

ASSESSMENT OF DISTANCE LEARNING QUALITY CRITERIA FOR CONTINUING EDUCATION OF MEDICAL PRACTITIONERS

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Abstract. *Distance learning is a favourable form of education in all professional fields. The necessity for repeated education and continuous renewal of knowledge and skills is acknowledged to be a fundamental demand in nowadays society. Distance learning is widespread and extensively studied from several aspects in many countries. In Latvia distance learning in medical studies is an underdeveloped sphere, which requires more attention, to acquire such an education strategy goal as lifelong learning. Along with technological development and introduction of distance learning it is essential to maintain quality and efficiency of education. Quality has more importance in open and distance learning, considering the virtual characteristics and physical distance between the trainees and the teaching staff. The literature review displays the significance of the teacher and student support mechanisms, internal and external evaluation processes, as well as strengthens academic culture and provides permanent cooperation and interaction with the interested parties in order to ensure a high quality study process of the distance learning. A competence-based approach is an important aspect in the professional development of medical practitioners and the assessment of knowledge, skills and competences from the student's point of view is an important indicator of the quality of education.*

Keywords: *adult education, e-learning, lifelong learning, medical study, professional development.*

Introduction

Distance learning as a form of study in medical and health education has been used since the 1960s (Knebel, 2001). Professional development in Latvia for medical practitioners is based on the traditional patterns of curriculum, which needs to be paid more attention and which must fulfil one of the strategic objectives of education – promotion of lifelong learning, making education accessible to all. Consequently, education is looking for the best solutions, including the use of technologies in the education process, to provide not only faster delivery of information, but also the use of technology to achieve wider significance in delivering results. No less important is the need for re-education, continuous updating of knowledge and skills, which is recognized as a

fundamental demand in today's society. Distance learning, thanks to the flexible way of teaching and the modular course as well as the course structure, has become a way of meeting educational demand (Abdelhai, Yassin, Ahmad, Mohamad, Fors, & Uno, 2012; Özgür & Koçak, 2016).

Developing technologies and introducing distance learning as a form of studies, quality assurance in distance learning is a topical issue in international scientific literature (UNESCO, 2002; Swedish National Agency for Higher Education, 2008; Stracke, 2009; Delaney, Johnson, Johnson, & Treslan, 2010; Butcher, Wilson-Strydom, Uvalic-Trumbic, & Daniel, 2013; Ossiannilso, Williams, Camiller, & Brow, 2015; Vlachopoulos, 2016). The purpose of any quality organization process is to obtain well-trained and competent healthcare staff, traditional training or regular education has several limitations in this respect, though. For example, training often interferes with the work of a learner, especially when the training takes place outside the workplace. It is also possible that the knowledge and skills acquired during the training may not be applicable to actual work situations in the workplace. In such situations, training may even lead to a drop in quality rather than an upsurge (Knebel, 2001).

There is a topical question that arises frequently among medical professionals: “Will the distance learning course be as high-quality as the traditional, on-going course?” Publications provide insights on the effectiveness and quality of distance learning, including a large number of publications in medical education. The publications emphasize that distance learning programs, regardless of the technology used in teaching curriculum content, are equally effective and often more effective than traditional training programs (Knebel, 2001; Mattheos, Schittek, Attström, & Lyon, 2001; Abdelhai et al., 2012; Półjanowicz, Roszak, Kołodziejczak, & Bręborowicz, 2014; Nsiah & Oti-Boadi, 2015; Berndt, Murray, Kennedy, Stanley, & Gilbert-Hunt, 2017). However, despite the studies that point to the effectiveness of distance learning and provide the best quality standards, the quality of education in literature is a topical issue, which seeks more precise and clearer responses.

The purpose of the work. Review of the scientific literature on the quality criteria of the distance learning course in the professional development of medical practitioners.

The scientific literature review uses such scientific databases as Ebsco, ScienceDirect, Scopus, and Google Scholar. The search applied the publications during the period from 2000 to 2017. The main search keywords: medicine, distance education, quality, efficiency.

Characteristics of the concept of quality in distance education

The concept of quality in online learning is complex due to the actual course of the studies itself. A wide range of literature sources on quality in tertiary education is available, and this literature is full of terms and concepts. Such diversity identifies tensions between two aspects of quality assurance: (1) responsibility; (2) the way to quality improvement. (Uvalic-Trumbic & Daniel, 2015). The concept of quality is more closely linked to the accreditation of study programs, educational efficiency, student satisfaction, organization's competitiveness and management. Quality standards for the management, provision, and assessment of distance learning are based on a variety of methodologies, with substantially different dimensions and contributing to the quality of a fully integrated service (European Distance & e-Learning Network (EDEN), 2003). International Organization for Standardization (International Organization for Standardization (ISO)), (2005) has published a quality standard specifically for e-learning. The new ISO/IEC 19796-1 standard is intended to provide quality assurance measures for e-learning courses in order to better meet the needs of students. More recently, ISO (2017) has published the ISO / IEC 40180 quality standard, which provides a framework for quality assurance and describes the wide range of information, concepts, specifications, terms and definitions relating to the quality of e-learning, education and training.

In today's quality, special attention is paid directly to open learning and distance learning, taking into account the virtual nature and physical distance between the learners and the teaching staff (Vlachopoulos, 2016). Quality is often measured in terms of content, teaching methods and learning outcomes (Bremer, 2012). According to Tham and Werner (2005), there is no specific model that includes “*one size fits all*”, especially in terms of quality of education, since each model is unique. All quality factors are regulated according to each case and the needs and objectives of the education process in question. There is often a misconception about quality standards, especially in the education community, due to the belief that quality standards restrict flexibility, creativity and the need to invest a lot of time that requires a lot of effort. However, newly created quality standards provide a set of basic principles that can help organizations develop quality systems according to their specific requirements (Pawlovski, 2007).

Speaking about the quality of distance learning, the author D. Vlachopoulos (2016) concludes that in the past, quality has been measured in terms of the content, pedagogy and learning outcomes, while developing distance education, the literature focuses on the process of developing a course that promotes educational experience and learning. The model of such distance learning process in his publication is represented by the author J. M. Pawlovski (2007), this process model reflects the seven parts for each sub-process: needs analysis – identification

of stakeholders, definition of objectives, demand analysis; system analysis – external context analysis, personnel resource analysis, target group analysis, institutional and organizational context analysis, time and budget planning, environmental analysis; concept/design – study targets, didactic methods, roles and activities, organizational, technical, media and interactions, communication, assessment and maintenance concepts; product development – design, media reality, technical implementation and support; implementation – testing of teaching resources (adaptation, activation, use, technical infrastructure); learning process – realization and use of the study process (administration, activities, review of competence level); evaluation/optimization – description of evaluation methods, principles and procedures (planning, implementation, analysis, improvement).

By analysing and summarizing scientific publications and literature on distance learning, their effectiveness and quality criteria, five qualities that characterize distance education can be distinguished.

Material content quality. A wide range of interactive multimedia presentations, including texts, images, audio and video, are available today. Using multimedia it is possible to increase students' engagement and motivation as they are suited to different studying styles (Swedish National Agency for Higher Education, 2008). The main quality problems are the creation, selection and sequencing of materials. Because of the wide variety of options, it is no longer self-evident that the course material is prepared by the teaching staff on their own; in many cases, when it comes to complex media, a whole team of experts is involved (Bates, 2016; Clark & Frith, 2013). Consequently, institutional co-operation and technology provision are important criteria in terms of the quality of materials.

Pedagogical quality. The distance learning dominant student-oriented pedagogy is to a large extent based on educational theories such as constructivist theories, adult learning theories and cognitive theories (Al-Hosni, 2016). The essence of the theory is that students can associate new ideas with the previously acquired knowledge, experience or emotions, and when learning is authentic or based on real situations. One of the most effective ways of learning to provide a sense of excellence and reduce separation between the clinical learning environment and the virtual learning environment is pedagogy based on a clinical case study on patient care (Clark & Frith, 2013).

In a number of literary sources, the planning and management of distance learning courses are mentioned as important pedagogical quality criteria (Swedish National Agency for Higher Education, 2008; Middle States Commission on Higher Education, 2011; Holsombach-Ebner, 2013; Al-Hunaiyyan, Al-Hajri, Alzayed, & Alraqqas, 2016). E-learning planning recommends the nine principles of curriculum design by the author R. Gagné: attracting attention, informing the

learner about the purpose, recalling the previously learned substance in memory, stimulating before continuing learning, providing stimulus, teaching counselling, inducing performance, feedback, performance evaluation (Al-Hosni, 2016). Planning should take place before the instructors choose the technology and the course management system that will be used for the course. The first step in planning a course is to set learning goals. Learning objectives should be defined in writing, taking into account the expected results and informing the students about it. Objectives must use clear and targeted verbs. All the learning objectives should be student-oriented and explain what is expected of students in terms of their behaviour, achievement and understanding. Learning objectives must be specific and relevant to one specific aspect of understanding. Target conditions include tools, reference sources, and aids that will be provided to the student. Each learning objective must be measurable and include criteria for the student assessment (Hanover Research Council, 2009).

An appropriate methodology (lecture, video, learning games, case study, book work), which is applied to the pursuit of distance learning goals, is another essential element of planning (Al-Hunaiyyan et al., 2016). Distance learning materials that are not aimed at achieving the learning outcomes for which they were developed or those study materials that are not designed to meet the required levels of their users, even if the quality of these materials is good for use in other environments, which does not have the quality required for the purpose (Al-Shorbaji, Atun, Car, Majeed, & Wheeler, 2015).

An important aspect to take into account is that medicine is an area in which, in addition to theoretical knowledge, the knowledge that focuses on clinical rationale and different thinking patterns that involve critical thinking is required (Benner, Hughes, & Sutphen, 2008), consequently, teaching methodological materials need to be prepared in such way that these knowledge, skills and competences are also acquired in the form of distance learning studies. All of these skills can be integrated into distance learning through interactive exercises, multimedia, thought cards and written or oral stories (Peixoto, Dos Santos, & André, 2017). Critical thinking, problem-oriented approach to care is the reason why distance learning studies are often combined with on-the-job studies in the study process (Smith, Passmore, & Faught, 2009).

An equally important pedagogical aspect is the assessment of students, which is essentially the same as evaluation in traditional studies and assessment in distance learning studies. Today, e-learning provides the opportunity to diversify assessment opportunities, including simulations, virtual seminars and asynchronous working groups. However, evaluating online results poses some challenges for the reasons of security, availability, and identification. Validation needs to be legitimate, safe and affordable, based on sound and reliable technical infrastructure and rapid response from the administrator and the faculty, which in

turn comes from the organization of technology provision (Swedish National Agency for Higher Education, 2008).

Technology quality. In the literature, technology quality indicators are platforms through which distance learning courses are implemented; digital programs with the help of which distance learning materials are prepared; internet access; equipment for the acquisition of a distance learning course, as well as student and teaching staff support (Frydenberg, 2002; Dondi & Morreti, 2006; Rubin, 2009; Holsombach-Ebner, 2013; Al-Shorbaji et al., 2015; Quality Matters, 2015; Al-Hunaiyyan et al., 2016).

Distance learning courses are delivered using various course management systems and platforms, one of the most well-known, also used by the Latvian universities, is the Moodle platform, which can be accessed through the Internet. These tools are pedagogically advanced platforms that provide a wide range of synchronous and asynchronous tools, and incorporate mechanisms for evaluating students and tracking student progress. The technical infrastructure must be strong and easy to use (Swedish National Agency for Higher Education, 2008).

Effective distance learning requires the course developer to have not only certain qualifications that include the relevant field, but also the ability of the teacher to work with a digital program to create an interactive multimedia tool. In turn, for a student to acquire distance learning course material, basic technological competencies are required: to add, manage files, manage e-communications, and be able to use the web browser (Clark & Frith, 2013). Therefore, the support and institutional co-operation of students and teaching staff is an important aspect for the development and the quality of the distance learning course, since any e-learning materials must be functional, non-defective, it should apply to all operating systems and browsers in the environment in which the resource is being run. No less important is copyright, so it is useful to point out the author of the development in the distance learning material, while the provider of the e-learning materials should provide the students with necessary equipment for the acquisition of the course (Nsiah & Oti-Boadi, 2015).

Student quality indicators. The quality indicators of the students are related to the student-centered approach in the educational process, the satisfaction of the students, personal growth and the results achieved. Active involvement of students in the learning process is the main task of distance learning. B. Pelz (2004) argues that the more students will spend quality time engaging in content, the more they will learn from this content. In order to realize the involvement of such students in the content it is necessary to create the tasks that require self-assessment of tasks or involve other students in the evaluation. Another aspect that B. Pelz (2004) claims is to promote a student-teacher and student-student interaction, which extends beyond the simple discussion. Such an approach is realized in the formation of joint groups by updating and solving some of the

health care problems. The third aspect that B. Pelz (2004) claims is the need for the presence of a representative of the teaching staff, which follows in 3 directions: (1) social presence, when the student needs approval of common goals, expression of emotions from other students; (2) the presence of a cognitive knowledge that can take the form of a discussion, bringing in actual, conceptual and theoretical knowledge; (3) the presence of learning aimed at the implementation of meaningful and meaningful outcomes of learning that is valuable from the educational level, which in turn results in a consensus, encouraging students and evaluating the effectiveness of the process.

Organization quality indicators. The success of the teaching staff and the distance learning course to a large extent depends on the support provided by the institution. Financial, human and infrastructure resources are needed to effectively develop and support distance learning education training programs (Nsiah & Oti-Boadi, 2015). By switching from the traditional learning and e-learning, the time spent by the teaching staff on the development of new teaching materials, developing new programs significantly increases. Therefore, in the implementation phase, organizations may need to increase the amount of funding to address the problem of maladministration and may need to reorganize the administrative and the technical infrastructure (Swedish National Agency for Higher Education, 2008).

Conclusions

The quality criteria of education in distance education reflect the link between learning, which includes educational goals, requirements, standards defined by the organization, companies, individuals, actors and the state as a whole.

The quality criteria of the distance learning course in literature are divided and described from different aspects, by summarizing the literature, five qualitative basic dimensions can be distinguished: pedagogical quality, technology quality and support mechanisms, student quality assessment, material content quality, organization quality and support mechanisms. The basic quality dimensions are closely related to each other and each of them needs to be involved in the quality assessment at the early stage of development of the course.

In order to meet the needs of the medical practitioners and the necessary knowledge, skills and competences, the distance learning course requires the use of e-learning methods that support critical thinking and problem-oriented approaches to patient care. Consequently, an important aspect of distance learning is the development of thoughtful teaching methods and the use of appropriate e-tools for achieving educational goals.

References

- Abdelhai, R., Yassin, S., Ahmad Mohamad, Fors, F., & Uno, G. H. (2012). An e-learning reproductive health module to support improved student learning and interaction: a prospective interventional study at a medical school in Egypt. *BMC Medical Education* 2012, 12:11.
- Al-Hosni, F. A. (2016). *Evaluating on-line distance learning from learners' and teachers' perceptions: A case study at Sultan Qaboos University*. EdD thesis, University of Sheffield. Retrieved from <http://etheses.whiterose.ac.uk/13472/>
- Al-Hunaiyyan, A., Al-Hajri, E., Alzayed, A., & Alraqqas, B. (2016). Towards an Effective Distance Learning Model: Implementation Framework for Arab Universities. *International Journal of Computer Application*. Volume 6, No. 5, 2250-1797.
- Al-Shorbaji, N., Atun, R., Car, J., Majeed, A., & Wheeler, E. (2015). eLearning for undergraduate health professional education: a systematic review informing a radical transformation of health workforce development. *World Health Organization*. Retrieved from <http://whoeducationguidelines.org/content/elearning-report>
- Bates, A. (2016). *Teaching in a Digital Age. Guidelines for designing teaching and learning*. Creative Commons Attribution-NonCommercial 4.0.
- Benner, P., Hughes, R. G., & Sutphen, M. (2008). *Patient safety and quality: An evidence-based handbook for nurses. (Prepared with support from the Robert Wood Johnson Foundation)*. AHRQ Publication No. 08-0043. Rockville, MD: Agency for Healthcare Research and Quality; March 2008. Retrieved from: <https://archive.ahrq.gov/professionals/clinicians-providers/resources/nursing/resources/nursesbdbk/nursesbdbk.pdf>
- Berndt, A., Murray, C. M., Kennedy, K., Stanley, M. J., & Gilbert-Hunt, S. (2017). Effectiveness of distance learning strategies for continuing professional development (CPD) for rural allied health practitioners: a systematic review. *BMC Medical Education*. 17:117.
- Bremer, C. (2012). Enhancing e-learning quality through the application of the AKUE procedure model. *Journal of Computer Assisted Learning*, Vol. 28 Issue 1, 15-26.
- Butcher, N., Wilson-Strydom, M., Uvalic-Trumbic, S., & Daniel, J. (2013). A Guide to Quality in Online Learning. Academic Partnerships. Retrieved from <http://eadtu.eu/home/policy-areas/quality-assurance/publications>
- Clark, D., & Frith, K. (2013). *Distance Education in Nursing: Third Edition*. New York: Springer Publishing Company (EBSCOhost).
- Delaney, J., Johnson, A., Johnson, T., & Treslan, T. (2010). Student's perceptions of effective teaching in Higher education. *26th Annual Conference on Distance Teaching & Learning*. Board of Regents of the University of Wisconsin System.
- Dondi, C., & Morreti, M. (2006). E-learning Quality in European Universities: Different Approaches for Different Purposes. *European University Quality in eLearning (UNIQUE)*.
- European Distance & e-Learning Network-EDEN. (2003). The quality dialogue – Integrating quality cultures in flexible, distance and elearning workshop. *Proceedings of the 2003 EDEN Annual conference*, 15-18.
- Frydenberg, J. (2002). Quality standards in e-learning: A matrix of analysis. *International Review of Research in Open and Distance Learning*, 3 (2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/109/189>

- Hanover Research Council. (2009). *Best Practices in Online Teaching Strategies*. Retrieved from <http://www.uwec.edu/AcadAff/resources/edtech/upload/Best-Practices-in-Online-Teaching-Strategies-Membership.pdf>
- Holsombach-Ebner, C. (2013). Quality Assurance in Large Scale Online Course Production. Retrieved from Embry-Riddle Aeronautical University. Retrieved from <http://www.westga.edu/~distance/ojdl/fall163/holsombach-ebner164.html>
- International Organization for Standardization (ISO) (2005). *ISO/IEC 19796-1:2005. Information technology Learning, education and training Quality management, assurance and metrics Part 1: General approach*. Retrieved from <https://www.iso.org/standard/33934.html>
- International Organization for Standardization (ISO). (2017). *ISO/IEC 40180:2017. Information technology -- Quality for learning, education and training -- Fundamentals and reference framework*. Retrieved from <https://www.iso.org/standard/62825.html>
- Knebel, E. (2001). *The Use and Effect of Distance Education in Healthcare: What Do We Know? Operations Research Issue Paper 2 (2)*. Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.
- Matheos, N., Schitteck, M., Attström, R., & Lyon, H. C. (2001). Distance learning in academic health education. A literature review. *European Journal Dental Education*; 5: 67–76
- Middle States Commission on Higher Education. (2011). *Distance education programs: Interregional guidelines for the evaluation of distance education (online learning)*. Retrieved from <https://www.msche.org/publications/Guidelines-for-the-Evaluation-of-Distance-Education-Programs.pdf>
- Nsiah, G. K. B., & Oti-Boadi, M. (2015). Assessing the Effectiveness of Distance Education within the Context of Traditional Classroom. *Creative Education*, 707-710.
- Ossiannilso, E., Williams, K., Camiller, A., & Brow, M. (2015). Quality models in online and open education around the globe. State of the art and recommendations. Oslo: *International Council for Open and Distance Education*.
- Özgür, A. Z., & Koçak, N. G. (2016). Global Tendencies in Open and Distance Learning. *Journal of Education and Human Development*. 2334-2978.
- Pawlowski, J. M. (2007). *The New Quality Standard for E-Learning: Enabling Global Quality Development*. Retrieved from <http://www.initiatives.refer.org/Initiatives-2005/document.php?id=337>
- Peixoto, Dos Santos M., & André, T. (2017). Critical thinking of nursing students in clinical teaching: an integrative review. *Revista de Enfermagem Referência. apr-jun 2017. Vol. 4 Issue 13*, 125-138.
- Pelz, B. (2004). (My) Three Principles Of Effective Online Pedagogy, *Journal of Asynchronous Learning Networks, Volume 8, Issue 3*.
- Pennsylvania State University. (2008). *Penn State quality assurance e-learning design standards*. Pennsylvania: Pennsylvania State University.
- Póljanowicz, W., Roszak, M., Kołodziejczak, B., & Bręborowicz, A. (2014). *An analysis of the effectiveness and quality of e-learning in Medical education*. Retrieved from <https://depot.ceon.pl/handle/123456789/11789>
- Quality Matters. (2014). *Quality matters program: A national benchmark for online course design*. Retrieved from <http://www.qualitymatters.org>
- Rubin, J. (2009). Quality Assurance of E-learning. Chapter 3: Modern E-learning: Qualitative education accessibility concept. *European Association for Quality Assurance in Higher Education 2009*, Helsinki. Retrieved from: http://www.enqa.eu/indirme/papers-and-reports/workshop-and-seminar/ENQA_wr_14.pdf

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- Smith, G., Passmore, D., & Faight, T. (2009). The challenges of online nursing education. *The Internet and Higher Education*, 1 (2), 98-103. Retrieved from https://www.researchgate.net/publication/222218083_The_challenges_of_online_nursing_educatin
- Stracke, C. M. (2009). Quality Development and Standards in e-Learning: Benefits. *Proceedings of the ASEM Lifelong Learning. Bangkok (Thailand)*. Retrieved from https://duepublico.uni-duisburg-essen.de/servlets/DerivateServlet/Derivate-33369/Quality_Development_Standards_Stracke_Bangkok_2009.pdf
- Swedish National Agency for Higher Education. (2008). *E-learning quality aspects and criteria for evaluation of e-learning in higher education (Report 2008: 11 R)*. Stockholm: Högskoleverket.
- Tham, C. M., & Werner, J. M. (2005). Designing and evaluating E-learning in higher education: A review and recommendations. *Journal of Leadership & Organizational Studies*, 11 (11), 15.
- UNESCO (United Nations Educational, Scientific and Cultural Organization). (2002). *Open and Distance learning. Division of Higher Education. UNESCO*. Retrieved from <http://unesdoc.unesco.org/images/0012/001284/128463e.pdf>
- Uvalic-Trumbic, S., & Daniel, J. (2015). *A Guide to Quality in Online Learning*. Retrieved from <https://odlaa.org/quality-in-online-learning/>
- Vlachopoulos, D. (2016). Assuring Quality in E-Learning Course Design: The Roadmap. *International Review of Research in Open and Distributed Learning*, Volume 17, Number 6.