

FOREIGN LANGUAGE AS A MEANS OF INTERDISCIPLINARY INTEGRATION: FROM SCHOOL TO GRADUATE

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Abstract: the article deals with the possibilities of a foreign language as a means of interdisciplinary integration at various levels of education. It notes the potential of a foreign language in the formation of comprehensively developed person, capable of living and working in a modern multi-cultural environment. Introduction of innovative forms of integration of science and education, as shown by international experience, enhances the effectiveness of scientific research. The main of this article is to show the ultimate goal of the integration of science and education in Kazakhstan, and that it should be the staffing of the national innovation system and the economy as a whole.

Keywords: teaching foreign language, master, interdisciplinary integration, model of interdisciplinary integration, integration of science.

ИНОСТРАННЫЙ ЯЗЫК КАК СРЕДСТВО МЕЖДИСЦИПЛИНАРНОЙ ИНТЕГРАЦИИ: ОТ ШКОЛЫ ДО ВУЗА

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Аннотация: в статье рассматриваются возможности иностранного языка как средства междисциплинарной интеграции на разных уровнях образования. Отмечается потенциал иностранного языка в формировании всесторонне развитой личности, способной жить и работать в современной мультикультурной среде. Внедрение инновационных форм интеграции науки и образования, как показывает международный опыт, повышает эффективность научных исследований. Также авторы рассматривают проблемы модернизации высшего профессионального образования Республики Казахстан в условиях глобализационных процессов, раскрывают теоретические аспекты создания единого образовательного пространства с точки зрения политических измерений, указывают на ряд проблем образовательной политики Республики Казахстан, связанных с интеграцией в европейское образовательное пространство.

Ключевые слова: преподавание иностранного языка, магистр, междисциплинарная интеграция, модель междисциплинарной интеграции, интеграция науки.

Introduction

Many studies, including pedagogical monographs of articles and methodological developments, are devoted to the problems of integration in pedagogy and education. Therefore, when developing approaches to the features of integration within the framework of this practical study, it is necessary to trace the history of the development of this concept and choose the most relevant of the existing approaches. An additional task of the authors is to show the complex scientific constructions accessible to a wide range of readers in a language that will allow all participants in the educational process to easily understand what kind of constructive ideas are being discussed.

One of the effective methods for the development of education is its integration with science and industry. Such integration gives a synergistic effect and intensifies the development of all components of this triad. Unfortunately, in Kazakhstan, the processes of integration of science, education and production are not yet sufficiently developed.

Today, the process of corporatization of scientific organizations with very ambiguous goals in terms of the needs of science development, the commercialization of universities, which promotes competition rather than cooperation and integration, is actively under way in the republic.

The Problems of Integration in Education System

Acquainted with the existing works, we came to the conclusion that the most relevant for solving the problems of modern education, where personal meanings and value categories of culture are brought to the top level of the hierarchy, are approaches to the problem of integrated education, reflected in the research group of scientists of the Institute of Art Education and Cultural Studies of the Russian Academy of Education developed under the guidance of B.P. Yusov in the period from 1987 to the present [3, p. 440].

In the studies led by B.P. Yusov, the authors rely on the work of B.M. Kedrov, who pointed out that "there are two directly opposite and, it would seem, mutually exclusive tendencies: one was the fragmentation and branching of sciences, their differentiation, the other, on the contrary, in an effort to unite the disjunctive sciences in a common system of scientific knowledge, that is, in their integration" in the development of scientific knowledge. [14, p. 29] V.N. Maksimova considers the integration problem through the development of scientific knowledge from their closed study to their interaction, and then to their integrity, with the same objects being studied simultaneously from different sides [9, p. 25]. Based on these ideas, researchers go further, developing ideas for translating global knowledge from one language of knowledge to another.

In the context of the onset of the century competition constructive ideas, high-tech, knowledge-intensity of GDP problem of innovative development of the Republic of Kazakhstan became the dominant center in the understanding of the goals and methods of reforming the economy, education and science. Kazakhstan is one of the most dynamically developing states building a real economic space.

The key priority of the development strategy of Kazakhstan is a breakthrough in the number of 30 most developed countries of the world. This ambitious task forces engaged in the elaboration of a coherent policy of the country in the management of research and development, engineering development and the formation of a strong national innovation system with effective mechanisms of interaction between government, business, science and education.

Integration Approaches in the Education System of Kazakhstan

The aim of this article is to study of world experience and introduction of new technologies for the further successful development of education integration and science of Kazakhstan. Now there are capitalists and developers in Kazakhstan, while intermediate types are a rare phenomenon, the system does not produce self-organizing connections between ideas and money. Scientists, inventors, scientific research institutes do not have due material remuneration for their intellectual work. They are subject to heavy demands from investors. In order to get access to project financing, the developer must have market research, potential consumers, project payback calculations, and professional business partners. Such requirements automatically cut off three-quarters of inventions from investment prospects.

A special place in the world practice is occupied by research universities, where campuses are located as an audience for lectures, where students receive theoretical material, and laboratories, in which, in fact, there is directly research activity. The main feature of the concept of universities of this form of integration is the presence of strong links with industry. Of particular interest in the development of university ideas is the experience of US universities (University of Texas, Stanford University, Manchester Metropolitan University, etc.). For example, the Massachusetts Institute of Technology has connections with about 300 corporations (more than half of them are the largest US corporations). For research universities characterized by a multiplicity of sources of funding: the federal and local budgets, grants, charitable and trustee funds, business, income from educational, research, production and consulting activities. Thus, in the USA, the federal government accounts for 13.3% of all financial resources, state governments - 30.3%, local authorities - 2.7%, the private sector - 4.9%, students - 33.1%. Another 15% of the funds in the budget of higher education institutions themselves are attributed to their own funds and revenues [7, p. 64].

The internationalization of higher education is an objective, dynamically developing process that acquires the features of a qualitatively new stage - integration [8, p. 74]. In terms of their content, the integration of higher education is the full convergence of national educational systems, their complementarily, the transformation of higher education into a single global social system. Integration of higher education is intended to address a number of pressing problems, such as:

- Compliance with the adequacy of the content and level of higher education needs of the economy, politics, socio-cultural spheres of society;
- Alignment of training levels of specialists in different countries and regions;
- Strengthening international solidarity and partnership in higher education;
- Sharing of accumulated knowledge and skills in different countries and on different continents;
- Facilitating the development of higher education institutions, especially in developing countries, including through funding from international funds;
- Stimulation of increased flexibility, coverage and quality of higher education, contributing to the elimination of the causes of "brain drain";
- Encouraging the competition of scientific schools and educational systems in combination with academic solidarity and mutual assistance.

The overall goal of educational reforms in Kazakhstan is to adapt the education system to a new socio-economic environment. Therefore, improving the education system plays an important role in achieving the ambitious task of joining the republic among the 30 most competitive countries in the world.

There is a lot of evidence linking education and economic growth: a review of international research in macro and microeconomics suggests that there is a close relationship between education, income and productivity. At the same time, there is a high return on investments at an earlier stage of training; studies confirm the importance of investment in the development of education.

The relevance of an interdisciplinary integration at all levels of the educational system due to the need coherent implementation of both local tasks of each subject, and the performance of the social order of society: the formation of a fully developed, competent, pre-vocational and professional competence, cultural development, spiritually full-fledged personality graduates. One of the most important tasks of modern education is the upbringing of a “person of culture”, who embodies all the richness of the cultural heritage of humanity; as well as the problems of synthesis of natural, technical, humanitarian and general cultural knowledge and skills of students, providing a high level of willingness to apply their knowledge and skills in practice. The need for foreign language proficiency in the modern world cannot be doubted, and the popularity of a foreign language as an academic subject among pupils and students is quite high.

In addition, a foreign language in the course of its study implies expanding the general cultural outlook of a person, acquaintance with the traditions and customs of other countries, mastering new ways and methods of communication, i.e. performs the general developing and educating function often to a greater extent than many other academic subjects.

This allows us to consider a foreign language as the best means of interdisciplinary integration with the subjects of not only the humanitarian, but also the natural science cycle, both at the secondary school level, and undergraduate and graduate programs. If foreign language integration with the humanities has been widely discussed, the question relating to its interdisciplinary integration with the disciplines of technical and natural-science cycle in domestic science and practice worked deep enough. There are separate studies on the integration of a foreign language and chemistry, in particular, the works of Augsburg T. [1, p. 61] and Berulava M.N. [2, p. 192], however, they consider the integration of knowledge of natural science disciplines and a foreign language only at the secondary school level. At the level of higher education, this issue is considered in the works of DeZure D. [4, p. 53] and Newell W.H. [10, p. 25], where it is proposed to use an interdisciplinary approach that combines “linguistic, professional, computer and culturological orientation of the training of undergraduates in a single whole”. In these studies interdisciplinary approach applied only in learning a foreign language, the contents of which includes various aspects of other disciplines. It seems necessary to approach the development of a unified model of interdisciplinary integration based on a foreign language as its central element. Such a model should implement the system of leading principles, including the principles of linguistic, cultural, humanistic, innovative, axiological, ecological, valeological, economic, acmeological, aesthetic, etc. directions proposed in the dissertation research by M. M. Kotlyar; integration and differentiation; continuity and continuity [10, p. 25].

Goals of Interdisciplinary integration

The main goal of interdisciplinary integration on the basis of a foreign language both in secondary school and in higher education (in bachelor’s and master’s degrees in all areas) is the formation of a spiritually full, culturally developed personality, the language that is one of the main riches of human culture -. Such a person is characterized by cultural awareness, implying possession of not only narrow subject and narrow professional knowledge, but also ideas about the structure, patterns of functioning, development history and the most significant facts of the history of human culture.

A spiritually full-fledged person also has a focus on satisfying physiological and material as spiritual needs in all areas of his life activity, it is inherent in the pursuit of continuous creative development and improvement of spiritual qualities. When implementing a model of interdisciplinary integration based on a foreign language, a single integrative goal is formulated as a result of synthesizing the goals of individual academic disciplines and the above goal of interdisciplinary integration itself.

The substantive component of the proposed model of interdisciplinary integration based on a foreign language is a system of invariant and variable blocks, which include specific knowledge (language, i.e. knowledge of a foreign and native language, sociocultural, linguocultural, literary, knowledge of special subjects), skills (speech, communication, informational, creative), value relationships (to the world, native country, person, culture, science, education, work, art, native and foreign me languages and others) [6, p. 36], communicative competence in the field of native and foreign languages, as well as the spirituality of the individual.

The organizational and methodological component of a theoretical model of interdisciplinary integration based on a foreign language includes a system of traditional methods and conditions for teaching a foreign language and other subjects, as well as a system of a number of specific methods based on an integrative approach. Effectively-evaluative component of the theoretical model of interdisciplinary integration on the basis

of a foreign language is presented integrative methodology of evaluation results. One of the most significant results of interdisciplinary integration, the central component of which is a foreign language, can be considered the formation of the communicative competence of the individual.

Communicative competence is defined as the integral quality of an individual, manifested in his ability and willingness to use knowledge and skills in a particular language in the process of interpersonal and intercultural interaction in situations of oral or written communication, and in addition to objectively assess the situation of communication and find an adequate way to behavior in it [11, p. 417]. It includes communicative competence in the field of the mother tongue, in the field of one or several foreign languages, as well as communicative competence in the language of a specific academic subject (chemistry, physics, biology, etc.) in secondary school or the language of a specialty at a university.

The implementation of interdisciplinary integration based on a foreign language both at school and in a higher educational institution requires coordinated actions of both teachers of special subjects (disciplines) and teachers of a foreign language. In high school, elements of integration can be included in the content of lessons, and in extracurricular activities. In practice, the use of specialized adapted texts on various subjects of a school course (chemistry, biology, geography, physics, etc.) in a foreign language studied by schoolchildren, chosen according to the interests and aptitudes of students, has proven itself as an additional material.

Such texts should include not only the already known to the students information from the area of the object being studied, but also additional information from the sphere of linguistics, geography and cultural studies (for example, the etymology of different chemical or physical terms, names of substances, laboratory glassware and equipment, history of the discovery of the chemical elements and physical laws, the contribution of prominent scientists in the development of science and culture, the practical use of various chemicals to create works of art and so on. n.) [13, p. 148].

An important means of interdisciplinary integration in both high school and university is the inclusion of regional geographic and linguistic information in educational material in various disciplines. Cross-cultural knowledge, have an integrative character, contain historical, geographical and cultural aspects, and can be widely used in the classroom in order to develop common cultural outlook and education of the trainees such personality traits as a value related to culture, art, language, science, education and so forth.

Socio-cultural information can be included in the content of each academic subject in connection with the mention of the names of scientists who have made a significant contribution to the development of world science. For example, the chemistry lessons in secondary school can show the socio-economic status of countries, the use of chemical knowledge, the state of crafts and production, the level of industrial development in the country, the participation of chemical scientists in the scientific, cultural and social life of the country, with emphasis on the role of science and language in the intercultural communication of the peoples of different countries and nationalities. Historical and geographic information can be organically interwoven into the lesson's outline, it is advisable to include it both in the teacher's story and in texts in a foreign language for students' independent work, as well as in reports, abstracts, essays and creative works.

The experience of teaching a foreign language in undergraduate and graduate programs at a multidisciplinary university suggests that interdisciplinary integration based on a foreign language contributes to increasing student interest and motivation. At the workshops, and in the performance of a variety of independent and creative tasks for maximum efficiency of foreign language different tasks such as the preparation of reports, short communications, presentations on the problems of modern science, engineering and technology to learn a foreign language. In turn, in preparation for the workshops on basic specialty future bachelors and masters use the scientific and technical literature in a foreign language.

As shown by surveys, cultural knowledge obtained in the classroom in a foreign language, are in demand in other disciplines. In the magistracy, high efficiency has such a form of organization of training as conducting seminars in a foreign language under study on topical issues of the main specialization of undergraduates and the possibilities of using the achievements of modern science and technology in various countries. Thus, the proposed model of interdisciplinary integration based on a foreign language can be applicable both in high school and in undergraduate and graduate programs.

Conclusion

The article shows the possibilities of a foreign language as a means of interdisciplinary integration at various levels of education. It notes the potential of a foreign language in the formation of comprehensively developed person, capable of living and working in a modern multi-cultural environment. Introduction of innovative forms of integration of science and education, as shown by international experience, enhances the effectiveness of scientific research.

Integration of science, education and production should be the main mechanism for the innovative development of the economy of the Republic of Kazakhstan by eliminating the technological lag of domestic enterprises from foreign competitors, increasing the inflow of investments in innovation and production, and developing science and education as the innovative potential of the country. Therefore, for the Republic of

Kazakhstan it is relevant to study and implement effective foreign models for the integration of science, education and production, adapted to local conditions, tasks, financial and legal systems.

It should be said that ensuring economic growth is largely determined by personnel potential, its level of training, qualifications and education. Today, an extremely difficult task is put forward before education - to ensure constant adaptation of a person to changes in the surrounding world, to create a system of continuous education. It is also necessary to renew contacts with the closest neighbors, integrate into the international and educational space, and master information technologies. Ultimately, the real integration of education, science and industry should be one of the main factors in the development of our society.

This is the only way to ensure high competitiveness of national higher education in the context of globalization, so that it contributes to the promotion of its country on the international labor market and the latest technologies, becoming the leading element of modern geopolitics and the means of successfully implementing the new economic strategy of the state "Nurly Zhol".

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