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A proposed model for evaluating the quality of online programs and courses: The case of the university of Tabuk

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Abstract: This research is focused on developing an e-learning model that can be used by academic departments and colleges in the University of Tabuk and other Saudi universities to monitor and evaluate the quality of their distance education programs and courses. Although extensive research has been done in the U.S. and other countries regarding distance education quality standards and measures, as of yet, no significant efforts have been made toward establishing such standards in Saudi Arabia. The model states that online learning must be assessed from a holistic perspective; that is, all six aspects outlined in this model must be considered and asked and taken into account to an equal extent. The model is constructed of three levels, as follows: 175 benchmarks are categorized and stored in 27 "sub-factors" and 6 main factors/building-blocks. These factors represent a cluster of related benchmarks that are mostly centered on a specific aspect of online settings.

Keywords: Quality Assurance, Online Education, E-Learning Model

1. Introduction

The field of distance education has changed rapidly over the last decade. Educational programs in which learners and instructors are separated by place and frequently by time have become the most rapidly growing form of education, not only in the United States but also throughout the world [1, 2]. As a result of the rapid development of educational technology, many courses have been delivered to potential students in various locations to respond to the increasing demands for higher education. This development in technology has enabled higher education institutions to provide specialized courses to students who are geographically distant, with increasing interaction between students and teachers and among students themselves [2].

Even though the evolution of distance education has been greatly influenced by the advancement of educational technology, this development has also been influenced by the ongoing changes in educational values and philosophies [1]. According to Moore [3], distance education is fundamentally derived from the adult learning theory, particularly the informal education theory of Malcolm Knowles. In addition, Moore explained that distance education derives much of its foundation from the philosophical perspective of the adult

education field. He wrote, "Distance education from the earliest times has shared three distinctive and often interlocking views of purpose and direction. The first . . . is the vocational; the second is the drive for equity of individual opportunity, the third is social change" [3] (p. 9). Moore explained that these three views all came into play during the early 1970s in the form of the Open University in the United Kingdom and the consequent universal embrace of distance education.

During the past few years, there have been rapid changes regarding adult learning and teaching associated with expanding access and new developments in information and communication technologies. The growth of telecommunications technologies has enabled higher education institutions to reach a varied range of audiences and increased student access to higher education. Therefore, distance education programs have expanded, and the number of distance courses has increased. According to Allen and Seaman [4], more than 4.6 million students (more than 25% of all U.S. higher education students) were taking at least one online course during the fall semester of 2008. That is a 17% increase over the number reported the preceding year. The

authors also reported that over 80% of U.S. colleges offer at least one online course each semester [4].

With this rapid development of online education, there is an increasing interest in research topics that concentrate on quality assurance (QA) in online education [5]. According to Kocdar [6], QA and accreditation of online and open programs have been among the top issues in higher education agendas around the world. Marshall [7] has argued that online education is no longer a specialist area and needs to be seen as a mainstream activity influencing how learning can be improved for all learners. This claim is supported by the Bradley Review of Australian Higher Education[8], which included in its definition of a quality student experience in higher education the need for "an accessible and sophisticated online learning environment" (p. 79).

2. Statement of the Problem

The benefits of offering distance degree programs for both learners and faculty have been acknowledged in previous studies. The most-cited benefits of distance education include expanding the level of interaction between learners and instructors and among learners themselves, meeting the needs of learners who are geographically distant or have family responsibilities that might prevent them from attending traditional daytime college courses [9], providing faculty with the opportunity for professional recognition and research, increasing the student's achievement level, and encouraging the systematic design of instruction [10]. According to Conceicao [11], the use of computer-mediated communication technologies for teaching adult learners online has helped higher education institutions to provide "better access, convenience, and flexibility as a way to support adult learners' educational opportunities" (p. 26).

Despite the aforementioned benefits of distance education, many faculty members are still reluctant to teach online [9, 12-14]. The literature review revealed that faculty members have concerns about the quality of distance education courses that can make them reluctant to teach via distance [15-24]. A recent report by Seaman [16] revealed that faculty participation status in online education is largely influenced by the educators' concerns about the quality of online education. While over 80% of non-participant faculty members believe that the learning outcomes of online learning are *inferior* or *somewhat inferior* to traditional face-to-face instruction, the majority of participant faculty believe that the learning outcomes of online learning are equivalent or better than face-to-face instruction.

3. Purpose of the Study

The development and the implementation of online learning is not a simple process. Several challenges may appear before, during, or after the implementation of online learning. The change in students' and faculty members' roles in the learning process are examples of challenges that may occur before the implementation process even begins. Lack of faculty training and inadequate technical support are examples of problems that may occur during the implementation of online courses [25, 26]. According to Hill [27], general distance education issues, as well as online education, can be presented using a framework that includes five areas of consideration: pedagogical, technological, organizational, institutional, and ethical.

A very important organizational issue is the accreditation of online programs and the evaluation of the quality of online courses. Because of increased use of the Internet as the delivery mode and the strong growth of distance education, concerns are raised that it is demand rather than sound pedagogy that is shaping this expansion [28]. According to Sherry [28], quality-based issues are not always at the forefront of decisions about DE. While the World Wide Web has been used for more than a decade now, only during the last few years has it begun to be accepted as a workable mode for delivering instruction. Thus, many faculty members teaching in postsecondary institutions were not employed with the expectation that they would teach online courses. According to Caplan [29], most faculty concerns about using new technologies are often centered on pedagogy. Unfortunately, many examples of poor pedagogical application in online instruction can be found, often in the form of text-based instruction. Caplan explained that one way to address concerns about inferior online pedagogy is to demand that the same educational standards apply to the development of online instruction as to any delivery medium, such as in the classroom.

According to Guessoum [30], even though the issue of accreditation is important for ensuring the quality of DE programs, higher education institutions in the Arab world do not seem to have persuasively addressed this issue. Guessoum wrote, "This is undoubtedly a crucial issue that needs to be definitely resolved if one wishes this educational (and commercial) paradigm to succeed, that is one needs to address the fears and worries of the public" [30] (p. 467).

Recognizing that adopting QA standards is an essential part of the success of any distance education program, this study sets the target of developing an e-learning QA model that can be used by colleges and academic departments in the University of Tabuk to deliver online credit-based programs and courses.

4. Significance of the Study

The growth in the population of Saudi students who desire to receive a quality higher education or even those who are currently employed and need to have advanced training that can help them in their current jobs have encouraged higher education institutions in Saudi Arabia to participate in distance education [31-33]. Since its establishment in 1957, higher education in Saudi Arabia has primarily focused on traditional education in which learners are required to attend face-to-face classes in order to be eligible for receiving certificates from any higher education institution. However,

this policy has been changed with the formulation of the National Center of Distance Education in 2007 as a response to the growing number of high school graduates and the increasing demands of on-the-job training. Although this is an important improvement for higher education in Saudi Arabia, it is recommended that The National Center of Distance Education establish a general platform for ensuring the quality of distance education programs that will be offered by higher education institutions in Saudi Arabia.

Internationally, several educators and accrediting organizations have started to think of establishing and adopting such standards in order to be used for evaluating distance education programs. For example, the eight U.S. regional accrediting organizations have formed common principles to insure the quality of distance education programs in that country [34]. Another example is the E-xcellence label of the European Association of Distance Teaching Universities (EADTU), which has defined six criteria for QA in distance education programs: strategic management, curriculum design, course design, course delivery, staff support, and student support [35].

In Saudi Arabia, the implementation of a national QA and accreditation process is still a work in progress, not only in online programs but also in traditional education. Even though the National Commission for Assessment and Academic Accreditation (NCAAA) was established in 2004 to provide codified standards for academic performance in Saudi higher education institutions, the NCAAA has focused on traditional face-to-face programs.

Improving and assuring quality is a very influential factor for the success of higher education institutions offering online programs [36]. For example, Zhao [37] suggested that universities implement a QA plan aimed specifically at online education. Oliver [38] also called for a quality agenda, writing, "As more and more universities seek to use e-learning as a mode of delivery for their units and courses, . . . the need grows for accepted standards and benchmarks against which performance can be judged" (p. 183). According to Endean, Bai, and Du [39], there is an increasing demand for an objective assessment of the quality of higher education, particularly in online education, that can be used to show its standing and contribute to its reputation as a provider of quality learning experiences.

This research will therefore focus on developing an e-learning model that can be used by academic departments and colleges in the University of Tabuk and other Saudi universities in order to monitor and evaluate the quality of their distance education programs and courses. Although extensive research has been done in the U.S. and other countries about distance education quality standards and measures, no significant efforts have been made toward establishing such standards in Saudi Arabia. Thus, this study would help academic departments and colleges in the University of Tabuk and other dual-mode Saudi universities to deliver online credit-based programs and courses by developing an e-learning model for assessing the quality and the rigor of such programs.

5. The Study Context

Dual-mode universities are traditional higher education institutions that have committed to deliver distance programs to students who cannot, or choose not, to attend traditional face-to-face courses. Dual-mode universities are not approaching distance education in the same way. That is, the pattern of arrangements they enter into vary from having a stand-alone distance education unit that manages all functions, including teaching and assessment, to a highly integrated approach that focuses on minimizing the distinctions and services provided to different types of students (i.e., traditional vs. distance students) [40].

One challenge facing dual-mode institutions in Saudi Arabia is how to assure and improve quality while widening access and reducing costs, and how to establish which approach best supports this. At the present time, the University of Tabuk is seeking to position itself to have a highly integrated approach as it moves from providing distance education to some students to more flexible delivery for all students. This process is described in different terms in the literature, including flexible delivery, blended delivery, and converged learning [40].

Quoting Keegan and Daniel [41], "in conventional education the teacher teaches, whereas in distance education the institution teaches" (as cited in Lentell [42] p.30). Accordingly, a policy on information and communication technologies (ICTs) for dual-mode universities should include the following:

1. Guidelines for decisions regarding the way in which ICTs, processes, and approaches are introduced into teaching and learning.
2. Systems that ensure the quality of DE programs.
3. Processes and procedures and the amount of effort that academics need to employ in order to develop and facilitate distance-learning courses [42].

In this paper, a comprehensive online learning quality model for improving and assuring quality in dual-mode institutions as well as virtual ones, which attempts to solve some of the problems in many contemporary models, is proposed. This framework builds on both practical and theoretical knowledge and is informed by sociocultural thinking.

6. Distance Education in Saudi Arabia

The population of Saudi Arabia is growing very quickly. According to UNESCO [43], the total population of Saudi Arabia in 2006 was 24,735,000 with an average annual growth rate of 2.4%. One of the major concerns associated with this growth in the population is the limited capability of the existing higher education institutions to provide access to all high school graduates as well as other prospective students [44]. In addition, Saudi college graduates only meet a fifth of the country's needs for employment, and more than 68% of jobs that require science majors are filled by foreign workers. For example, while 60,000 pharmacists are needed

each year, only 100 Saudi students graduate yearly with a pharmacology degree [45].

In the past, the Ministry of Higher Education has responded to this problem by building new universities and colleges. While building new higher education institutions has provided more access to Saudi students, this solution has been found to be impractical and costly, particularly during the current global financial crisis [31-33]. In addition, there are many nontraditional students who may work during the day or who are geographically distant and cannot attend face-to-face courses [31]. Thus, the most promising solution seems to be the adoption of distance education. As Abdullah [45] argued, ". . . why spend billions on the construction of new universities and proceed with such a time-consuming plan instead of utilizing distance education and the graduates it can produce to fill the shortage of local talent?" (p. 5).

Until five years ago, most distance education programs that were offered by Saudi higher education institutions were correspondence-based distance education in which students were receiving course materials at home and using the mail to send assignments to their instructors. However, this form of distance education did not receive greater attention from potential Saudi students since the process of sending and receiving the materials took weeks and there was a lack of interaction between students and instructors [44]. For years, this was the only form of distance education that was acceptable and formally accredited by the Ministry of Higher Education. However, this trend has changed since the Saudi King, Abdullah bin Abdulaziz, called for a national plan in 2005 that aimed at the widespread adoption of information technology across the kingdom. One part of this plan calls for the implementation of distance education programs and the integration of online technologies in higher education platforms [46].

The national plan also called for the establishment of a national center that offers consultancy for all higher education institutions seeking to adopt distance education. The primary mission of this center was defined by the plan as follows:

This project aims at the establishment of a national center for e-learning to offer the service and its encouragement by preparing the regulations and policies governing the e-learning process, formulate a unified model for e-learning using standard specifications, develop quality assurance standards for e-learning, issue quality assurance certificates for e-learning systems, and measure the efficiency of various in technologies as aids for the e-learning process [47] (p. 75).

As a result, the National Center for E-learning and Distance Education (NCEL) was founded in Riyadh in 2005. The NCEL defined several principal goals that the center will seek to achieve its mission as defined by the national plan. These include:

1. Broadening the use of online instruction applications in higher education institutions.
2. Supporting researchers and studies in the field of online learning and distance education.
3. Providing consultancy in the field of online learning and teaching.
4. Organizing and holding conferences, seminars, and workshops that focus specifically on the field of online learning.
5. Setting a standard for the design and publication of online courses [48].

The first government university that introduced distance education programs was King Abdulaziz University (KAU) in 2005 by establishing the Deanship and Faculty of Distance Education [26, 31, 32]. The distance education programs were offered by two faculties: the Faculty of Economic and Administration and the Faculty of Arts and Humanities [45]. According to Dr. Hisham Bardesi, the Dean of Distance Learning Faculty at KAU, Saudi students have joined the KAU online courses with a 200% increase in enrollment during academic year 2009–2010[45]. King Saud University (KSU), the oldest university in Saudi Arabia, also adopted distance education and established the Deanship of E-Learning and Distance Education (DED) in 2008. The DED's mission was to set up the policies and regulations of online learning and distance education and to support faculty members by providing them with the needed technological support and training [26].

Other government universities have also started to adopt DE as a method for delivering instruction, however, at slower rates. An example of these universities is the one included in this study: University of Tabuk.

7. Quality Assurance (QA) in Distance Education

The concept of quality, like freedom or justice, is an elusive, instinctively understood but difficult-to-articulate concept [49]. It is a very important notion that has major reflections and great impacts in every field of our lives. Even though it was used at the beginning as a way of making more profit in the business sector by providing total customer satisfaction, the increased cultural and social awareness has accelerated the application of quality practices to new sectors such as health and education. As the population increases, the graduation rates also increase, which make the quality and the equivalence of the education systems much more commonly questioned and discussed [50].

QA is an ongoing and continuous process of evaluating the quality of a higher education institution and its programs. According to Krneta, Milosevic, Bozovic, and Mitrovic [51], some higher education institutions distinguish between two types of quality assurance: internal quality assurance, which consists of inter-institutional practices in terms of monitoring and improving the quality of higher education, and external quality assurance, which consists of inter- or supra-institutional schemes assuring the quality of higher education institutions and programs. Jung et al. [52], based on a review of QA regulatory systems in 11 Asian countries, found that, in general, most of these systems adopt both internal and external reviews and flows for the following

four procedures:
1. Review based on pre-determined QA criteria.
2. Self-assessment (self-study, self-evaluation).
3. External review (peer review).
4. Final decision by the QA/accreditation agency.

The quality of higher education has also an influential effect on a nation's economic status and future prosperity. Having well-qualified and well-educated graduates will profoundly contribute to developing strong information-based industries and precede the others. Until the 1970s, the quality of higher education was administrated and judged by bureaucratic means. However, during the 1970s and 1980s, QA emerged in university management and government policy as a result of its role in the success of the Japanese economy [50].

According to UNESCO [53], the 1980s can be described as the efficiency period, the 1990s as the decade of quality, and the 21st century as a period of quality education. This observation confirms the argument that quality in education in general and in distance education in particular must be considered as an integral part and core business of higher education [54].

In the literature related to quality in higher education, four terms commonly appear: benchmarking, quality assurance, quality improvement, and accreditation. Benchmarking involves comparing a set of products or services against the best that can be found within the relevant industry sector. QA, on the other hand, is a process oriented to guaranteeing that the quality of a product or a service meets some predetermined standard. Quality improvement is concerned with raising the quality of a product or service [55].

Accreditation, on the other hand, can be defined as "a process of external quality review by an accreditation or certification body, which enables an institution, program or course of study to be recognized or certified as meeting certain required standards" [56] (p.3). Accreditation is a voluntary system for QA and a process that consists of some basic steps or phases. These include defining a set of standards or evaluation criteria, writing a self-evaluation report, conducting evaluation by an external review committee, site(s) visiting, reviewing the committee report, and finally reaching an accreditation decision [50].

The American Council for Higher Education Accreditation [57] considered accreditation as the "primary means of assuring and improving the quality of higher education institutions and programs in the United States." The CHEA asserted that there are 10 ways in which accreditation serves students, society, and the public interest. CHEA asserted that accreditation in the USA is or has been:
1. The primary public symbol of legitimate higher education for over 100 years.
2. The primary "reliable authority" for federal and state governments funding for higher education.
3. The primary reliable authority for private sector financial support for higher education.
4. A major source of protection against fraud and abuse for students and consumers.

5. Successful in encouraging major innovation while maintaining quality over the years.
6. Cost-efficient in the use of resources to achieve its goals.
7. Central to states carrying out licensure of the professions.
8. Essential to international mobility.
9. Responsive to the current climate of accountability.
10. Vital to maintaining key features of higher education that have contributed to the enterprise as among the best in the world.

Even though accreditation standards can differ depending on the accreditation organization, program, or country, there are some basic accreditation standard categories that must be met: (a) students, (b) educational goals, (c) program outcomes and evaluation, (d) faculty, (e) infrastructure, (f) institutional and financial support, and (g) program criteria [50].

According to Quilter and Weber [58], QA in online education is an evaluation process that "judges, measures, or accesses the quality of the development and delivery of online courses/learning environments focused on appropriate design and best practice, and is aimed at self-improvement ensuring quality instruction in a non-threatening way" (p. 64). Some researchers have argued that the quality of online education should be judged and evaluated by the same criteria as traditional face-to-face education. Others have argued that traditional quality concepts are not suitable for online learning since it is structurally different. However, still others have argued that some of the quality concepts and criteria used in conventional education can also be applied to online education and that there are certain features (e.g., asynchronous interactions, open access) unique to online learning that should also be addressed [49, 52, 59].

Maila and Pitsoe [54] argue that ensuring quality in online and distance education programs calls for localized standards and criteria that are informed by globally acceptable measures and standards. Scholars, however, are not in agreement on what constitutes assured quality in higher education in general or in distance education programs. For example, governments may be interested in efficiency and public accountability, while online education providers may be interested in the quality of their management, staffing, and graduation rates. Students, on the other hand, may be interested in costs, flexibility, and interactions in their learning, whereas teachers may be concerned with the quality of the learning process and outcomes [52, 59, 60].

The main target of QA must not only be made explicit by the university administrators, rather it must be widely accepted by the key role players and stakeholders [61]. It is also important that the QAs of all aspects of DE are considered. Clarke, Butler, Schmidt-Hansen, and Somerville [62] have identified three areas of quality assurance in DE: curriculum and its assessment, handling of coursework and assignments, and liaison with the students.

Barker [63] has defined three approaches that are

commonly used for QA in DE. The first approach is called the service model approach, which focuses on the providers' integration of quality into distance delivery and courseware, high-quality support services, and integration of the study of communication into the curriculum. The second approach is called the stakeholder approach, which has the target of involving more than the learning providers in defining quality and setting benchmarks. The third approach, the quality improvement model, involves continuous evaluation using qualitative assessment techniques in order to understand stakeholder values as well as using quantitative assessments to provide indicators of quality and areas of concern.

According to Belawati and Zuhairi[64], quality in online education covers a number of traits, including pedagogical processes, production and delivery systems, and philosophy. The quality of processes includes issues such as learning and teaching processes, advising students, conducting and managing regional tests, and managing student information. On the other hand, the quality of production and delivery systems covers issues such as course production, multimedia production, scheduling, test item production, and broadcasting. Finally, the quality of philosophy includes issues such as DE vision, mission, institutional culture, and public image.

8. Quality Assurance Standards and Models

According to Stella and Gnanam [65], there is considerable discussion among researchers about what constitutes quality in distance education and how to ensure it. Chao, Saj, and Tessier [66], on the other hand, asserted that research in online education has included discussions of quality issues from several perspectives. During the 1980s and 1990s, research in online education quality was pedagogy-oriented. Chao et al. explained that during this period, effective online instruction was described in terms of theories (e.g., situated cognition and cognitive flexibility theory) or principles such as Chickering and Gamson's [67] *Seven Principles for Good Practice in Undergraduate Education*. These theories and principles became essential guidelines for academics and course designers. However, in 2000 another trend of online quality emerged. Attention was not only focused on the quality of online education at the course level, but also at the programmatic and institutional levels. Examples of this trend were the publication of The Institute for Higher Education Policy Council's report *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education* in 2000 and *The Fundamental Seven Key Areas of Quality Assurance* published by The American Council for Higher Education Accreditation[34]. According to Chao et al.[66], all these publications and others include criteria in one or more of the following areas: (a) institutional support; (b) course development and instructional design; (c) teaching and learning; (d) course structure and resources; (e) student and faculty support; (f) use of technology; and (g) e-learning products and services.

Some researchers have argued that the quality of online programs should be judged by the same criteria and methods as traditional face-to-face programs [6]. Jung and Latchem [49] asserted that the majority of institutions use the same quality standards for online education as for the other modes of delivery. On the other hand, some researchers have argued that since online education requires the application of different instructional methods than those used in traditional programs, different measures and specific criteria should be used to evaluate the quality of online programs [6].

In most countries, distance education programs are accredited by the same traditional accreditation organizations (e.g., Australia, Taiwan, China, Japan, Korea, Finland, Denmark). However, there are some countries in which online programs are accredited by organizations that only accredit DE programs and institutions (e.g., Distance Education and Training Council in the United States, Distance Education Council in India, and Open and Distance Learning Quality Counci l in the UK)[6].

Different accreditation organizations use different sets of standards or QAs during the accreditation process. However, most of these standards focus on a number of shared traits including policy and planning, human resources, programs, learning media, student support, and student assessment[6, 68].

Several studies [62, 69, 70] were conducted in order to define general standards or criteria for evaluating the quality of distance education programs and courses, yet probably the most distinctive study is the one that was conducted by The Higher Education Program and Policy Council of The American Federation of teachers (AFT) in 2000. The study is primarily based on surveying 200 members of AFT who themselves teach distance education courses in different major academic areas and use different delivery modes. The study suggests general principles and standards pertaining to faculty, course design, learners, and student assessment that can be used for evaluating the quality of DE programs.

The American Council for Higher Education Accreditation (CHEA) [34]illustrated that there are seven important aspects used by the eight regional accreditation organizations for evaluating the quality of distance education programs offered in the U.S.

The Swedish National Agency for Higher Education [71] has also developed a model for evaluating the quality of distance education called the ELQ model. The model consists of 10 aspects of quality assessment in DE, and several quality criteria were developed for each quality aspect. The National Agency's model for assessing quality in e-learning—E-learning quality (ELQ)—comprises 10 quality aspects considered central to such assessments:

1. Material/content.
2. Structure/virtual environment.
3. Communication, cooperation, and interactivity.
4. Student assessment.
5. Flexibility and adaptability.

6. Support (student and staff).
7. Staff qualifications and experience.
8. Vision and institutional leadership.
9. Resource allocation.
10. The holistic and process aspect.

The University of Frankfurt implemented a procedure model called AKUE aimed at improving and assuring quality and cost efficiency in the context of the introduction of online learning and the development of online learning courses. The model name stands for the German names of its four different phases: analysis, conception, implementation, and evaluation. AKUE can be used to assure quality at both the institutional and course levels [72].

The AKUE model assumes that different types of projects have different requirements and different quality assurances. Bremer [72] has defined four types of projects. The first type is called organizational development projects, where the main goal is to introduce online education and/or blended learning into an organization, a department, or a curriculum. The second type relates to teachers' training projects. This type of project focuses on providing teachers with the necessary training that qualifies them to run and tutor online courses. The third type is course development projects, which address the development and the implementation of online and blended learning courses. The fourth type addresses development of content and media elements.

Even though models such as The Institute for Higher Education Policy [69] and The American Council for Higher Education Accreditation [34] have been very helpful and influential in the field of DE quality assurance, these models are rooted in specific cultural norms and values. According to Masoumi and Lindstrom [36], such models are suited to a Western culture. Thus, the applicability of these models in other cultural contexts is put in question. They argue that DE quality models should specifically consider cultural and cultural–pedagogical constructs.

Even though research studies in national, regional, and international QA frameworks seem to cover a broad range of dimensions, closer analysis revealed that there is a common ground in assessing the quality of online learning. Although researchers use different words to describe the same dimensions, there appears to be general agreement on several dimensions: (1) institutional support; (b) course development; (c) teaching and learning (interaction); (d) course structure; (e) student support; (f) faculty support; and (g) evaluation [59, 73].

The framework (model) that is presented in this paper was developed through a comprehensive review of the practical knowledge (e.g., models, guidelines, benchmarks) used in practical quality work as well as through examining the research on the quality of e-learning and higher education. The analysis and synthesis of the literature in the field resulted in a comprehensive online QA model. Using the Delphi method for ongoing improvement, the model was further defined as a result of critique from researchers, teachers, and other stakeholders at the University of Tabuk and a number of Saudi higher education institutions. In addition, the validity and usability of the online quality model is subject to continual review.

The author also reviewed the following documents: all meeting minutes of the Permanent Committee of Distance Education in the University of Tabuk (2011–2013), the Strategic Plan for Distance Education in the University of Tabuk (2011–2015), procedures, and guidelines produced by the DDEE.

10. Proposed Model

There are three approaches that are commonly used for QA in DE. The first is called the systematic approach, which focuses on the instructional design processes and the administrative side of course development. The second approach is called the constructivist approach, in which the student is the center of the process and communication is interwoven in different guidelines. The last approach is called the holistic model, which combines administrative and student issues [74]. This model states that online learning must be assessed from a holistic perspective; that is, all six aspects outlined in this model must be considered and taken into account to an equal extent.

The model is constructed with 3 levels in which 175 benchmarks are categorized and stored into 27 "sub-factors" and 6 main factors/building blocks. These factors represent a cluster of related benchmarks that are mostly centered on a specific aspect of online settings. However, this framework must be viewed holistically by considering all of the given benchmarks together and by their interrelationships. The model's six main factors/building blocks include the following: Institutional Support (Table 1), Technology Infrastructure (Table 2), Curriculum & Instruction (Table 3), Faculty Support (Table 4), Student Support (Table 5), and Evaluation & Assessment (Table 6).

9. Research Methodology

Table 1. Institutional Support Benchmarks

Criteria	Considerations/Indicators
Staffing and Responsibilities	• Valid plan for departmental structure.
	• Valid plan for assigning responsibilities to staff.
	• Valid plan for employment of general staff.
	• Valid plan for employment of management staff.
	• Staffing structure appropriate and fully qualified to support the programs now operational and envisioned in the near term.
Organization,	• Adequacy and stability of financial resources to support the DE component and uses to which the program income

Criteria	Considerations/Indicators
Governance and Resources	will be put.
	• The educational policies relating to DE are formalized and reviewed.
	• How and by whom the DE component is administered or coordinated on-site with evidence of how administrative personnel are trained in DE and the specific technology being used.
	• A discussion of the physical facilities that have been contracted and their appropriateness to support the program to achieve its goals.
	• Adequacy of secretarial supports and resources and provisions for copying materials and for records maintenance.
	• The institution's budget plan provides for appropriate updating of the technologies employed.
	• The institution's long-range planning, budgeting, and policy development processes reflect the facilities, staffing, equipment, and other resources essential to the viability and effectiveness of the DE program.
Institutional Context and Commitment	• DE is addressed in the University strategic planning documents including explicit alignment with the University mission, established goals related to the presence of distance education as part of the University's educational offerings.
	• The University's policy statement reflects its commitment to the students for whom its DE programs are designed.
	• The University has defined the strategic value of distance learning to its enterprise and to its relevant parts.
	• Efficient management of various committees.
	• How it will manage off-campus administrative processes.
	• Leadership of the president.
	• Evaluation of progress of organizational development.
Organizational Management	• Reasonable educational expense per student.
	• Credible university finance.
	• Transparent accounting.
	• The University has implemented defined processes to enable effective and comprehensive decision making related to distance learning.
	• Documented processes/policies defining new program approval and discontinuation of existing programs.
	• Adequate financial support for students.
	• Adequate support for students' club activities.
	• Sufficient support for students' services.
	• Follow-up services after graduation.
Administration	• Satisfactory management of enrollment.
	• Satisfactory management of course registration and academic affairs.
	• Proper documentation of academic affairs.
	• Satisfactory faculty management.
	• Satisfactory staff management.
	• Good budget planning and execution.

Table 2. *Technology Infrastructure Benchmarks*

Criteria	Considerations/Indicators
Technology Plan	• A documented technology plan that includes electronic security measures (e.g., password protection, encryption, secure online or proctored exams) is in place and operational to ensure quality standards, and the integrity and validity of information.
	• A documented process for communicating to faculty, staff, and students' changes in hardware, software, technical systems as well as information relative to the technical support services available.
Network and Server Infrastructure	• Valid plan to establish network and server infrastructure to adequately serve its students.
Software	• Valid plan to equip with an operating system adequate for DE.
	• Valid plan to construct an online administration management system.
	• Valid plan to install security software.
Identity Recognition and Authentication System	• Valid plan to establish a student identity recognition and authentication system.
	• Policies are in place to authenticate that students enrolled in DE courses and receiving credit are indeed those completing the course work.
	• Sufficient functions to support learning activities.
	• Sufficient functions to support teaching activities.
	• Sufficient functions to support system managers.
LMS	• Effectiveness of management system for academic affairs.
	• Adequacy of data storage and management.
	• System stability and security.
	• Adequacy of system maintenance.
Technology Requirements and Interoperability	• Hardware, browser, and software requirements are specified.
	• Prerequisite skills in the use of technology are identified.
Technical Support	• Resources for orientation on the use of the LMS, supporting infrastructure systems, and required software applications are provided.
	• Technical support resources are provided to help students resolve issues that may arise with the LMS, supporting infrastructure systems such as email, and any software applications used in the course.

Table 3. *Curriculum & Instruction Benchmarks*

Criteria	Considerations/Indicators
Management of Instruction	• Fair management of attendance. • Appropriateness of learning guidance and facilitation. • Fair management of assignments. • Quality class management. • Good quality materials for teaching and learning supports. • Utilization of results of course evaluation. • Appropriate learning evaluation. • The course is organized into study units, time periods, etc. • Study units/time periods include an overview of learning objectives. • Lessons include overview, content and activities, assignments, and assessments. • Provisions have been made for group projects, inter-site interactions and student initiation of classroom activities. • Course sequencing is handled to ensure comparability with the main campus course ordering. • Detailed teaching and learning plan for each course charting how/where/when teaching and learning occur is provided.
Course Design & Development	• Standards based on best practices for online course design are used for course development, design, and delivery of online instruction. • The course architecture is designed to allow the addition of content, activities, and assessments. • Appropriate allocation of learning time. • Proper documentation of content development activities. • Guidelines regarding minimum standards are used for course development, design, and delivery, while learning outcomes—not the availability of existing technology—determine the technology being used to deliver course content. • Instructional materials are reviewed periodically to ensure they meet program standards. • Courses are designed to require students to engage themselves in analysis, synthesis, and evaluation as part of their course and program requirements. • The course design reflects diversity and is free of bias. • The course design allows for the instructor to adapt learning activities to accommodate students' needs. • The course instruction includes activities that engage students in active learning and provide multi-level opportunities for students to master content. • The course provides opportunities for students to engage in higher-order thinking, critical reasoning activities, and thinking in increasingly complex ways. • Readability levels, written language assignments, and mathematical requirements are appropriate for the course. • The course design reflects diversity and is free of bias. • The course design allows for the instructor to adapt learning activities to accommodate students' needs. • The course instruction includes activities that engage students in active learning and provide multi-level opportunities for students to master content. • The course provides opportunities for students to engage in higher-order thinking, critical reasoning activities, and thinking in increasingly complex ways. • The course design provides opportunities for appropriate instructor-student interaction, including timely and frequent feedback about student progress. • Readability levels, written language assignments, and mathematical requirements are appropriate for the course. • The course design provides opportunities for appropriate instructor-student interaction, including timely and frequent feedback about student progress. • The course provides opportunities for appropriate instructor-student and student-student interaction to foster mastery. • The course goals and objectives are measurable and clearly state what the student will know or be able to do at the end of the course. • The course content and assignments are of sufficient rigor, depth, and breadth to teach the standards and identified student learning outcomes. • A clear, complete course overview, syllabus, and schedule are included in the course. • Course requirements are consistent with course goals, representative of the scope of the course, and clearly stated. • Information is provided to students on procedures for communication with the online instructor, including information on the process for these communications. • Important dates are clearly indicated.
Program Design	• What process resulted in the decision to offer the program? • By what process was the program developed? • Were academically qualified persons responsible for curricular decisions? • How were "learning outcomes appropriate to the rigor and breadth of the degree or certificate awarded" established? • Does the program design involve the demonstration of such skills as analysis, comprehension, communication, and effective research? • Is the program "coherent and complete?" • Is the program "coherent and complete?" • What were the academic qualifications of those responsible for curricular decisions, assessment, and program oversight? • What are the academic qualifications of those presenting and managing the program? • The University assures that the program of study results in the level of learning outcomes appropriate to the rigor

Criteria	Considerations/Indicators
	and breadth of the degree awarded.
	• The substance of the program, its presentation, management, and assessment are the responsibility of people with appropriate academic qualifications.
	• The University provides a coherent plan for students to access all the courses (or hybrid courses) necessary to complete the program, and clearly notifies students of requirements not included in the electronic offering.
	• Although important elements of a program may be supplied by consortium partners or outsourced to other organizations, including contractors, the responsibility for performance remains with the University awarding the degree.
	• How the curriculum design of the DE component is connected to the overall program's mission, goals, and objectives and to specific objectives of the distance education component.
	• Ensuring that the academic standards of awards will be demonstrably comparable with awards delivered in other modes.
Plan for Content Maintenance	• Detailed plan to manage departments and staff for content maintenance.
	• Detailed procedures for content maintenance.

Table 4. *Faculty Support Benchmarks*

Criteria	Considerations/Indicators
Instructional Design Assistance	• What support services are available to those responsible for preparing DE courses or programs?
	• What support services are available to those faculty members responsible for working directly with students?
	• Do participating faculty members consider these services to be appropriate and adequate?
	• Does the staff include qualified instructional designers? If so, do they have an appropriate role in program and course development?
Policies Compensation, and Ownership of Intellectual Property	• The University and its participating faculty have considered issues of workload, compensation, ownership of intellectual property resulting from the program, and the implications of program participation for the faculty member's professional evaluation processes.
	• A policy for copyright ownership of course materials exists.
	• What orientation and training programs are available? Are there opportunities for ongoing professional development?
Orientation and Training Programs	• Is adequate attention paid to pedagogical changes made possible and desirable when information technologies are employed?
	• Given the staff available to support DE programs, are the potential changes in course design and management realistically feasible?
	• Do those involved consider these orientation and training programs to be appropriate and adequate?

Table 5. *Student Support Benchmarks*

Criteria	Considerations/Indicators
Pre-Admission Advising	• Before starting a DE program, students are advised about the program to determine if they possess the self-motivation and commitment to learn at a distance.
	• Availability/use of self-evaluation tool/s for prospective students.
	• Prior to registering for a DE course or program, students have access to information about admission requirements, tuition and fees, books and supplies, technology and proctoring requirements, and student support services.
	• Informs the prospective student concerning required access to technologies used in the program.
	• Informs the prospective student concerning technical competence required of students in the program.
	• Informs prospective students concerning estimated or average program costs (including costs of information access) and associated payment and refund policies.
	• Informs prospective students of library and other learning services available to support learning and the skills necessary to access them.
	• Informs prospective students about the full array of other support services available from the University.
	• Informs prospective student of independent learning expectations as well as the nature and potential challenges of learning in the program's technology-based environment.
	• Informs the prospective student about the estimated time for program completion.
	• The University ensures that all DE students, regardless of where they are located, are (a) provided with access to the training and information they will need to access library/learning resources adequate to support the courses they are taking and (b) are able to access such materials.
	• Bookstore services: ordering, secure payment, and prompt delivery of books, course packs, course-related supplies and materials, and institutional memorabilia.
Student Support Services	• Library resources appropriate to the program, including reference and research assistance; remote access to databases, online journals, and full-text resources; document delivery services; library user and information literacy instruction, reserve materials; and institutional agreements with local libraries.
	• The University provides adequate access to the range of student services appropriate to support the programs, including admissions, financial aid, academic advising, delivery of course materials, and placement and counseling.
	• The University provides adequate means for resolving student complaints.
	• Students with disabilities enrolled in DE courses or programs are provided with support services.
	• The University monitors whether students make appropriate use of learning resources.
	• The University provides laboratories, facilities, and equipment appropriate to the courses or programs.

Criteria	Considerations/Indicators
Technical Support	• Students have access to and can effectively use appropriate library resources. • Laboratories, facilities, and equipment are appropriate to the courses or program(s). • Is a help desk function realistically available to students during hours when it is likely to be needed? • Is help available for all hardware, software, and delivery systems specified by the institution as required for the program? • Does the help desk involve person-to-person contact for the student? By what means, e.g., email, phone, fax? • Is there a well-designed Frequently Asked Questions (FAQ) service, online and/or by phone menu or on-demand fax? • How and to what extent will students be oriented to distance learning, to the overall program, and to field practicum and problem-solving procedures with evidence that students understand the potential implications of technological system failures?
Student Development	• Program supports to promote student retention and faculty monitoring of student progress are provided. • Support systems are in place for professional socialization of students. • Professional and academic advisement for students is available. • Student-student interactions are built into the program related to professional socialization, student organization, and governance of the program with connections to the main campus.

Table 6. Evaluation & Assessment Benchmarks

Criteria	Considerations/Indicators
Evaluation of Faculty and Student Support Services	• Appropriate evidence is generally available through: • University standard end-of-course survey. • Student graduate exit survey. • Post-course survey of faculty members' experience with support services. • Student evaluations are consistent with course goals and objectives, are representative of the scope of the course, and are clearly stated. • The course structure includes adequate and appropriate methods and procedures to assess students' mastery of content.
Evaluation Strategies	• The program's educational effectiveness and teaching/learning process is assessed through an evaluation process that uses several methods and applies specific standards. • Data on enrollment, costs, and successful/innovative uses of technology are used to evaluate program effectiveness. • Intended learning outcomes are reviewed regularly to ensure clarity, utility, and appropriateness. • Grading rubrics and models of partially to fully completed assignments are provided. • Grading policies and practices are easy to understand. • Assessment strategies and tools make students continuously aware of their progress in the class and mastery of the content. • How is personal information protected while providing appropriate dissemination of the evaluation results?
Overall Program Effectiveness	• Appropriate evidence is generally available through: • Evaluations of student performance. • Review of student work and archive of student activities, is maintained, in the course of program reviews. • Results from students' routine end-of-course and -program evaluations. • Student surveys of overall satisfaction with the experience of DE programs. • Faculty surveys, peer reviews of programs, and discussion groups. • Documentation concerning access provided to students not previously served, through a combination of enrollment records and student surveys. • Usage records concerning use of library and learning resources and instructor assignments that require such usage. • Retention for DE programs are examined and reviewed. • How is the institution's ongoing program of assessment and improvement developed and conducted? • Does it cover the essential categories of improved learning outcomes, retention, use of resources, and service to core constituencies?
Institutional Self-Evaluation	• Does the program appropriately involve academically qualified persons? • What are the institution's mechanisms for the review and revision of existing programs and courses? • How does program evaluation affect institutional planning? • What constituencies are actively involved in the ongoing process of planning for improvement? • Has the process had measurable results to date?

11. Final Remarks

The quality model presented in this paper is a response to the concerns and calls about the quality of online education in general and of dual-mode institutions in particular. With the goal of providing a tool for formative quality work, as well as promoting a culture of ongoing self-improvement, the author attempted to synthesize theoretical and practical knowledge in the area of quality in online learning.

The quality model has two main functions: quality improvement and QA. It is obviously developed to foster quality improvement in dual-mode institutions. It also can provide a basis for determining the minimum requirements for institutions to apply while developing an online program or a course. Additionally, the model can help these

institutions to identify what they measure and how to measure it in order to define their strengths and weaknesses and to plan for improvement. The model can also be used as a foundation for developing a national model or framework for online QA.

Overall, QA in DE is still at an early stage of development compared with QA in conventional higher education. Whatever the external imperatives, QA should be internally driven and accepted. It should occupy a central part of the institutional mission to teach and research. A culture of quality must be built and willingly shared by all staff members in a way that links internal and external accountability [49].

Acknowledgements

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