creative and competitive individuals, capable of innovative activity, self-fulfilment and effective functioning in today's information society.

Key words: pupils' research activities; New Ukrainian School; competence-based approach; inquiry-based learning; STEM approach; educational process.

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1. Introduction

The current stage of development in Ukrainian education is characterised by profound transformational processes aimed at establishing a competence-based model of learning, developing critical thinking and creative potential, and preparing learners to independently tackle complex personal and professional challenges. In this context, pupils' research activities take on particular significance as one of the key mechanisms for implementing the concept of the New Ukrainian School (hereinafter referred to as NUS), which facilitates the transition from the rote acquisition of knowledge to its active construction, analysis, interpretation and practical application. It is research activity that creates the conditions for the development of individuals capable of lifelong learning, innovative thinking, responsible decision-making and effective adaptation to the challenges of modern society. The relevance of this study stems from the need

to implement the provisions of the State Standard for Basic and Specialised General Secondary Education, according to which one of the key learning outcomes is the development of research, innovation and entrepreneurial competences. The educational programmes of the New Ukrainian School focus the teaching process on developing pupils' ability to acquire knowledge independently, critically evaluate information, formulate hypotheses, conduct research, analyse results and use them to solve practical problems. This approach is in line with contemporary European trends in educational development, which centre on the active learner, capable of independent cognitive activity and creative exploration.

An analysis of academic research (*Okhrimenko, Morin, Sippi, Tkachuk, Shevenko, 2025*) provides grounds for asserting that research activity in the New Ukrainian School is regarded not merely as a separate teaching method, but as a comprehensive pedagogical tool for personal development. It helps to unlock pupils' intellectual and creative potential, builds their ability to analyse and synthesise information, and develops their logical and critical thinking, communication skills, ability to work in a team and present the results of their own work. At the same time, participation in research and project work enables pupils to become aware of their own interests, abilities and career aspirations, which is an important prerequisite for their personal and professional self-determination. Carrying out research tasks is inextricably linked to the development of the ability to learn independently, which is now recognised as one of the core personal competences. Independent learning involves the active acquisition of knowledge, practical skills and competences, both under the teacher's guidance and through autonomous work.

In the New Ukrainian School (NUS) concept, it is precisely the pupil's responsibility for their own educational outcomes, their ability to plan their learning activities, carry out self-assessment and adjust their own educational trajectory that form the foundation for the development of a competent, socially active and adaptable individual. The issue of developing research activities takes on particular relevance in the context of today's societal challenges. Martial law, large-scale socio-economic changes, demographic trends, the digitalisation of society and Ukraine's integration into the European educational area are shaping new demands on the quality of education for the younger generation. The reconstruction of the state and its further development require specialists capable of innovative activity, scientific research, rapid adaptation to change and the generation of new ideas. That is precisely why the development of pupils' research competences should be regarded as a strategic direction for the development of modern Ukrainian education and an investment in the country's human capital. An important step in this direction was the adoption of the State Standard for Specialised Secondary Education (Resolution of the Cabinet of Ministers of Ukraine No. 851 of 25 July 2024), which provides for the development of an individual educational pathway and an informed choice of a future career path upon completion of basic secondary education. Pupils must decide not only on an academic or vocational course of study, but also on their own development prospects, which requires well-developed skills in analysis, research, independent decision-making and responsible planning for their future careers. Under such circumstances, research activities serve as an effective means of fostering professional self-determination, developing intrinsic motivation for learning, and shaping the individual as an active participant in the educational process. Involving pupils in project-based, exploratory and research work enables the integration of theoretical knowledge with practical activities, and fosters entrepreneurship, creativity, digital literacy and the capacity for interdisciplinary thinking. The modern educational environment of the New Ukrainian School (NUS) creates ample opportunities for implementing a research-based approach through the use of STEM and STEAM technologies, problem-based

and project-based learning, digital platforms, interactive laboratories, artificial intelligence and other innovative pedagogical technologies. This approach to learning fosters not only subject-specific knowledge but also the universal competences of the 21st century: critical thinking, communication, collaboration, creativity and the capacity for continuous self-development (Sipii, 2023).

To summarise, pupils' research activities in the New Ukrainian School are a vital component of the modern educational process, ensuring the development of competent, responsible and competitive individuals. Its development is in line with the strategic priorities of Ukrainian education reform, European educational trends and the public demand for the training of young people capable of innovative activity, informed career choices and active participation in the reconstruction and development of Ukraine.

2. Theoretical and methodological foundations for organising pupils' research activities in the New Ukrainian School

The current development of general secondary education in Ukraine is based on a competence-based paradigm, which aims to develop individuals capable of independent learning, critical thinking, creative exploration and the effective resolution of practical problems (Hrozan, 2015). In this context, pupils' research activities serve as one of the key mechanisms for implementing the concept of the New Ukrainian School, as they ensure the integration of knowledge, practical skills and value orientations within the process of active cognitive activity. The organisation of inquiry-based learning is based on a range of contemporary methodological approaches that define the content, forms and methods for developing pupils' research competence.

The conceptual foundations of inquiry-based learning are based on the principles of constructivist pedagogy, according to which knowledge is not transmitted in a ready-made form, but is constructed by the pupil themselves through active interaction with information, the surrounding environment and other participants in the educational process. Inquiry-based learning focuses on independent research, problem formulation, hypothesis generation, information analysis, experimental testing and the evaluation of the results obtained (Okhrimenko, Morin, Sipii, Tkachuk, Shevenko, 2025). This approach promotes the development of cognitive activity, independence, responsibility and students' readiness for lifelong learning.

The theoretical and methodological basis for organising research activities is formed by the activity-based, competence-based, person-centred and axiological approaches, which interact with one another and ensure the integrity of the educational process. The activity-based approach involves the active engagement of pupils in various types of educational and research activities, enabling them to acquire knowledge through practical application, research and the resolution of real-life problems. Under this approach, the pupil is not a passive consumer of information, but an active participant in cognitive activity, who independently determines the means of achieving a set goal, analyses the results and reflects on their own actions. The person-centred approach ensures that the individual characteristics, abilities, interests and educational needs of each pupil are taken into account. Research-based learning creates the conditions for the development of creative potential, independent thinking and an awareness of one's own educational and professional prospects. At the same time, the axiological approach aims to foster a value-based attitude towards knowledge, work, science, innovation and professional self-determination, ensuring a harmonious combination of personal development and social responsibility.

The competence-based approach plays a key role in organising pupils' research activities; it defines the ultimate outcome of learning not only as the acquisition of a specific body of knowledge, but also as the ability to apply that knowledge effectively in practical situations. The Concept of the New Ukrainian School identifies 'learning for life' as its central idea, which involves the development of key competences necessary for successful personal fulfilment. These include initiative, entrepreneurship, critical thinking, financial literacy, social responsibility, civic engagement, environmental awareness and the capacity for lifelong learning. It is research-based learning that creates favourable conditions for the comprehensive development of these competences through the implementation of practical projects, problem-solving and independent information-seeking.

One of the most promising avenues for modernising contemporary education is the implementation of the STEM approach, which integrates science, technology, engineering and mathematics into a single research-based educational framework. STEM education focuses on the practical application of knowledge, the development of innovative thinking, digital literacy and interdisciplinary collaboration. As part of this approach, pupils carry out research and project work, model real-world processes, use modern digital tools, analyse data and present the results of their own research.

Research competence is now regarded by academics as one of the key learning outcomes in the New Ukrainian School. It integrates motivational, cognitive, practical and reflective components and involves the pupil's ability to identify a research problem, formulate aims and objectives, select appropriate methods, analyse information, critically evaluate the results obtained and present their own conclusions in a reasoned manner. Well-developed research competence ensures that pupils are prepared for independent learning, innovative activities and making informed decisions in various areas of life.

The development of research competence is particularly relevant in the context of pupils' career choice. In accordance with the Ministry of Education and Science of Ukraine's pilot scheme 'Career Guidance in the New Ukrainian School' (2021–2026), one of the priority areas of psychological and pedagogical support is the development of competence in career choice as an integrated system of knowledge, skills, values and personal qualities necessary for planning, adjusting and realising an individual's career path. Participation in research projects, interdisciplinary studies, STEM initiatives and practice-oriented learning enables pupils not only to develop their intellectual abilities, but also to recognise their own career interests, assess their personal resources and make informed decisions regarding their future educational and professional development.

3. Developing pupils' research skills in the context of the modern educational environment

The development of pupils' research competence is one of the priority areas for the development of modern Ukrainian education and an important component in the implementation of the New Ukrainian School concept (*Molnar, 2024*). The competence-based approach, which forms the basis of the reform of general secondary education, focuses the educational process not only on the acquisition of a body of knowledge, but also on developing learners' ability to analyse information independently, think critically, conduct scientific research, make informed decisions and apply the knowledge they have acquired to solve practical problems. Under these conditions, research competence emerges as an integral characteristic of the individual, combining motivational, cognitive, activity-based, communicative and reflective components.

The author of the study argues that the effective development of research competence requires a systematic pedagogical approach that encompasses all stages of educational activity and provides for the sequential development of pupils' research skills (*Okhrimenko, 2024*). Its implementation should be based not only on working with creatively gifted pupils, but also on creating a comprehensive system for developing each pupil's research thinking within both curricular and extracurricular activities.

The first stage in the development of research competence is the development of independent learning skills. Independent learning is regarded as a process of actively acquiring knowledge, practical skills and methods of cognitive activity, which takes place both under the pedagogical guidance of a teacher and through the learner's autonomous work. In the modern educational environment of the New Ukrainian School (NUS), it is precisely the ability to plan one's own learning activities, set their objectives, select information resources and evaluate one's own results that forms the foundation for the development of research competence. This approach fosters the development of responsibility, self-organisation, reflection and a readiness for lifelong learning.

The second stage involves the systematic implementation of problem-based learning techniques. It is impossible to organise research activities without first fostering pupils' psychological readiness for scientific inquiry and ensuring they understand the logic of the research process. Problem-based learning involves the teacher creating situations of intellectual challenge that encourage pupils to analyse, formulate hypotheses, seek alternative solutions and evaluate them critically. Through the process of collaboratively solving problem-based tasks, pupils gradually master the methodology of scientific inquiry and develop skills in analysis, synthesis, comparison, argumentation and the formation of their own positions. Under such conditions, research activity becomes a conscious endeavour and transforms into an effective means of developing pupils' intellectual potential.

The third stage involves the implementation of project-based learning as a universal mechanism for developing research skills. The project-based approach now occupies a leading position among innovative teaching methods, as it combines theoretical learning with practical activities and ensures pupils' active participation in creating their own educational product. Project-based learning is widely used during lessons, when carrying out individual and group tasks, in interdisciplinary research, and also in preparation for participation in the All-Ukrainian competition for the defence of research projects organised by the Junior Academy of Sciences of Ukraine.

Research projects whose structure closely resembles that of classical scientific research are of particular value. They involve justifying the relevance of the topic, defining the aim and objectives, formulating the object and subject of the research, proposing a hypothesis, selecting methods, conducting observations or experiments, analysing the results obtained, and drawing conclusions. Such activities help pupils develop a holistic understanding of the logic of scientific inquiry and contribute to the development of information, communication, digital and research competences.

The fourth stage involves identifying and supporting creatively gifted pupils. The modern educational environment offers ample opportunities for school pupils to take part in competitions, scientific projects, academic contests and research programmes; however, successfully carrying out a full-fledged piece of scientific work requires a high level of motivation, cognitive engagement and creative potential. That is why an important task for teachers is the timely identification of such pupils and the creation of conditions for their individual development. Effective approaches include personalised learning pathways, optional courses, research clubs, consultations, mentoring and collaborative projects. In this process, the teacher acts as

a facilitator and academic adviser, helping pupils to define their own educational goals and develop a strategy for personal and professional development.

The fifth stage involves fostering a lasting motivation for research and creating the conditions for its systematic implementation. The key factor in successful research work is the personal significance of the research to the student, its connection to real-world problems in contemporary society, and the potential for practical application of the findings. It is precisely this intrinsic motivation that drives cognitive engagement, perseverance in achieving goals and a readiness for creative exploration.

Contemporary societal challenges require graduates who are capable of independent learning, innovative activity, critical analysis of information and rapid adaptation to change. Accordingly, the educational process must be geared towards developing competent, competitive and socially responsible individuals. The project-based approach plays a leading role in achieving this objective, as it ensures students take an active role, develops reflective thinking and research skills, and fosters the key competences of the 21st century.

4. Conclusions

The study found that pupils' research activities are one of the key tools for implementing the competence-based learning model of the New Ukrainian School and an important prerequisite for the development of individuals capable of independent learning, critical thinking, creative exploration and the effective resolution of practical problems. It has been demonstrated that the organisation of research activities should be based on the integration of competence-based, activity-based, person-centred and STEM approaches, which ensure the holistic development of learners' cognitive activity, autonomy and responsibility. It has been demonstrated that the development of research competence is a phased process involving the development of self-directed learning skills, the systematic use of problem-based learning, the implementation of project-based technologies, support for creatively gifted pupils, and the fostering of sustained motivation for scientific inquiry. It is precisely project-based and research activities that contribute to the development of information, communication, social and digital competences, as well as preparing pupils for career choice and lifelong learning. Furthermore, given the unique nature of the construct under study, it is of fundamental importance not only to improve the methodological framework for research activities, but also to create a holistic, innovative educational environment that will ensure personalised learning, the development of creative potential, and the active engagement of pupils in cognitive activities. Implementing such an approach will contribute to the development of competent, responsible, competitive and socially active individuals, capable of critically analysing information, making informed decisions and achieving self-fulfilment within the context of the dynamic development of modern society.

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