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# Pedagogical Essence, Structure And Components Of Foresight Competence

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**ABSTRACT**
This article provides a theoretical and methodological investigation of the pedagogical essence of foresight competence, which has become increasingly relevant in the context of high uncertainty in modern education, digital transformation, the rapid development of artificial intelligence technologies, and the dynamic renewal of professional activity. Foresight competence is interpreted not as a teacher's ability to accurately predict the future, but as an integrative professional metacompetence that enables educators to identify signals of change, model alternative futures, formulate a preferred future, design strategies for achieving it, and reflexively adapt their professional activities to changing conditions.

**Keywords**: Foresight, Foresight Competence, Futures Literacy, Pedagogical Prognostics, Strategic Thinking, Scenario Thinking, Professional Competence, Reflection, Adaptability, Future Design.

# Forsayt Kompetensiyasining Pedagogik Mohiyati, Strukturasi Va Komponentlari

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**ANNOTATSIYA**: Mazkur maqolada zamonaviy ta'limning yuqori darajadagi noaniqlik, raqamli transformatsiya, sun'iy intellekt texnologiyalarining jadal



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rivojlanishi hamda kasbiy faoliyat mazmunining dinamik yangilanishi sharoitida dolzarb ahamiyat kasb etayotgan forsayt kompetensiyasining pedagogik mohiyati nazariy-metodologik jihatdan tadqiq etilgan. Forsayt kompetensiyasi pedagogning kelajakni aniq bashorat qilish qobiliyati emas, balki o‘zgarish signallarini aniqlash, muqobil kelajaklarni modellashtirish, maqbul kelajak obrazini shakllantirish, unga erishish strategiyasini loyihalash va o‘zgaruvchan sharoitlarda faoliyatini refleksiv ravishda moslashtirish imkonini beruvchi integrativ kasbiy metakompetensiya sifatida talqin qilingan.

**Kalit so‘zlar**: forsayt, forsayt kompetensiyasi, kelajak savodxonligi, pedagogik prognostika, strategik fikrlash, ssenariyli fikrlash, kasbiy kompetentlik, refleksiya, adaptivlik, kelajakni loyihalash.

**АННОТАЦИЯ**

В данной статье теоретико-методологически исследована педагогическая сущность форсайт-компетенции, приобретающей особую актуальность в условиях высокой неопределённости современного образования, цифровой трансформации, стремительного развития технологий искусственного интеллекта, а также динамического обновления содержания профессиональной деятельности. Форсайт-компетенция рассматривается не как способность педагога точно предсказывать будущее, а как интегративная профессиональная метакомпетенция, позволяющая выявлять сигналы изменений, моделировать альтернативные варианты будущего, формировать образ предпочтительного будущего, проектировать стратегию его достижения и рефлексивно адаптировать профессиональную деятельность к изменяющимся условиям.

**Ключевые слова:** форсайт, форсайт-компетенция, грамотность в отношении будущего, педагогическая прогностика, стратегическое мышление, сценарное мышление, профессиональная компетентность, рефлексия, адаптивность, проектирование будущего.

**INTRODUCTION**

Modern development trends in the 21st century are giving rise to new requirements regarding the goals, content, and outcomes of the education system. Factors such as digital transformation, the integration of artificial intelligence into education, the rapid obsolescence and renewal of knowledge,



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the evolution of professional roles, the emergence of new specializations, and the inherent uncertainty within socio-economic processes underscore the need for educators not only to function effectively in the present environment but also to anticipate future changes and prepare for them in advance.

The OECD report *Trends Shaping Education 2025* notes that the future of education is being shaped by a complex interplay of economic, political, social, technological, and environmental megatrends. It emphasizes that when exploring the future, it is insufficient to merely extrapolate current trends; rather, it is necessary to examine alternative scenarios and employ strategic foresight tools [1]. This approach requires modern educators to possess the ability to adapt to existing circumstances while simultaneously conceptualizing potential professional situations that have yet to take shape.

In the current context, the future of the education system is not a predetermined or fixed outcome. It is a multi-variant process shaped by various social, technological, cultural, and economic factors. Consequently, within the system of educator training, the task of "teaching how to work with the future"—alongside "imparting knowledge for the future"—is emerging as a key pedagogical priority.

The concept of "Futures Literacy," promoted by UNESCO, is not based on the idea that one can precisely know the future; rather, it is rooted in the ability to comprehend various conceptions of the future and to utilize them to improve decision-making in the present [2]. R. Miller defines futures literacy as a vital skill that expands an individual's capacity to imagine and "use the future" [2].

These theoretical approaches necessitate defining the scientific content of the "foresight competence" category within pedagogy, distinguishing it from other prognostic and strategic competencies, and establishing its structural composition.

**LITERATURE REVIEW**

The term "foresight" denotes scientific and practical activities focused on engaging with the future in a systematic manner. J. Voros characterizes foresight as an integrated process that begins with information gathering and proceeds—through analysis and interpretation—toward understanding future possibilities and developing strategic decisions [3, pp. 10–21]. In his approach, foresight is not limited to simple forecasting; rather, it is interpreted as a tool for generating new knowledge and forward-looking perspectives for strategic planning.


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The research by A. Hines, J. Gary, C. Daheim, and L. van der Laan on systematizing the competency content of foresight is of particular significance. The "Foresight Competency Model" they developed characterizes professional foresight practice through six interrelated competencies: *framing*—defining the boundaries of an issue; *scanning*—identifying signals of change; *futuring*—shaping alternative futures; *visioning*—envisioning a desirable future; *designing*—devising pathways to achieve it; and *adapting*—utilizing outcomes and adjusting to change [4, pp. 123–141].

This model allows for the conceptualization of foresight competency not merely as a collection of knowledge about the future, but as an active, practice-oriented competency that facilitates a cycle of: interpreting information, modeling the future, developing strategy, and adjusting actions.

S. Inayatullah, in his development of foresight methodology, identifies "six pillars" of futures studies: mapping, anticipation, deepening time, creating alternatives, transformation, and taking action [5, pp. 4–21]. This concept demonstrates that foresight is not directed toward the passive observation of the future, but rather toward the creation of alternative visions of the future and the transformation of social activity. P. Bishop, A. Hines, and T. Collins, in their study of scenario development methods, argue that modeling the future through various potential development paths—rather than relying on a single, definitive forecast—enhances the robustness of strategic decisions [6, pp. 5–25]. This insight serves as a significant theoretical foundation for defining the prognostic-scenario component of foresight competence.

Within a pedagogical context, A. N. Panfilov and V. M. Panfilova examine foresight competence as an integrative personal-professional quality, representing a future educator’s capacity to anticipate their professional future and their readiness to shape it [7, pp. 503–513]. The authors’ approach provides a theoretical basis for interpreting foresight competence not merely as a specific professional skill, but as a "metacompetence" that facilitates the understanding of future prospects within professional practice.

A. Kononiuk, A. Sacio-Szymańska, S. Ollenburg, and L. Trivelli, exploring the development of foresight and "Futures Literacy" competencies within higher education, contend that the readiness to engage with the future is a competence that can be cultivated through specific methods and educational content. The researchers have identified 12 key competencies related to understanding the future [8, pp. 105–121]. In a 2026 study, T. Gáspár defines



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"Futures Literacy" as a domain of competencies that integrates knowledge, skills for engaging with the future, and an individual's conscious awareness of this process [9]. This approach highlights that the ability to engage with the future relies not only on cognitive preparation but also on reflection and conscious action.

**RESEARCH METHODOLOGY**

This study is theoretical-conceptual in nature; it involves a scholarly analysis aimed at defining the pedagogical content of "foresight competence" and developing a structural model for it.

The methodological framework of the study is based on systemic, competency-based, activity-oriented, axiological, prognostic, and reflexive approaches.

The systems approach made it possible to study "foresight competence" as an integral pedagogical phenomenon consisting of interconnected structural components.

Based on the competency-based approach, this phenomenon was analyzed not merely as a collection of knowledge, but as the ability to integrate knowledge, skills, values, motivation, and practical activity within a specific professional context.

The axiological approach provided a basis for establishing that, in the foresight process, the question "What kind of future is pedagogically and socially desirable?" is just as significant as the question "What kind of future will actually unfold?"

**RESULTS**

Based on theoretical analysis, it was determined that to clarify the pedagogical content of the concept of "foresight competence," it is necessary to distinguish it from related categories such as "forecasting," "strategic thinking," and "futures literacy."

Pedagogical forecasting focuses on determining the potential future state of a process or phenomenon by drawing upon existing pedagogical principles and diagnostic data.

Strategic thinking serves the purposes of setting long-term goals, identifying priority tasks, and selecting the optimal methods for their implementation. Futures Literacy refers to an individual's ability to understand how and for what purpose their conceptions of the future are formed, and to utilize various visions of the future to gain a deeper understanding of the present situation [2].



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Foresight, meanwhile, involves the systematic integration of these processes to develop multiple scenarios for future development, evaluate their implications, select a desirable future, and transform current activities to achieve it [3, pp. 10–21; 4, pp. 123–141].

**Motivational-Axiological Component**

This component constitutes the personal and value-based foundation of foresight competence. Engaging with the future requires an individual to relate to future changes not as a passive, indifferent observer, but as an active subject. In the Futures Literacy approach, the process of "using the future" is inseparable from an individual's awareness of their own existing assumptions and value-based perspectives [2; 9]. Consequently, foresight activity is not an axiologically neutral process.

In the model proposed by A. Hines and co-authors, the "framing" and "scanning" stages specifically require defining the boundaries of an issue and identifying signals of change within the external environment [4, pp. 128–132]. For instance, an educator who examines the integration of artificial intelligence tools into the educational system through a cognitive-analytical approach does not merely limit themselves to knowing the existing AI tools. They also systematically analyze the future impact of AI technologies on an educator's professional functions, assessment systems, academic integrity, personalized learning, learning analytics, and professional competencies.

The scenario-based approach posits that the future is not predetermined and that it may unfold in alternative ways under the influence of various factors [6, pp. 5–25].

In the context of modern "futures thinking," the OECD also recommends distinguishing between different types of futures: possible, probable, plausible, and preferable [1].

In the model proposed by Hines and co-authors, "visioning" entails forming a picture of a preferable future, while "designing" involves developing practical solutions to bring that future into reality [4, pp. 134–138].

This process is not linear; rather, it is cyclical and spiral in nature. This is because reflection and adaptation generate new data, and the subsequent foresight cycle begins anew, based on an updated information base.

**DISCUSSION**



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The theoretical analysis conducted indicates that, while the concept of "foresight competence" is closely related to the notion of "pedagogical prognostics," there are significant methodological differences between them.

First, a forecast—often based on existing trends—seeks to answer the question: "What is highly likely to happen?" Foresight, by contrast, addresses a set of interconnected questions: "What *could* happen?", "Which future is desirable?", and "What must be done today to shape that future?" [3, pp. 10–21].

Second, foresight positions the educator not as a passive observer of future changes, but as an active agent capable of influencing them. This aspect defines its transformative pedagogical character.

Third, foresight competence is not limited to any single piece of knowledge or practical skill. Its full manifestation requires the integration of analytical thinking, creative imagination, scenario-based thinking, strategic planning, decision-making, and reflection. Fourthly, it is appropriate to interpret "foresight competence" as a meta-competence, as it provides a forward-looking orientation for an educator's other professional competencies.

**SCIENTIFIC NOVELTY**

As a result of the research:

firstly, the pedagogical content of foresight competence has been clarified; it is defined as a professional meta-competence that integrates the analysis of signals of change, the modeling of alternative professional-pedagogical futures, the shaping of a desirable future, strategic design for that future, and the reflexive adaptation of professional activity;

secondly, a structure for foresight competence has been developed, comprising motivational-axiological, cognitive-analytical, prognostic-scenario, project-strategic, and reflexive-adaptive components.

**CONCLUSION**

Theoretical analyses indicate that the professional activity of a modern educator takes place amidst increasing levels of uncertainty, technological transformation, and rapidly changing educational needs. Such conditions necessitate the inclusion of new competencies within the content of pedagogical training—competencies that go beyond the knowledge and skills required for executing current professional tasks, enabling educators instead to comprehend future professional situations and prepare for them. The pedagogical essence of foresight competence lies not in making precise



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predictions about the future, but rather in understanding various potential future scenarios and orienting current pedagogical practice toward a desirable future.

In future research, it would be appropriate—based on the proposed components and indicators—to characterize the high, medium, and low levels of foresight competence, develop diagnostic tools, and empirically test a structural-functional model for its development through pedagogical experimentation.

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