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APPLICATION OF RAPID FORESIGHT IN DESIGNING REGIONAL EDUCATIONAL STANDARDS AND TRAINING PROGRAMS

A. Bayar

Harran University, Sanliurfa, Turkey

e-mail: adembayar80@gmail.com

Abstract. This paper examines the disparity between the labor market needs of the Mangystau region and the education system's ability to prepare its people effectively. This study aimed to weave Foresight techniques into the regional educational guidelines, boosting the quality of professional training. The research employed a mixed-methods strategy, including an initial regional analysis, data collected from over 700 people via questionnaires and detailed conversations, and a Rapid Foresight workshop featuring 79 specialists from various sectors. Consequently, eight existing educational programs were evaluated and updated, forty-six key trends were identified, and work on an Atlas detailing new professions relevant to the region is ongoing. The investigation demonstrated that systematically forecasting the region's human capital needs and folding them into educational planning can be achieved successfully. The conclusion drawn was that employing Foresight methodologies in the creation of regional educational benchmarks is crucial in producing highly-skilled professionals, tailored to the specific requirements of the local economy.

Keywords: Foresight session, Atlas of new professions, regional educational standards, career guidance, personnel, educational programs, Mangystau region.

Introduction

Kazakhstan is undergoing significant transformations in education, science, professional development, and its economic landscape. To enhance its global competitiveness alongside the world's foremost economies, a decision was made last year to split the existing Ministry of Education and Science of the Republic of Kazakhstan into two distinct entities. The Ministry of Science and Higher Education of the Republic of Kazakhstan now specifically concentrates on the growth of science, enhancing Kazakhstan's scientific and technological capabilities, managing the higher education system, and overseeing personnel training initiatives.

Foresight, originating from the English word "foresight," meaning to look into the future, is a collaborative technique. It empowers stakeholders to collectively formulate projections for an industry, region, or nation's advancement. Furthermore, it facilitates the alignment of strategies to realize the preferred future state, informed by these projections [1].

Originally successful in technological applications, Foresight subsequently gained traction within the business sector and eventually in the social domain, beginning in the 1990s. This text will explore the application of Foresight to provide long-term forecasting within the realm of education. The nature of the assessment of the future condition of the studied objects has some peculiarities in Foresight projects. First, there is variability in assessing the future, probability, and scenario, which is best reflected in the concept of "probing" the future [2]. The second important aspect of Foresight is the broad format of participation, which involves relying on the research of assessments and judgments of experts from various specialties and fields of activity. The system of experts' interaction reflects another feature of Foresight - its process nature, which allows us to figuratively define it as an "evergreen process" [2, p.23]. The openness of Foresight attracts all new participants to it, spreading ideas in the social environment. The specifics of Foresight are also related to its fundamentally complex nature. This implies a high culture of modeling a complex, developing world, mastery of a unique methodology for working with complex objects, and the ability to make joint decisions in interdisciplinary projects and expertise. In Western countries, the number of experts in

various specialties involved in Foresight projects is estimated in the tens and hundreds of thousands.

The dawn of the 21st century has witnessed a growing reliance on Foresight methodologies in examining social structures, events, and ongoing developments. This pattern resonates both globally and specifically within our nation. Currently, Kazakhstan faces considerable pressure to adopt innovation and navigate the transition to a knowledge-driven economy. Foresight tools offer the capacity to chart a strategic developmental course, spanning anywhere from 15 to 100 years. Nonetheless, even a 30-year outlook poses substantial challenges stemming from uncertainties inherent to Kazakhstan's future. Questions regarding the country's trajectory and global standing remain complex. While technologically advanced nations with robust, knowledge-intensive economies are tackling these issues with cutting-edge innovation, Kazakhstan unfortunately, consistently falls behind in terms of progress in innovation relative to developed nations.

Consequently, we are witnessing the emergence of a novel technological landscape where transformations occur with accelerating speed. The information acquired through conventional educational pathways, across a number of specialized fields, rapidly becomes outdated even during the process of earning formal qualifications. Simultaneously, the typical bachelor's degree programs span a duration of 3 to 4 years. Consequently, graduates may not align with market demands after graduation. Certain nations, along with major corporations, have taken the lead in developing emerging technologies. Thus, it becomes imperative to cultivate experts who will be sought after not just today, but also in a 5 to 10-year horizon. The employment of a forward-thinking HR model is critical to our unprecedented efforts to train personnel with skills for the future. Currently, 20 project offices have been established within regional universities to concentrate on addressing these critical concerns. It is crucial for us that certified specialists who are proficient in Foresight management become available across all regions. In this particular regard, the Mangystau region and Yessenov University have taken pioneering roles within Kazakhstan.

Based on the university, the first foresight school was conducted for employees. These specialists can analyze the region, surveys and interviews, foresight sessions, and demonstrate their first work in the form of the first atlas of new professions in the Mangystau region. To date, foresight sessions have been held in three industries. In the future, Yessenov University will cover even more branches of the Mangystau region. Atlases for each industry serve as the basis for the development of new educational programs. These programs are in line with regional educational standards, which we define as a set of specifications for the competencies, learning outcomes, and content of educational programs that were created taking into account the Mangystau region's labor market demands, strategic priorities, and socioeconomic needs. Leading industry experts have stated that these programs will be innovative and in demand in the labor market, and a need for these professions and competencies.

Methods and Materials

The Republic of Kazakhstan's higher education system is currently navigating a series of significant adjustments to its framework and content, intending to enhance the preparation of professionals to meet the evolving demands of the socio-economic landscape. For a considerable period, this process has operated under a standardized model. A key feature of this model has been the state order, which tends to react to socio-economic trends after they have already emerged [3]. Therefore, the move towards a more intricate staffing model, grounded in robust economic forecasting and concentrated on specialized, rapidly evolving sectors, has been generally welcomed. Various efforts aligned with this shift are underway in the Mangystau region. The "Profession is My Future" project has become a key enabler of these efforts.

Mangystau region, recognized as an industrial hub, heavily relies on its oil and gas sector for economic sustenance. Consequently, this sector dominates the gross regional product, contributing 55%, with the oil and gas production and quarrying making up 85% of it. Following that, transportation and warehousing contribute 11%, construction 5%, and processing 4%. Industries connected to tourism (accommodation, catering, arts, entertainment, recreation) account for 2% of the GRP. The agricultural sector contributes less than 1% of the GRP [4]. Mangystau region, as it is known, is an industrial region, the basis of the economy of which is the oil and gas sector.

Accordingly, industry accounts for the largest share in the structure of the gross regional product (55%), of which 85% is allocated to oil and gas production and quarrying. This is followed by transportation and warehousing (11%), construction (5%) and processing (4%). Industries partially related to tourism (accommodation and catering services, art, entertainment and recreation, etc.) account for 2% of GRP. The agricultural sector accounts for less than 1% of GRP [4].

By the Comprehensive Plan of socio-economic Development of the Mangystau region for 2021-2025, 2,169,771.1 million dollars were allocated to the region. an investment of funds in the amount of tenge is provided. The oil and gas refining industry is in the lead in terms of investments (293 billion tenge), that is, 27% of the contributions from the industries under consideration. The transport and logistics complex is in second place in terms of investments (\$271 billion). The tourism sector ranks third in terms of investments (197 billion tenge). It should be noted that this document pays special attention to the development of the region's tourism potential as one of the drivers of sustainable economic growth [5].

A group of university analysts conducted a study within the framework of the project "Profession-the Future" to identify priority industries. The choice of priority industries is justified by entering the top five leaders in terms of key socio-economic indicators. Based on the analysis of data and strategic documents regulating the further development of the region, the following industries were presented: chemical and petrochemical industries, tourism, education and pedagogy, transport and logistics complex, Oil and gas production. At the first stage of work on the project, the first 3 areas were studied.

During the Foresight study, quantitative and qualitative measurements were carried out among more than 700 respondents, 8 educational programs were analyzed, 79 industry experts were involved in the foresight session, 46 main trends were identified, and 39 new professions were substantiated [6].

In addition, based on scientific methodology, professional diagnostics of schoolchildren's preferences and professional inclinations was carried out according to a single standard. In Holland, based on the platform EduNavigator.kz, 13,863 licenses have been issued, and the same number of students are undergoing professional diagnostic testing.

It is becoming relevant to promote initiatives in terms of advanced staffing within the framework of the instruction of the Head of State Kassym-Jomart Tokayev on November 16, 2022 at a meeting of the Mazhilis of Parliament on the opening of branches of the country's leading foreign universities and the investment agreement on the project "Creation of a Center for renewable Energy and production of "green" hydrogen in the Mangystau region." Kazakhstan and HyrAsia One, as part of the agreement dated October 27, 2022, began joint training of specialists for the new production by Yesenov University and German universities. It is planned to allocate joint educational grants for students[7].

In addition, the head of state emphasized creating conditions and incentives for realizing the potential of talented and active youth.

In connection with the above, it is hoped that the regional standard for providing advanced personnel will become a high-quality platform for effective coordination of government orders, settlement of regional imbalances, organisation of career guidance, and updating the content of educational programs at the higher education and VET levels.

What profession should I choose in the context of accelerated transformation and modernization of industry? This question seems to be one of the most important in the lives of schoolchildren and their parents. Applicants and students need to understand that the chosen profession should be a profession, and not spend four years at the university. It is also important that applicants know that their profession will be in demand on the labor market and will be highly paid. Times are changing, knowledge is changing, the job market is changing, and it's hard for people to find the right path.

Because of this, it would be nice to get a profession that is just emerging on the market. This atlas contains new specialties of the Mangystau region in three areas: oil and gas and petrochemical industries, tourism, as well as education and pedagogy.

The new specialties were identified by experts of the Mangystau region in the above-mentioned industries based on trends changing the region. A large group of atlas developers worked on the creation of this document with the help of regional experts, some of whom relied on the methodology of forming the regional standard for providing advanced personnel "profession-the future", based on the methodology of foresight forecasting.

Of course, the image of the future in the context of our Atlas is not a figment of the imagination, since its formation was ensured by the use of many scientific methods. As part of our project, international and domestic experience was benchmarked on the issue under consideration, statistical data on the Mangystau region was collected and analyzed, and qualitative and quantitative measurements were carried out in the form of interviews and mass surveys among industry experts and the population of the region. A Rapid Foresight session was organized with the participation of 96 experts representing the leading industries of the region [8].

The work resulted in 39 new professions that will be in demand on the regional labor market. The atlas reveals not only the list of professions, but also the perspective of regional experts on how and in what direction the economy and the training system in the region will change. We hope that their vision will help you understand what field of activity you will find yourself in in the next 3-10 years. We want the Mangystau region to develop, and the Atlas is designed to help in this.

A crucial role in the implementation of the tasks of the Atlas of New Professions is assigned to the teaching staff. The challenges of the modern labor market are caused by the expansion of traditional pedagogical competencies, including the development of mixed types of professional activities. Indeed, education in a new format, especially for the number of students in higher education institutions and colleges, is becoming more and more subject-based and practice-oriented. In this regard, the opinion of employees of educational institutions of the region on determining the main priorities of staffing and localization of new professions in the education system of the region is of particular interest, since their position and vision determine the speed and quality of the implementation of the planned regional project.

Results and discussion

For this purpose, a survey of educational workers was conducted, which was attended by 256 representatives of organizations of secondary, technical and vocational, higher, and postgraduate education [8, p.3].

An analysis of the opinions of education workers in the Mangystau region shows that the overwhelming number of respondents consider it necessary to acquire new professional skills, including the modernization of general and vocational education, the formation of a system of continuous updating of professional knowledge of working citizens and mastering competencies in the field of the digital economy (see Figure 1).

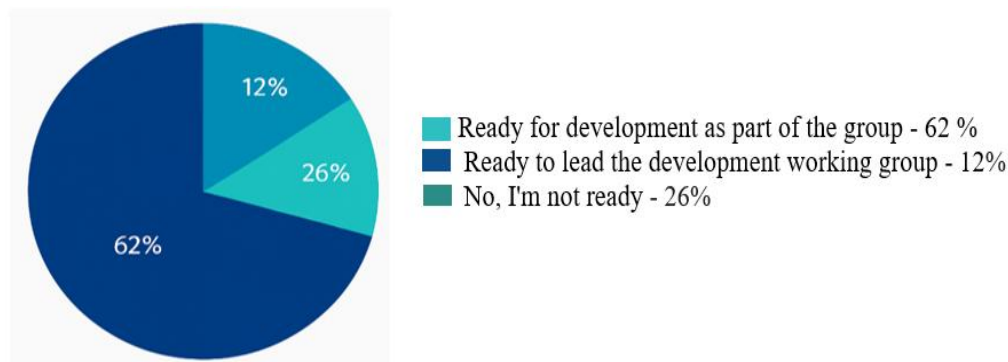


Figure 1 - Willingness of participants to participate in the development of new courses/specialties

Note: compiled by the authors

Thus, the pedagogical staff of the region is prepared to provide support and actively participate in the implementation of the Atlas of New Professions in the region's educational practice (Fig. 1).

Overall, the favorable ratings totaled 73%. They expressed their willingness to coordinate and implement new directions - 61%, 12% of teachers agree to work as part of working groups on the development of new educational programs. Due to the high current workload, 27% of respondents in the Mangystau region expressed a dissenting position.

In the course of the study, a rating of the most promising professions was determined based on regional characteristics and challenges in the labor market (Fig.2). The rating of selected professions according to this indicator is placed in the following order

First of all, the professional community of educators identifies such specialties as "coordinator of inclusive education" (60%); "organizer of project training" (59%), "IT librarian" (52%) and "head of IT modernization" (51%) as the most in demand [6, p.28].

In the second place in the rating, according to the respondents, there were less promising specialties: "Creative Writing tutor" (26%), "online meeting coordinator" (25%), "online course producer" (24%). The rating of the most promising specialties for the Mangystau region is presented in Figure 2.

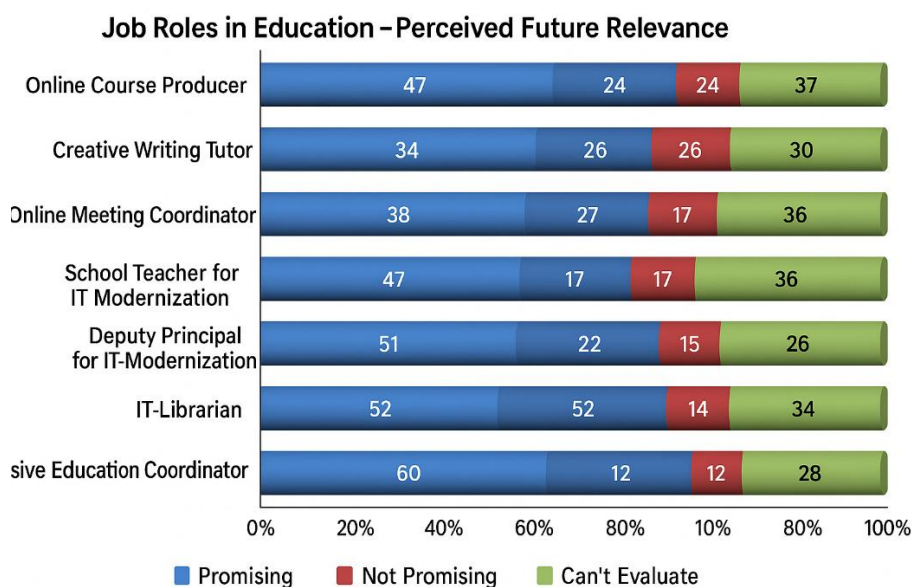


Figure 2 - The rating of the most promising specialties for the Mangystau region (%)
 Note: compiled by the authors

It is worth noting that these professions create certain difficulties for the survey participants in assessing their future in the ranking of professional preferences in the region. In our opinion, this indicator does not mean a complete abandonment of specialties, but indicates the minimum priority for implementation in the first place and the need for more thorough research for further inclusion in the educational program.

Mangystau teachers consider the need to develop and introduce new specialties appropriate for the following reasons: to receive new grants (41.3%), to increase the influx of new students and schoolchildren (29.8%), to develop pedagogical technologies and skills (53.3%), to increase the overall rating of the educational institution (NPP Atameken) (27.7%), for better interaction with the business of the region (26.4%), for the business of the region - To reduce the outflow of talented students from the region (30.2%) and increase the number of business contracts for the implementation of educational and research projects (24%), graduates need to engage in business in the region (37,2%) [8, p.9].

Conclusion

Thus, the analytical work carried out to study the opinion of the teaching community on the atlas of new professions showed a high willingness of representatives of Mangystau educational institutions to participate in the work on the formation and promotion of a map of regional personnel needs. A promising area of competence in education will be the use of digital tools, the development of technologies for personalizing and personalizing the learning process, etc. Using the "quick wins"

change implementation model, proposals have been made to launch pilot projects in the most sought-after professions immediately.

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RAPID FORESIGHT ТЕХНОЛОГИЯСЫН АЙМАҚТЫҚ БІЛІМ БЕРУ СТАНДАРТТАРЫ МЕН ДАЯРЛАУ БАҒДАРЛАМАЛАРЫН ӘЗІРЛЕУДЕ ҚОЛДАНУ

А. Баяр

Харран университеті, Шанлыурфа қ., Түркия
e-mail: adembar80@gmail.com

Аңдатпа. Осы мақалада еңбек нарығының аймақтық талаптары мен Маңғыстау облысындағы білім беру көрсеткіштерінің сәйкес келмеуі туралы мәселе талқыланады. Бұл зерттеудің мақсаты кәсіби әлеуетті арттыру үшін Форсайт әдістемелерін аймақтық білім беру стандарттарына біріктіру болды. Алдын ала аймақтық зерттеу, сауалнамалар және 700-ден астам респонденттермен терең сұхбаттар, сондай-ақ 79 сала сарапшыларының қатысуымен Жылдам форсайт сессиясы аралас әдістерді зерттеу әдістемесінің бөлігі болды. Нәтижесінде қазіргі сегіз білім беру бағдарламасы зерттеліп, өзгертілді, 46 маңызды тенденция табылды, осы салаға қатысты жаңа мамандықтардың Атласы жасақталуда. Зерттеу көрсеткендей, адам капиталының аймақтық қажеттіліктерін болжау және оларды білім беруді жоспарлауға енгізу жүйелі тәсілді қолдану арқылы тиімді жүзеге асырылуы мүмкін. Форсайт әдістемелерін қолдана отырып, аймақтық білім беру стандарттарын әзірлеу жергілікті экономиканың қажеттіліктерін қанағаттандыра алатын білікті мамандарды шығаруға айтарлықтай көмектеседі деген қорытындыға келді.

Түйін сөздер: Форсайт сессиясы, жаңа мамандықтар Атласы, аймақтық білім беру стандарттары, кәсіптік бағдар беру, кадрлар, білім беру бағдарламалары, Маңғыстау облысы.

ПРИМЕНЕНИЕ RAPID FORESIGHT В РАЗРАБОТКЕ РЕГИОНАЛЬНЫХ ОБРАЗОВАТЕЛЬНЫХ СТАНДАРТОВ И ПРОГРАММ ПОДГОТОВКИ

А. Баяр

Университет Харран, Шанлыурфа, Турция
e-mail: adembar80@gmail.com

Аннотация. В данной статье рассматривается проблема несоответствия между требованиями регионального рынка труда и показателями образования в Мангистауской области. Целью данного исследования была интеграция методологий форсайта в региональные образовательные стандарты для повышения профессионального потенциала. Предварительное региональное исследование, опросы и углубленные интервью с более чем 700 респондентами, а также экспресс-форсайт-сессия с участием 79 отраслевых экспертов — все это было частью методологии исследования, основанной на смешанных методах. В

результате были проанализированы и изменены восемь действующих образовательных программ, выявлено 46 значимых тенденций, и в настоящее время разрабатывается Атлас новых профессий, связанных с этой областью. Исследование показало, что прогнозирование региональных потребностей в человеческом капитале и их учет при планировании образования могут быть эффективными при использовании системного подхода. Они пришли к выводу, что разработка региональных образовательных стандартов с использованием методологий форсайта в значительной степени способствует подготовке квалифицированных специалистов, способных удовлетворить потребности местной экономики.

Ключевые слова: Форсайт-сессия, Атлас новых профессий, региональные образовательные стандарты, профориентация, кадры, образовательные программы, Мангистауская область.