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**EDUCATIONAL SERVICES QUALITY MONITORING SYSTEM AS AN
IMPORTANT COMPONENT OF LIBRARY AND ARCHIVE MANAGEMENT**

Abstract: the article examines the hierarchical structure of the educational system as a component of library and archive management. It has been determined that the control system is structurally divided into three general levels: collection of information and stabilization of parameters, coordination of local subsystems of the first level, optimization of the control system.

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A study of the system for monitoring the quality of educational services in specialty 029 “Information, library and archival work” was carried out. The adequacy of the quality monitoring method has been experimentally proven. The object of testing was the procedure for assessing the quality of the educational process. The statistical array for checking the adequacy was taken from the results of the final control of the subjects of study from the examination sheets for individual parameters of the educational process.

Key words: monitoring the quality of education; information technologies; management of library and information and archival activities; documents; electronic resources; pedagogical quality metrics.

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**СИСТЕМА МОНІТОРИНГУ ЯКОСТІ ОСВІТНІХ ПОСЛУГ ЯК ВАЖЛИВА
СКЛАДОВА БІБЛІОТЕЧНОГО ТА АРХІВНОГО МЕНЕДЖМЕНТУ**

Анотація: у статті розглянуто ієрархічну структуру освітньої системи як складову бібліотечного та архівного менеджменту. Визначено, що система управління структурно поділяється на три узагальнені рівні: збір інформації та стабілізація параметрів,

координація локальних підсистем першого рівня, оптимізація роботи системи управління. Проведено дослідження системи моніторингу якості освітніх послуг спеціальності 029 “Інформаційна, бібліотечна та архівна справа”. Експериментально доведено адекватність методу моніторингу якості. Об'єктом апробації обрано процедуру оцінювання якості освітнього процесу. Статистичним масивом для перевірки адекватності було взято результати підсумкового контролю суб'єктів навчання з екзаменаційних відомостей за окремими параметрами навчального процесу.

Ключові слова: моніторинг якості освіти; інформаційні технології; менеджмент бібліотечної та архівної діяльності документи; електронні ресурси; педагогічна кваліметрія.

**Надія Бачинська, Олена Тверитникова, Тетяна Дроздова, Юлія Демідова,
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Розширена анотація для ознайомлення з цією темою:

“Система моніторингу якості освітніх послуг як важлива складова бібліотечного та архівного менеджменту”

Постановка проблеми в загальному вигляді та її зв'язок із важливими науковими чи практичними завданнями. Сучасні реалії глобалізації економіки, військові конфлікти та вплив пандемії на процес підготовки фахівців бібліотечної та архівної справи вимагають перегляду традиційних педагогічних підходів. Необхідність навчання у цих умовах спонукає до здійснення більш індивідуалізованого процесу, що сприятиме формуванню компетентностей для успішної реалізації у професійній сфері. Положення стандартів та рекомендацій з забезпечення якості у Європейському просторі вищої освіти (ESG) враховуються при реалізації державної освітньої політики України щодо євроінтеграції у освітній та дослідницький простір. Все це підкреслює важливість моніторингу якості освітніх послуг як фактора забезпечення ефективності та якості навчання.

Аналіз останніх досліджень і публікацій, у яких започатковано розв'язання цієї проблеми і на які спирається автор. Процедура оцінювання якості все більше привертає увагу як закордонних так і українських дослідників. Корисним є досвід дослідження удосконалення процедури вступу та ефективного менеджменту, аналіз впливу

компетентностей службовців регіональних закордонних бібліотечно-архівних служб на якість послуг і яке місце займає у цій структурі процес навчання. Увагу привертає низка публікацій із питань використання кваліметричних підходів щодо оцінювання якості вищої освіти та ефективності використання педагогічної кваліметрії в оцінюванні індивідуальних досягнень студентів, при створенні персоналізованих освітніх програм, удосконаленні процесу підготовки фахівців із інформаційної, бібліотечної та архівної справи.

Формулювання цілей статті (постановка завдання). Обґрунтування необхідності застосування системи моніторингу як складової системи бібліотечного та архівного менеджменту, здійснення аналізу критеріїв та факторів, що призводять до розмитості нечітких виважених результатів експертних оцінок якості освітніх послуг в умовах зовнішнього середовища, що постійно змінюються.

Виклад основного матеріалу дослідження з повним обґрунтуванням отриманих наукових результатів. Якість освітньої діяльності включає різні аспекти, такі як: наявність державного стандарту вищої професійної освіти та

ТЕОРЕТИЧНІ ТА ПРИКЛАДНІ АСПЕКТИ ДОСЛІДЖЕННЯ ФЕНОМЕНІВ ЛІДЕРСТВА, УПРАВЛІННЯ ТА РОЗВИТКУ СОЦІАЛЬНОГО ОБ'ЄКТУ

ефективність його реалізації; професіоналізм викладацького науково-педагогічного складу; якість організації процесу навчання та методичного забезпечення навчального процесу; якість суб'єктів навчання.

Ці аспекти взаємодіють між собою та впливають на загальну якість навчання і виховання у закладі вищої освіти. Базисом моделі системи управління якістю освітніх послуг є процесний підхід, що охоплює всі процеси системи управління якістю та відповідає загально визнаній моделі, наведеній у ДСТУ ISO серії 9000. Для створення умов забезпечення конкурентоспроможного випускника необхідна злагоджена система моніторингу якості освітнього процесу. Це приводить до необхідності вимірювання, оцінювання й подальшого відновлення кваліметричних характеристик процесу навчання студентів на всіх його етапах. Для моніторингу якості освітніх послуг розглянуто метод використання системи діагностики рівня сформованості компетентностей, а також вироблення керуючого впливу для їхньої корекції.

На основі опрацювання статистичних даних відомостей успішності суб'єктів навчання з 1 по 4 курси спеціальності 029 "Інформаційна, бібліотечна та архівна справа" був сформований масив із більш ніж 3500 оцінок результативності навчання.

Перевірка статистичної значущості результатів освіти студентів проводилася за критерієм Фрідмана. Отримані результати свідчать, що комплексний показник якості суттєво

впливає на результативність навчального процесу при рівні значущості 0,05, семестр не впливає на результат навченості студента при рівні значущості 0,01. Перевірка можливості об'єднання результатів навчання студентів академічних груп в одну вибірку була здійснена за допомогою критерію Уїлкоксона, гіпотеза підтвердилася в усіх випадках при рівні значущості 0,05.

За результатами перевірки запропонований аналізатор якості освітніх послуг, який виконує функції самоконтролю та адаптації під умови, що змінюються.

Висновки з даного дослідження та перспективи подальших розвідок у даному напрямку. Запропонована система управління якістю освітніх послуг відповідає вимогам чинних міжнародних та українських нормативних документів. Доведено, що система управління якістю структурно поділяється на три узагальнених рівня: збір інформації та стабілізація параметрів, координація локальних підсистем першого рівня, оптимізація роботи системи управління, що доводить правильність вибору об'єкту апробації. Процес моніторингу, відповідно, також повинен охоплювати всі зазначені вище рівні. Для збереження необхідного рівня системи бібліотечного та архівного менеджменту запропоновано ввести підсистему системи моніторингу "спостерігач якості", яка відповідає за самоконтроль і надання рекомендацій з відновлення кваліметричних характеристик системи в умовах невизначеності, динамічності та нестабільності характеристик у часі.

Problem setting. Modern realities of the globalization of the economy, the state of war and the impact of the pandemic on the process of training library and archival professionals require a review of traditional pedagogical approaches. The need for training in these conditions encourages the implementation of a more individualized

process of obtaining knowledge, which will contribute to the formation of competencies for successful implementation in the professional sphere. A modern educational program should promote the development of these personal traits and skills in students, helping them to become competitive in the labor market. An effective combination of

academic knowledge and personal development will help students achieve high results and occupy important positions in the professional field. For specialists specializing in information, library and archival activities, the skills and abilities necessary for orientation in the global space of digital communications become relevant. The use of information technology is a key skill in the digital age, where technology is developing rapidly. These features and characteristics are important for the modern labor market and require attention during the formation of educational and professional programs. In 2005, a series of standards and a recommendation on quality assurance in the European Higher Education Area (ESG) were adopted, which provide criteria at the European level. ESGs are based on the following provisions: higher education institutions (HEIs) are responsible for the quality of education; quality assurance corresponds to the diversity of higher education systems, promotes the development of a culture of quality and takes into account the needs and expectations of students, stakeholders, etc. ESG recommendations are taken into account when implementing the state educational policy of Ukraine regarding European integration in the educational and research space. All this actualizes the issue of monitoring the quality of educational services as an important factor in ensuring the effectiveness and quality of education.

Recent research and publication analysis. The quality assessment procedure is increasingly attracting the attention of both foreign and Ukrainian researchers. Researchers Bijay Lal Pradhan, Sanjeeb Sangroula, Tika Ram Chalise addressed the issue of TQM in higher education [3]. They emphasized that the quality of education is the policy of the educational institution to constantly improve the admission procedure, create a safe and favorable learning environment, and strengthen the relationship between students and teachers, and effective management. In the publication [4], based on statistical data, an analysis of the influence of

the competences of the employees of the Library and Archives Service of the Regency of Bengal on the quality of services and the place of the training process in this structure was carried out. Similarly, a study of the management of the library and archive service of a regional institution is presented in the work [5]. Qualimetric approaches to assessing the quality of higher education were considered in the publication [6]. The authors analyzed the effectiveness of pedagogical qualimetry in assessing the individual achievements of students, and proposed the use of pedagogical qualimetry methods to improve the educational process. In particular, when creating personalized educational programs based on data obtained using pedagogical quality metrics. Authors Aida Topuzyan, Narine Markosyan [7] proposed original approaches to the use of quality metrics in the modern pedagogical process and substantiated the need to measure the quality of activity of both the teacher and the student. In the study [8] attention is focused on the expediency of using qualitative approaches and, on the example of educational institutions of the construction profile, the requirements for the organization of quality assessment of specialist training are outlined. The authors I. Sidanich and H. Zvarych substantiated the importance of using qualitative methods in pedagogical science [9]. The quality of the educational process of masters in information and measurement technologies of NTU "KhPI" was analyzed in work [10]. Attention to the training of specialists in information, library and archival affairs, acquisition of competences necessary for generating new ideas and solving complex scientific problems with the use of information technologies is emphasized in publications [11–14].

Paper objective. Substantiation of the need to use the monitoring system as a component of the library and archive management system, the analysis of criteria and factors that lead to the blurring of unclear, balanced results of expert evaluations of the quality of educational services in the

conditions of the constantly changing external environment.

The methodological base of the study was the use of a set of methods. In addition, the methods of analysis, synthesis, classification and generalization were used. On the basis of studying of the specialty standard and the new and upgraded curricula of the bachelor and master degree preparation of the Information, library and archival affairs specialty a comparative analysis on the implementation of a students' scientific research work during the classroom and after-hours setting has been conducted. Based on the application of the pedagogical content analysis of statistical reports on the student's academic performance a study of the quality monitoring system was carried out. The methods of expert evaluations are involved, since the solution of issues related to quality,

which is mostly based on models built on the basis of processing information obtained as a result of an expert survey. The results of the study are shown in figures 1, 2, 3.

Paper main body. The quality of educational activity includes various aspects, such as: availability of the state standard of higher professional education and the effectiveness of its implementation; professionalism of the teaching staff; the quality of the organization of the training process and methodical support of the training process; quality of study subjects.

These aspects interact with each other and affect the overall quality of education in a higher education institution (HEI). It is important to consider all these components to ensure effective educational activities. The concept of Education Quality Guarantee is represented in fig.1.

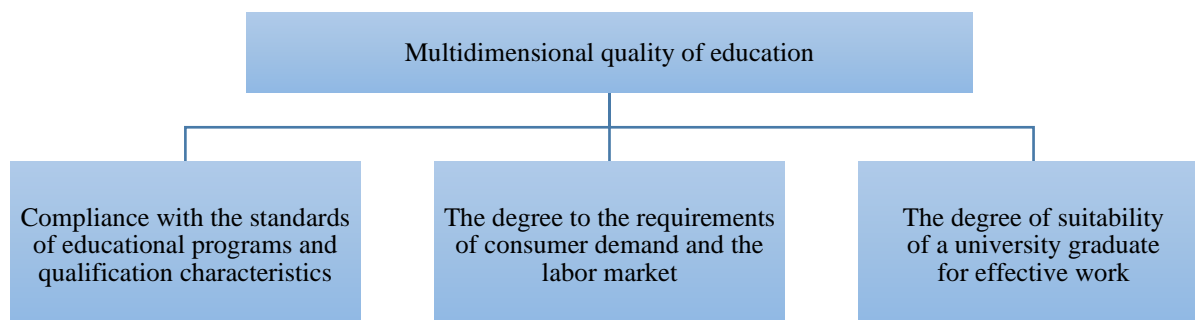


Fig. 1: The concept of Education Quality Guarantee

The model of the quality management system (QMS) of educational services is based on a process approach. The structural and logical scheme of the processes of the quality management system of the ZVO covers all QMS processes and corresponds to the generally recognized model given in the DSTU ISO 9000 series [15]. Each of the processes is characterized by a number of indicators that must be under constant control and management. That is, the traditional management of the results of the process is transferred to the management of the process itself.

In fig. 2, the proposed structural and logical scheme of the higher education system

of higher education institutions, taking into account the specifics of the activity of the higher education institution.

According to this model, the successful functioning of vocational training is possible only if the needs of consumers are clearly defined, and then the level of their satisfaction with the training results is assessed by establishing reliable feedback and constantly improving the quality of training. The higher management of higher educational institutions should ensure the effective functioning of processes by providing the necessary resources, which include human (professors and other personnel), premises, equipment (laboratories,

computer network, library fund), materials, support of a normal working environment (lighting, temperature, compliance with sanitary and technical standards, etc.) and financial. The

monitoring procedure, like the QMS as a whole, in an educational institution based on the Deming cycle.

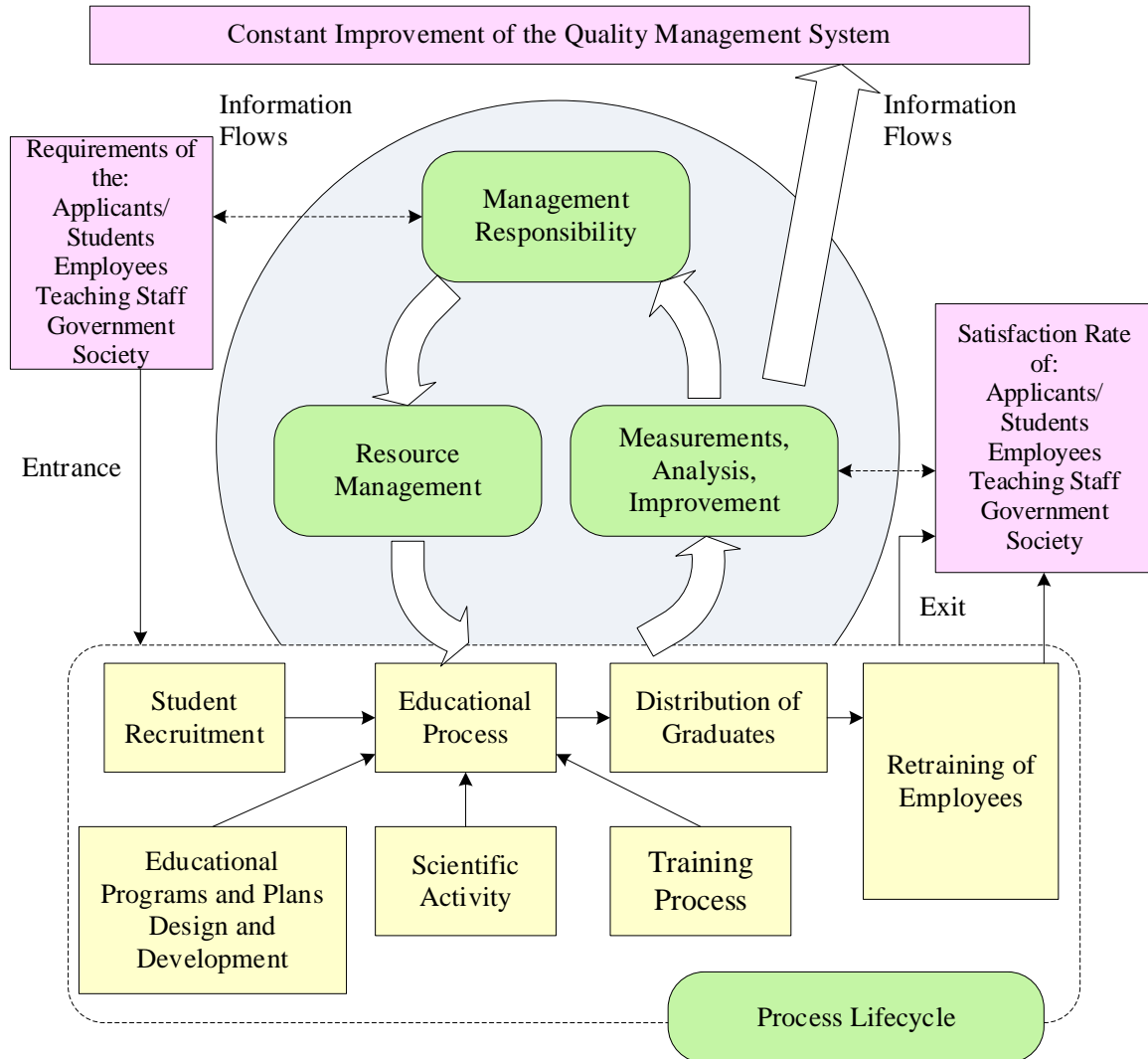


Fig. 2: Structural and logical scheme of the quality management system of the Higher Education Institution

A coordinated system of monitoring the quality of the educational process is necessary to create conditions for ensuring a competitive graduate. This leads to the need to measure, evaluate and further restore the qualitative characteristics of the student learning process at all its stages. The most difficult are the issues of diagnosing the formation of competencies both "at the exit" of the graduate and at the intermediate stage of training - after studying disciplines,

professional modules, etc. The quality indicator of the professional knowledge that the student receives during the entire educational period plays not the last role in the comprehensive assessment of the quality of educational services. Therefore, questions related to the criteria and mechanisms of objective dynamic assessment of the level of knowledge are in need of research [16].

In this context, the proposed method of using a system for diagnosing the level of

competence formation, as well as developing a management influence for their correction [17] deserves attention. The basis of the comprehensive indicator of the quality of the university's activity is a set of various indicators that allow us to consider the concept of the quality of educational services as a multi-level tree-like structure. The study of the education system as a complex system shifted the emphasis from the study of individual elements of the system to the study of their interrelationships. The complexity of properties lies in the fact that they arise with some probability, and are not constructed according to a certain plan. The properties of the higher education system are:

- complexity – the education system consists of a large number of parameters and criteria;
- lack of a mathematical description or algorithm – indicators characterizing the education system cannot be combined with each other using a mathematical formula;
- immateriality – the educational system cannot be seen before receiving an educational service;
- imprudence - it is impossible to save educational services;
- data incompleteness – not all indicators and criteria of the educational process can be determined and measured;
- some parameters can only be assessed qualitatively;
- “noisiness”, which is expressed in the complication of observation and control (caused by a large number of secondary processes);
- “intolerance” to management (the system does not exist to be managed);
- non-stationarity, which is expressed in the drift of characteristics, change of parameters, evolution in time;
- non-reproducibility of experiments with it;
- emergency - the presence of special properties of the system, which are not characteristic of its subsystems;
- the need to account for factors that are weakly formalized or not formalized at all;

- influence of external disturbances;
- a wide range of response times in the system;

• constantly growing demands of consumers, especially external ones [18].

The concept of development of higher education institutions is multi-level and includes the following levels of hierarchy:

1. Upper level – the concept of development of the institution as a whole and the concept of development of the main areas of activity: educational, scientific, informational, administrative;

2. Middle – the concept of the development of educational and scientific institutes, which is created on the basis of top-level documentation and specifies the tasks and goals of the development of higher education institutions;

3. Lower – the concept of development of units of higher education institutions: departments, services, departments, which characterizes the concept of development of educational and scientific institutes.

On the basis of these concepts of development, the characteristics of the quality management system of higher education institutions are formed – a system of performance indicators, principles of structural, financial, personnel policy, etc.

Based on this conceptual model, the mathematical model of the studied system has the form of a three-level system with an organizational type hierarchy. A generalized block diagram of functional tasks that are solved in the process of managing the education system is presented in fig.3.

The whole system consists of a family of interacting, hierarchically arranged elements, endowed with the right to make decisions. The management structure provides feedback. The system under consideration should perform three main functions:

- management of the educational process at the department level (local level);
- management at the level of educational and scientific institute (levels of coordination);
- management at the level of a higher education institution (optimization levels) [19].

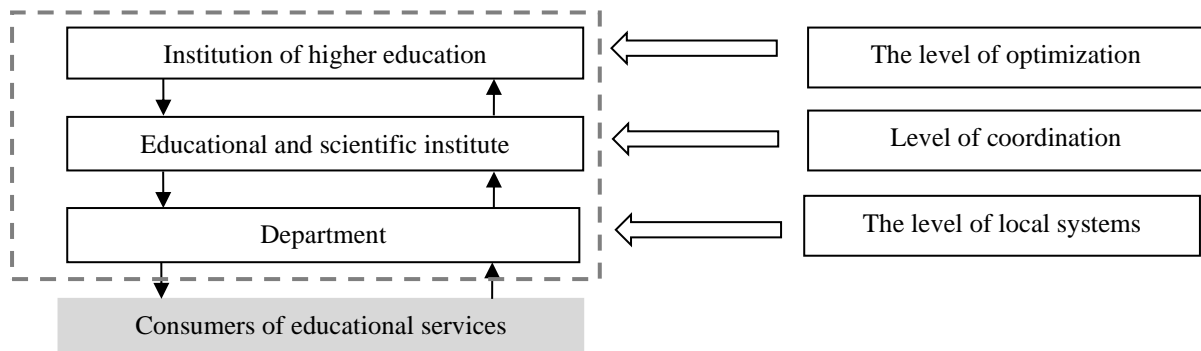


Fig. 3: Scheme of a three-level higher education management system with an organizational hierarchy

According to the process approach of the standard of the Ministry of Education and Science “Standards and recommendations for quality assurance in the European area of higher education” [1] phases of the student cycle include enrollment, training, recognition of qualifications and certification of students, the quality of educational services will be characterized by the three most significant indicators “Quality of admission”, “Quality of training” and “Quality of obtaining educational results”. Therefore, when talking about the quality of educational services, the quality of each of the above-mentioned levels of management should be included in this concept. Approbation of the developed method covered the training stage.

The statistical array for checking adequacy is the results of the final control of the study subjects from the examination data according to individual parameters of the educational process. A separate j -th educational process is an educational process in a separate discipline, which is implemented by a separate teacher during the subject's study period. A separate educational process is characterized by multiple performance assessments Q_{pj} , which consist of performance evaluations of the i -th subjects from the j -th educational process Q_{pij} .

The quality level of the educational process is determined by the quantitative characteristics K_{ij} – the success values of the i -th student in the j -th subject. The statistical array of learning outcomes of subjects of the educational process has the following features:

- unknown law of grades distribution;
- learning outcomes are presented on an ordinal scale;
- evaluation of the j -th educational process may consist of a large number of repeated values (different subjects may have the same learning results);
- samples are dependent, as they are obtained during the assessment of the same subjects of study;
- the learning process is long-term and the evaluation results are obtained after some long intervals of time [20].

To check the adequacy of the “quality monitor” model, the following tasks must be solved:

1. Investigate the statistical array of data for the significance of a comprehensive quality indicator.
2. Check the influence of the semester on the efficiency ratio.
3. Check the possibility of combining the learning results of students from different academic groups into one sample.
4. Based on the results of the inspection, develop an analyzer of the quality of educational services [21].

The solution of the tasks was proposed by means of statistical data collection and their processing using well-known statistical tests. 246 information on the success of subjects of study from 1 to 4 courses of specialty 029 “Information, library and archival business” were considered, based on the results of which an array of more than 3,500 evaluations of study effectiveness was

formed. To assess the quality of the educational process, two groups of students were randomly selected with average scores for 41 subjects.

The first two problems were solved using a statistical test – Friedman's test. The obtained results of the statistical significance test proved that the comprehensive quality indicator significantly affects the effectiveness of the educational process at a significance level of 0.05. At a significance level of 0.01, the results of statistical data processing indicate that the semester does not affect the student's academic performance.

Since the same parameter of teaching in one semester can be found in different academic groups of both one and several specialties, there is a need to research the general parameter of teaching for a particular semester under study. For this, the possibility of combining the learning results of students of academic groups into one sample was checked using the Wilcoxon test. The hypothesis about the possibility of combining the samples was confirmed in all cases at a significance level of 0.05.

To solve the last problem, based on the results of the inspection, it is proposed to introduce a “quality observer” subsystem, the main function of which is self-monitoring and issuing recommendations for restoring the qualitative characteristics of educational services under conditions of uncertainty, dynamism and instability of characteristics over time.

Conclusions of the research. Therefore, the quality management system of

educational services must comply with current international and domestic regulatory documents and is built according to a model based on a process approach, one of the elements of which is mandatory monitoring. It was determined that the management system is structurally divided into three generalized levels: information collection and stabilization of parameters, coordination of local subsystems of the first level, optimization of the management system, which proves the correctness of the selection of the object of approval. The monitoring process, accordingly, should also cover all the above-mentioned levels.

The adequacy of the proposed model was verified on the basis of the processing of a statistical array of data (results of the final control of the study subjects from examination information according to individual parameters of the educational process). The analysis showed that the comprehensive quality indicator significantly affects the effectiveness of the educational process, and the semester does not affect the student's educational results. In addition, the learning results of several groups can be combined into one sample.

In order to maintain the necessary level of the library and archive management system, it is proposed to introduce the “quality observer” monitoring system subsystem, which is responsible for self-monitoring and issuing recommendations for restoring the system's qualitative characteristics in conditions of uncertainty, dynamism and instability of characteristics over time.

Список літератури:

1. “ESG”, (2015), Standards and Guidelines for Quality Assurance in the European Higher Education Area, Brussels, p. 32

2. Закон України “Про освіту”. – [електронний ресурс]. – Режим доступу: <http://zakon.rada.gov.ua/laws/show-2145-19#>

3. Pradhan, B., Sangroula, S., Chalise, T. (2023), “Total Quality

Management in Higher education”, Conference: Quality transformation with AI Booming, Vietnam, DOI: [doi: 10.5281/zenodo.10798210](https://doi.org/10.5281/zenodo.10798210)

4. Suryani, A., Johan, A., (2023), “The Influence of Librarian Competence on the Quality of Library Services at the Library and Archives Service in Bengkalis Regency”, Journal of Education Social Sciences and Humanities, no. 1 (4), pp. 186 – 201, DOI: <https://doi.org/10.58355/dirosat.v1i4.53>

5. Jeanyoung, K., Waluyo, U., Sudirman, S., Fahrudin, F. (2024), "Digital Service Management at the NTB Provincial Library and Archives Service" Path of Science, vol. 10, no. 3, pp. 2045 – 2053, DOI: 10.22178/pos.102-9
6. Abdulkhafizov, B. (2023), "Application of pedagogical qualimetry in assessing the academic achievements of high school students", International Journal of Pedagogics, vol. 3, is. 10, pp. 12 – 16, DOI: doi: 10.37547/ijp/Volume03Issue10-03
7. Topuzyan, A., Markosyan, N. (2022), "Pedagogical qualimetry as a means of measuring the quality of the activities of the main subjects of the pedagogical process", Main Issues Of Pedagogy And Psychology, no. 21 (1), pp. 60 – 73, DOI: 10.24234/miopar.v21i1.427.
8. Пащенко, Т. Qualimetric approach in the implementation of the methodological system for assessing the quality of training of specialists in colleges of construction profile / Т. Пащенко // Наукові записки Малої академії наук України. – 2022. – № 1 (23). – С. 92 – 100. – [електронний ресурс]. – Режим доступу: <http://snman.science/index.php/sn/article/view/103>
9. Tverytnykova E., Demidova Yu., Salata H. Scientific and practical training component of higher education applicants by implementing the digitalization of the information space / E. Tverytnykova, Yu. Demidova, H. Salata // Теорія і практика управління соціальними системами: філософія, психологія, педагогіка, соціологія. – 2023. – № 2. – С. 104 – 116
10. Sidanich, I., Zvarych, H. (2020), "Characteristics of the model of monitoring the quality of educational services in general secondary education institutions", Adaptive Management: Theory And Practice. Series "Pedagogy", vol. 10 (19), DOI: [https://doi.org/10.33296/2707-0255-10\(19\)-24](https://doi.org/10.33296/2707-0255-10(19)-24).
11. Shkitska, I. (2021), "New approaches to the training of information, library and archival professionals", Information and society: materials of the VI International Scientific and Practical Conference "Information and Society", ed. by: O. Anisimova et al., Vinnytsia: DonNU named after V. Stus, pp. 55 – 58
12. Bachynska, N. (2023), "Improving the professional competencies of students of the specialty 029 IBAS (ILAS) in the process of practice performing", Ukrainian Journal on Library and Information Science, no. 12, pp. 82 – 95, DOI: <https://doi.org/10.31866-2616-7654.12.2023.293574>
13. Bachynska, N. (2022), "Implementation of Educational and Professional Programs of Specialty 029 "Information, Library and Archives": Traditions and Innovations. Library Science", Record Studies. Informology, no. 4, pp. 95 – 101, DOI: <https://doi.org/10.32461/24-09-9805.4.2022.269816>.
14. Тверитникова О., Салата Г. Менеджмент якості архівної та бібліотечної справи: до проблеми імплементації міжнародних стандартів / О. Тверитникова, Г. Салата // Бібліотекознавство. Документознавство. Інформологія. – 2023. – № 2. – С. 48 – 53
15. Національний стандарт України ДСТУ ISO 9001:2015 (ISO 9001:2015). – Системи управління якістю. Вимоги Офіційне видання. – Київ: ДП Київ: ДП УкрНДНЦ. – 2016
16. Tverytnykova, E., Demidova, Yu., Drozdova, T. (2021), "Management system of occupational safety at ukrainian enterprises: international and european dimension", Advanced information systems, vol. 3, no. 1, pp. 45 – 53, DOI: <https://doi.org/10.20998-2522-9052.2021.1.06>
17. Kondrashov, S., Drozdova, T. (2014), "Fuzzy probabilistic model of restoration of qualitative characteristics of the educational process", Metrology and devices, no. 1 (45), pp. 120 – 123
18. Malyshkina, K. (2012). "Models and methods of evaluating indicators of the quality of the educational process of universities", Abstract of the dissertation for obtaining the scientific degree of Candidate of Technical Sciences, p. 20
19. Konstantynova, L. Rogov, M. (2006), "Peculiarities of building a quality

management system model in universities”, Bulletin of the National Technical University “KHPY”, no. 31, pp. 71 – 76

20. Hrihorenko, I., Drozdova, T., Hrihorenko, S., Tverytnykova, E. (2019), “Application of user interface fuzzy logic toolbox for quality control of products and services”, Advanced information system, Kharkiv, 2019, vol. 3, no. 4, pp. 118 – 125, DOI: <https://doi.org/10.20998/2522-9052.2019.4.18>

21. Kondrashov, S. Drozdova, T. (2013), “Quality observer” in dynamic control and management systems”, Metrology and devices, no. 2 (41), pp. 126–130

References:

1. “ESG”, (2015), Standards and Guidelines for Quality Assurance in the European Higher Education Area, Brussels, p. 32

2. The Law of Ukraine “On Education”, available at: <https://zakon.rada.gov.ua/laws/show/2145-19#>

3. Pradhan, B., Sangroula, S., Chalise, T. (2023), “Total Quality Management in Higher education”, Conference: Quality transformation with AI Booming, Vietnam, DOI: [doi: 10.5281/zenodo.10798210](https://doi.org/10.5281/zenodo.10798210)

4. Suryani, A., Johan, A., (2023), “The Influence of Librarian Competence on the Quality of Library Services at the Library and Archives Service in Bengkalis Regency”, Journal of Education Social Sciences and Humanities, no. 1 (4), pp. 186 – 201, DOI: <https://doi.org/10.58355/dirosat.v1i4.53>

5. Jeanyoung, K., Waluyo, U., Sudirman, S., Fahrudin, F. (2024), “Digital Service Management at the NTB Provincial Library and Archives Service” Path of Science, vol. 10, no. 3, pp. 2045 – 2053, DOI: [10.22178/pos.102-9](https://doi.org/10.22178/pos.102-9)

6. Abdulkhafizov, B. (2023), “Application of pedagogical qualimetry in assessing the academic achievements of high school students”, International Journal of

Pedagogics, vol. 3, is. 10, pp. 12 – 16, DOI: [doi: 10.37547/ijp/Volume03Issue10-03](https://doi.org/10.37547/ijp/Volume03Issue10-03)

7. Topuzyan, A., Markosyan, N. (2022), “Pedagogical qualimetry as a means of measuring the quality of the activities of the main subjects of the pedagogical process”, Main Issues Of Pedagogy And Psychology, no. 21 (1), pp. 60 – 73, DOI: [10.24234/mio-pap.v21i1.427](https://doi.org/10.24234/mio-pap.v21i1.427).

8. Pashchenko, T. (2022), “Qualimetric approach in the implementation of the methodological system for assessing the quality of training of specialists in colleges of construction profile”, Scientific Notes of the Minor Academy of Sciences of Ukraine, – 2022. – no. 1 (23). – pp. 92 – 100, available at: <http://snman.science/index.php/sn/article/view/103>

9. Tverytnykova E., Demidova Yu., Salata H. Scientific and practical training component of higher education applicants by implementing the digitalization of the information space / E. Tverytnykova, Yu. Demidova, H. Salata // Теорія і практика управління соціальними системами: філософія, психологія, педагогіка, соціологія. – 2023. – № 2. – С. 104 – 116

10. Sidanich, I., Zvarych, H. (2020), “Characteristics of the model of monitoring the quality of educational services in general secondary education institutions”, Adaptive Management: Theory And Practice. Series “Pedagogy”, vol. 10 (19), DOI: [https://doi.org/10.33296/2707-0255-10\(19\)-24](https://doi.org/10.33296/2707-0255-10(19)-24).

11. Shkitska, I. (2021), “New approaches to the training of information, library and archival professionals”, Information and society: materials of the VI International Scientific and Practical Conference “Information and Society”, ed. by: O. Anisimova et al., Vinnytsia: DonNU named after V. Stus, pp. 55 – 58

12. Bachynska, N. (2023), “Improving the professional competencies of students of the specialty 029 IBAS (ILAS) in the process of practice performing”, Ukrainian Journal on Library and Information Science, no. 12, pp. 82 – 95, DOI: <https://doi.org/10.318-66/2616-7654.12.2023.293574>

13. Bachynska, N. (2022), “Implementation of Educational and Professional Programs of Specialty 029 “Information, Library and Archives”: Traditions and Innovations. Library Science”, Record Studies. Informology, no. 4, pp. 95 – 101, DOI: <https://doi.org/10.32461/2409-9805.4.2022.269816>.
14. Tveritnikova, O., Salata, G. (2023), “Quality Management of Archival and Library Services: Toward the Problem of Implementing International Standards”, Library science. Document science. Informatics, no. 2, pp. 48 – 53
15. National standard of Ukraine DSTU ISO 9001:2015 (ISO 9001:2015) (2016), Quality management systems. Requirements Official edition. - Kyiv: SE Kyiv: SE UkrNDNC
16. Tverytnykova, E., Demidova, Yu., Drozdova, T. (2021), “Management system of occupational safety at ukrainian enterprises: international and european dimension”, Advanced information systems, vol. 3, no. 1, pp. 45 – 53, DOI: <https://doi.org/10.20998/25-22-9052.2021.1.06>
17. Kondrashov, S., Drozdova, T. (2014), “Fuzzy probabilistic model of restoration of qualitative characteristics of the educational process”, Metrology and devices, no. 1 (45), pp. 120 – 123
18. Malyshkina, K. (2012). “Models and methods of evaluating indicators of the quality of the educational process of universities”, Abstract of the dissertation for obtaining the scientific degree of Candidate of Technical Sciences, p. 20
19. Konstantynova, L. Rogov, M. (2006), “Peculiarities of building a quality management system model in universities”, Bulletin of the National Technical University “KHPY”, no. 31, pp. 71 – 76
20. Hrihorenko, I., Drozdova, T., Hrihorenko, S., Tverytnykova, E. (2019), “Application of user interface fuzzy logic toolbox for quality control of products and services”, Advanced information system, Kharkiv, 2019, vol. 3, no. 4, pp. 118 – 125, DOI: <https://doi.org/10.20998/2522-9052.20-19.4.18>
21. Kondrashov, S. Drozdova, T. (2013), “Quality observer” in dynamic control and management systems”, Metrology and devices, no. 2 (41), pp. 126–130

Стаття надійшла до редколегії 21.05.2024