ISO Standards as a Quality Assurance Mechanism in Higher Education

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Abstract: This article examines and analyses the use of ISO international standards to assure the quality of higher education. It identifies the specifics of the ISO international quality management system in higher education. It makes a comparative analysis of basic principles of ESG, ISO 9001:2015 and ISO 21001 and determines that ISO 9001 standards are general in nature, they do not offer any specific model of the quality assurance management system and provide an organization with the freedom to create its own industry-specific quality assurance system meeting the requirements of the general management system. Therefore, these standards should be used to develop and establish the quality assurance system in higher education. It is stated that ISO 21001 Educational Organizations – Management Systems for Educational Organizations, specially developed for the educational industry, includes the methodological framework to create the effective management system for educational institutions and provides additional mechanisms for the ESG efficient implementation and development. The application of ISO standards in higher education will help improve the quality of rendered services, increase the competitive ability of higher education institutions and stimulate the development of innovative society in the global perspective.

Keywords: *Quality management system, quality management system in higher education, ESG, ISO 9001, ISO 9001:2015, ISO 2100.*

Introduction

The evolving globalization processes, internationalization and growing competition in the market of educational services incites to the development of a quality assurance system in higher education and certain business process standardization procedures for educational institutions. The relevance of this issue is emphasized in international policy documents which state that "we shall look for progress in the implementation of the standards and guidelines for quality assurance as proposed in the ENQA report" (European Higher Education Area, 2005); "education should be governed by the European Standards and Guidelines for quality assurance as applicable within the European Higher Education Area and be in line with the UNESCO/OECD Guidelines for Quality Provision in CrossBorder Higher Education" (European Higher Education Area, 2009).

Scientific community members also stand for the further standardization of quality management systems in higher education. In particular, a group of researchers, including M. Santally, Y. Rajabalee, R. Sungkur, M. Maudarbocus, W. Greller (2020), note that "higher education quality assurance remains a key issue for us" as "the development of quality assurance system is an intrinsic part of education program internationalization" (Vorobyova, 2018, p. 245). The scientists M. Stoica and B. Ghilic-Micu (2009) also support this notion and emphasize that "quality assurance should be based on three focal points, such as the quality of education process itself (class/course support, platform, technology, etc.); quality of instructor (professional training, qualification, teaching skills and abilities, teaching methods, etc.); quality of a person attending the course/class (learning, body-of-knowledge, involvement, motivation to acquire knowledge, etc.)". This is also upheld by a group of scientists, including K. S. Sangher, A. Noor, L. Kalyani, S. V. K. Sharma (2017), asserting that a quality management system "should be expressly focused on the specific guiding principles and a number of general requirements".

Taking into account that ISO international quality standards are widely used in different economic domains to develop the quality assurance system, it is advisable to consider this in the realm of educational industry. However, as noted by A. Camilleri (2017), "until today, there has always been much tension between the ISO quality management standards and other standards developed by stakeholders, such as ESG, with the former being considered more appropriate to help organizations meet their business needs rather than educational objectives". Taking into account that the use

of ISO international standards to ensure the quality of higher education remains a live issue today and requires the continuous study and research, the purpose of this paper is to investigate the possibility of using ISO international quality management systems to assure quality in higher education.

Various aspects of the development and introduction of ISO standards in education have been studied by a number of researchers, in particular: R. Schmuck (2020) and R. Alkabbanie (2021) studied the ESG quality management principles in comparison with the ISO standards; E. Bajramovic, E. Mekic, B. Muhamedbegović (2017) and a group of researchers, including S. Ortega, N. Señal, L. Velón Sixto (2009), dedicated their works to the use of ISO standards in higher education and their liaison with ESG standards; the issues of ESG 2015 and ISO 9001:2015 integration were explored by J. Jambor, M. Dzubakova, J. Habanik (2017); C. Naden (2017) and F.Camilleri (2017) studied the ISO 21001 "Educational Organizations – Management Systems for Educational Organizations"; L. Fonseca and P. Domingues (2017) investigated the problems of using ISO standards for all types of organizations.

The latest transformational changes in higher education (Kosholap, 2021; Ovcharuk, 2021; Melnyk, 2021; Gerasymova, 2019; Onishchuk, 2020) raise the issue of implementation of the quality assurance system and require the relevant ISO-based approaches to be developed.

ESG standards

The ESG standards are the basis for functioning of the higher education industry and the baseline of the quality assurance system. In particular, "ESGS standards focus on assuring the quality of learning and teaching in higher education, including the educational setting and corresponding links to research and innovation ... they apply to any higher education offered at EHEA, regardless of the type of study or place of study" (ESG, 2015). The document also states that "all quality assurance activities are based on two related objectives: accountability and improvement. ... the quality assurance and quality improvement are interrelated" (ESG, 2015). The ESG main objectives are defined as "establishing a general framework for the quality assurance systems for learning and teaching at the European, national and institutional levels; assuring and improving the quality of higher education in the European Higher Education Area; strengthening the mutual trust enhancing

recognition and mobility within and outside the national borders; providing the quality assurance information in EHEA" (ESG, 2015). The main four quality assurance principles of EHEA are also defined as follows: "higher education institutions are primarily responsible for the quality of higher education they provide; quality assurance meets the diversity of higher education systems, higher education institutions, programs and students; quality assurance promotes the development of quality culture; quality assurance takes into account the needs and expectations of students, all other stakeholders and society" (ESG, 2015). The ESG standards define a harmonized quality assurance system in higher education and are mandatory for introduction and implementation by all stakeholders; we have defined the importance of this standard and indicated its main components, such as internal quality assurance, external quality assurance, and quality assurance agencies.

Let us consider the ESG for the internal quality assurance (ESG, 2015), including: development, accreditation and monitoring of programmes; enrolment; educational attainment, recognition and certification of teaching staff, etc.

The use of ESG standards leads to stepping up the quality assurance requirements for educational services provided; meeting the needs of all concerned stakeholders; improving the image of educational institution; enhancing the institution's competitive ability in the educational service market; showing support for the development of quality assurance culture. Compliance with these standards is one of the conditions for improvement of the higher education institutions' performance, development of international integration processes, harmonization of the educational space and further innovation-driven society development.

A. Hopbach argues that "As part of the Bologna Process the ESG standards have proven their relevance and efficiency and have had a huge impact on the development of quality assurance systems, processes and procedures at the institutional and national levels" (Hopbach, p. 9). However, as noted by R. Schmuck in his paper called "Az Európai felsőoktatásban alkalmazott ESG minőségirányítási irányelveinek összehasonlítása az ISO 9001 minőségirányítási szabvány alapelveivel" (Comparison of the ESG Quality Management Guidelines Applicable in European Higher Education with the ISO 9001 Quality Management Principles), "the ESG guidelines provide guidance for the higher education institutions to improve their quality. As far as higher education institutions

in EHEA countries vary significantly in size, organizational structure, functions, and geographical location, the ESG defines general guidelines that can be used in this diverse environment; ... the ESG shows what to do, it doesn't specify exactly how to do it" (Schmuck, 2020, p. 89).

It is assumed that the ESG standards comprise general requirements and principles, but do not provide any procedural and methodological support for the development of internal quality assurance system for an educational institution, therefore it is worth considering the ISO international standards that determine main requirements for the quality management system and quality indicators to develop, implement and ensure the functioning of efficient quality management systems. According to the requirements of ISO 9001 for the establishment of a quality management system, an organization must: "identify the processes required for the quality management system and their application in the organization; determine the necessary process conditions and expected results; determine the sequence and interaction of these processes; determine and apply the criteria and methods needed to ensure the effective functioning and control of these processes; determine the resources necessary for these processes and ensure their availability; appoint authorized persons responsible for these processes; consider risks and opportunities; evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results; improve the quality management processes and system". According to the ISO 9001:2000 Certification paper, there are eight quality management principles:

−   Customer focus. Organizations depend on their customers, including domestic customers, and therefore they have to understand their current and future needs, meet the customer requirements and strive to exceed their expectations.

−   Leadership. Managers establish the unity of the organization's goal and activities. It is necessary to create and maintain an internal environment where the employees can be fully involved in the organization's tasks.

−   Employee involvement. Employees at all levels are the backbone of the organization, and their full involvement enables the organization to take the advantage of their abilities.

−   Process approach. The desired result is achieved more efficiently if the activity and related resources are managed as a process.

–   System approach to management. The interrelated processes are identified, understood and managed as a system that contributes to the organization's efficiency and effectiveness to achieve the objectives of its activities.

–   Continual improvement. The continual improvement of the organization's activities is a fundamental target.

–   Factual approach to decision making. The effective solutions are based on data and information analysis.

–   Mutually beneficial supplier relationships. The organization and suppliers are interdependent, and mutually beneficial relations increase the mutual effectiveness".

It should be noted that all ISO standards are constantly improved and revised in response to new requests. Therefore, ISO 9001:2015 provides the explication of the requirement for a quality management system, in particular, that the organization "must demonstrate its ability to provide products and services meeting the customer requirements and applicable legislative and regulatory requirements consistently; aims to improve the customer satisfaction through the effective system application, including the system improvement processes and compliance with the customer requirements and applicable legislative and regulatory requirements" (ISO, 2015). The experts L. Fonseca and P. Domingues (2017) also support the use of these standards for all types of organizations and notes that "ISO 9001:2015 is in line with the modern business and quality management concepts and will be a useful tool for companies" (p. 149).

Thus, it should be noted that the ISO 9001 standards are general in nature, they do not offer any specific model of the quality assurance management system, but provide an organization with the freedom to create its own industry-specific quality assurance system meeting the requirements of the general management system. It should also be noted that ISO standards are not steady; they are supplemented, amended and developed in response to the needs of a fast-paced environment. This is the reason why the specific standards have been developed for the educational industry, taking into account the specific nature of activities in this subject area, such as ISO 21001 "Educational Organizations – Management Systems for Educational Organizations", which define the requirements for the quality management system exactly for educational organizations. ISO 21001 "intends to provide a common management tool for organizations providing educational products and services, capable of meeting learner and other

beneficiary needs and requirements. Although the main beneficiaries are learners and educational organizations, it is safe to say that all parties involved can benefit from a properly implemented management system for educational organizations based on ISO 21001 and accompanied with industry best practices" (PECB, 2018).

The list of basic principles of ISO 21001 includes (PECB, 2018):

− "Focus on learners and other beneficiaries. The primary focus of the EOMS is to meet learner and other beneficiary requirements and to exceed their expectations.

− Visionary leadership. Visionary leadership is to engage all learners and other beneficiaries in creating, writing, and implementing the organization mission, vision and objectives.

− Engagement of people. It is essential for the organization that all individuals involved are competent, empowered and engaged in delivering value.

− Process approach. Consistent and predictable results are achieved more effectively and efficiently when activities are understood and managed as interrelated processes that function as a coherent system, including input and output.

− Improvement. Successful organizations have an ongoing focus on improvement.

− Evidence-based decisions. Decisions and curricula based on the analysis and evaluation of data and information are more likely to produce desired results.

− Relationship management. For sustained success, organizations manage their relationships with interested parties, such as providers.

− Social responsibility. Socially responsible organizations are sustainable and ensure long-term success.

− Accessibility and equity. Successful organizations are inclusive, flexible, transparent and accountable, in order to address learners' individual and special needs, interests, abilities and backgrounds.

− Ethical conduct in education. Ethical conduct relates to the ability of the organization to create an ethical professional environment where all interested parties are dealt with equitably, conflicts of interests are avoided, and activities are conducted for the benefit of the society.

− Data security and protection. The organization creates an environment where all interested parties can interact with the educational

organization in full confidence that they maintain control over the use of their own data, and that the educational organization will treat their data with appropriate care and confidentiality".

The introduction of ISO 21001 confirms serious intentions to improve the effectiveness of institution (establishment), strengthens and corrects the organizational structure and works to improve the image. The main advantages of ISO 21001 "Educational Organizations – Management Systems for Educational Organizations" are increasing the effectiveness of management systems of educational institutions; continuous compliance monitoring of the institution's mission and management processes; meeting the needs and expectations of service consumers; applying an individual approach to learning; enhancing opportunities for stakeholder participation; encouraging innovations. It can be said that the main purpose of ISO 21001 is to create the effective interaction of educational institutions with consumers of educational services.

Studying ISO 21001, C. Naden noted that "the standard will also help educational providers align their activities effectively with their mission and vision and offer more personalized learning, both of which benefit not only learners but, thanks to improved processes and a system in place for their improvement across time, educators, parents and other stakeholders who will also reap results from the more consistent outputs" (Naden, 2017).

Having analysed the main provisions of ISO 21001, we can conclude that this management system standard is in line with ISO 9001:2015 as it offers a general approach and defines management mechanisms to improve the effectiveness of educational organizations' processes in order to meet the needs and expectations of service customers. The application of ISO standards in higher education will improve the quality of rendered services, increase the competitive ability of higher education institutions and stimulate the development of innovative society in the global perspective.

Correlation of ISO and ESG standards

The use of ISO standards in higher education and their correlation with ESG is reviewed by a group of researchers E. Bajramovic, E. Mekic, B. Muhamedbegović in the study "Komparativna analiza implementacije ISO 9001:2015 standarta i ESG 2015" (The Comparative analysis of the Implementing ISO 9001:2015 and ESG 2015), which concludes that "based on the comparative analysis, an integrated approach is recommended for integration of ESG 2015 and ISO 9001: 2015", they also insist that "ESG

2015 and ISO 9001: 2015 integration and consistent implementation of measures to meet the requirements of both standards properly can be a good way to achieve excellence in higher education" (Bajramovic, Mekic, & Muhamedbegović, 2017, 503).

This approach is also recognized by S. Ortega, N. Señal and L. Velón Sixto stating in their study "Experiences Using ISO 9001 to Meet ESG in Three Spanish Agencies" that "ISO 9001 standard has served as the basis for compliance with European standards and guidelines (ESG) for quality assurance" (Ortega, Señal, & Sixto, 2009, p. 18). They also conclude that the ISO 9001 standards with regards to quality management systems enable the institutions to build an internal quality assurance system, in particular, "the European Standards provide the guidelines for quality assurance by quality assurance agencies in higher education, with the focus on institutional and program review. The ISO 9001 standard on Quality Management Systems is a good tool that enables organizations to improve their internal quality assurance system and be aware of their processes. The implementation of a management system and subsequent external certification according to ISO 9001 is a good basis that provides for compliance with the majority of European guidelines (ESG)" (Ortega, Señal, & Sixto, 2009, p. 19).

The same opinion is shared by a group of researchers, including J. Jambor, M. Dzubakova, J. Habanik, in the study "Integration of ESG 2015 and ISO 9001:2015 standards in the higher education organization (case study)" stating that "ISO 9001 provides the ESG standards with adequate support system of effective quality improvement. On the other hand, the ESG provide terminology and requirements that better define the subject of the education system, goals and strategic framework in the area of higher education" (Jambor, Dzubakova, & Habanik, 2017, p. 90). As noted by the experts, "the system is open to further integration of standards in the field of education. Objective of this article is to share experience with systemic development of quality of higher education and contribute to discussion about utilization of ISO 9001 in education and potential approaches to creation of quality systems in compliance with requirements related to quality of education in the European Higher Education Area" (Jambor, Dzubakova, & Habanik, 2017, p. 91). Exploring ESG 2015 and ISO 9001:2015 standards, R. Alkabbanie has come to a conclusion in the study "ESG 2015 vs. ISO 9001:2015 Regarding Stakeholders" that "the standard ISO 9001 is much more comprehensive and detailed than the ESG 2015" (Alkabbanie, 2020, p. 56).

However, R. Schmuck states in the paper "Comparison of the ESG Guidelines Used in the European Higher Education Sector with the Principles of the ISO 9001:2015 Quality Management Standard" that "all of the ISO 9001 principles are included in the ESG, but only seven out of ten ESG guidelines are included in the ISO 9001 principles. Those guidelines which cannot be matched are specialized for the higher education sector" (Schmuck, 2021, p. 90).

We cannot but agree with the conclusions of R. Schmuck claiming that ISO 9001 does not cover all ESG positions. For this reason, the industry standard such as ISO 21001 "Educational Organizations – Management Systems for Educational Organizations" has been developed to address the issue of compatibility. Studying this standard, F. Camilleri noted that "ISO 21001 overcomes ... limitations of applying ISO 9001 to the field of education, and discusses the principles on which the standard is based. Additionally, it briefly presents the structure of the standard, and discusses how it may be used in conjunction with the European Standards and Guidelines for Quality Assurance in Higher Education within an international framework of standards applicable to education" (Camilleri, 2017). He also believes that "within Higher Education, ISO 21001 can be seen not as a competitor or a replacement for the ESGs but as a complementary tool which can help educational organizations to demonstrate their commitment to effective educational management practices" (Camilleri, 2017). Consequently, there is a need to conduct a comparative analysis of the quality management principles established by ESG, ISO 9001:2015 and ISO 21001 (Table 1).

Tab. 1. *Comparative Analysis of Basic Principles of ESG, ISO 9001:2015 and ISO 21001 (developed by the authors)*

ESG	ISO 9001	ISO 21001
quality assurance policy	leadership	visionary leadership
development and approval of programmes;	process approach	evidence-based decisions
enrolment, students achievements, recognition and certification	customer focus	focus on learners and other beneficiaries
student's enrolment, progress, recognition and	-	focus on learners and other beneficiaries

certification		
teaching staff	employee involvement	involvement of people
learning resources and student support	-	involvement of people; evidence-based decisions
information management	factual approach to decision making	evidence-based decisions
public information	-	data security and protection
continuous monitoring and periodic review of programmes	continual improvement; system approach to management	improvement; evidence-based decisions
external quality assurance.	factual approach to decision making	relationship management

Source: Author (based on ESG (2015); ISO 9001:2015 (2015); ISO 21001 (2018))

Analysing the data in the table, it can be noted that ISO 9001:2015 standards provide for seven basic principles of ESG, while the other three principles are industry-based and specific. While the principles of ISO 21001 "Educational Organizations – Management Systems for Educational Organizations" meet all the criteria and are consistent with ESGs and complement them. Thus, it can be stated that ISO standards are an effective enforcement mechanism for ESG standards, and the procedural and methodological framework of ISO is a tool to establish an internal quality assurance system for an educational institution, this is absolutely acceptable for the quality assurance system of higher education and meets the basic requirements for the higher education institution's outputs, such as: knowledge, skills and training of specialists. After all, the implementation of ISO 21001 "Educational Organizations – Management Systems for Educational Organizations" is aimed at better satisfaction of the needs of consumers of educational services, introducing the approach of individualization of the learning process, increasing social responsibility, demonstrating commitment to the development of a quality culture, harmonizing approaches to the quality management system and increasing the competitive ability of an educational institution.

Conclusions

Based on the results of this study of the formation and development specifics of ISO standards for higher education, the following conclusions may be put forward.

The introduction of ESGs is intended to create certain standards for quality assurance in the EHEA, improve the quality of higher education, provide the quality assurance information to the public, open up new opportunities for cooperation between countries and create the world-class educational programs.

Since the ESG does not define mechanisms and procedures to develop an internal quality assurance system for an educational institution, it is worth considering the ISO 9001 international standards, which are widely used in Europe to create a quality management system for an enterprise or organization to enhance the effectiveness of its activities (processes) and increase its competitive ability. However, this standard is general in nature and only partially meets the requirements of the educational industry.

It is stated that ISO 21001 "Educational Organizations – Management Systems for Educational Organizations" specially developed for the educational industry, includes the procedural and methodological framework to create the effective management system of educational institutions and provides additional mechanisms for the ESG efficient implementation and development. Thus, it can be claimed that ISO 21001 is designed to help educational organizations to improve the effectiveness of their activities and improve the quality of educational services.

Acknowledgement

References

Alkabbanie, R. (2020, June). ESG 2015 vs. ISO 9001:2015 Regarding Stakeholders. *International Journal of Social Sciences and Educational Studies, 7(2),* 46-56. https://doi org/10.23918/ijsses.v7i2p46

Bajramovic, E., Mekic, E., & Muhamedbegović, B. (2017). Komparativna analiza implementacije ISO 9001:2015 standarta i ESG 2015 [Comparative

Analysis of Implementing ISO 9001:2015 Standard and ESG 2015].
Retrieved from
https://www.researchgate.net/publication/318641907_KOMPARATIVN
A_ANALIZA_IMPLEMETACIJE_ISO_90012015_STANDARDA_I_E
SG_2015_COMPARATIVE_ANALYSIS_OF_IMPLEMENTING_ISO_
90012015_STANDARD_AND_ESG_2015

Camilleri, A.F. (2017). Standardizing Management Systems for Educational
Organizations: Implications for European Higher Education. Retrieved
from
https://eua.eu/component/attachments/attachments.html?task=attachme
nt&id=1078

European Higher Education Area. (2005). 2005 Bergen Communique - English.
Retrieved from
http://www.ehea.info/Upload/document/ministerial_declarations/2005_
Bergen_Communique_english_580520.pdf

European Higher Education Area. (2009). Leuven and Louvain-la-Neuve
Communiqué. Retrieved from
https://www.ehea.info/Upload/document/ministerial_declarations/Leuve
n_Louvain_la_Neuve_Communique_April_2009_595061.pdf

Fonseca, L. & Domingues, J. P. (2017). ISO 9001:2015 Edition - Management,
Quality and Value. *International Journal for Quality Research*, *11(1)*, 149-158.
https://doi.org/10.18421/IJQR11.01-09

Gerasymova, I., Maksymchuk, B., Bilozerova, M., Chernetska, Yu., Matviichuk, T.,
Solovyov, V., & Maksymchuk, I. (2019). Forming Professional Mobility in
Future Agricultural Specialists: the Sociohistorical Context. *Revista
Romaneasca pentru Educatie Multidimensionala, 11 (4)*, 345-361.
https://doi.org/10.18662/rrem/195

Hopbach, A. (2013, January). My vse staraemsya reshit odni i te zhe zadachi.
Intervyu s prezidentom Yevropeyskoy assotsiatsii garantii kachestva v
vysshem obrazovanii [We all aim to solve the same tasks. Interview with
the President of the European Network for Quality Assurance in Higher
Education]. *Akkreditatsiya v obrazovanii [Academic Accreditation], 1 (61),* 8-11.
Retrieved from https://akvobr.ru

International Organization for Standardization. (2015). *Quality management systems -
Requirements.* (ISO Standard No. 9001:2015). Retrieved from
https://www.iso.org/standard/62085.html

International Organization for Standardization. (2015a). Quality Management
Principles. Retrieved from
https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100080.p
df

International Organization for Standardization. (2018). *Educational organizations – Management systems for educational organizations – Requirements with guidance for use.* (ISO Standard No. 21001:2018). Retrieved from https://www.iso.org/standard/66266.html

Jambor, J., Džubáková, M., & Habanik, J. (2017). Integration of ESG 2015 and ISO 9001:2015 standards in the higher education organization (case study). *Ad Alta: Journal of Interdisciplinary Research, 7(2),* 87-92. Retrieved from http://www.magnanimitas.cz/ADALTA/0702/papers/A_jambor.pdf

Kosholap, A., Maksymchuk, B., Branitska, T., Martynets, L., Boichenko, A., Stoliarenko, O., Matsuk, L., Surovov, O., Stoliarenko, O., & Maksymchuk, I. (2021). Neuropsychological Bases of Self-Improvement of Own Physical Health of Future Teachers in the Course of University Education. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 12(3),* 171-190. https://doi.org/10.18662/brain/12.3/226

Melnyk, N., Maksymchuk, B., Gurevych, R., Kalenskyi, A., Dovbnya, S., Groshovenko, O., & Filonenko, L. (2021). The Establishment and Development of Professional Training for Preschool Teachers in Western European Countries. *Revista Romaneasca Pentru Educatie Multidimensionala, 13(1),* 208-233. https://doi.org/10.18662/rrem/13.1/369

Naden, C. (2017). Loving to Learn: a New Management System Standard for Educational Organizations. Retrieved from https://www.iso.org/news/Ref2174.html

Onishchuk, I., Ikonnikova, M., Antonenko, T., Kharchenko, I., Shestakova, S., Kuzmenko, N., & Maksymchuk, B. (2020). Characteristics of Foreign Language Education in Foreign Countries and Ways of Applying Foreign Experience in Pedagogical Universities of Ukraine. *Revista Romaneasca Pentru Educatie Multidimensionala*, *12(3)*, 44-65. https://doi.org/10.18662/rrem/12.3/308

Ortega, S. M., Señal, N. C., & Velón Sixto, L.C. (2009). Experiences Using ISO 9001 to Meet ESG in Three Spanish Agencies. Retrieved from http://www.acsug.es/sites/default/files/presentation%20ISO-ESG.pdf

Ovcharuk, V., Maksymchuk, B., Ovcharuk, V., Khomenko, O., Khomenko, S., Yevtushenko, Y., Rybalko, P., Pustovit, H., Myronenko, N., Syvokhop, Y., Sheian, M., Matviichuk, T., Solovyov, V., & Maksymchuk, I. (2021). Forming Competency in Health Promotion in Technical Specialists Using Physical Education. *Revista Romaneasca Pentru Educatie Multidimensionala, 13(3)*, 01-19. https://doi.org/10.18662/rrem/13.3/437

PECB. (2018). ISO 21001:2018 – Educational Organizations – Management Systems for Educational Organizations – Requirements with Guidance for Use. Retrieved from https://pecb.com/whitepaper/iso-210012018--

educational-organizations--management-systems-for-educational-organizations--requirements-with-guidance-for-use

Sangher, K. S., Noor, A., Kalyani, L., & Sharma, S. V. K. (2017). ISO 9001:2015 Implementation in the E-Learning Based Virtual Teaching Program. *2017 5th National Conference on E-Learning & E-Learning Technologies (ELELTECH),* 1-3. https://doi.org/10.1109/ELELTECH.2017.8074994

Santally, M. I., Rajabalee, Y.B., Sungkur, R. K., Maudarbocus, M. I., & Greller, W. (2020, March). Enabling Continuous Improvement in Online Teaching and Learning Through E-Learning Capability and Maturity Assessment. *Business Process Management Journal, 26(6),* 1686-1707. https://doi.org/10.1108/BPMJ-11-2018-0335

Schmuck, R. (2020, December). Az Európai felsőoktatásban alkalmazott ESG minőségirányítási irányelveinek összehasonlítása az ISO 9001 minőségirányítási szabvány alapelveivel [Comparison of the ESG Quality Management Guidelines with the Principles of the ISO 9001 Quality Management Standard]. *Taylor Gazdálkodás-és Szervezéstudományi Folyóirat. 1(38)*, 88-96. Retrieved from https://www.researchgate.net/publication/349063193_Az_Europai_felso oktatasban_alkalmazott_ESG_minosegiranyitasi_iranyelveinek_osszehason litasa_az_ISO_9001_minosegiranyitasi_szabvany_alapelveivel

Schmuck, R. (2021, April). Comparison of the ESG Guidelines Used in the European Higher Education Sector with the Principles of the ISO 9001:2015 Quality Management Standard. *Quality - Access to Success*, *22(181)*, 87-92. Retrieved from https://www.researchgate.net/publication/345686085_Comparison_of_th e_ESG_Guidelines_Used_in_the_European_Higher_Education_Sector_w ith_the_Principles_of_the_ISO_90012015_Quality_Management_Standar d

Scientific and Research Centre No. 14 of Ukrmetrteststandart State-Owned Enterprise. (n.d.). ISO 9001 Quality Management Systems. Retrieved from www.certsystems.kiev.ua/uk/iso-9001/sistemi-upravlinnya-yakistyu-za-iso-9001.html

Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. Retrieved from https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf

Stoica, M., & Ghilic-Micu, M. (2009, June). Standards and Costs for Quality Management of E-Learning Services. *Amfiteatru Economic Journal, 11(26),* 355-363. Retrieved from https://econpapers.repec.org/article/aesamfeco/v_3a11_3ay_3a2009_3ai_ 3a26_3ap_3a355-364.htm

Vorobyova, O. P. (2018). Zabezpechennia yakosti elektronnoho navchannia v Yevropeiskomu prostori vyshchoi osvity [Quality Assurance of E-Learning

in the European Higher Education Area]. *Informatsiyni tekhnolohii i zasoby navchannia [Information Technologies and Learning Tools], 64(2),* 245-252. https://doi.org/10.33407/itlt.v64i2.1951