

Theory and Practice of Didactic Approaches in Teaching With Foresight Technologies

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Annotation: This article is meant for pedagogical higher education students and faculty members enrolled in the Higher Educational Institution's bachelor's program in education. The article describes the pedagogical circumstances and quality indicators of employing innovative organizational and didactic forms of education in the systematic improvement of didactic approaches to education based on information, didactic support, and Foresight technologies. Based on a novel approach, the philosophy and practice of pedagogic techniques in the foresight education of learners using technologies are improved.

Key words: Foresight, technique, theory, innovative, center, management, monograph, intelligence, transfer, center.

Foresight, translated from English, means to look into the future, and it means to look at the future state of any event, process, event, looking several years ahead. This term means "look to the future" in English. It envisages long-term activities to promote innovation, enable strategic assessment and research. Foresight is a technology aimed at determining the strategic directions of new technologies and research aimed at bringing high socio-economic benefits based on a systematic assessment of the long-term education, science and innovation perspective of science, technology, economy and society. In the world, education, science and innovation are highlighted as promising directions for improving teaching in the higher education system based on foresight technologies and mastering new forms of independent professional development. In particular, in the concept of universal education adopted until 2030, the idea of "creating the opportunity to receive quality education throughout life" focuses on continuous professional development of specialists and development of creative thinking. Finland in particular: Finland is famous for its centers of foresight and strategic planning. The Finnish Innovation Fund Company (Sitra) conducts long-term forecasting based on various scenarios of economic and social development. There are several foresight centers in Germany, such as the Federal Ministry of Research and Education (BMBF) active in foresight, trend analysis and development in research and education, and various government and industry foresight centers in the US. (National Intelligence Council). Forecasts global trends based on different scenarios of world politics development. Big companies like IBM and Microsoft also have their own foresight centers to plan future technology research and development. Singularity University in Singapore is engaged in foresight and research in the field of technological innovation. In developed foreign countries, the British Technology Strategy Board launched a foresight and innovation center. The center is engaged in forecasting technological trends and developing strategies for the development of various sectors of the economy.

The developing system of higher education in our republic has its special place. In order to find a solution to the problems arising in this regard, first of all, it is necessary to create the necessary information infrastructure for the introduction of modern technologies in educational processes. The theoretical and methodological issues of the development of the educational system in higher education and the problems of creating an information environment in education are among the scientists of our country R. Kh. Djurayev, H. F. Rashidov, Sh. E. Qurbanov, N. A. Muslimov, U. I. Inoyatov, Sh. S. Sharipov, U. Sh. Researched by M.A. Yuldashev and others.

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The issues of theory and practice of the use of foresight technologies in higher educational institutions, didactic and methodical foundations, research related to education, science and innovation perspectives, etc., are covered in the works of others. Researches on the organization of the information and educational environment of HEIs and the introduction of information and communication technologies in education A.A. It was carried out by Abduqadirov, N.I. Tailakov, U.Sh. Begimkulov, J.A. Khamidov, O.Kh. Torakulov.

Studies on the introduction of information and communication technologies for distance education in higher education in foreign countries I.R. Agamirzyan, Alekseeva A. D., T.V. Konyukhova, A.D., Alekseyev, T.V. Conducted by Yezhoval, V.S.Efimov, A.V Lapteva, V.L.Inozemtsev.

In the higher education system, didactic development of education of learners based on foresight technologies and assessment tools for future analysis, as well as mechanisms for comprehensive assessment of the knowledge of participants in the information-educational environment of distance education have been improved on the basis of differential-integral, inductive and deductive methods.

According to the scientific research of Petit and Brunet, currently future analysis is usually the product of collaborative intelligence, which is calculated by the presence or absence of group interaction. It is also studied, processed and analyzed in various qualitative, quantitative or mixed methods. .

- futures (prediction, forward thinking, prospects);
- planning (strategic analysis, prioritization) and
- network (participation, dialogic) means and directions.

Given previous information, it is possible to distinguish elements with hierarchy and reflection in relation to the evolution of the system, their possible discontinuities, trends and expectations. In the 1990s, strategic forecasting was introduced by the French scientist Michel Godet and became widespread in Latin America. Thus, there are a number of promising studies in Latin America. However, there are few studies on their impact: one of them, for example, was a technical evaluation of the Columbia Technology Foresight program, which focused on:

1. the effectiveness of the forecasting process (for example, methodology, participation of experts, organizational structure, management procedures, financial contribution)
2. effectiveness of forecasting results and forecasting exercises (for example: products and services, tangible and intangible objects).

Research by Shuff and Gonzalez includes the relationship between predictive research and public policy-making procedures. This situation has simultaneously revealed conflicts between forecasting groups, decision-making groups, and informal channels through which business relationships take place, traditional scientific work or lay science organization, and weaknesses related to the disciplinary fields involved.

Research by Raymond Khoury, Turiaux-Aleman, Adnan Merhaba, Eddie Ghanemr, first popularized by countries such as Japan in the 1970s, technology forecasting helps countries deal with uncertainty and complexity and select promising technologies for long-term development. Described by the United Nations Industrial Development Organization (UNIDO) as the “highest level of technological development”, technology foresight is a formalized process that many countries use to successfully shape their long-term industrial policies and support broader national sectors.

The main difference between the theory of didactic approaches to teaching and its implementation from other approaches is that it is long-term and has a broad scope that considers all potential technologies at different stages of maturity. Forecasting is usually done to identify technologies that may benefit the broader economy or entire sectors in the long term, rather than individual actors.

As the timeline increases, the change happens exponentially. Looking back over the past fifty years, a number of important social (e.g. civil partnerships, declining birth rates, recent demographic shifts towards an aging population), economic (e.g. new income models, network dynamics and effects) and



technological (e.g. e-government, fast and continuous connectivity, nanotechnology, biotechnology) changes.

Is it possible to look ahead to identify future visions or possible scenarios? Is it possible to develop a strategy to steer the way to the desired future? How will it affect the development of social, economic and technological spheres? How relevant is this in times of upheaval and constant change? What are the connections and interrelationships between the concepts of predictability, creativity and innovation?

Foresight combines linear (analytical or logical) and non-linear (creative, logic, chaos theory) ways of thinking about the future to develop possible scenarios or visions for strategically planning movement toward a desired future or mitigating adverse situations. As a practice, forecasting is based on a number of theoretical foundations and what are commonly considered “foresight cycles” or stages in the development of forecasting techniques based on previous experience.

For organizations, higher education, science and innovation, or strategy consultants, foresight is even more important and relevant in times of upheaval and change, as simply rolling with the tide is considered detrimental. The use of the Foresight methodology in the higher education system allows to find creative opportunities and innovative solutions. Forecasting facilitates the process of developing a strategy, journey or road map to a future that is desirable, achievable and viable. The discussion of forecasting focuses on the relationship between forecasting, creativity and innovation, and the exciting dynamics that emerge at the interface.

Thinking about the future requires an element of imagination and a positive attitude toward change and all that it brings. Creativity involves the development of ideas without criticism, where depending on the situation and context, thinking “outside the box” is encouraged, sometimes more radically than others. Once ideas are generated, they are usually published and evaluated, with only a few moving on to the next stage and implementation processes. It requires reaching an uncertain future in the short or long term. Creative ideas feed the innovation process, especially when there is space and freedom to consider long-term time horizons.

If this process in the higher education system is managed strategically, the success of innovation will be more evident. Innovation management helps create a strategy for implementing creative ideas that are deemed feasible and add value to a product, process, or service. Forecasting applies to the innovation process at different levels, from the top, where strategic decisions on innovation policy are made, to the innovation actors (educational institutions, firms, consumers, researchers, and technology brokers) who create and satisfy the demand for innovation may be to the bottom of the management pyramid.

Forecasting plays an important role from the top to the bottom of the management pyramid in helping to identify long-term learning, science and innovation prospects. Attention to the selection of the main directions of funding for scientific research and innovation, especially in relation to the budgets related to the innovative aspects of science and technology, requires the main attention. There are a number of methods of foresight, mainly used in policy development (AKT, science and technology, environment and energy), economics (budgeting and resource allocation) and private organizations (corporate forecasting). Designing future scenarios relies on the skills of imagination and creativity, as it involves generating new ideas and possibilities.

An issue to consider is the transdisciplinary nature of prediction, creativity and innovation. All three topics have been applied to many issues related to social, political, environmental, economic, technological and scientific fields. The motivation to be open-minded and to look at issues holistically, paying particular attention to connections that may not always be obvious to those stuck in a particular perspective or system, is essential to learning and success. It is important to emphasize the transdisciplinarity of those concerned with the future:

The best future scientists aspire to become theorists in higher education systems. It helps us to be open to exploring the unique dynamics of all the physical systems around us, rather than imagining a realm



that is comfortable for us. "Seeking an interdisciplinary approach is a timeless, lifelong process of balanced inquiry and a very rewarding journey." Researchers in the field of futures studies have concluded that approaches to the future were created in the mid-1900s. The following scientists unanimously expressed their opinion about the nature of the modern research directions of prophecy. It is detached from any form of prophecy and sees the future as an open and constructible space. Futures research is designed to anticipate and envision possible and uncertain futures using resource analysis, current situations, and planning requirements for preparedness to meet them. Futurists, also known as forecasters, learn how to study the current situation using values and goals and determine future situations by analyzing data.

Looking to the future is a necessity that attracts everyone's attention. Thus, predicting the future by taking into account technological innovations, cultural changes, delivery of new products, better services, strong competitors, changes in social values, changes in government priorities, stable economic conditions and unpredictable events has become a complex activity to do. Prospective teachers need to identify the opportunities and threats they face in order to anticipate the future changes they will face (David 2009). There are two main approaches to futures research:

1. Prediction
2. Predictability

The current understanding of prediction and knowledge in the higher education system can be explained as follows. The value creation literature on forecasting is often concerned with its role in managing uncertainty. For example, predictive systems are highlighted as tools for identifying drivers of change to manage uncertainty of impact and response by "betting" on disruptions, or often creating strategic options. Corporate foresight is also valuable for perceiving, interpreting and responding to change, as well as enabling other actors to influence and learn. Prediction is capital. He who looks forward to the future is the most prominent, and he who returns to the future is ultimately a wanderer. Success is achieved through short-sightedness. (Quoted in Imam Ali, "Ghururul-hikam wa Dururul-Kalim").

According to Brewer (2010), foresight is the ability to learn from past mistakes and grow from failure. Foresight is a trait that allows leaders to understand past lessons, present realities, and possible outcomes of future decisions. A major shift is the emergence of an approach that clearly separates prediction from prediction. To distinguish them from the last two approaches, the concept of prediction is established. In discussing the history of forecasting, special attention should be paid to the ways in which forecasting techniques and methodologies relate to (and cause) creativity and innovation. After reviewing some definitions of prophecy, where epistemological problems arise, the knowledge claims of this relatively new discipline are explored. It's a question of "why foresee?" the question arises. Analyzing the main claims about the relevance of social, economic and technological planning in terms of its predictive power, the rationale for the practice of forecasting is discussed.

In relation to the futures research literature, the main value of forecasting is to enable organizations to learn about the future more quickly, for example from problem learning to problem solving and action. These roles can be linked to quantitative value contributions, such as the number of new products and services, the number of trends and technologies reported, or the number of predictive decisions made. But should they be reduced to such measures only? In particular, the scenario forecasting literature emphasizes the value of changing the decision-making styles and mindsets of managers, while the strategic management literature considers the impact of forecasting to be crucial for change and long-term survival. The underlying mechanisms of enhancement can still be further elaborated, and it is important to apply the prediction to a continuous learning system to help determine whether there are direct or indirect strategic implications. Strategic direction and drive for change have direct effects on strategy, while decision support and mobilization have more indirect strategic effects. However, there are many unanswered questions about the precise cognitive role, such as how to explain the power of prediction to change thinking.



Students in the higher education system should be prepared for the future. As Weimer (2012) points out, it is critical that we engage students as learners in clear and agreed-upon ways. We regularly ask not only “What are you learning?”, but also “How are you learning?” we have to ask. We need to offer alternatives and then challenge learners to test the effectiveness of these approaches.

The 21st century is recognized as the era of the theory of new didactic approaches to education and knowledge. Embracing twenty-first century pedagogy requires teachers to rethink what and why they teach and to rethink who they are as teachers. This requires them to “professionally reinvent themselves not as traditional teachers, but as highly skilled advanced learners.”

The future role of higher education systems and their ability to fundamentally transform themselves and others remains uncertain. All countries will face the consequences if today’s learners are not adequately prepared to collaborate and solve the world’s economic, environmental, health, social and political challenges. Every nation can contribute to the global pool of experience on how best to implement a twenty-first century education system.

What is Foresight in HEIs? is interpreted as Foresight as a practice is often associated with continuous learning and attempts to improve policy and decision-making. As Miles et al. claim, in recent years the term “foresight” has become widely used to describe a range of approaches to improving decision-making. As the term implies, these approaches identify emerging opportunities and challenges, trends and includes thinking about breaks in trends and more.

Successful forecasting activities require imaginative creative (and therefore “non-linear” and sometimes “non-rational”) thinking along with linear, logical, and analytical thinking. When we face questions involving larger groups of people, the complexities and uncertainties quickly become enormous and consequential. , and thus requires careful consideration not only in terms of what questions are raised and how they are addressed, but also in terms of who is involved in the process. and systematic foresight exercises may play an increasingly important role. “Foresight is a systematic, participatory, process of gathering future intelligence and formulating a medium- to long-term vision aimed at mobilizing current decisions and joint actions”.

In conclusion, it should be said that Foresight technologies are not only for forecasting, but also a necessary condition for the formation of personal abilities, such as creativity, which includes the formation of ideas and divergent thinking, and the identification of various opportunities and problems. Forecasting is the act of thinking about the future to guide today’s decisions in education in developed foreign countries. A broad application of forecasting prevents repeated mistakes in predicting future goals. It is important for each of us to engage in and practice prophecy every day.

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