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Ensuring the Quality of Additional Professional Education in Higher Educational Institution on the Basis of a Standard Quality System

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Abstract. Modern development of additional educational services makes it necessary for educational organizations that provide such services to use tools to guarantee the quality of education. The international and domestic scientific communities in the field of additional professional education (APE) have developed and successfully introduced into educational practice a three-level trajectory of confirming the quality of education implemented by educational organizations: institutional, program and qualification trajectories. An educational organization that operates in the field of additional professional education can choose any option to confirm the quality of its activities.

However, practice shows that for a higher education institution where additional professional training is a subsystem of its quality management system (QMS), the institutional trajectory, which provides for the development, implementation and confirmation of compliance with the QMS of APE, seems to be the most important. Therefore, it is proposed to adapt the standard model of quality system (ISO 9000 & ENQA) to the specifics of additional professional education. This standard model has a modular and hierarchical structure that allows to integrate APE QMS into QMS of a higher education institution quite easily.

The approach proposed in the paper to guarantee the quality of additional professional education implemented by higher education institutions, based on APE QMS, and having a modular and hierarchical model of the quality system (ISO 9000 & ENQA), will ensure the quality of training of students of professional educational programs.

1. Introduction

To ensure the quality of additional professional education (APE) within the paradigm of continuing education is currently becoming particularly relevant. This problem can be solved by developing and implementing tools and mechanisms to guarantee the quality of education into the general management system of higher education institutions.

The global scientific community for a comprehensive evaluation of APE quality has developed a system of trajectories and levels, based on the concept of "system quality – process quality – quality of results," the successful completion of which by an educational organization is an evidence of its qualitative activities in the sphere of additional professional education. An educational organization in the Russian Federation can independently choose the trajectory, level and mechanisms of quality assurance, in particular [1–3]:



- institutional level is public accreditation and/or certification of management systems;
- program level is professional and public accreditation of educational programs;
- qualification level is evaluation of graduates' qualifications. The three-level system of confirming the quality assurance of additional professional education allows to implement the considered trajectories both in interconnection and independently of each other. The practical study of this issue has shown that an effective tool for higher education institutions that provide additional professional services within the framework of a three-level quality assurance system is the development and integration of APE QMS into the quality management system of the university.

In this regard, it seems appropriate to study the Russian and international experience in the development and implementation of QMS in the system of additional professional education of higher education institutions.

2. Analysis of recent researches and publications

World and national practice to assure the quality of education through the development and implementation of the quality system to the management system of the educational organization, including educational institutions, has extensive experience and tools for its realization [1-10]: standards and recommendations (standards and guidelines) of ENQA; TQM principles and values; ISO 9000 standards; a typical model of quality system (2006) based on the integration of standards and guidelines; international standard ISO 21001:2018, etc. In these models, the activity of providing additional professional services is considered as a subsystem in the university's QMS, based on common principles and regulated by common management mechanisms.

The activities of educational organizations that independently carry out APE are regulated by international standards developed, inter alia, for implementing this type of activity and applied for this purpose in the European Union [11-14]:

- CQAF. Common Quality Assurance Framework is a model to assure the quality of continuing professional education, focused on a simplified approach to the assessment (self-assessment) and analysis of educational programs of additional professional education;
- ISO 29990:2010. Learning services for non-formal education and training. Basic requirements for service providers. It is a standard that regulates the necessary conditions for non-formal education and training by suppliers, including for certifications;
- ENQA (2015). Standards and Guidelines for Quality Assurance in the European Higher Education Area is a quality model for building systems of internal and external assessment of education quality, including additional professional education, as well as for accreditation of European agencies to assess the quality of education, etc.

It should be noted that the process of developing the QMS of higher education institutions based on models (standards) recommended by international organizations that focus on the activities of autonomous educational organizations in the field of higher education has a number of limitations:

- the need to adapt QMS educational services of additional education to the national specific features and to integrate them into the existing quality system of higher education institutions which includes APE;
- absence or a limited number of certification bodies in the country according to the considered models, making it difficult for the university to obtain a certificate, and deprives APE QMS prospects of its development;
- a limited number of models under consideration to the program level of assuring of education quality, which makes it necessary to combine them with models that have an institutional level.

In this regard, most higher education institutions, implementing the concept of quality assurance of education, develop their QMS based on the integration of a number of correlating models that allow eliminating the identified shortcomings, in particular [1, 13]: the standard model of the quality system (2006) (ISO 9000 & ENQA); the integrated model QM & CQAF (2017) (ISO 9000 & CQAF), etc.

According to the analysis of publications, ensuring the quality of additional professional education in higher education institutions on the basis of the development (improvement) of APE QMS is of scientific and practical interest and requires further research in this field.

3. Problem statement

It seems that it is possible to eliminate the identified shortcomings and ensure the quality of APE in the system of higher education as a result of solving the following tasks:

- to determine APE QMS model that correlates with the general management system of an educational organization;
- to integrate APE QMS model in the university's QMS, taking into account the specific features of the processes of additional professional education;
- to improve APE QMS taking into account changes in new versions of international standards, on which basis well-known quality systems are made.

In this regard, researches aimed at solving the problem under consideration is of particular importance.

4. Definition of QMS model of additional professional education

Educational organizations in the Russian Federation today have accumulated quite a lot of experience in developing and implementing quality management models (standards) into the overall management system. The standard model of the quality system (ISO 9000 & ENQA) is widely used among such models (Bryansk State Technical University became one of its developers in 2006) [1, 2].

The basis for building the university's QMS in accordance with ISO 9000 & ENQA model is a modular and hierarchical approach [3, 4, 15]. The modular and hierarchical model has three hierarchical levels: the university's QMS, the QMS of a faculty/institute, and the QMS of a department. All the listed QMS are closely linked by vertical and horizontal information flows in accordance with the information model of the university (Fig. 1).

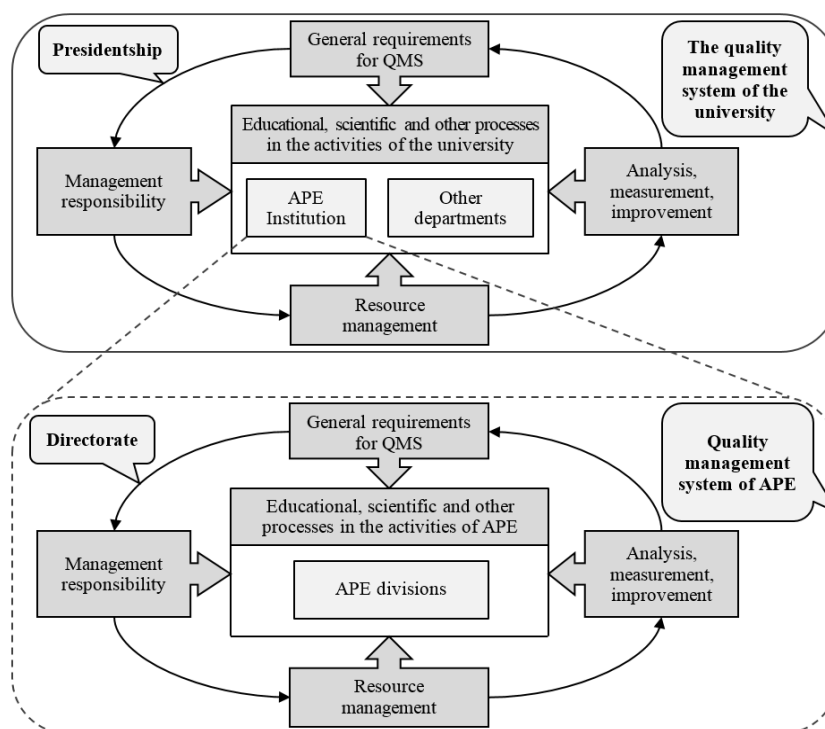


Figure 1. Fragment of the modular and hierarchical model of the university's QMS.

The relationship of these modules making up QMS is based on implementing the chain "supplier-consumer" within the university. A special feature of this model is its modularity: the university's QMS consists of the QMS of a faculty/institute and the QMS of a department module. The QMS of a faculty/institute in turn is formed from the QMS of a department. These unified modules differ in their content at different levels of the hierarchical model, reflecting the specific features of processes at the faculty/institute, department.

Three types of regulations are drawn up and approved at each hierarchical level of the university's QMS model. They are quality guidelines, documented procedures and process charts that are necessary to ensure the quality of educational, scientific and other activities at this structural level of the university. The amount of information recorded in documents should be reduced from the upper level (QMS of the university) to the lower, reaching the acceptable minimum at the department level.

When using the modular and hierarchical model of QMS, it becomes possible to provide the necessary to implement QMS in all departments of the university, to involve almost all employees of the university in the process of QMS improvement. At the same time, APE QMS in the form of a structural division such as an institute, interconnected with the general management system of an educational organization, is easily integrated into the university's QMS.

5. Integrating APE QMS into the quality system of the university

Integration of APE QMS in the university's QMS provides for the development of a modular and hierarchical APE QMS model, harmonized with the other modules of the quality system of the university. It provides for identifying processes related to the provision of additional educational services, and their documents.

The variant presented in [3] can be proposed as a standard register of APE processes. The processes marked in a standard register with asterisks and bold italics form the invariant core of APE QMS, which are considered as activities subject to mandatory monitoring and auditing [16].

As it has already been noted, the hierarchical structure of APE QMS documents includes quality guidelines, documented procedures and process charts. When documenting APE QMS, a modular principle is provided, in accordance with the hierarchical model of the university's QMS. The document structure for each module is the same, and the content is different at various levels of the hierarchy. Each module (university's QMS, APE QMS) has its own quality guidelines. At the same time, APE quality guidelines is an integral part of the guide for the top level i.e. the university's QMS.

The activity of APE management has the form of documented procedures that ensure the implementation of general requirements for the quality system, management responsibilities, resource management, control, monitoring and improvement of processes. Each APE QMS module contains process charts. The process chart is a document, which summarily (mainly with graphic illustrations such as charts, diagrams and graphs) records basic information about the process necessary for quick control of the compliance, to assess the impact and effectiveness of the process by QMS management and auditors.

The internal system of APE quality assessment functions at the university as a mechanism to guarantee the organization of the educational process in accordance with the requests of all interested parties (students, employers, society, etc.), to implement a risk-based approach and corrective measures ensuring the effectiveness of educational processes [17].

The design of QMS module for APE based on this approach will allow it to be correctly integrated into the overall QMS of the university.

6. Improvement of APE QMS

APE QMS should have characteristics (flexibility, reproducibility, etc.) that allow it to adapt to changes (versions) of the standards that are the basis of its quality system model - ISO 9000 and ENQA. With the introduction of new versions of ENQA and ISO 9000 standards in 2015, there is a need to improve the standard model of the quality system, taking into account the changes stated in them. The new special provisions of the standards include such as the context of the organization, QMS scope,

leadership, the organization's knowledge base, analysis of risks and QMS capabilities, etc., which require the educational organization to adapt its QMS to the changes introduced.

Conceptual change of the typical model of quality system (ISO 9000 & ENQA) is proposed in the new ISO 9000:2015 interpretation of the process approach, providing risk-based thinking to the processes and QMS. The model of the university's APE QMS in accordance with the new concept of the process approach based on the new version of ISO 9000:2015 is shown in Fig. 2.

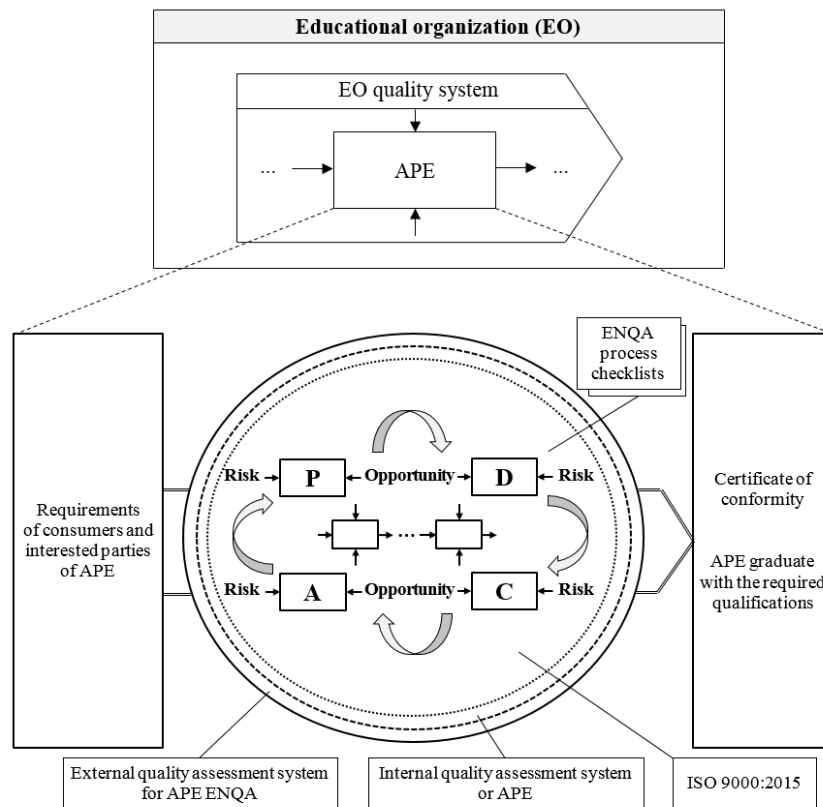


Figure 2. Model of the university's APE QMS in accordance with ISO 9000:2015.

If the process design activities (structuring processes, using languages and procedures for describing them, etc.), and implementing procedures based on PDCA cycle are sufficiently developed, then the introduction of a risk-based approach to QMS processes is not only of scientific (due to the change in ISO 9000:2015 standards), but also of practical interest.

The model of risk management and capabilities of the educational organization's QMS processes, proposed in papers [18–20], is applicable to APE QMS processes. The model is based on the methods of SWOT analysis, FMEA and methods of statistical justification of choosing risk and opportunity management strategies. The model allows not only to identify risks and opportunities that arise during functioning of QMS processes of an educational organization, but also offers tools for statistical justification of decisions related to their management.

QMS based on the standard model of the quality system (ISO 9000 & ENQA) is not static. Due to the changes in the regulatory and methodological documents (the introduction of new federal laws, versions of international and national standards, etc.), the context of an educational organization, improving the model of APE quality system is considered today as a necessary condition for its effective functioning.

7. Conclusion

International and domestic experience in the development of APE within the framework of continuing education proves the need to develop and implement tools to guarantee its quality. A three-level system for confirming the quality of additional professional services provides the educational organization with the opportunity to choose the proposed trajectories independently. Furthermore, the trajectory of APE QMS development and implementation into the university's QMS in modern conditions of educational sphere development has not lost its relevance, and the standard model of quality system (ISO 9000 & ENQA), having a modular and hierarchical structure, is of practical interest while being adapted to the specific features of the additional professional education. The use of APE QMS as a quality assurance tool will undoubtedly contribute to the satisfaction of all interested parties in educational services provided by higher education institutions.

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