APPLYING THE QUALITY MATTERS RUBRIC TO ASSESS ACCESSIBILITY

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Abstract

The exponential growth of online learning in recent years highlights the importance of making e-learning material accessible to all students. Therefore, accessibility is a critical component of online learning, and ensuring that courses stay accessible to all students is essential. The Quality Matters (QM) rubric is a widely recognised tool for evaluating the quality of online courses. The study used a qualitative approach to assess the accessibility of a short course using the QM rubric. Although the QM rubric is designed to evaluate course design and content, we only used it to assess the overall accessibility of the course. The study found that the QM rubric was an effective tool for evaluating the accessibility of the course, highlighting both the strengths and the weaknesses of course design. Although a high score on the QM rubric indicated that it was accessible to a wide range of students, the fact that one of the essential standards (8.3) was not met resulted in the course being seen as not accessible to students with disabilities. The study identified areas where the course could be improved to make it even more accessible, such as providing heading styles in tables and documents and ensuring that all images had appropriate alt text. Overall, the study highlights the importance of instructors and learning designers using tools to ensure that their courses are accessible to all students, regardless of their abilities.

Introduction

According to the Statista research department, the global e-learning market could potentially reach 400 billion U.S. dollars by 2026 (Statista, 2022). Not only is the e-learning market growing, but also the use of learning management systems for e-learning, with a standing of 18 billion U.S. dollars in 2019 (Statista, 2022). Astonishingly, investing in educational technology in the UK grew to 583 million U.S. dollars in 2022, which was slightly less than the previous year (Statista, 2022). Taking in consideration the overwhelming popularity of e-learning, learning management systems, and educational technology, it goes without saying that the role of the learning designer as creator of online learning experiences (Kumar & Ritshaupt, 2017) is growing in importance and with that the evaluation of e-learning programmes, specifically towards accessibility (Timbi-Sisalima et al., 2022). Even if the world portrays a picture of billions of US dollars invested in e-learning and

technology, and the fact that the use of technology enhances access and digital inclusion to education (Adam & Dzang, 2021), the digital divide is still evident in many countries (Okunola et al., 2017). The lack of devices, internet, and electricity prevents students from reaching their full potential. Other physical disabilities could also be preventing students from accessing quality content (Newman et al., 2017). It is against this background that the researchers are interested in how an existing QM rubric (6th Edition) can be used to show possible accessibility gaps in online programmes (Quality Matters, 2023a). (Note that after our study was conducted, QM published the 7th edition of the rubric).

Literature

As institutions of higher education undergo a technological paradigm shift, the topic of quality assurance (QA) has become a top concern for university leadership worldwide (Newton, 2007; Van Damme, 2002). The renewed interest in this age-old debate is fueled by a combination of contextual factors, including global competition, external demands for increased accountability and responsiveness, financial limitations, and the impact of massification (Abdous, 2009). These factors are compelling higher education institutions to implement QA procedures, especially for e-learning, which has been subject to criticisms of poor quality and inadequate standards (Chua & Lam, 2007).

Studies done on open online education (Stracke, 2017) and a few universities in Africa blame the challenges that e-learning faces on the lack of quality assurance (Chawinga, 2016; Makokha & Mutisya, 2016). Open online course quality is currently questioned because of high drop-out rates (Stracke, 2017). Therefore, it is implied that well-designed courses, learning activities, and assessment opportunities contribute to better quality of e-learning and higher motivation of students to participate in the learning process (Stracke, 2017), stressing the importance of quality assurance standards.

Quality Matters (QM) is a non-profit organisation that focuses on promoting and improving the quality of online education (Quality Matters, 2023b). QM provides a set of standards, guidelines, and a review process to evaluate the quality of online courses and programmes. The organisation helps institutions and teachers to create and maintain high-quality online courses and programmes by providing guidance and training on online course design, evaluation, and continuous improvement of existing online short courses and programmes.

To achieve quality online programmes and short courses, a set of organised and structured management and assessment procedures need to be in place, which are consistently implemented and followed. These procedures are designed to ensure

that quality is systematically managed and evaluated throughout the process, with the aim of achieving quality online short courses and programmes (Harman & Meek, 2000). Quality assurance in online courses refers to the process of ensuring that the design, delivery, and outcomes of online courses meet a set of predefined standards and expectations. QM's quality assurance process is based on a peer-review model that involves a team of trained reviewers who evaluate courses based on the QM Standards for course design (Quality Matters, 2023b). These standards cover various aspects of online course design such as course overview and introduction, learning objectives, assessment and measurement, instructional materials, student engagement, and accessibility.

The QM review process includes a comprehensive review of the course design, including the alignment of course syllabus, learning materials, course structure, and assessment methods (Loafman & Altman, 2014; Varonis, 2013). The review team provides detailed feedback and recommendations to improve the course design and meet the QM standards. The review process aims to ensure that online courses and programmes are designed to meet the needs of students and provide them with a high-quality learning experience.

Quality assurance is essential in online courses because it helps ensure that students receive high-quality learning experiences (Loafman & Altman, 2014; McNaught, 2001). Online courses have become increasingly popular due to their convenience and accessibility, but they also come with unique challenges (Castro & Tumibay, 2021). These challenges can include technological issues, lack of face-to-face interaction, and the need for self-discipline and motivation (Gillet-Swan, 2017). QA helps to address these challenges by ensuring that online courses are designed in a way that promotes effective delivery and learning.

The QM rubric is a set of standards that provides a framework for evaluating the quality of online course design (Elaasir & Bouziane, 2019). The rubric is based on research-supported best practices and covers eight general standards: course overview and introduction, learning objectives (competencies), assessment and measurement, instructional materials, learner activities and learner interaction, course technology, learner support, and accessibility and usability (Quality Matters, 2023a). The rubric is intended to be used as a guide for course design and evaluation, with the goal of improving the quality and effectiveness of online courses (Loafman & Altman, 2014). The QM rubric is designed to be flexible, allowing institutions and teachers to adapt it to their specific needs and goals. It is also scalable, allowing it to be used for both small and large courses. The 6th edition of the higher education rubric provides specific standards and criteria for each of the eight general standards, with a total of 42 specific standards. The rubric has three categories of standards: Essential (3 points), Very Important (2 points), and Important (1 point) (Kreie and Bussmann, 2015). Online courses need to meet

all the essential standards in order to be QM certified. An official review team consists of three reviewers; however it is possible for two reviewers to agree that an essential standard is MET and the points will automatically be assigned.

The QM rubric can be used in several ways. It can be used by course designers and teachers as a guide to design and develop effective online courses that meet the needs of learners (Loafman & Altman, 2014). It can also be used by institutions to evaluate the quality of online courses and ensure that they meet specific standards and expectations, either through an official QM review that can result in certification or an informal internal review. Additionally, the QM rubric can be used as a tool for continuous improvement, providing a framework for educators to evaluate and revise their courses to ensure that they are effective and engaging (Legon, 2015).

Accessibility is part of General Standard 8 (GS 8) on the QM rubric (Quality Matters, 2023a). The accessibility standard in the QM Rubric is focused on ensuring that online courses are designed to be accessible to all students, including those with disabilities or other special needs. The accessibility standard in the QM rubric includes several specific standards and criteria that course designers and educators should consider when designing online courses (Figure 1).

Figure 1

General Standard 8 with its Specific Review Standards
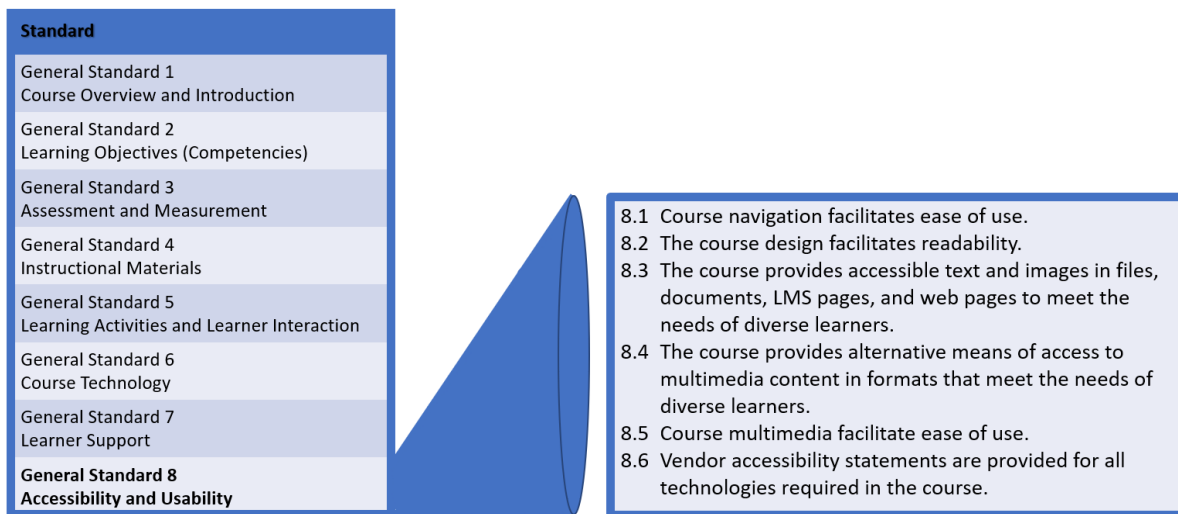
Authors such as Bailey and Gkatzidou (2017) and Permvattana et al. (2013) highlighted the importance of looking at accessibility from a holistic approach. In the past many e-learning designers saw accessibility as only an accessible website and platform (Timbi-Sisalima et al., 2022). Bailey and Gkatzidou (2017) suggest

universities take the accessibility of the technology, the operational use and the psychological accessibility in consideration when designing e-learning material. The accessibility of the technology relates to whether the student can access the e-learning, whether it is compatible with assistive technology, and how does it address the user needs. The operational use of technology is related to whether the student can use the e-learning material and how well can they use it and whether it meets the students' expectations. The psychological accessibility of technology refers to how useful and appropriate the e-learning material is.

Timbi-Sisalima et al. (2022) emphasise the importance of accessibility in e-learning and in doing so, promoting lifelong learning opportunities for all. Through the use of educational technology, students can have access to learning opportunities at any time, from anywhere (Gonzáles-Zamar et al., 2020). This increased access is aligned with the Sustainable Development Goal 4 (SDG4) of Quality Inclusive Education for everyone (United Nations, n.d.). Adhering to SDG4 fosters opportunities for previously marginalised populations to have access to education through well designed e-learning programmes. Therefore, a rubric is needed to evaluate the accessibility of e-learning in a consistent manner and also determine the lack of accessibility in e-learning modules (Elaasri & Bouziane, 2019).

There are many standards available to evaluate e-learning, such as the adapted ISO 9126 that has a strong focus on technology, learning content, and the business aspects (Djouab & Bari, 2016), and the Rubric for e-Learning tool evaluation that focus on functionality, accessibility, technical, mobile design, privacy and the three presences of the Community of Inquiry framework (Anstey & Watson, 2018). Other studies stress the importance of universal learning design specifically to address the accessibility of students with disabilities. According to the CAST (n.d.) website and confirmed by Ralabate (2011), each part of a curriculum has multiple and flexible ways for representation, expression, and engagement that needs to be part of the design.

Derived from the building industry, universal design for learning attempts to give students equal opportunities to learn. Similar to people having a choice between using a staircase, escalator, or lift to move from one floor in a building to another, universal design for learning offers various pathways to learning. These pathways can refer to different ways students access information, demonstrate their skills, and engage with others in an online module, and still maintain quality (Robinson & Wizer, 2016). Not only does universal design for learning relate to access but also guide the creation of learning outcomes, activities, and assessment. Therefore, multiple representations of concepts, multiple ways of demonstrating knowledge, and a variety of activities to keep students interested and engaged, forming the basic principles of universal design for learning, need to be included in the module (Stringam, 2014).

Robinson and Wizer (2016) recommend that a combination of QM and Universal Design Learning (UDL) principles provide a guide to creating accessible online learning. Amongst others, they suggest that students as partners need to be included. The basic principles of UDL are incorporated in the QM rubric in General Standards 1 and 3-7 (Stringam, 2014) and will not be explicitly addressed in this discussion. The QM rubric provides a well-established framework for course designers to improve the design of online courses (Loafman & Altman, 2014); therefore, for this study the QM rubric, specifically GS8 (Figure 1) was used to review a course.

Theoretical framework

QM originated from an opportunity where universities shared their online courses. In an attempt to evaluate course quality, a group of lecturers were curious about "how do we measure and guarantee the quality of a course" (Quality Matters, 2023a; Shattuck, 2015). Obtaining a research grant, Maryland Online developed a list of standards, referred to as the QM rubric, which include a peer-review process. This process made provision opportunities for lecturers to be trained, guided and certified to evaluate the quality of online and blended learning courses (Quality Matters, 2023a; Shattuck, 2015).

The QM 6th edition Higher Education rubric consists of eight high level General Standards, broken down into 42 Specific Review standards. When participating in a peer-review process, strong emphasis is placed on the matter of alignment. Like a golden thread, the learning outcomes (2.1, 2.2), the assessment activities (3.1), the learning material (4.1), the learning activities and interactions (5.1), and the technology use (6.1) need to align so that students can master their learning goals (Legon, 2015; Quality Matters, 2023a). For this study the emphasis will be on Specific Review Standards (SRS) 8.1 - 8.6 under General Standard 8, investigating the accessibility and usability of online courses (Figure 1).

Methodology

An eight week fully online short course on "Instructional Design Tools for e-Learning" is evaluated against the Quality Matters rubric for accessibility. The purpose of the short course was to enable students to master design and development techniques using a variety of online tools for education and training. Topics such as social media tools, animated and interactive videos and presentations, storyboarding and mobile device apps were covered and presented through a hands-on, constructionist approach. Evidence of learning throughout the eight weeks presented through an online website.

For the purposes of this paper, GS8 and its SRS's (see Figure 1) will be assessed to explore the accessibility and usability of the course and highlight areas of improvement (Elaasri & Bouziane, 2019).

A qualitative grounded theory approach within the interpretivist paradigm is followed to inductively explore patterns of accessibility and provide areas of strengths and weaknesses for further deliberation (Khan, 2014). A rigorous content analysis into the accessibility within the course provided a SWOT matrix of analysis including Strengths, Weaknesses, Opportunities, and Threats.

Findings

The findings for this study will be presented using the QM Higher Education 6th Edition Rubric GS8 as a structuring principle. It is also important to note that the course under review was not designed to meet Quality Matters standards; however, the review will provide the researchers insight into what improvements need to be made in order to get the course QM certified. Furthermore, when QM reviews are done, the reviewer is required to provide feedback in a manner that is constructive, specific, measurable, sensitive and balanced. For the purpose of this article, each SRS will be provided in a factual manner, highlighting the evidence found in the course and not in the manner or tone that would be sent by a reviewer to the course developer. The data is synthesised and discussed. Decisions are still based on the 85% rule set by QM, meaning that a standard is considered met if the course meets expectations for that standard at the 85% level or higher. Recommendations are presented using a SWOT matrix to identify areas of strength, weaknesses, opportunity and threats.

It is understood that General Standard 8 - Accessibility and Usability is meant to review the course design to identify commitment to accessibility and usability to all learners. In doing so the course:

> ...*utilizes the principles of Universal Design for Learning (UDL) and reflects a commitment to accessibility, ensuring all learners can access all course content and activities, and to usability, ensuring all learners can easily navigate and interact with course components.* (Quality Matters, 2023a, p. 39)

GS 8 Specific Review Standards Applied to the Course

The application of the SRSs for GS8 are discussed with examples from the short course that was evaluated. The audience for the review of each standard is the course instructor and/or designer, who is addressed in the first person.
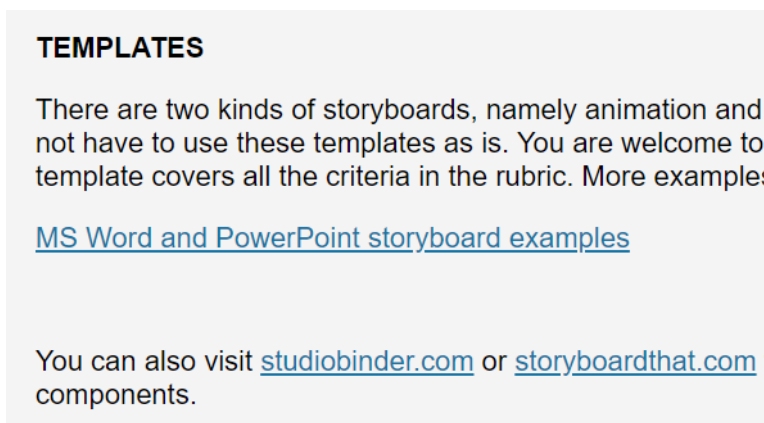
Specific Review Standard 8.1 - *Course navigation facilitates ease of use.*

The course landing page is "*Welcome page*". The course demonstrates easy navigation by providing a menu structure at the left-hand side that gives the student a clear indication of how the course is structured, what to find at each link, and options for further support. The menu is logically arranged to illustrate course material, assessment, collaborative opportunities, and additional resources. Since the menu is available at all times, the user can access any page at any time. The welcome page requires students to scroll down rather than across for efficient movement through activities. When selecting an option at the left menu, each page opens and concludes with a link to navigate to the next page with the name of the next page indicated. There is a consistent layout and design for each one of the weeks. In doing so the lesson follows a logical flow, where students know what to expect next. Each lesson follows the structure from the welcome video, assessment summary table, join a group (where applicable), content and activities, reflection, and bragging rights to the list of tools at the end. At the bottom of the page is a link to continue to the next page. All activities have clickable submission links with instructions.

Almost all hyperlinks have meaningful names; however, at Week 6 Activity 1 Storyboard instructions, meaningful names were not used for "studiobinder.com" and "storyboardthat.com" (Figure 2). Providing text description such as "Studiobinder website" is always valuable for course navigation. While text description was provided for the first link on the Study guide page, you did not provide it at the second link "*click here to download the assessment summary*". In week 7, I could not locate the HTML tags or an accompanying text link for the icons in the Design Principles Revision section. Although tables in the beginning of Week 1-8 are used to organise data, table headers were not used.

Figure 2

Example of meaningful names for hyperlinks not used.

TEMPLATES

There are two kinds of storyboards, namely animation and not have to use these templates as is. You are welcome to template covers all the criteria in the rubric. More examples

MS Word and PowerPoint storyboard examples

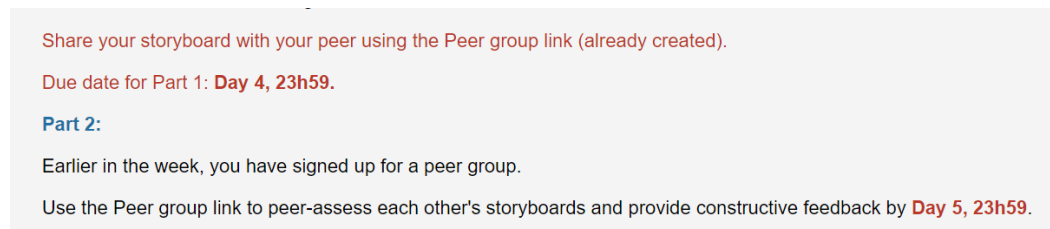You can also visit studiobinder.com or storyboardthat.com components.

Specific Review Standard 8.2 - *Course design facilitates readability*

The layout of each item is consistent. Bold is used to group topics with more than enough white space to reduce eye fatigue. Headings are used to indicate change in topic. Headings and font sizes are consistently used throughout making it legible for on screen reading. Simple fonts, contrasting text and background colours are used. Bold font is used for instructional purposes only. Minimal colour is used, minimising distraction. However, the use of colour in Week 6 Activity 1 Storyboard Instructions and Week 6 Activity 2 LMS instructions "storyboard" and "create" (Figure 3), has no meaning and could possibly be removed.

Figure 3

Example of colour not used meaningfully

Share your storyboard with your peer using the Peer group link (already created).

Due date for Part 1: **Day 4, 23h59.**

Part 2:

Earlier in the week, you have signed up for a peer group.

Use the Peer group link to peer-assess each other's storyboards and provide constructive feedback by **Day 5, 23h59**.

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

The LMS caters for accessibility; however, images and graphs are not described via an alt-tag, long description, or audio description. Document or HTML titles, headings, etc., are not formatted using styles (Heading 1, Heading 2, etc.) found in the word processing software (such as Word) style gallery. PDF documents, MS Word attachments and table-text are accessible, but again the headings are not formatted as Heading styles. For example the Week 8 declaration attachment is seen as accessible, but no headings were used for the table. All tables are set up as text and not embedded as images. They are not presented as screen captures. Tables are set up with headings for columns and rows and are used only for summarising data, not for formatting. Tables do not have captions, alt-text or alt-tags, but are formatted so that headings repeat. Any text contained in PDFs is selectable and searchable. Text colours are relied on to convey meaning. The meaning is not conveyed in another way that does not require perceiving different colours. Underlined text is avoided unless used for navigation. Week 3 Bloom's Taxonomy activity (see Figure 4) is not accessible to diverse learners.

Figure 4

Drag and drop activity on Blooms Taxonomy

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

Transcripts are provided for almost all videos and audio content (Figure 5). Nearly all the videos have closed captions, making it possible for hearing impaired and students using screen readers to access them. When adding text to animations, it increases the accessibility for students. However, special care needs to be taken to make sure that the message of each scene is translated into either audio or text. For example, the Welcome video and week 7 do not have a transcript or close-captions. Although padlets are compatible with screen readers, instructions need to be provided so that videos are still captioned and descriptive text is used by the person that posts.

Figure 5

Example of video length and transcripts added

Specific Review Standard 8.5 - *Course multimedia facilitate ease of use.*

Graphics and animations are used to enhance instructional materials and illustrate ideas without causing distractions. Images are appropriately sized and can be viewed in their entirety without scrolling in most cases. Audio quality is clear. As all the videos are uploaded on YouTube, they can be resized and controlled through the YouTube application and resolution is sufficient for comprehension. There are no videos more than 8 minutes long (Figure 5). Movement through presentations can be controlled. Video streams smoothly without frequent interruptions. Guidance is provided about the best browser to use.

Specific Review Standard 8.6 - *Vendor accessibility statements are provided for all technologies required in the course.*

There is no evidence of any vendor accessibility statements about technology used.

Decisions

Since this was an in-house evaluation of the short course, only two reviewers evaluated the short course against the QM rubric for GS8. The decisions based on the review were agreed upon for each specific review standard and are presented in Table 1. Awarding points is on an all-or-nothing basis. In a QM review, if reviewers do not agree then the majority out of 3 rules.

Table 1

Decision and score for Specific Review Standard 8

Specific Review Standard	Decision	Score
8.1*	MET	3/3
8.2*	MET	3/3
8.3*	NOT MET	0/3
8.4	MET	2/2
8.5	MET	2/2
8.6	NOT MET	0/2

* Essential standards

Discussion and Conclusion

To determine if the existing 6th Edition QM Higher Education Rubric can be used to show possible accessibility gaps in online programmes, a short course was evaluated based on SRS 8.1-8.6. We found that the QM rubric was a suitable tool to review the accessibility of the course. It highlighted that even though the course would be accessible to most students, there are areas where students with disabilities would not be able to access information or assessment activities. Therefore, it is important for lecturers and learning designers to pay attention to the aspects mentioned on a rubric such as the QM rubric to ensure that their carefully crafted courses are equally accessible to all participants. The course would not have passed the accessibility criteria at an 85% level, because it failed to meet essential standard 8.3. There are several areas for improvement that need to be addressed to truly accommodate all learners. However, based on the analysis of the QM review done, Table 2 provides a summary of the key findings in terms of the Strengths and Weaknesses of the course. The researchers chose to present the evidence and areas for improvement using a SWOT analysis split over two tables, as it is a useful method to analyse a situation and identify possible opportunities for improvement and why it would be useful to implement.

Table 2

SWOT Analysis of the Short Course in Terms of Accessibility: Strengths and Weaknesses

Strengths	Weaknesses
● Easy navigation; always visible menu structure ● Consistent layout of weeks ● Meaningful names for links ● Clickable working links ● Clear use of English, no grammatical errors ● Tables presented as text ● PDFs are searchable and selectable ● Transcripts, close captions for videos ● Videos published through YouTube (transcripts, close caption, good resolution, control keys, compress capabilities) ● Videos shorter than 15 minutes	● Text formatting (heading styles and colour use) ● No tags for tables ● No alt-tags or long descriptions use for images ● Interactive activities not accessible ● Decorative images have no alt-text or descriptions ● No vendor information

For the second part of the SWOT analysis of the short Course, Table 3 provides Opportunities and Threats. These Opportunities and Threats can be translated into recommendations for improvement to the course.

Table 3

SWOT Analysis of the Short Course in Terms of Accessibility: Opportunities and Threats

Opportunities	Threats
● Using text colour for instructional purposes and consistent heading styles of easy reading ● Add tags for tables to improve accessibility ● Explore possibilities for making interactive activities accessible ● Add vendor information for recognition and to display the accessibility and privacy statements. ● Add alt-text and descriptions to images for screen readers	● Emphasis on topics presented in tables might be lost to students using screen readers ● The meaning of images is lost when students use screen readers ● Some videos might not have transcripts, closed captions, audio, or explanations

The course design and navigation does exemplify accessibility (GS 8) for all learners as mentioned by Robinson and Wizer (2016). The course design uses various methods of responses and navigation as a mode for providing options for physical participation (SRS 8.1). Accessible technologies are used with guidance for accommodating accessibility and usability (SRS 8.1). There is an effort to provide instruction for all learning modalities as alternatives are provided for the perception of auditory and visual content (SRS 8.4). The course design focuses on minimising distractions by the way the text is presented (SRS 8.2) and facilitating ease of use when utilising multimedia (SRS 8.5). Content is presented in a customised manner to best meet the learning needs of diverse course populations (SRS 8.2). The course accommodates and optimises the use of assistive tools and technologies (SRS 8.4). However, the course does not make provision for accessible text and images in files, documents and webpages, withholding students from the true meaning of the content (SRS 8.3). Also, the accessibility statements of all the vendors are absent, causing end-users (with or without disability), to not have access to information about the possible barriers of the technology used (SRS 8.6).

In conclusion, our findings and sentiments are the same as those of Loafman and Altman, (2014), that the QM review experience has been incredibly beneficial for the review of the course we teach and we believe other online instructors might also benefit from applying the QM rubric to their online courses or programmes. Accessibility is often overlooked but a review such as this focusing specifically at accessibility gives a true sense of how students with disabilities are "left out" from receiving quality education.

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