Improving the Quality of Online Courses for Higher Education: A Review of Theories and Scholarly Literature Underpinning Quality Matters Standards and Suggested Model for Online Courses

Fawzia Alubthne

Instructional Technology, Department of Kindergartens, College of Science and Humanities in Huraymila, Shaqra University

تحسـين جـودة المقـررات الإلكترونيـة عبـر الإنترنـت للتعلـيم العـالي: مراجعـة للنظريـات والأدبيات العلمية التي تدعم معايير الجودة كواليتي مـاترز (Quality Matters) وتقديـم نموذج مقترح للمقررات الإلكترونية عبر الإنترنت

فوزية العوبثاني

تخصص تقنيات التعليم، قسم رياض الأطفال، كلية العلوم والدراسات الإنسانية بحريملاء، جامعة شقراء، الرياض، المملكة العربية السعودية.

البريد الالكتروني: **falobethane@su.edu.sa**

المستخلص: مع النمو المتسارع الذي يشهده التعلم الإلكتروني عبـر الإنترنت تظهر أهميـة تقييم وتطوير جودة المقررات الإلكترونيـة التي تقدم عبـر الإنترنـت. تعتبـر معايير الجودة كـواليتي مـاترز (QM) مـن أبـرز البرامج التي طورت معايير يمكن أن تسـاهم فـي تقيـيم وتطوير لتحسين جودة التعلم عبـر الإنترنت اعتمـادا علـى أصـول بحثيـة. تم إجراء هذه الدراسة بهدف استقصاء النظريات، والدراسات، والأبحاث التي تدعم معايير الجودة، حيث قامت الدراسة بمراجعة بعض الدراسات التي هدفت إلى بحث الجوانب، والعناصر التربويـة ومبادئ التصميم الهامة والضرورية لنجاح المقررات الإلكترونية التي تقدم عبر الإنترنت. بنـاء علـى النتـائج قدمت الباحثـة نموذجـا مقترحا للمقرر الإلكترنـي عبـر الإنترنـت وفقـا لمعايير (QM)، إلى جانب تقديم بعض المقترحات والتوصيات.

الكلمات المفتاحيـة: جودة التعلم عبر الإنترنت، تطوير التعلم عبر الإنترنت، التعلم عن بعد، تقييم المقررات الإلكترونية عبر الإنترنت، معايير التقييم.

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Fawzia Alubthne

Instructional Technology, Department of Kindergartens, College of Science and Humanities in Huraymila, Shaqra University, KSA.

Email: falobethane@su.edu.sa

Abstract: Online learning is growing rapidly and continuously. Therefore, it is crucial to ensure its quality of online courses. Quality Matters program produced a research-based rubric offering quality assurance for online courses. This paper was conducted to review the theories, studies, and research informing and supporting Quality Matters standards. The study analyzed some studies to examine the important educational aspects and elements and instructional design principles necessary for the success of online courses. Findings showed that the QM standards are reliable and supported by studies and learning theories. Consequently, adopting QM rubric could be useful for improving online courses in Saudi universities. Based on the QM standards, the researcher visualizes a suggested model for an online learning course. Some recommendations and suggestions are provided based on the conclusions of the study.

Keywords: Online learning quality- Improving online courses - Distance learning – Evaluating online courses- Evaluation standards

Improving the Quality of Online Courses for Higher Education: A Review of Theories and Scholarly Literature Underpinning Quality Matters Standards and Suggested Model for Online Courses

Introduction

The number of online learning courses has been growing steadily, and the number of students around the world enrolling in these courses has risen annually. In addition, an increasing number of universities have been adapting to online instruction (Allen & Seaman, 2015; Allen, Seaman, & Seaman, 2018). As a result of this growing popularity of online learning, researchers have been studying the factors that contribute to the success of online classes and the development of their qualities (Alubthne, 2018).

It is essential to evaluate the success of online courses. Evaluation sheds light on the strengths and weaknesses of online courses and enables instructors to address weaknesses, improve less-effective aspects, and provide suggestions to raise the quality, effectiveness, and efficiency of courses (Alubthne, 2018).

Because quality assurance of online courses is a crucial issue, it is vital to adopt reliable and valid standards that have been developed based on scholarly literature and educational and design theories (Alubthne, 2018). There are a range of rubrics and guidelines that have been developed to evaluate the quality of online courses. These tools include

- the Quality Online Course Initiative Rubric and Checklist,
- the Central Michigan University Quality Assurance Checklist,
- the Online Course Evaluation Project (OCEP),
- the Online Course Development Guide and Rubric,
- Criteria for Evaluating the Quality of Online Courses,
- Chico's Rubric for Online Instruction,
- Evaluation of Online Course based on Principles of Online Design, and

. the Online Course Assessment Tool (OCAT) and Peer Assessment Process (Michigan

State University, 2016).

Shattuck (2010) revealed that because shared online courses became popular, "[the] faculty of Maryland Online member institutions expressed concern about determining the quality of an 'adopted' course from another institution. As a result, Quality Matters (QM) was envisioned as an inter-institutional peer review process to improve the quality of online courses" (p. 50).

Quality Matters (QM) "is a faculty-centered, peer review process that is designed to certify the quality of online courses and online components. QM has received national recognition for its peer-based approach to quality assurance and continuous improvement in online education" (Quality Matter, 2015, para.1). The Quality Matters Rubric has been widely adopted by many universities both inside and outside the United States, in order to continuously improve the quality of online courses (Parscal & Riemer, 2010; Ralston-Berg, 2014; Young, 2014).

The QM rubric consists of eight general standards:

1. Course Overview and Introduction
2. Learning Objectives (Competencies)
3. Assessment and Measurement
4. Instructional Materials
5. Learning Activities and Learner Interaction
6. Course Technology
7. Learner Support
8. Accessibility and Usability. (QM, 2019)

According to QM (2015),

> unique to the rubric is the concept of alignment. This occurs when critical course components—Learning Objectives (2), Assessment and Measurement (3), Instructional Materials (4), Course Activities and Learner Interaction (5), and Course Technology— work together to ensure students achieve desired learning outcomes.

Quality Matters (QM) "was established under a 2003–2006 grant from the Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE). The grant's charge was to develop a replicable and scalable process to assure quality in online course design" (Shattuck, 2015, p. 3). According to Ralston-Berg (2014), "the Quality Matters (QM) program offers quality assurance through a research-based rubric for online course design" (p. 117).

Some studies were conducted to examine QM standards. For example, Aman (2009) investigated whether QM peer-reviewed online courses improved student satisfaction and rates of student retention. After surveying 455 students who were enrolled in 41 online courses, the study results showed a significant positive relationship between student satisfaction and QM peer-reviewed courses.

To study effects of developing hybrid (blended) courses meeting QM standards, a case study by Young (2014) surveyed 321 students in the blended format and 186 learners in face-to-face classes of the same course. The outcomes showed that the developing hybrid (blended) courses meeting QM standards significantly enhanced students' deep learning, motivation, strategy, attitudes, and course evaluations but showed no difference in exam scores.

A national survey was conducted by Ralston-Berg (2014) to "compare QM rubric item numerical rankings with student rankings of quality elements" (p. 117). The study sample contained 3,160 students from 31 institutions in 22 states. The findings revealed that students found that items on the QM rubric are important.

To examine the use of a QM rubric for quality assurance in online courses, Bento and White (2010) applied a case study in a graduate accounting course offered online by a state university in the mid-Atlantic region. The outcomes showed that the faculty considered the alignment of learning objectives with the selection of assessment instruments and instructional materials to be the principal benefit of QM application, while the students found that the increased clarity in the presentation of faculty expectations and the improved access to course components were the potential core benefits of QM.

Myers (2015) conducted a quantitative study to investigate the significance of usability as a construct in online course design. The outcomes revealed that learners' motivation to remain in or enroll in a course that met QM usability standards and the System Usability Scale (SUS) was higher at a statistically significant level than the course that did not meet QM or SUS.

However, Miner (2014) examined the effect of QM on student satisfaction, grades, and retention. After analyzing grade and retention data from 23 online courses at Florida International University, "no significant differences were found in student satisfaction, grades, or retention between before and after QM certified online courses. Results indicate student success measures such as satisfaction, grades, or retention may not be predicated on Quality Matters certification of online courses" (p. 1).

Problem Statement

Some studies have indicated that designing online courses meeting QM standards has a positive impact on student motivation, learning, rates of retention, and satisfaction (Bento & Aman, 2009; Myers, 2015; White, 2010; Young, 2014). Participants of a study by Little (2009) found that the QM Rubric produced more consistent results among peer reviewers, and it was easy to use.

Young (2014) indicated that "QM's set of standards (or Rubric) is the foundation for course design certification and the professional development program. The standards are research-based and represent best practices that were established by experienced instructional designers and online teachers" (p. 23). According to Ralston-Berg (2014), QM is based on principles identified in academic research". Parscal and Riemer (2010), indicated that the QM Rubric was developed based on national criteria of best practices, the research literature, and instructional design principles. Shattuck (2015) emphasized that "a review of the scholarly literature was a key component in establishing the initial 2005 QM Rubric" (p. 3).

This study aimed to discuss and review the theories and the research supporting and informing QM from the standpoints of both learning and design theory. To fulfill this purpose, the study reviewed the literature, as well as learning and design theories,

that addressed the most important elements for the success of online courses.

Purpose of the Study:

As indicated above, the main purpose of this study is to examine the research and scholarly literature supporting QM standards. Based on the results, the researcher developed a suggested model for online learning.

Research Questions:

The study investigated the following main questions:

1. What research and theories support the standard of QM?

Several sub-questions emerge from the main question:

- What research supports the first standard of QM, Course Overview and Introduction?
- What research supports the second standard of QM, Learning Objectives (Competencies)?
- What research supports the third standard of QM, Assessment and Measurement?
- What research supports the fourth standard of QM, Instructional Materials?
- What research supports the fifth standard of QM, Learning Activities and Learner Interaction?
- What research supports the sixth standard of QM, Course Technology?
- What research supports the seventh standard of QM, Learner Support?
- What research supports the eighth standard of QM, Accessibility and Usability?

2. Based on the results, what is the best model that could be suggested for online courses?

Significance and Justification of the Study:

Al-Salman (2013) noted, "With the proliferation of online learning, it has become increasingly important to monitor its implementation and measure its outcomes" (p. 1). Therefore, it is meaningful to develop suitable standards for evaluating the quality of online courses in order to improve them. Consequently,

many universities have adopted the QM Rubric to evaluate and improve the quality of online courses (Parscal & Riemer, 2010; Young, 2014).

This study is significant because it sheds light on the theoretical foundations and scientific studies that support the QM standards, which will provide more evidence to support the reliability of these standards. Additionally, this study could be beneficial for researchers who are interested in QM or other standards evaluating online learning courses. It could also help researchers and experts develop research-based criteria for the quality of online learning.

Study Methodology:

The study reviewed the literature that investigated the requirements, students satisfaction, and quality indicators of online courses in order to identify the theoretical foundations and studies underpinning the quality standards developed by QM for evaluating and improving online courses.

Delimitations of the Study:

The study focused only on reviewing the experimental, descriptive, and qualitative research investigating the most important features required to enhance the quality of online learning. The studies informing the QM standards for improving and evaluating online courses in higher education represent the basis of this study. Studies targeting online learning for K–12 level, primary, and secondary education were excluded. In addition, the study focused only on QM standards for higher education levels. Regarding theories, the study's emphasis has been placed on educational theories, such as behavioral, cognitive, and constructive theories and design theories.

Terminology Definitions:

QM "is a faculty-centered, peer review process that is designed to certify the quality of online courses and online components. QM has received national recognition for its peer-based approach to quality assurance and continuous improvement in online education" (Quality Matters, 2015, para.1).

Online Learning Courses: According to Dabbagh and Bannan-Ritland (2005), online learning is "an open and

distributed learning environment that utilizes pedagogical tools, enabled by Internet and Web-based technologies, to facilitate learning and knowledge building through meaningful action and interaction" (p. 15).

Theories: This refers to design theories and learning theories such as behaviorism, cognitivism, and constructivism.

Scholarly Literature: This refers to the experimental, descriptive, and qualitative research and studies conducted to investigate the critical features improving the quality of online learning courses.

Study Process:

First, the researcher reviewed and studied Quality Matters standards and a number of studies that discussed the most important elements of improving the quality of online courses for higher education. Using the research found in peer-reviewed journals and in the research bank on the QM website, the researcher then chose and reviewed the scholarly literature and theories supporting each QM standard. Based on the results, the researcher developed a proposed model for online courses according to QM standards.

The Scholarly Research Informing QM Standards:

To investigate the scholarly research informing and supporting the QM Standards, the researcher reviewed various studies conducted to examine the essential aspects of online learning covered by the QM Standards.

Standard 1. Course Overview and Introduction:

1.1 Instructions make clear how to get started and where to find various course components.

1.2 Learners are introduced to the purpose and structure of the course.

1.3 Communication expectations for online discussions, email, and other forms of interaction are clearly stated.

1.4 Course and institutional policies with which the learner is expected to comply are clearly stated within the course, or a link to current policies is provided.

1.5 Minimum technology requirements for the course are clearly stated, and information on how to obtain the technologies is provided.

1.6 Computer skills and digital information literacy skills expected of the learner are clearly stated.

1.7 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated.

1.8 The self-introduction by the instructor is professional and is available online.

1.9 Learners are asked to introduce themselves to the class (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

Introducing the course to the students and making clear the course purpose, institutional policies, and prerequisite knowledge are important elements for designing effective online courses. Some studies support this claim. For example, Sheridan and Kelly (2010) and Wozniak, Pizzica, and Mahony (2012) indicated the importance of making course requirements, prompts, and navigation clear. After reviewing and synthesizing previous studies, Chaney, Eddy, Dorman, Glessner, Green, and Lara-Alecio (2007) found that course structure guidelines are considered one of the most significant quality indicators. Chen (2007) indicated that developing clear orientation plays a key role in improving online learning courses.

Navigation throughout the online components of the course should be logical and consistent. To increase clarity and organization, Rao and Tanners (2011) suggested that the instructor should design an interface that provides the course information and assignments in a consistent manner to make it easier for students to navigate the course. Shiratuddin, Hassan, & Landoni, M. (2003) argued that "consistency in design is vital in determining users' familiarity in terms of, for example, navigation icons, coloring scheme, and page structure" (p. 122). Borgemenke, Holt, & Fish (2013) considered consistency in design as one of the main factors that increase the quality of online courses.

Benton, Gross, Pallett, and Webster (2013) emphasized the importance of "making it clear how each topic fits into the course

and explaining course materials clearly and concisely" (p. 215) in improving communication between the instructor and learners and reducing potential misunderstandings between them. These important details could be described as a *"Road Map"* (Alubthne, 2018, p.170). According to Conrad (2002), the beginning of online courses plays a vital role in the success of these courses. Providing detailed instructions related to assignments, schedules, and required reading makes students feel comfortable and reduces tension and anxiety that they feel at the start of the course.

The outcomes of a study by Rao and Tanners (2011) revealed that the students appreciate a clear statement of expectations, a detailed syllabus, and explicit rubrics that help them to organize their time and understand the course requirements. Borgemenke et al. (2013) stated that "one of the most important components of the universal course shell template design is establishing consistent syllabi" (p. 20). They also indicate that "sections contained in all course syllabi within program courses include instructor contact information, course information, course requirements, course assignments, course calendar, technology requirements, and university specific procedures and policies" (p. 20).

Mastering relevant technical skills is critical for students enrolled in courses online (Hendricks & Bailey, 2014; Ronsisvalle & Watkins, 2005). Hendricks and Bailey (2014) suggested that universities may evaluate the technological needs of learners enrolling in online courses and provide learners with a tutorial video. Hendricks and Bailey (2014) noted that the students participating in the study "perceived their technological proficiency to be above average to superior, they still had specific requests concerning technology issues". Accordingly, it is important for instructors to state the minimum technical skills expected of the student.

Dykman and Davis (2008) emphasized that many students do not know what to anticipate, how to behave, or how to navigate an online course. Consequently, the instructor has to inform them of what to do. A well-built syllabus containing the course descriptions, technical requests, university policies, and class processes constructs a strong foundation for online learning.

The self-introductions of the instructor and students are critical factors in establishing social engagement. According to Swan and Shih (2005), constructing social relationships in a connected online community is a crucial element in the success of online courses. They increase the feeling of satisfaction among students. Revere and Kovach (2011) pointed out that sharing personal information by posting introductions about themselves allows students to learn about each other early in the course, which in turn, supports social and cognitive engagement and helps develop a sense of community.

Conrad (2002) found that most students wanted their instructor to start via an informative welcome. The result of the study conducted by Motteram, Forrester (2005) revealed that students need to know about their instructor and colleagues. In fact, these strategies contribute to building strong relationships and improving social presence. Maor (2003) indicated that an instructor could build suitable relationships with students by sharing some of his or her background and posting an introduction about himself or herself. Kerr (1986) considered the use of welcoming, cordial messages as one of the crucial factors that enhance social relationships between teachers and students in online courses.

Standard 2. Learning Objectives (Competencies):

2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable.

2.2 The module/unit-level learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.

2.3 Learning objectives or competencies are stated clearly, are written from the learner's perspective, and are prominently located in the course.

2.4 The relationship between learning objectives or competencies and learning activities is clearly stated.

2.5 The learning objectives or competencies are suited to the level of the course (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

According to Ally **(2004)**, the behaviorist school emphasizes that "students should be told the explicit outcomes of the course so that they can set expectations and can judge for themselves whether or not they have achieved the outcome of the online lesson" (p. 8). To apply cognitive theory principles to an online learning environment.

Reeves and Reeves **(1997)** mentioned that "Instructivists stress objectives that exist apart from the learner, sequencing them into learning hierarchies, and subjecting students to direct instruction addressing each of the objectives in sequence" (p. 5). Reeves (2006) reports that objectives should be "ideally stated as measurable outcomes ranging from discrete knowledge (e.g., students will be able to identify distinguishing properties of a phenomenon) to higher order thinking (e.g., students will exhibit a robust mental model of related systems)" (p. 303).

Spallek, Berthold, Shanley, and Attstrom **(2000)** undertook a study to describe the development of quality guarantee standards for online courses. The outcomes of the study survey showed that defining the educational goals and objectives is clearly significant. These findings are consistent with Rao and Tanners (2011), who stressed the importance of clear learning expectations for students.

In a study by Song, Singleton, Hill, and Koh **(2004)**, participating students considered the difficulty of understanding the educational objectives to be one of the main obstacles that hinders the success of online courses. Based on these findings, Song et al. (2004) suggested that it is critical to clarify perceptions of objectives. Instructors can provide "mechanisms where learners can ask questions to improve their understanding of expectations" (p. 68).

After investigating 72 students' reading behaviors and cognitive processes, Jiang and Elen **(2011)** have suggested that learning objectives need to be clear for students in order to help them in guiding and directing their learning. The objective's characteristics may influence students' understanding of tasks and assignments, which can impact subsequent information processes, such as monitoring. Accordingly, it is crucial to provide well-defined learning objectives that specify exactly what students are expected to learn and clarify which cognitive activities they

should perform (Jiang & Elen, 2011). Wang, Peng, Huang, Hou, and Wang (2008) argued that it is essential to "specify learning objectives, and to help with improving and promoting the level of the learner's learning strategy. Learning objectives are the starting point and the final goal of learning strategy, and determine the learning activity" (p. 26).

Swan, Matthews, Bogle, Boles, and Day (2012) found that the QM course "revisions did indeed result in improved student outcomes. Arguably, student performance improved because the QM revision led instructors to focus on objectives and the mapping of objectives to assessments, which in turn led to a clearer focus in the course" (p. 86).

Constructivism and cognitivism principles support strategies that promote critical thinking and high-level processing facilitating the creation of personalized meaning. Therefore, it is important to consider these principles when developing the course objectives. Reeves and Reeves (1997) indicated that most instructors focus mainly on the transmission of existing knowledge and skills, others aim to develop higher order outcomes for their students "such as problem-solving abilities, creativity, curiosity, and the desire for lifelong learning" (p. 4). Similarly, Bruning (2005) suggested adding educational objectives and assignments requiring cognitive skills, promoting critical thinking, and fostering interaction among students. He indicated that these principles are supported by researchers as critical aspects that should be included in the online learning environment.

Standard 3. Assessment and Measurement:

3.1 The assessments measure the achievement of the stated learning objectives or competencies.

3.2 The course grading policy is stated clearly at the beginning of the course.

3.3 Specific and descriptive criteria are provided for the evaluation of learners' work, and their connection to the course grading policy is clearly explained.

3.4 The assessments used are sequenced, varied, and suited to the level of the course.

3.5 The course provides learners with multiple opportunities to track their learning progress with timely feedback.

(Standards from the Quality Matters Higher Education Rubric, 6th Edition).

"Motivation design utilizes educational scaffolding to provide clear directions and purpose to keep students engaged, while also creating assessments that efficiently clarify learning objectives" (Pittenger & Doering, 2010, p. 276). Armstrong (2010) found that the nature of assessments used in the online environment formed student approaches to learning. Armstrong (2010) suggested that instructors should develop assignments such as online project-based and problem-based assessments. Lin, Hong, Wang, and Lee (2011) suggested using "reflective peer assessment [for students to practice] "reflective evaluation [and] evaluative reflection" (p. 186) in which the teacher assigns the roles. Reeves (2000) recommended cognitive assessment, performance assessment, and portfolio assessment as alternative assessment approaches for online learning environments.

The alignment between learning objectives, content, instructional design, activities, assignments, and assessment is considered one of the most important educational principles that is supported by a number of studies in this field. Reeves (2006) emphasized that the success of any learning environment "is determined by the degree to which there is adequate alignment among eight critical factors: 1) goals, 2) content, 3) instructional design, 4) learner tasks, 5) instructor roles, 6) student roles, 7) technological affordances, and 8) assessment" (p.302). Reeves (2006) indicated that "failure to align these eight dimensions will undermine the successful design and implementation of an undergraduate course, regardless of whether it is offered in a classroom, online, or via a blended mode" (p. 305).

Holsombach-Ebner (2013) emphasized the importance of alignment between learning objectives, a course structure, developing a variety of assessment tools, and evaluating activities. In the same context, Jensen, Self, Rhymer, Wood, and Bowe (2002) suggested making a stable connection between the content and the test. To understand the significance of the alignment, the study conducted by Swan et al. (2012) concluded that linking

learning objectives to assessments led students to a clearer focus in the course, which in turn reflected positively on the performance.

Also, it is important to provide clear, specific, and descriptive criteria to enable students to evaluate their work and participation. Fisher (2010) emphasized the importance of a grading rubric and assessment criteria. The reason of that could be explained by the results of Rao and Tanners (2011) which showed that the students appreciate explicit rubrics that explain the criteria, which gives them a higher objective to achieve and guides them on what to expect. Rao and Tanners (2011) also emphasized the importance of worksheets or handouts to guide their assignment responses.

Borgemenke et al. (2013) recommended that grading rubrics should be embedded into each assignment to remind learners of the needed elements for success. "The grade book is an essential component of our universal course shell design that allows students to efficiently monitor and manage their course grades" (p. 21). The results of a study conducted by King (2014) showed that instructor feedback, email to and from the instructor, access to grades, information about assignments, handouts, and lecture outlines are the most significant features suggested by students.

Ali (2012) investigated factors affecting nursing students' satisfaction with e-learning environments at King Khalid University. Students participating in the study considered diversity in assessment as one of the most essential factors affecting student satisfaction with e-learning. This result may be supported by some studies, such as Ford, Wood, and Walsh (1994), which indicates that students have various cognitive styles and different search strategies. The results of a study by Battalio (2009) found "significant associations between students' learning styles and success in distance education" (p. 83). Accordingly, various assessment methods are suggested to meet the individual differences of students. Reeves (2006) stresses that "rather than using just one method, robust assessment requires the critical analysis of multiple forms of evidence that learning outcomes have been attained" (p. 304).

Feedback is very important to the effectiveness of online courses. Swan, Shea, Fredericksen, Pickett, and Pelz (2000) found that the correlation between students' perceived interaction with their instructor and the actual frequency of instructor feedback is significant. Fisher (2010) stressed that feedback is essential to assist and guide students and that it helps students avoid confusion and anxiety. Rao and Tanners (2011) indicated that students consider adequate feedback as a critical and useful factor helping students learn. Borgemenke et al. (2013) recommended that instructors should provide "constructive feedback to students within 72 hours of assignment due dates" (p. 21).

Standard 4. Instructional Materials:

4.1 The instructional materials contribute to the achievement of the stated learning objectives or competencies.

4.2 The relationship between the use of instructional materials in the course and completing learning activities is clearly explained.

4.3 The course models the academic integrity expected of learners by providing both source references and permissions for use of instructional materials.

4.4 The instructional materials represent up-to-date theory and practice in the discipline.

4.5 A variety of instructional materials is used in the course (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

Sims, Dobbs, and Hand (2002) stressed that instructors should use strategies such as planning and designing the development cycle and proactive evaluation when creating online learning resources and material "to ensure they will have a greater chance of achieving educational outcomes, with both teachers and learners gaining significant value from their online experiences" (p. 147). Ally (2004) pointed out that effective online learning materials should be developed based on the principles of learning theories and how students learn.

Rey-López, Brusilovsky, Meccawy, Díaz-Redondo, Fernández-Vila, and Ashman (2008) suggested that adding

intelligent content that engages students in purposeful learning activities such as problem-solving could boost the content and make it more efficient. Borgemenke et al. (2013) emphasized that course material should be within the reach of students so that they can access them easily. Also, content provided "should be useful, relevant, and up-to-date" and it "should be structured and designed in such a way that users will find information easily and effectively" (Shiratuddin et al., 2003, p. 122).

All resources and materials used in the course are appropriately cited because copyright must be considered before posting resources. Copyright law on electronically posted materials is the same as the law applied to print courses, and therefore, the posting of some of these materials requires the permission of the copyright owner (University of San Diego, 2012). Kampov-Polevoi (2010) reported that some instructors show concern with respect to copyright laws when constructing their online course content. To avoid copyright violations, some instructors use links to materials available on the open Web, such as YouTube videos.

According to the University of San Diego guidelines, instructors can include material in the course content one time without permission if it is "one chapter (or equivalent) from a book, one journal or newspaper article (or equivalent), an excerpt from a prose work that does not exceed more than 10% of the work, and one chart, graph, diagram, drawing, cartoon or picture per book or per journal issue" (p. 1).

The instructor should offer a variety of learning materials that is commensurate with the diversity of students' needs. The cognitive school emphasizes the importance of the individual differences of students. Therefore, it is essential to use a variety of instructional materials to accommodate those differences (Ally, 2008). Ally (2004) indicated that according to cognitivist school, "the difficulty level of the material must match the cognitive level of the learner, so that the learner can both attend to and relate to the material. Links to both simpler and more complicated materials can be used to accommodate learners at different knowledge levels" (p. 11).

Standard 5. Learning Activities and Learner Interaction:

5.1 The learning activities promote the achievement of the stated learning objectives or competencies.

5.2 Learning activities provide opportunities for interaction that support active learning.

5.3 The instructor's plan for interacting with learners during the course is clearly stated.

5.4 The requirements for learner interaction are clearly stated (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

Based on educational theories, Ally (2008) suggested that students in online courses should be provided with a variety of learning activities to achieve the learning objectives and to accommodate students' individual needs: "Constructivists see learners as being active rather than passive" (p. 18). Interactive and collaborative learning represents important principles of constructivist theory that assume that people learn best in a social environment (Petraglia, 1998). Modern constructivist and connectivist theorists emphasize the importance of students' interaction in investigating and developing multiple perspectives (Ally, 2004). Knowledge constructions are accelerated by suitable interactive online instruction (Ally, 2008).

Song et al. (2004) noted that a lack of a sense of community is one of the main barriers to the success of online courses. A number of studies have indicated that constructing communities and developing social relationships play a significant role in the success of online courses (Gannon-Leary & Fontainha, 2007; Swan & Shih, 2005). Cooperating, sharing, exchanging information, discussing, and engaging are the most important actions that help to form strong bonds among students, and consequently, an online learning community will evolve from them. Topper (2005) emphasized that interaction among students in online environments is as critical as interaction in face-to-face environments.

As indicated by several studies, such as Picciano (2002), Christopher, Thomas, and Tallent-Runnels (2004), MacKnight (2000), Andresen (2009), and Dziorny (2012), interaction among students in online learning environments represents a vital factor in constructing community, improving the quality of online learning, and promoting higher levels of thinking. Dixon, Dixon, and Siragusa (2007) suggested that "online learning can occur through meaningful interactions with other students and their lecturer using online communication facilities" (p. 208). Meaningful interaction represents one of the most essential basics of the constructivist model (Kruger, 2006). Interaction helps students to develop social relationships by sharing ideas, exchanging their experiences, and discussing their knowledge (Lee, 2005; Ma & Yuen, 2011).

Gikandi, Morrow, and Davis (2011) indicated that formative feedback, discussion, and authentic assessment improve interaction and engagement among students, which, in turn, helps in developing a learning community. Xia, Fielder, and Siragusa (2013) suggested that discussion forums have a positive influence on students' outcomes and participation. Murphy, Mahoney, and Harvell (2000) indicated that to attain desired goals from collaborative group work, students needed guideline from the instructor for resolving problems they may face. Practice activities with feedback allows students to monitor how they are performing and modify their learning method accordingly (Ally, 2008).

The conclusions of study undertaken by Kiriakidis (2008) showed that the correlation between the extent of instructor discourse and the extent of learner discourse was statistically significant, and students valued the importance and effectiveness of interaction with their instructor because it helps them learn and acquire feedback, encouragement, and mentoring. Redmond, Devine, and Bassoon (2014) noted that "relating the online discussion posts directly or indirectly to assessment is likely to increase the interaction and engagement within the online discussion forums. This, in turn, will make visible the students' thinking and learning" (p. 132).

Standard 6. Course Technology:

6.1 The tools used in the course support the learning objectives or competencies.

6.2 Course tools promote learner engagement and active learning.

6.3 A variety of technology is used in the course

6.4 The course provides learners with information on protecting their data and privacy (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

As indicated previously, alignment is an important principle for effective learning (Reeves, 2006). The tools, and media used in the course should support learning objectives. The instructor should consider the objectives of the course and decide how to meet these objectives with appropriate strategies and technological tools (Rao & Tanners, 2011). Chaney et al. (2007) considered using appropriate media and tools as one of the most essential quality indicators.

Shiratuddin et al. (2003) suggest that multimedia should be used appropriately and effectively to boost information presentation. Bailey and Card (2009) conducted a study aiming to identify "effective pedagogical practices for online teaching that are reflective of theories and practices" (p. 152). They found that using new technological tools is significant for successful online teaching. They indicated that "revisions and improvements to online learning systems can be expected to continue as online teaching evolves. The challenge for instructors will be to continue to integrate effective pedagogical practices as these technological tools evolve" (p. 155).

Reeves and Reeves (1997) suggested using the Internet's potentials and technology to enhance collaborative learning. Technological tools should be used to enhance students' engagement. Ally (2004) suggested that students "receive the learning materials through the technology, process the information, and then personalize and contextualize the information. In the transformation process, learners interact with the content, with other learners, and with the instructors to test and confirm ideas and to apply what they learn" (p. 20).

Telecommunications could be used to apply some constructivist principles by offering students opportunities to interact with others, conduct studies, discuss topics, and work cooperatively (Tam, 2000).

Zhang, Zhou, Briggs, and Nunamaker (2006) conducted a study to examine the effect of interactive video in an online learning environment. The results of the experiment showed that there are statistically significant differences between the groups in favor of the group that used interactive video, where the students achieved significantly better learning performance and a higher level of satisfaction. Conole and Fill (2010) indicated that students and teachers in education in the 21st century could benefit from cooperative resources that can support educational activities effectively.

Based on the results of her study, Ali (2012) recommended the importance of providing easy access to technology for both instructors and learners. In addition, Ali (2012) recommended that "course content should be relevant, logically organized, easy to use, carefully designed, and presented sparingly" (p. 211). Ally (2004) suggested that learning materials have to be sequenced properly to foster learning.

Some studies support using new media such as social media. For example, Rutherford (2010) indicated that the correlation between the frequency of student use of social media and their connection with their colleagues and instructors was positive, as it was with how they defined the general quality of their learning experience. Social media can be used to enhance valuable skills: communication, collaboration, community, convergence, and creativity (Weiser, Friedman, & Friedman, 2010).

Standard 7. Learner Support:

7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.

7.2 Course instructions articulate or link to the institution's accessibility policies and services.

7.3 Course instructions articulate or link to the institution's academic support services and resources that can help learners succeed in the course.

7.4 Course instructions articulate or link to the institution's student services and resources that can help learners succeed (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

Providing academic and technological support for students is considered a fundamental factor affecting the success of online courses. Outcomes of a study by Ozkan and Koseler (2009) showed a strong positive correlation between supportive issues and overall student satisfaction and a positive correlation between service quality of the U-Link, a supportive tool, and overall student satisfaction. The students participating in the study reveal that supportive technical staff and service that follow up and solve problems are essential and influence satisfaction. Ozkan and Koseler (2009) emphasized the importance of U-link quality as a supportive interactive tool assisting students to find the information they need and navigate the course easily. "The 'supportive issues' dimension additionally covers ethical and legal issues together with privacy, plagiarism, and copyright concepts" and "e-learning module should provide clear information regarding institution's plagiarism policy" (Ozkan & Koseler, 2009, p. 1292).

Ali (2012) recommended providing a range of skilled staff—IT staff, design staff, trainers, support staff, and administrators to enhance course quality, which was found to be one of the most important factors affecting student satisfaction. Borgemenke et al. (2013) stated that each online course syllabus should include information about "university-specific procedures and policies [to] remind students about guidelines for the Office of Student Disability Resources and Services, scholarly expectations, dropping the class, incomplete grades, and academic honesty" (p. 21).

Chaney et al. (2007) found that institutional support, institutional resources, and faculty support services are critical quality indicators identified in their literature review. Hirner (2008) revealed that students identified some important quality indicators, such as access to electronic resources to support online

learning, access to traditional physical services such as libraries, career services, support services, opportunities for professional development and networking, access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and access to technical support. Moore and Shelton (2013) summarized some Quality Scorecard indicators regarding student support as follows:

- Students are provided with access to training and information they will need to secure required materials through electronic databases, interlibrary loans, government archives, new services, and other sources.

- Students are provided relevant information: ISBN numbers, suppliers, etc., and delivery modes for all required; instructional materials: digital format, e-packs, print format, and so on to ensure easy access.

- Students have access to effective academic, personal, and career counseling.

- Student support services are provided for outside the classroom, such as academic advising, financial assistance, peer support, and more. (p. 59)

Standard 8. Accessibility and Usability :

8.1 Course navigation facilitates ease of use.

8.2 The course design facilitates readability.

8.3 The course provides accessible text and images in files, documents, LMS pages, and web pages to meet the needs of diverse learners.

8.4 The course provides alternative means of access to multimedia content in formats that meet the needs of diverse learners.

8.5 Course multimedia facilitate ease of use.

8.6 Vendor accessibility statements are provided for all technologies required in the course (Standards from the Quality Matters Higher Education Rubric, 6th Edition).

"Having good design and useful content are inadequate without considering the accessibility factors. This means that designers should take into consideration of whether their information is accessible to all target users who use different technology to access the Internet" (Shiratuddin et al., 2003, p. 122). McAndrew, Farrow, and Cooper (2012) noted that "Accessibility has a broad impact that means that as well as systems and software organizations need to consider the policy and indeed philosophy of the organization towards how it meets the challenge of accessibility" (p. 357).

Hirner (2008) indicated that students identified the adoption of user-friendly course management systems for the delivery of online coursework and the use of standardized Internet tools as critical quality indicators. A study conducted by Dziorny (2012) showed that some students who have special needs depend greatly on repetition of the course material as well as being able to access the materials in multiple formats, such as audio recordings, video recordings, professors' lecture notes, and in-class lectures. Dziorny (2012) suggested that the course design should "include…course materials in multiple formats with the goal of making the course content more accessible and easier to understand" (p. 188). Students participating in the study also discussed the accommodations they received and which were most beneficial to them. They identified their need to access the accommodations for various purposes to meet their needs. Students reported that their accommodations were very useful in improving their grades (Dziorny, 2012).

Results of a study undertaken by Fichten, Asuncion, Wolforth, Barile, Budd, Martiniello, and Amsel (2012) revealed that "three quarters of the students in our sample indicated they used some form of specialized software and/or hardware. This suggests that a large proportion of students with disabilities on campus may need some type of adapted computer equipment" (p. 339). To assist students with special needs, Fichten et al. (2012) suggested using software, such as programs for writing improvement, screen reading, screen magnification, dictation,

alternative interface navigation, on-screen keyboards, and scanning and optical character recognition.

Additionally, Fichten et al. (2012) suggested that "colleges and universities use the POSITIVES Scale to conduct digital accessibility audits. This could allow them to assess modifiable aspects of the accessibility, usability and availability of ICTs" (p. 342).

McAndrew et al. (2012) suggested that using online resources can provide additional tools to improve access: "Resources themselves may be reconfigured to suit particular accessibility needs, assistive technologies integrated in learning systems and systems designed to help track the needs of users and the accommodations that help meet those needs" (p. 346).

Results

The results of the literature review revealed that the QM Standards are underpinned by studies and learning and design theories, indicating that the QM Standards adopted by many universities are reliable and suitable for evaluating and improving the quality of online courses in Saudi universities. A review of the studies conducted in this area shows that the introduction of the course is a key aspect that should include detailed instructions, the purpose and structure of the course, communication expectations, institutional policies, minimum technology requirements, required computer skills, prerequisite knowledge, and a self-introduction by the instructor.

As indicated by studies such as Sheridan and Kelly (2010), Wozniak et al. (2012), and Benton et al. (2013), a good introduction helps students understand the structure of the course and the requirements. Learning theories, especially in the behaviorist school and related research, indicate that learning objectives that are measurable and that promote higher thinking skills are crucial in helping students learn and enhancing their understanding.

The third standard of QM focuses on the need for varied and appropriate assessments that measure achievement of the stated learning objectives, for clear evaluation and grading policies, and for timely feedback. Studies such as Pittenger and Doering (2010), Reeves (2006), Fisher (2010), Rao and Tanners

(2011), Swan et al. (2012), Ali (2012), Holsombach-Ebner (2013), and Borgemenke et al. (2013) showed that these are essential elements of online course quality.

Sims et al. (2002), Shiratuddin et al. (2003), Ally (2004), Ally (2008), and Kampov-Polevoi (2010) illustrated that QM standards related to instructional materials contribute to the success of online learning courses. Finally, varied course technology and learning activities promoting the achievement of the stated learning objectives along with learner interaction play key roles in improving students' learning and engagement. Constructivist theory principles focus on the importance of student activity and constructing knowledge through interaction and collaborative learning (Ally, 2004; Ally, 2008; Petraglia, 1998). QM standards emphasize the importance of these principles.

It is clear that one of the main points of the QM standards is the alignment of learning objectives, learning activities, student interaction, assignments, course materials, assessments, and technologies. This alignment is supported by learning theories and aims to ensure that the course components work together to achieve the learning objectives, which form the basis on which the course is built and developed. The alignment of the course elements develops a framework of consistency, creating an integrated learning environment and thus strengthening the course structure.

The online environment is different from traditional education. Therefore, providing academic and technological support for students is an essential aspect of online course quality (Ali, 2012; Chaney et al., 2007; Hirner, 2008; Moore & Shelton, 2013; Ozkan & Koseler, 2009). Also, it is fundamental for the success of online learning to consider the issues related to the accessibility and usability of the course elements (Dziorny, 2012; Fichten et al., 2012; McAndrew et al., 2012; Shiratuddin et al., 2003). The outcomes of Alubthne (2018) revealed the importance of a well-organized and consistent interface, readable text, the use of appropriate color, clear navigation of the course content, and working hyperlinks. QM standards underline the significance of these aspects.

However, from my point of view, QM standards should put more emphasis on modern learning strategies that can be applied in online course environments to support student learning. There is a need to provide more details regarding modern learning methods, such as critical thinking, problem solving, applying knowledge in real-life situations, encouraging students to use their metacognitive skills, and providing ample examples.

It is worth mentioning that the QM Standards are updated regularly based on the results of new research in this field. The QM website (2019) indicated that

> the QM Rubrics have been developed and regularly updated through a rigorous process that examines relevant research, data, and practitioner perspectives. They consist of standards supported by detailed annotations explaining the application of the standards and are intended to support the continuous improvement of courses with constructive feedback provided by trained and certified Peer Reviewers using a specific review protocol.

Based on the results, what is the best model that could be suggested for online courses?

Based on the results and the QM standards, the researcher visualizes a suggested model for an online learning course that includes the most important features suggested by QM. The suggested model was evaluated and reviewed by some experts. Some changes and modifications were made according to their recommendations and feedback. The model consists of basic elements represented in links or buttons that contain sub-elements, which form the content of the course as illustrated in the following figure.

Figure (1):   Suggested Model for Online Learning Course Elements)

Home page	Announcements, tasks, what's new, to do list, course calendar, and alerts

Welcome!	Welcome
	Self-introduction of the instructor and information to start
	Short description of the course

Getting Started	How to navigate the course site
	Students introduce themselves

Contact Me	Information about how to contact the teacher

Course Information	Detailed syllabus
	Student guide including:
	• **Course Prerequisite**
	• **Technology Requirements**
	• **Minimum Technical Skills Expected of the Student**
	• **Academic Support Services**
	• **Student Accessibility Services**
	• **Browser Checker**
	• **My Library**
	• **Student Handbook**
	• **Information on how students protect their data and privacy**
	Course outline
	Weekly topics
	Assessment, grade policy rubric, and evaluation criteria

Content Modules	→	**Each module includes:**
		Learning objective
		Learning resources, material, content, and discussion
		Learning activities promoting problem solving, creative thinking, real-life situations, and practical projects
		Assignments and feedback
		Final test and project
Tools	→	**The technology tools used in the course such as, wiki, blogs, discussion threads, and email**
Discussion		**The instructor's plan for interacting with learners during the course and the requirements for learner interaction**
		Some questions and comments about topics promoting meaningful discussions among students
Grades	→	**Students grades.**
Online Session	→	**This link provides information about the schedule for virtual classes, recorded sessions, and Chat rooms**
Course Survey	→	**Course survey completed at the end of the course**
Help and support	→	**Academic support services and technical support services for students**

As seen in figure 1, the suggested model describes the most essential elements that should be included in online courses based on the educational and design principles that form the basis for QM standards. Nevertheless, the evaluation of online course quality should go beyond these components to examine the depth of learners' interactions and learning progress and the effectiveness of the educational strategies and evaluation methods used.

Conclusion and Recommendations

The study reviewed the research and theories that underpin QM standards. The results showed that the QM Standards are research-based standards (Shattuck, 2015; Ralston-Berg, 2014; Parscal & Riemer, 2010). Based on those results, the researcher recommends the use of these standards to develop, improve and evaluate online courses in Saudi universities. The QM standards are suitable for any online course regardless of cultural or social differences. However, there are some social and cultural considerations that are essential for some educational systems. Therefore, the researcher would suggest that QM add some standards related to the social and cultural characteristics of the university's society and environment.

Additionally, besides alignments representing the core of QM, instructional activities and strategies should connect course content to real world applications and focus on meaningful learning promoting problem solving, creative thinking, real-life situations, and practical projects. Interaction in an online learning environment is an important aspect that must be fostered using various methods. Students should be encouraged to engage in thoughtful discussion, exchange experiences, create groups, develop cooperative projects, and share information using various tools such as social media (Alubthne, 2018).

Finally, the researcher also recommends further studies in this field. For example, the researcher suggests conducting studies to explore the perspectives of students or faculty regarding the QM standards. In addition, the researcher suggests conducting studies aimed at developing research-based standards for evaluating online classes in Saudi universities in accordance with the Saudi cultural and educational environment. Additionally, it is suggested that further research conduct a number of studies evaluating online courses based on QM Standards. For universities which are starting to develop online courses, it would be useful to develop those courses based on QM Standards.

References

Ali, W. G. M. (2012). Factors affecting nursing student's satisfaction with e-learning experience in King Khalid University, Saudi Arabia. *dimension*, *5*, 13-18

Allen, I., & Seaman, J. (2008). Staying the course: Online education in the United States. *Online Learning Consortium.* Retrieved from http://www.onlinelearningsurvey.com/reports/staying-the-course.pdf

Allen, I., & Seaman, J. (2015). Grade level: Tracking online education in the United States. *Online Learning Consortium.* Retrieved from

http://onlinelearningconsortium.org/read/survey-reports-2014/

Allen, I. E., Seaman, J., & Seaman, J. E. (2018). Grade increase: Tracking distance education in the United States. *Babson Survey Research Group and Quahog Research Group, LLC*. Retrieved from https://files.eric.ed.gov/fulltext/ED580852.pdf

Ally, M. (2004). Foundations of educational theory for online learning. *Theory and Practice of Online Learning*, *2*, 15–44.

Al-Salman, S. (2013). *The role of faculty in the effectiveness of fully online programs* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses A&I. (3565063)

Alubthne, F. (2018). *Exploring the Quality Needs of Saudi Electronic University Students: A Learner Perspective* (Unpublished doctoral dissertation). Ohio University, Ohio. Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=ohiou1518699469954247&disposition=inline

Aman, P. R. (2009). *Improving learner satisfaction and retention with online instruction through systematic faculty peer review of courses.* (Unpublished doctoral dissertation). Oregon State University, Corvallis, OR.

Andresen, M. A. (2009). Asynchronous discussion forums: success factors, outcomes, assessments, and limitations. *Journal of Educational Technology & Society*, *12*(1), 249–257.

Ally, M. (2008.). Foundations of Educational Theory for Online Learning. In T. Anderson (Ed.), The Theory and practice of Online Learning (pp. 3-31). Retrieved from https://auspace.athabascau.ca/bitstream/handle/2149/411/ ?sequence=1

Armstrong, D. (2010). *A Qualitative Study of Undergraduate Students' Approaches, Perceptions, and Use of Online Tools*. ProQuest Dissertations and Theses, Document ID 742477661. Retrieved from https://repository.usfca.edu/cgi/viewcontent.cgi?article=13 82&context=diss

Bailey, C. J., & Card, K. A. (2009). Effective pedagogical practices for online teaching: Perception of experienced instructors. *The Internet and Higher Education*, *12*(3), 152–155.

Baird, D. E., & Fisher, M. (2005). Neomillennial user experience design strategies: Utilizing social networking media to support "always on" learning styles. *Journal of Educational Technology Systems, 34*(1)*,* 5–32.

Battalio, J. (2009). Success in distance education: Do learning styles and multiple formats matter? *The American Journal of Distance Education*, *23*(2), 71–87.

Benton, S. L., Li, D., Gross, A., Pallett, W. H., & Webster, R. J. (2013). Transactional distance and student ratings in online college courses. *American Journal of Distance Education*, *27*(4), 207–217. http://www.tandfonline.com/doi/abs/10.1080/08923647.201 3.838458

Bruning, K. (May 2005). The role of critical thinking in the online learning environment. *International Journal of Instructional Technology and Distance Learning*, *2*(5). http://www.itdl.org/Journal/May_05/article03.htm.&Garri son

Borgemenke, A. J., Holt, W. C., & Fish, W. W. (2013). Universal course shell template design and implementation to enhance student outcomes in online coursework. *Quarterly Review of Distance Education*, *14*(1), 17–23.

Chaney, B. H., Eddy, J. M., Dorman, S. M., Glessner, L., Green, B. L., & Lara-Alecio, R. (2007). Development of an instrument to assess student opinions of the quality of distance education courses. *The American Journal of Distance Education*, *21*(3), 145–164.

Chen, S. (2007). Instructional design strategies for intensive online courses: An objectivist-constructivist blended approach. *Journal of Interactive Online Learning, 6*(1), 72–86.

Christopher, M. M., Thomas, J. A., & Tallent-Runnels, M. K. (2004). Raising the bar: Encouraging high level thinking in online discussion forums. *Roeper Review*, *26*(3), 166-171.

Conrad, D. L. (2002). Engagement, excitement, anxiety, and fear: Learners' experiences of starting an online course. *The American Journal of Distance Education*, *16*(4), 2.

Dixon, R., Dixon, K., & Siragusa, L. (2007). Individuals' perceptions of online environments: What adult learners are telling us. In *ICT: Providing Choices for Learners and Learning. Proceedings.* Ascilite Singapore 2007. Retrieved from **https://www.researchgate.net/profile/Robert_Dixon4/publication/242083650_Individuals'_perceptions_of_online_environments_What_adult_learners_are_telling_us/links/0046352a00a75c1093000000.pdf**

Dabbagh, N., & Bannan-Ritland, B. (2005). *Online learning: Concepts, strategies, and*

Application. Upper Saddle River, NJ: Prentice Hall.

Dykman, C. A., & Davis, C. K. (2008). Online education forum: Part two-teaching online versus teaching conventionally. *Journal of Information Systems Education*, *19*(2), 157–164.

Dziorny, M. A. (2012). *Online course design elements to better meet the academic needs of students with dyslexia in higher education* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses A&I. (Order No. 3533577)

Fichten, C. S., Asuncion, J. V., Wolforth, J., Barile, M., Budd, J., Martiniello, N., & Amsel, R. (2012). Information and communication technology related needs of college and university students with disabilities. *Research in Learning Technology*, *20*.

Conole, G., & Fill, K. (2005). A learning design toolkit to create pedagogically effective learning activities. *Journal of Interactive Media in Education*, (1).

Fisher, C. (2010). Discussion, participation and feedback in online courses. *ISECON Proceedings*, *27*, 1382.

Ford, N., Wood, F., & Walsh, C. (1994). Cognitive styles and searching. *Online and CD-Rom Review*, *18*(2), 79–86.

Gannon-Leary, P., & Fontainha, E. (2007). *Communities of practice and virtual learning communities: Benefits, barriers, and success factors*. Elearning Papers, 5. pp. 20-29. ISSN 1887-1542

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education, 57*(4), 2333–2351.

Hendricks, S., & Bailey, S. (2014). What really matters? Technological proficiency in an online course. *Online Journal of Distance Learning Administration*, *17*(2).

Hirner, L. J. (2008). *Quality indicators for evaluating distance education programs at community colleges* (Unpublished doctoral dissertation). University of Missouri at Columbia, Columbia, MO.

Holsombach-Ebner, C. (2013). Quality assurance in large scale online course production. *Online Journal of Distance Learning Administration*, *16*(3).

Huang, H. M. (2002). Toward constructivism for adult learners in online learning environments. *British Journal of Educational Technology*, *33*(1), 27–37.

Jensen, D., Self, B., Rhymer, D., Wood, J., & Bowe, M. (2002). A rocky journey toward effective assessment of visualization modules for learning enhancement in engineering mechanics. *Journal of Educational Technology & Society*, *5*(3), 150–162.

Jiang, L., & Elen, J. (2011). Why do learning goals (not) work: A reexamination of the hypothesized effectiveness of learning goals based on students' behaviour and cognitive processes. *Educational Technology Research and Development*, *59*(4), 553–573.

Kampov-Polevoi, J. (2010). Considerations for supporting faculty in transitioning a course to online format. *Online Journal of Distance Learning Administration*, 13(2).

Kerr, E. B. (1986). Electronic leadership: A guide to moderating online conferences. *IEEE transactions on professional communication*, (1), 12-18.

King, S. B. (2014). Graduate student perceptions of the use of online course tools to support engagement. *International Journal for the Scholarship of Teaching and Learning*, *8*(1), 5.

Kiriakidis, P. (2008). What do graduate learners say about instructor and learner discourse in online courses. In *The 2008 E-Leader Conference of CASA*. Retrieved from

http://www.g-casa.com/PDF/

Kruger, S. (2006, April). Students' experiences of e-learning: a virtual ethnography into blended online learning. In *the International Conference on Networked Learning* (p. 29). Retrieved from https://pdfs.semanticscholar.org/8192/60c2de6e7e2acc3aed a35bed3db60441d9d1.pdf

Lee, L. (2005). Using web-based instruction to promote active learning: Learners' perspectives. *CALICO Journal*, *23*(1), 139–156.

Lin, H. S., Hong, Z. R., Wang, H. H., & Lee, S. T. (2011). Using reflective peer assessment to promote students' conceptual understanding through asynchronous discussions. *Journal of Educational Technology & Society*, *14*(3), 178–189.

MacKnight, C. B. (2000). Teaching critical thinking through online discussions. *Educause Quarterly*, *23*(4), 38–41.

Maor, D. (2003). The teacher's role in developing interaction and reflection in an online learning community. *Educational Media International 40*(1–2), 127–138.

Ma, W. W., & Yuen, A. H. (2011). Understanding online knowledge sharing: An interpersonal relationship perspective. *Computers & Education, 56*(1), 210–219.

McAndrew, P., Farrow, R., & Cooper, M. (2012). Adapting online learning resources for all: planning for professionalism in accessibility. *Research in Learning Technology*, *20*.

Michigan State University. (2016). Evaluating online courses. Retrieved from http://fod.msu.edu/oir/evaluating-online-courses#Online_Course_ Evaluation_Rubrics_or_Checklists

Miner, A. (2014). *The effect of quality matters on student satisfaction, grades, and retention at Florida International University* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses A&I. (3626290)

Moore, J. C., & Shelton, K. (2013). Social and Student Engagement and Support: The Sloan-C Quality Scorecard for the Administration of Online Programs. *Journal of Asynchronous Learning Networks*, *17*(1), 53–72.

Motteram, G., & Forrester, G. (2005). Becoming an online distance learner: What can be learned from students' experiences of induction to distance programmes? *Distance Education*, *26*(3), 281–298.

Murphy, K. L., Mahoney, S. E., & Harvell, T. J. (2000). Role of contracts in enhancing community building in web courses. *Journal of Educational Technology & Society*, *3*(3), 409–421.

Myers, J. M. (2015). *Usability in online course design: Comparative perspectives on ease-of-use, satisfaction, motivation, and teacher presence* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses A&I. (3714650).

Ozkan, S., & Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: An empirical investigation. *Computers & Education*, *53*(4), 1285–1296.

Parscal, T., & Riemer, D. (2010). Assuring quality in large-scale online course development. *Online Journal of Distance Learning Administration*, *13*(2). Retrieved from http://www.westga.edu/~distance/ojdla/summer132/parscal_riemer132.html

Petraglia, J. (1998). The real world on a short leash: The (mis)application of constructivism to the design of educational technology. *Educational Technology Research and Development*, *46*(3), 53–65.

Picciano, A. G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous learning networks*, *6*(1), 21–40.

Pittenger, A., & Doering, A. (2010). Influence of motivational design on completion rates in online self-study pharmacy-content courses. *Distance Education*, *31*(3), 275–293.

Quality Matter. (2015 September 28). Higher education program. *QualityMatter.* Retrieved from https://www.qualitymatters.org/higher-education-program

Quality Matter. (2019). How to reference & use QM in research. *QualityMatter.* Retrieved from

https://www.qualitymatters.org/qa-resources/resource-center/articles-resources/reference-use-qm-in-research

Ralston-Berg, P. (2014). Surveying student perspectives of quality: Value of QM rubric items. *Internet Learning Journal*, *3*(1).

Rao, K., & Tanners, A. (2011). Curb cuts in cyberspace: Universal instructional design for online courses. *Journal of Postsecondary Education and Disability*, *24*(3), 211–229.

Redmond, P., Devine, J., & Bassoon, M. (2014). Exploring discipline differentiation in online discussion participation. *Australasian Journal of Educational Technology*, *30*(2).

Reeves, T. C., & Reeves, P. M. (1997). Effective dimensions of interactive learning on the World Wide Web. *Khan*, *62*, 59–66.

Reeves, T. C. (2000). Alternative assessment approaches for online learning environments in higher education. *Journal of Educational Computing Research*, *23*(1), 101–111.

Reeves, T. C. (2006). How do you know they are learning? The importance of alignment in higher education. *International Journal of Learning Technology*, *2*(4), 294–309.

Revere, L., & Kovach, J. V. (2011). Online technologies for engaged learning. *Quarterly Review of Distance Education*, *12*(2), 113–124.

Ronsisvalle, T., & Watkins, R. (2005). Student success in online K-12 education. *The Quarterly Review of Distance Education,* *6*(2), 117–124.

Rutherford, C. (2010). Using online social media to support preservice student engagement. *MERLOT Journal of Online Learning and Teaching*, *6*(4), 703–711.

Shattuck, K. (2010). Quality matters: A faculty-centered program to assure quality in online course design. *Collected Essays on Learning and Teaching*, *3*, 49–53.

Shattuck, K. (2015). Research inputs and outputs of Quality Matters: Update to 2012 and 2014 versions of what we're learning from QM-focused research. *Annapolis, MD: Quality Matters*.Retrieved from

https://www.qualitymatters.org/what-were-learning-paperfinalmay-18-2012dec2012kspdf/download/What%20we're%20learning%20paper_FINAL_May%2018,%202012_Dec2012ks.pdf

Sheridan, K., & Kelly, M. A. (2010). The indicators of instructor presence that are important to students in online courses. *MERLOT Journal of Online Learning and Teaching*, *6*(4), 767–779.

Shiratuddin, N., Hassan, S., & Landoni, M. (2003). A usability study for promoting eContent in higher education. *Journal of Educational Technology & Society*, *6*(4), 112–124.

Sims, R., Dobbs, G., & Hand, T. (2002). Enhancing quality in online learning: Scaffolding planning and design through proactive evaluation. *Distance Education*, *23*(2), 135–148.

Spallek, H., Berthold, P., Shanley, D. B., & Attstrom, R. (2000). Distance education for dentists: Improving the quality of online instruction. *American Journal of Distance Education*, *14*(2), 49–59.

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education, 7(1),* 59–70.

Standards from the Quality Matters Higher Education Rubric, 6th Edition. Quality Matters. Retrieved from **https://www.qualitymatters.org/sites/default/files/PDFs/StandardsfromtheQMHigherEducationRubric.pdf**

Swan, K., Shea, P., Fredericksen, E., Pickett, A., & Maher, G. (2000). Course design factors influencing the success of online learning. In *WebNet World Conference on the WWW and Internet* (pp. 513-518). Association for the Advancement of Computing in Education (AACE). Retrieved from **https://urresearch.rochester.edu/fileDownloadForInstitutionalItem.action?itemId=2326&itemFileId=3169**

Swan, K., & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks* 9(3), 115–136.

Swan, K., Matthews, D., Bogle, L., Boles, E., & Day, S. (2012). Linking online course design and implementation to learning outcomes: A design experiment. *The Internet and Higher Education*, *15*(2), 81–88.

Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. *Journal of Educational Technology & Society*, *3*(2), 50–60.

Topper, A. (2005). Facilitating student interactions through discursive moves. *The Quarterly Review of Distance Education*, *6*(1), 55–67.

University of San Diego (2012). Learning management systems copyright guidelines. Retrieved from http://www.sandiego.edu/library/copyright/lmscopyright.php

Vonderwell, S., & Zachariah, S. (2005). Factors that influence participation in online

learning. *Journal of Research on Technology in Education, 38*(2), 213–230.

https://files.eric.ed.gov/fulltext/EJ728902.pdf

Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of distance learners: research on relationships of learning motivation, learning strategy, self-efficacy, attribution and learning results. *Open Learning*, *23*(1), 17–28.

Weiser Friedman, L., & Friedman, H. (2010). Using social media technologies to enhance online learning. *Journal of Educators Online*, *10*(1), 1–22.

Wozniak, H., Pizzica, J., & Mahony, M. J. (2012). Design-based research principles for student orientation to online study: Capturing the lessons learnt. *Australasian Journal of Educational Technology*, *28*(5), 896–911.

Xia, C., Fielder, J., & Siragusa, L. (2013). Achieving better peer interaction in online discussion forums: A reflective practitioner case study. *Issues in Educational Research*, *23*(1), 97–113.

Young, M. R. (2014). Integrating quality matters into hybrid course design: A principle of marketing case study. *Journal of Marketing Education, 36*(3), 233–243. doi:10.1177/0273475314547821

Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker, J. F. (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. *Information & Management, 43(1), 15–27.*