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Quality in E-Learning: A Theoretical Approach Based on Evaluation Models and Theories



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ABSTRACT

Quality in higher education, and quality in teaching and learning remains an important topic for further research (White, 2000) over the past twelve years where it is observed a rapid production of articles, researches and scientific journals especially those related to university education (Steinhardt, Schneijderberg, Gotze, Baumann, & amp; Krucken, 2017). However, the improvement of the overall experience of the participants (stakeholders) in the university education process is still pending (Lieber, Stensaker & Harvey, 2015; Ossiannilsson, Williams, Camilleri, & Brown, 2015). Bates (2015), referring to open distance learning, points out that another issue is to formulate some quality criteria and another one is to make them practice. The same researcher identifies the scarcity of research that attempts to measure the impact of quality assurance processes on teaching and learning. This is the main orientation of this paper, using relative models and theories of Total Quality Management.



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INTRODUCTION

The development of open distance education in Greece essentially starts with the establishment of the Hellenic Open University (HOU). HOU is the first and the only Greek university which provides undergraduate and postgraduate education exclusively through the distance, e-learning method. Open education is inextricably linked both to free access to educational activities and to the creation of educational opportunities that can be offered to a person to be trained in a subject when and where they wish. It is a learning philosophy, an ideal agreement with which education is the right of all people and should enjoy it throughout their lives. This means that education systems are created and operated in a way that ensures access to them, enabling students to overcome the difficulties and constraints associated with traditional educational institutions (Lionarakis & Likourgiotis, 1999).

The key points underlying the philosophy of the open educational systems include:

- The creation of equal educational opportunities and ensuring access for all
- The removal of the obstacles posed by traditional education systems by enabling the student to shape his / her educational profile through a wide range of options available to him/her
- The determination of the time, place, mode and pace of study by the student him/herself (Lionarakis & Likourgiotis, 1999)

Although distance education has existed for at least 100 years, there has been a vigorous debate over the last decades about how and how it is applied, particularly in higher education, and has been piloting for the last decade also in primary and secondary education in Greece as well as in the context of training programs. Distance education (DE) has been defined over time in a number of ways, as several researchers have given their own conceptual version. The definitions of Dohmen (1967), as mentioned in Keegan, (2001), Peters (2003), Moore (1993), Holmberg (1977) share two assumptions, characterizing the specificity of the DE and differentiating it from the learning of: a) the teacher-student distance and b) the structure of the teaching material. Subsequent definitions, such as Garisson & Shale (1987), Parker (1989), as mentioned in Keegan, (2001), Moore (1993),

emphasize the possibilities offered by technology at the level of interaction and interactivity. Keegan (2001) investigated 62 educational institutions that applied, according to related literature, distance learning with aim to identify common features in order to make through the research, analytically synergistic approach to the formulation of acceptable characteristics. Through this effort, but also in conjunction with the existing pedagogical approaches to distance learning, reach a conclusion that distance learning is a form of education characterized by the following basic characteristics:

- The existence of a physical distance from the trainer by the trainer, almost on a permanent basis and throughout the educational process, which distinguishes it from the conventional education that takes place in a classroom.
- The central role of the educational organization that plans, organizes, prepares relevant teaching materials, but at the same time assumes the support of students, which differentiates distance learning from other self-study programs and purely personal study.
- The differentiation from efforts of personal study or self-teaching, as it presupposes the existence of an educational organization that designs and implements the educational material and provides support to the student.
- The use of technical media - printed, audiovisual or electronic - as a carrier for the transfer of educational content, as well as a link between teacher and student.
- The possibility of two-way communication to benefit the students from the technologically supported dialogue, i.e. a way of using the technology that is comparatively different from the living education process, since the technology is related with other functions.
- The lack of a large part of the functioning of the learning group, and the use of individualized forms of teaching which, however, do not preclude the possibility of group meetings either face to face or using technology.

From the systematic categorization of a variety of elements recorded in practice to basic characteristics of distance learning, it appears that these are not always identified in

educational reality. According to Peters (2009), there is not only one model of organization of distance learning, but at least seven, while the combination of these can result even more. Distance learning theorists point out that the practical applications that one encounters with the theoretical approaches to distance learning.

1. The concept of quality in higher education

Both the bibliographic review, which aims at highlighting the academic debate and related research, as well as the research applications, which highlight the implications of the stakeholders, are moving into the thematic area of research which is essentially determined by two components: distance learning and quality in education. Based on this context, the quality in education and the reasons for its priority are summarized in Figure 1, (Ioakeimidou & Lionarakis, 2018: 128).

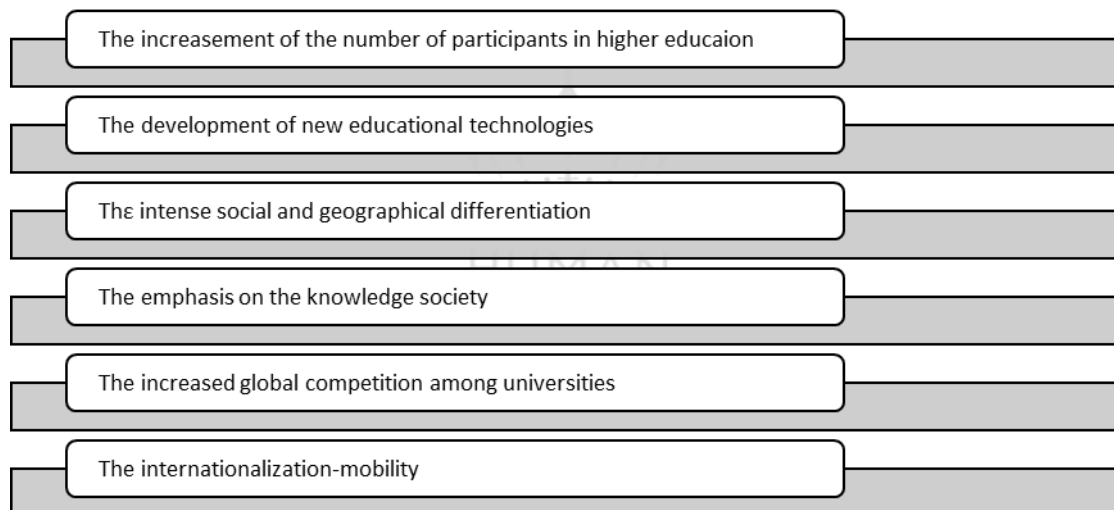


Figure 1: Factors which underline the necessity for the shift towards quality

Economic, social and technological forces bring about day-to-day changes in teaching and learning processes within organizations, universities and schools. With regard to this development in teaching and learning, different expressions have been used to characterize the term “innovation”. Among these are the terms ‘e-learning’, ‘distributed learning’, ‘online learning’, ‘web-based learning’ and ‘distance learning’ (Wentling *et al.*, 2000). According to the Department of Education's National Center for Education Statistics, the 90% of the universities which offer two-year educational programs and the 89% of the four-year ones,

offered distance learning courses for the period 2000-2001 with subscriptions of 1,472,000 and 945,000, respectively, a total of 3,077,000. Of these, the 90% Internet-based courses used asynchronous computer-based training, and the 88% reported their plans to start or increase internet use as the primary delivery tool for learning objects (Waits & Lewis, 2003). These data support the idea that distance learning through the Internet is widespread and that the internet has caused major changes in education in general and in distance learning in particular. Despite differences in conditions and quality in e-learning, it is equally important in all European countries and nations.

Thus, it is necessary to clarify what 'quality of e-learning' means. Generally, quality is about making the best learning achievements. This primary pedagogical perception was more widespread than those relating to economic utility or successful marketing. In addition, it should be mentioned that "quality in e-learning" is of dual importance in Europe. First of all, e-learning is linked to many documents and publications by increasing the quality of educational opportunities, ensuring a successful adaptation to the information society. This framework is called 'quality through e-learning'. Secondly, there is a separate but relevant discussion on how to improve the quality of e-learning itself, in which case the framework is called 'quality for e-learning' (Ehlers et al., 2005).

Essentially, quality assurance refers to the fact that pre-designed standards for a product or service have been defined and implemented consistently. Quality itself is a vague term since it has connotations of standards and notions. Thus, referring to the 'quality of teaching', high or low standards should be mentioned. Standards of some kind are necessary to ensure quality. But standards, such as visual ones, are usually in the eyes or perceptions of observers. At this point arise the questions on who are the observers and on who will determine the quality of university teaching.

An important idea is that consumers of a product or service must be the ultimate quality regulators. From this comes the idea that quality is what satisfies the consumer or the customer. The simplest form of quality in university teaching will be the one that satisfies the primary client, namely the students. This concept is more formally expressed by the British Standards Institute: *Quality is the set of attributes and characteristics of a product or service that has the capacity to satisfy the needs expressed or not.* Thus, students' needs may be stated by them or could be implied by the tutor.

Citizens, customers or consumers are not always easy to be identified. Or more commonly, there are too many of them. For example, who is the consumer of university teaching? In an obvious sense, students consume or experience teaching but those who have to be satisfied include fellow students, colleagues, and department head, funding bodies, educators, government and society as a whole. All of these parties may in some ways be recognized as clients for the teaching of the university. At this point, the issue of stakeholder analysis is more important than ever (Bryson, 2004) and stakeholder management is seemingly a significant and dynamic issue (Mitchell et al. 1997). A review of the literature revealed that stakeholder theories are relatively mainstream (Donaldson and Preston 1995, Singhapakdi et al . 1996), but the existing literature largely relates to the private sector (Clarkson 1995, Mitchell et al. 1997, Johnson and Scholes 2002, Reed 2008), and has yet to address these issues in the university sector.

A different perspective is to consider quality as the suitability for a particular purpose. Hence the quality of a particular machine will be determined by the degree to which its declared purpose is met. It is a more useful definition for situations where there are obvious customers or where there are multiple customers. Thus, the quality of teaching should be determined by its ability to achieve the stated goals, apparently in relation to learning.

Other definitions include 'compliance with requirements' (Crosby, 1984) and 'the predictable degree of uniformity and reliability, at low cost that is suitable for the market' (Deming, 1986). Basic concepts here include compliance with standards that are appropriate for the purpose and satisfaction of a market. Deming (1986) underlines the importance of cost-effectiveness, satisfying the market at low or at the lowest possible cost. These definitions are perhaps the most sincere. However, the idea of a customer or more customers to be satisfied is too important to be overlooked.

The purpose of teaching is learning. Thus, the quality of teaching is the relevance of the aim of promoting learning. Unfortunately, there are no laws and the precious theories that link teaching and learning are few. The standards for teaching that influences learning are largely hypothetical. Quality can be evaluated by performance indicators, which are rather vague. First, it is important to realize that the verb "reassure" is a transitional verb: securing it with someone who wants to assure someone else. For example, a box of matches is labeled 'Quality Assurance'. This is a message from the manufacturer to the customer. Its purpose is

to assure that the standards expected from a match must be consistently followed by each match in the box. Quality assurance is a process by which the manufacturer or the manufacturer guarantees to a customer or consumer that the goods or service will meet the standards consistently.

In the case of university teaching, an interpretation is that the university is trying to assure that its teaching is within the standards. Universities are publicly funded and therefore try to reassure society that its representatives provide at least the service they are funded for. At a more basic commercial level, universities are trying to ensure that their clients, whether pupils, employers or scholarships, know that their service is upgraded.

In general, opinions differ on the quality of programs, products and services provided worldwide. The results show that there is not a single correct way of delivering quality in all areas and therefore the specificities and traditions of each country must be taken into account. Since the establishment of trust is the essence of quality assurance, the term has come to refer to the whole process by which standards are retained. This underpins quality control and quality management, both of which will be examined below.

2. Quality in e-learning

According to Pawlowski (2003) quality in e-learning is not related to a well-defined measure or model. It is variable in terms of scope, perspective, and dimension. Quality assessment is becoming an issue of increasing importance, as demonstrated by the interest of ISO / IEC19796-1: 2005 and the European Quality Observatory (EQO). ISO / IEC 19796-1: 2005 is a framework for describing, comparing, analyzing and implementing quality management and quality assurance approaches. It serves to compare different approaches and harmonize them so that they converge towards a common quality model. Its main component is the Reference Framework for Describing Quality Approaches (RFDQ).

This framework consists a quality management description system, a process model for defining the key processes to be taken into account in quality management in ICT supported learning, education and training, as well as a statement of compliance for the form of description. ISO / IEC19796-1 describes processes as the life cycle of e-learning. It is a benchmark model with a high level of analysis to be adopted by a given organization. The

model should be used as a framework for describing, comparing, and analyzing the quality-based process (Hirata, 2006). It consists essentially of two parts:

1. A description system for qualitative approaches.
2. A process model as a reference classification.

The Descriptive Model is a system to describe interoperable quality approaches (such as guidelines, design guides, requirements). It records all the concepts of quality in a transparent way. The Process Model is a guide through the various processes in developing learning scenarios. It includes relevant lifecycle procedures for information and communication systems for learning, education and training. It is divided into seven parts. With regard to the Quality Working Group, it is currently based on three further sub-tasks, developing more tools and support:

- "**Quality Model**", which will harmonize aspects of quality systems and their relationships and provide guidance to all stakeholders without imposing any specific implementation but will instead focus on the results. The model will be expandable for the requirements of specific communities.
- "**Reference Methods and Metrics**" that will harmonize the formats for describing methods and measurements for quality management and quality assurance will provide a collection of reference methods that can be used to management and quality assurance in different environments. In addition, this part will provide a collection of reference metrics and indicators that can be used to measure quality in the production process, products, accessories and services.
- "**Best Practice and Implementation Guide**" which will provide harmonized criteria for identifying best practices, guidelines for the adaptation, implementation and use of this composite standard, and will include a rich set of examples of best practices.

The EQO project hopes that the following guidelines should shape the quality of e-learning:

- Learners should play an important role in defining the quality of eLearning services.

- Europe must develop a culture of quality in education and training.
- Quality must play a central role in education and training policy.
- Quality should not be limited to preserving large organisms.
- Support structures should be set up to provide relevant, service-oriented assistance to develop the quality of organizations.
- Open quality standards should be further developed and applied more widely.
- Interdisciplinary quality research should be established in the future as an independent academic discipline.
- Research and practice should develop new methods of exchange.
- Quality development should be designed jointly by all stakeholders.
- Appropriate business models for the provision of quality services should be developed.

The problem with these contexts, however, stems from their generality. That is, they presuppose the existence of procedures for which specific indications disappear. On the other hand, each of them would require a large amount of theoretical and experimental knowledge in areas such as psychology, information science, and software development, sociology to be designed or controlled.

3. Quality in teaching and learning in open distance universities

Qualitative teaching means using the appropriate pedagogical techniques in order to produce the desired learning outcomes from trainees. This seems rather simplistic. Quality in teaching is related to many factors such as effective curriculum design and curriculum content, a multitude of learning styles (including distance-guided study, learning through work plans, collaborative learning, experimentation, etc.), feedback, effective evaluation learning outcomes, well-adapted learning environments and student support services (Henard &

Roseveare, 2012). Quality teaching takes place at three interconnected levels (Henard & Roseveare, 2012):

1. At educational institution level: which includes work plans for designing the institution's policy strategy on quality, supporting internal and external evaluation systems.
2. At curriculum level: including actions aimed at evaluating and improving the design, content and application of the curriculum.
3. At an individual level: including initiatives that help tutors achieve their goal, encouraging them to innovate, support the improvement of student learning, and adopt a student-centered approach to their approaches.

Qualitative teaching creates the conditions that foster the development of learner skills such as critical thinking and creative thinking. Trainees are encouraged to move to innovative alternatives to solve issues that arise in the teaching of different scientific areas, to focus less on content, which is increasingly available, and more on scientific thinking and methodology.

According to the Commonwealth of Learning (2000) points that differentiate open learning are:

- The versatility of the material (printed, digital, video, etc.)
- The place of study (at home, office, university)
- The study rate (at regular intervals, unstructured)
- Supportive mechanisms (supervisors)
- The conditions for the introduction and completion of studies

Surveys and scientific publications on quality in teaching and learning, particularly in the context of ODE are limited. In most of these articles, it is referred to as a key part of a wider quality assurance mechanism at a university institution (Jae-Woong, 2009, Jung, 2005). For

example, quality in teaching and learning refers to the development and production of material, curricula, staff support, services provided and support for learners, as well as to the learner's overall experience in the educational process (Kirkpatrick, 2005). For example, Herrington, Oliver, Stoney & Willis (2001) describe a model of quality assessment in online courses by forming three main axes and transforming them into indicators as follows:

- Pedagogy: activities linked to realistic conditions, opportunities for cooperation, student-centered environments that promote the involvement of trainees, evaluation that makes sense for the evaluators.
- Sources: accessible, up-to-date, based on different perspectives, with appropriate media use, including peculiarities.
- Educational material: precise and supportive, clear objectives, instructions and lesson plans, communication, suitable for a wide range of needs, accessible, appropriate.

Key point in effective learning processes is personalized learning, in other words recognizing trainees' needs and responding to them, either in a distance learning environment or through mixed learning practices (Tait, 2015: 8). Personalized learning refers to a learning context that is tailored to the particular diverse learning needs of each trainee, and this gets bigger when it comes to open universities, for example, aimed at a heterogeneous population with very different characteristics. Mixed learning previously referred to the distance learning combination but also to some live encounters. More modern perspectives broadly broaden the definition of mixed learning as a form of learning through a variety of methods and means, especially when they add choices such as social networks that reduce loneliness in studying and searching for knowledge. Researchers, however, argue that blended learning processes combine the benefits of living and distance learning (Vernadakis, Giannousi, Tsiskari, Antoniou, & Kioumourtzoglou, 2012).

CONCLUSIONS

Research from open universities around the world reveals the absence of a quality model that fits in every context, since there are different needs and conditions (Ossiannilsson et al, 2015), so it is unrealistic to seek for the perfect model (Inglis, 2005: 11). Mark Brown in his

interview (Ioakeimidou, 2016b: 139) commented on exactly what is said in the literature that: *“Quality for the trainee is very different from what can be considered as quality for the governing body of a government authority or even an educational institution. So there are different definitions of quality and we need to understand these different definitions”* So what is it about? A model that is constantly evaluated for improvement, a model that is the object of reflection, dialogue and derivative of lasting transformations based on international research assumptions, the needs and conditions as expressed through the different perspectives of those involved in the educational process. There is also talk of objective and reliable measurement of quality (Oliver, 2005). Quality assurance is occasionally accused of emphasizing quantitative imprints by ignoring important parameters that can-not be attributed in this way. The aim is therefore to develop the framework that will allow for the evaluation of parameters that cannot easily be quantified. So qualitative rating assessments are needed, however difficult and time consuming it may be. It is widely accepted that the integration of quality assurance procedures (quantitative characteristics) and its continuous improvement (qualitative characteristics) can give a more complete picture of the educational act.

Open Universities face challenges and are called upon to redefine their role now that many conventional universities are developing, for example, distance learning programs, online support courses, online support educational material. So, as Alan Tait argues in his interview, "open universities must continue to think about what a university is" (Papadimitriou et al., 2014). Mark Brown, for his part, is of the opinion that open universities serving openness are aimed at a wide audience, not the few who are excellent but the many who are looking for a second chance, and this is the narrative that open universities ought to disseminate to each direction (Ioakimidou, 2016b).

It appears that open distance universities can offer at least the following:

- Enhanced access to higher education for all: universities are not only addressed to an academic elite but to all stakeholders,
- Familiarizing students with the openness philosophy where they create, use, contribute to Open Educational Resources, create their own learning paths with personal records, publications in open accessible scientific journals, and conferences with the help of teachers,

support and comment on the work others, create and participate in online communication networks,

- Free specially tailored educational material, through Open Educational Resources, for example,
- Exploiting technology,
- Openings to society and its needs

The wider socio-economic-cultural-demographic developments affect higher education, which is burdened by increased expectations of society and citizens. In order for universities to respond to the requirements, it is necessary in a scientifically documented manner to continuously improve the quality of the education provided and, above all, serve the teaching and learning of students. At this point, in countries such as Greece, where the labor market is limited, and the education system must or should otherwise create and serve a vision, an orientation that will 'see' further by exploiting its human resources through the implementation of innovations to offer opportunities for work and development opportunities at the economic and social level. As in her interview, Diana Laurillard explains 'the university needs to adapt and learn and that means to innovate' (Ioakimidou, 2016a: 134), thus evolving and continuously improving the quality of its services.

In conclusion, despite the difficulties mentioned, evaluation is a necessary part of adult education, especially in distance education programs, where there is a physical distance among the key stakeholders. The design of the evaluation should not be a thought that follows the completion of the program. In any case, the quality of a program is determined by the matching of its specifications to the identified needs and requirements it seeks to cover, and the quality of its implementation is determined by the competence of the training body to implement the program according to its predefined specifications. The quality of an educational program is a multidimensional and complex concept directly linked to the evaluation process. The most basic objective assessment factor, maybe common to all educational institutions, is the diligence of the evaluator, which, according to Brezinka, is the highest virtue of the educator. Finally, the combination of knowledge in the evaluation

methodology with the assessor's conscientiousness, are best suited to eliminating subjective and undesirable side effects in the process of educational assessment and quality assurance.

Suggestions for further research

Continuous improvement of quality is required in every aspect of the functioning of an educational institution either in the conventional or in the open distance universities at each level. In the present study, quality factors were investigated in tertiary distance learning and a framework of necessary conditions for the continuous improvement of quality in teaching and learning was formed through the theoretical tools and related models. By expanding the boundaries of non-formal education, quality is an objective, and it must also be certified in non-formal learning environments. In the context of expanding research into different learning environments research could be carried out in the future to always improve the quality in the thematic areas such as:

- The establishment of a widely accepted system for assessing and certifying knowledge and skills derived from non-formal or informal learning.
- A quality assessment and assurance in the design, methodology and general implementation of curricula at university or non-academic institutions.
- The external and internal evaluation aimed at quality in the educational process in school education.
- The exploration of the strengths and weaknesses of a mixed distance learning system with live meetings and the implementation of a model with online video conferencing meetings through continuous quality improvement filters.
- The continuous quality improvement processes in MOOCs or short training programs.
- The constant improvement of quality in the educational use of social media and fora.

Another option would certainly be to investigate the implications of quality issues involved in the educational process over time. How do new entrants' perspectives differ from the more experienced students or even from graduates. How do students' views differ during their

studies and when they are completed? Considering the assessment as a key tool for ensuring and constantly improving quality in the educational process, a number of possible issues for future exploration arise, such as

- Contemporary assessment tools that arise as a result of technological developments such as learning analytics or e-portfolio, and bring back to the fore discussion about qualitative or quantitative quality returns in the teaching and learning process.
- The issue of open universities is mainly the remote online evaluation of students, which is directly related to the issue of openness.

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