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12

ASSESSMENT

OF OPPORTUNITIES FOR THE DEVELOPMENT OF DISTANCE EDUCATION SYSTEMS FOR STUDENTS AND PUPILS

EVALUACIÓN DE OPORTUNIDADES PARA EL DESARROLLO DE SISTEMAS DE EDUCACIÓN A DISTANCIA PARA ESTUDIANTES Y ALUMNOS

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ABSTRACT

The article defines the main trends and socio-economic features of the development of the modern information society with the aim of forming modern structures of distance education. The main socio-economic principles of quality management of distance education are identified. Theoretical and methodological approaches and socio-economic mechanisms for the formation of a distance education system on an innovative basis are developed. The specifics of the educational services market are determined from the standpoint of active implementation of information and innovative technologies of distance education. The mechanisms for managing innovative systems of distance education based on economic and mathematical modeling are improved. Innovative methods for socio-economic assessment of the effectiveness of distance education are developed.

Keywords: Distance education, Pedagogical conditions, Innovative methods, Managing innovative systems.

RESUMEN

El artículo define las principales tendencias y características socioeconómicas del desarrollo de la sociedad de la información moderna con el objetivo de formar estructuras modernas de educación a distancia. Se identifican los principales principios socioeconómicos de la gestión de la calidad de la educación a distancia. Se desarrollan enfoques teóricos y metodológicos y mecanismos socioeconómicos para la formación de un sistema de educación a distancia sobre una base innovadora. Las características específicas del mercado de servicios educativos se determinan desde el punto de vista de la implementación activa de información y tecnologías innovadoras de educación a distancia.

Se mejoran los mecanismos de gestión de sistemas innovadores de educación a distancia basados en modelos económicos y matemáticos. Se desarrollan métodos innovadores para la evaluación socioeconómica de la eficacia de la educación a distancia.

Palabras clave: Educación a distancia, Condiciones pedagógicas, Métodos innovadores, Gestión de sistemas innovadores.

INTRODUCTION

One of the priority areas of development of education is the need to build distance learning based on the use of innovative technologies, in particular, interactive television and computer telecommunication networks (Menter et al., 2010). To manage innovative processes in the education system, it is necessary to form, on an innovative basis, the principles of functioning of a new university model, which combines traditional education and several basic types of institutional forms (organizational structures) of distance education, including a set of technical, information and organizational-economic solutions. In this regard, the issues of developing innovative methods of managing educational technologies based on the formation of a distance learning system in the context of informatization and integration of social development are of particular relevance (Perraton, 1988).

At the same time, it should be noted that the level of research in the field of modern theory and practice of increasing the efficiency, methods and techniques of management, and ensuring the sustainable functioning of innovative education systems based on the formation of a distance education structure in the context of international cooperation, intensive exchange of information and products of intellectual labor with the aim of interaction of all factors of improving education through the development of joint research, production, and cultural projects is insufficient. The object of the article is a distance education system that implements the principles of innovative development, the subject of the article is the methodological aspects of innovative management of the education system based on the formation of distance learning mechanisms, and the purpose of the article is to develop scientific provisions and methodological support for the innovative development of an open educational system based on the formation of a distance learning management mechanism.

The problems of the formation of a conceptual and terminological apparatus for the development of distance education are addressed in the works of many foreign scientists, among them: Harris & Sutton (1986); Perraton (1988); Plummer et al. (2008); and Polat (2021).

In the article, the following research methods were used to solve the set tasks: theoretical (study and analysis of scientific and pedagogical, psychological and pedagogical, reference, specialized literature, regulatory documentation on the topic of research, additional professional advanced training programs; analysis, comparison, classification of the information received and generalization); empirical (pedagogical experiment, observation, questionnaire survey, survey, conversation, testing); mathematical (statistical data processing).

The basis of the study were the fundamental ideas of economic development of the education system, modern philosophical concepts that reveal the patterns of historical development of society and the educational system, historical-retrospective approach to the study of trends in the development of informatization theory; the unity of the historical and logical in the study of social phenomena taking into account global and integration trends, theories of open education, distance learning, and management of innovation processes. The theoretical basis of the study was made up of regulatory legal acts of Ukraine, materials of international scientific and practical conferences on issues of development of the education system, as well as the work of foreign scientists on this issue.

DEVELOPMENT

The study established those innovative transformations in modern higher education have raised the status of higher education institutions, created a new culture of professional education, which offers modern forms of training based on the use of information technology. As the analysis showed, distance education is a high-tech product of scientific and technological progress, which explains its active distribution throughout the world.

The article determines that new mechanisms for managing innovation activities in education should be aimed at using computer and telecommunication technologies in the field of education, mastering technological innovations, which contributes, first of all, to a sharp increase in the number of consumers of educational products and services, as well as an increase in the supply of products and services in the field of education in the course of developing new forms of training (Tatto et al., 2015).

The work identifies the following principles for implementing distance education: the transition from the principle of “education for life” to the principle of “education throughout life”, the possibility of obtaining education in the form of the following forms and methods of education, full-time,

part-time, correspondence, external studies; open planning of training; freedom to choose the time and pace of training, freedom to choose the place of study, free development of individuality.

Assessing the possibilities and prospects for the development of distance education systems, it was revealed that a person's readiness to become a consumer of distance education services is determined, first of all, by such socio-economic factors as the presence of actualized educational needs as such and the impossibility of satisfying them within the framework of the traditional education system, interest in the main properties of distance learning (distance, openness, flexibility, relatively low cost), which allow eliminating the main obstacles to learning, the ability to meet the requirements for the quality of educational services presented by their consumer, the presence of a set of conditions that allow practical use of distance education services (technical equipment, solvency, awareness of the possibilities of distance education) (Darling-Hammond & Lieberman, 2012).

The study established that at the current stage of development of distance learning technologies, it is necessary to ensure the compliance of tasks solved by various elements of the innovative educational system, coordinate joint activities to solve the entire range of problems, as well as assess the educational needs of students and orient the entire educational process to the most complete satisfaction of these needs.

The work identified and detailed the most important elements of the modern innovative educational system - economic, organizational, technological and pedagogical innovations.

It is proposed to include economic innovations in the following:

• tax incentives for investment in education.

• new mechanisms for remuneration in the field of education.

• a mechanism for saving on the scale of educational activities.

• diversification of sources of financing education.

Organizational innovations in the work include

• new organizational structures and institutional forms (open, virtual universities, distance learning institutes) in the field of education.

• new mechanisms for organizing the educational process. Technological innovations include:

• new educational technologies based on the use of computer and telecommunication systems - multimedia, hypertext, interactive technologies, case technologies, etc.

Pedagogical innovations include.

• new pedagogical methods and techniques;

• a new educational environment;

• structural changes in the pedagogical system;

• a new style of work for teachers.

A study of existing approaches to assessing the activities of educational institutions has led to the conclusion that the problem of developing innovative structures of higher education, and therefore the choice of technologies for modern education, is not a technological issue, but a problem of innovative management in the field of education. To effectively solve it, it is necessary to regulate the connections between all subsystems and elements of the education system.

The proposed model of a distance learning program should take into account both the patterns of knowledge acquisition by students, the factors and conditions that facilitate or hinder the achievement of planned results, and the ability of this educational material and the methods and means specific to this form to correspond to these patterns.

In this regard, five main models of organization can be considered in relation to the distance learning system. The following descriptive characteristics of these models are proposed.

The first model is characterized by a segmented organization, which ensures only the interaction of the student with the learning tool with virtually no intervention from the teacher, when the necessary high-speed communication systems are absent and the student deals with a diskette or printed material. There is no current feedback from the teacher, as well as communications with other participants in the educational process. Delayed communication with them refers to the period of face-to-face contact between the student and the teacher during the session period (Iasechko et al., 2021abc).

The second model assumes the presence of communication networks for communication between the student and the teacher, which makes their relationship quite close, timely and prompt (Niemi & Nevgi, 2014). This already makes training more differentiated, providing favorable conditions for the formation of an individual style of mental activity of students (Zeichner & Liston, 2013).

However, the consulting and information assistance provided by the teacher concerns only the fragment of educational material provided for a certain session period and does not allow different members of the study group to move at an individual pace. This model is currently in effect in the correspondence education system using distance learning tools.

The third model provides for the use of group differentiation of students' activities depending on their level of development or the effectiveness of mastering educational programs. Based on the results of the final control during the session period or the generalization of the results of dispersed intersession control, the teacher arranges students into groups, the content, nature and intensity of activities with which are differentiated depending on their composition.

The fourth model is characterized by a collegial organization. This model provides not only for the presence of a connection between the teacher and the student, but also the existence of an equally operational connection between the students themselves.

The teacher must put together flexible, homogeneous, dynamic groups of participants in the educational process and inform the students with whom exactly they will have to collaborate at a given stage of training (Plummer et al., 2008). This model contains even greater elements of differentiation, which is characterized by:

• the creation of homogeneous groups of students based on their abilities, interests, and inclinations;

• the organization of a subject- and socially rigidly oriented homogeneous environment in these groups;

• the organization of groups based on selection (selective differentiation) associated with the results of specific educational and cognitive activities and the successes achieved in them.

The fifth model achieves an even higher level of differentiation using a diagnostic-asynchronous model of organizing a distance educational process with vertical and horizontal feedback. It retains all the components of the previous model, but the division into groups is not based on the results of the educational process that is already being implemented, but on the basis of a preliminary diagnosis of the level of training and the formation of the student's mental work skills. The described models allow us to analyze the learning process from various angles and constructively approach the choice of the model that best meets the goals and objectives of a particular type of learning (Hitchenko et al., 2021).

Thus, in the course of the study it was established that since any model is based on a set of certain assumptions, then as promising areas for further research it is necessary to define organizational management tasks taking into account the specifics of real distance education systems, as well as innovative models for organizing the learning process (Polat, 2008). The use of the entire arsenal of modern management theory in the management and organization of distance education structures is a necessary condition for increasing the validity of management decisions and structuring training programs and, consequently, the efficiency of the functioning of distance education structures (Iasechko et al., 2021a).

There are various approaches to assessing the effectiveness of various educational systems. It is advisable to consider those that allow assessing relative effectiveness based on the analysis of educational technologies. Thus, the following main components can be identified that determine the effectiveness of the educational system under study as a whole: the methodology for forming the knowledge system, the methodology for forming the system of professional skills and abilities, the profitability of the educational process and a reasonable strategy for tuition prices. An educational system is more effective than another, under similar conditions, if the ratio of the number of hours of classes that form skills and professional abilities to the total number of classes is greater than the similar ratio in the compared system (up to a certain limit). In other words, in order to form professional skills and abilities, it is necessary to conduct a sufficient number of practical classes, trainings, business games and other classes in which complex professional skills and abilities are practiced.

A large number of studies of the effectiveness of distance education conducted by economists are devoted to their cost effectiveness. In this case, the cost effectiveness for companies interested in training and retraining employees in the distance education system and the cost effectiveness for educational institutions conducting such training are assessed by comparing traditional and distance education. Assuming that the quality of training of graduates of distance and traditional universities is the same, the researchers come to the conclusion that the cost effectiveness of distance universities can be higher. In this case, economists proceed from the features of the cost of education at a distance university. It is also taken into account that students of non-traditional universities, combining study with work, make their contribution to the production of the gross national product. In this regard, the assessment of some problems of the effectiveness

of a number of distance learning systems becomes most relevant.

In distance education universities, significant costs are associated primarily with the preparation of course materials rather than with the number of students enrolled in the system. Such costs may be regarded as fixed, independent of the volume of students produced. On the other hand, the course materials themselves are in their own right significant products in terms of value, since they are the products of multimedia publishing enterprises. The staff input into course development is therefore analogous to capital investment in a business and is quite different in content from the work in traditional educational institutions.

Consequently, in any assessment of per-student costs, a significant proportion of them in the distance education system are fixed, independent of the volume of output (the number of students). Some of these costs will in fact vary with the number of courses (or course materials) in the system. It is therefore necessary to consider at least two important indicators as variables, one relating to students and the other to courses. However, when an educational institution reaches the planned number of courses, additional costs for developing courses are not required, and in turn, the costs for them can be considered as constant.

The distance learning system is individual training in a telecommunications computer educational environment, which allows, in addition to the usual educational tasks, to solve other tasks quite effectively. For example, searching for information in telecommunications and communication systems, its processing, generalization and analysis, and, most importantly, the ability to navigate in an unfamiliar situation and improve one's knowledge. All this significantly stimulates the influx of students to distance education. With the increase in the level of development of telecommunications and communication, this trend will increase. Thus, improving the quality of distance education, in turn, will expand the circle of people wishing to study under this system.

The main results of the work, the specifics of the educational services market have been determined from the standpoint of active implementation of information and innovative technologies of distance education; an innovative organizational structure of distance education has been proposed, taking into account the interaction of educational centers; a mechanism for forming an innovative strategy has been developed based on determining socio-economic characteristics by comparing the coefficients of the quality of educational services, the consumer value of education and learning ability;

- socio-economic coefficients of demand for specialists and their compliance with professional and job requirements have been formulated;
- a method for calculating economic efficiency has been proposed, allowing for the specifics of distance education to be taken into account.

CONCLUSIONS

Thus, the novelty of the study lies in ensuring the increased efficiency of developing innovative strategies for managing educational technologies based on the formation of a distance learning mechanism, namely: theoretical and methodological approaches to the development and management of the organizational structure of distance learning within the framework of a multi-level education system are substantiated; innovative methods for assessing the effectiveness of distance education and the socio-economic effect are proposed, allowing to increase the competitiveness of educational services; mechanisms for managing innovative systems are formed based on a comparison of the quality factors of educational services and the consumer value of education; social and economic principles for managing the quality of distance education are defined using the coefficients of demand for graduates and their compliance with job requirements.

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