IMPACT OF QM PROFESSIONAL DEVELOPMENT ON COURSE DESIGN AND STUDENT EVALUATIONS

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ABSTRACT

As the number of online programs continues to increase, more faculty are concerned with the quality of their courses. Many institutions subscribe to Quality Matters (QM) for professional development and guidance on components associated with high-quality asynchronous courses. However, determining how professional development impacts the actual changes to course design is often overlooked. This research examined the revisions completed as a result of professional development. Simultaneously, student evaluations were analyzed to determine the student perception of course design improvements. The results demonstrated that there were course improvements in multiple areas, yet there was no correlation with student evaluations.

Keywords: Quality Matters, course design, student response to instruction, professional development

INTRODUCTION

As online enrollments have grown over the last decade, higher education institutions implemented various models for supporting online instructors. As an important stakeholder in online program development, faculty also value institutional support for online teaching (Budden & Budden, 2013). Dunlap (2005, as cited in Chen, Lowenthal, Bauer, Heaps, & Nielson, 2017) stated that high quality online instruction begins and ends "with high quality faculty" (p. 85). Institutions have used multiple approaches to address the design and development of high impact online courses since many faculty do not have any background experience in online course design (Bailey & Card, 2009; Baran, Correia, & Thompson, 2011). Some universities allow for faculty autonomy, where the faculty take the lead to develop their courses with just-in-time personalized support from instructional designers and a learning management team. Often, faculty are asked to self-describe the impact of professional development. In this study, courses were analyzed to determine the actual impact of Quality Matters (QM) professional development.

BACKGROUND

Many institutions have adopted the Quality Matters (QM) Rubric with the intent of improving educational outcomes (e.g., retention, grades, learner satisfaction). The QM rubric is a faculty-oriented, process centered, peer review instrument developed from research based on instructional design principles to ensure quality design in online and blended courses. The QM rubric consists of 42 items in eight categories (course overview and introduction, learner objectives, assessment and measurement, instructional materials, learning activities and learner interaction, course technology, learner support, and accessibility and usability). Items are assessed on a meets/does not meet basis, and the categories are assigned a point value of 1, 2, or 3 depending on their perceived importance. To meet QM review expectations, courses must satisfy all three-point criteria and earn a total of 85 out of 100 points. Along with the rubric, QM offers many professional development opportunities such as

Applying the QM Rubric (APPQMR), Improving Your Online Course (IYOC) workshops, and Peer Reviewer certification courses. The creation of the professional development QM workshops and the QM Rubric is supported by research to improve student retention, learning outcomes, and student satisfaction. Moreover, research shows that faculty find QM training valuable (Roehrs, Wang, & Kendrick, 2013). Those who participate in QM workshops show significant reflection of both their online and face-to-face teaching, with most focusing on better alignment of course elements, more student-centered activities, and clarity of expectations (Kearns & Mancilla, 2017).

Impact of Professional Development

Chen, Lowenthal, Bauer, Heaps, and Nielsen (2017) described three common components of the various models of support for online learning: 1) using instructional designers as consultants while faculty design their courses, 2) training faculty to teach online through group professional development, and 3) using a quality control system to evaluate course design (e.g., Quality Matters). Although faculty prefer engaging in development with peers (Chen et al., 2017) and want primary responsibility for course development, they have expressed interest in receiving more help from instructional designers (Roehrs et al., 2013). As Chen et al. (2017) noted, "Most faculty do not have the experience or skill set to design online courses" (p. 87).

Online course development opportunities are necessary at institutions seeking to implement online programs. Quality Matters (QM) has created a professional development program to assist instructors with designing courses to meet research-based standards. This research examined the impact of Quality Matters professional development on course design and whether an improvement in course design changed students' perceptions of the course. Kearns and Mancilla (2017) addressed the impact of QM professional development and found that a majority of instructors perceived the workshop to be beneficial to their course design. Many studies addressing the impact of professional development on course design refer to the perceived impact rather than the actual impact (Kearns & Mancilla, 2017; Roehrs et al., 2013).

The impact of faculty development is pervasive and impacts faculty and students alike. Professional development increases faculty comfort with technology and course design and improves the perception of faculty-student interaction (Koepke & O'Brien, 2012). As faculty become more aware of best practices, they are also more reflective and cognizant of not meeting performance expectations (Kearns & Mancilla, 2017), which motivates them to change ineffective behavior. Faculty who participate in professional development exhibit behaviors that are more interactive and efficacious (Ganza, 2012). For instance, faculty who completed the online professor certificate program at the University of North Florida were found to post more frequently in discussion boards, thus increasing their interaction with students. As faculty gained more knowledge, they also felt more confident motivating students, especially when their training gave them first-hand experience as a student (Brinkley-Etzkorn, 2018; Chen et al., 2017). Faculty self-reported an improvement in pedagogical implementation although their comfort utilizing technology did not increase (Brinkley-Etzkorn, 2018). Improvements in online teaching as a result of QM reviews has positively impacted student performance (Hollowell, Brooks, & Anderson, 2017). Hollowell et al. (2017) assessed the impact a QM review had on an Introductory Biology course and found that student performance correlated with overall course averages as the course was improved.

Course design may be important but cultivating a Community of Inquiry (COI) has shown to be as necessary for successful online courses. The COI model highlights the interaction between teaching presence, social presence, and cognitive presence to increase deep and meaningful learning (Garrison, Anderson, & Archer; 2000). Swan, Day, Boyle, and Matthews (2014) discovered that as course design ratings improved as a result of QM professional development, CoI scores decreased, showing that course design and implementation do not go hand in hand. According to Swan et al. (2014), course revisions based on QM review alone do not significantly impact student outcomes; only revisions made based on both QM and CoI show positive student outcomes. There has been some criticism of QM research. The generalities posited by researchers addressing the impact of QM are often questionable as there are too many variables to determine whether the QM Rubric and review is

the catalyst for effective change (Legon, 2015). To address the questionable generalized outcomes of QM review, Legon (2015) proposed the use of eight clusters (clarity of purpose, ease of use, course alignment, learner engagement, accessibility, knowledge acquisition, compliance, and learner support) to examine whether QM revision actually impacts results as intended. Each of these clusters include a variety of standards across the sixth edition of the QM rubric with the idea of measuring the true impact of the course.

Clarity of Purpose Standards (23 points): The standards incorporated within this cluster aims to examine the relevance and connections between the course activities/assignments and the identified learning outcomes or competencies such that the learners are prepared to respond effectively.

Ease of Use Standards (15 points): This cluster evaluates the twofold impact of the course design: 1) enhancing learner efficiency over things that matter versus navigational issues in relation to technology, accessibility, and universal design; and 2) instructor satisfaction for providing quality interventions.

Course Alignment Standards (18 points): Considered one of the most critical and apparent clusters for course design, this cluster includes six of the eight general standards that surveys the extent to which the course goals and objectives align with the course components to increase learner satisfaction.

Learner Engagement Standards (11 points): The standards included in this cluster focus on surveying activities within the course to promote active learning to ensure reduced dropout rates and improved satisfaction.

Accessibility Standards (10 points): The accessibility cluster aims to examine the inclusivity of the course elements to make the learning experience equitable for all learners including self-identified disabled learners.

Knowledge Acquisition Standards (9 points): Knowledge Acquisition standards look to survey how the course content addresses the increasing and sequential cognitive levels as per Bloom's taxonomy, which illustrates the learner's accomplishment in higher cognitive domains.

Compliance Standards (6 points): Providing learners with policies and regulations that impact the learner performance within the course is the main focus of the three standards incorporated within this cluster.

Learner Support Standards (7 points): The goal of the standards in this cluster is to assess the support made available to the learners to help them accomplish the desired learning outcomes for the course.

In order to apply these clusters for content analysis, the cluster index was derived by comparing the cluster scores before and after revision. (Initial cluster score) is divided by (Cluster Score after revision), which equals Cluster Index

The Cluster Index is a representation of just how much or how little change occurred in the course, cluster by cluster. For example, the Ease of Use cluster contains seven specific QM standards worth a total of fifteen points. If a course earned only 8 points from this cluster during the first review but earned 15 points after revision by meeting all the standards in the cluster, its Cluster Index would be 8 divided by 15 which equals .53. The lower the score, the more revisions were made. Cluster indices can help isolate those elements of a course that underwent the greatest amount of change in response to the QM Rubric.

Student Perception

Linking course design to student response to instruction is long overdue. QM states that meeting the standards on the QM rubric ensures instructional quality for learners. QM has been collecting data on student satisfaction with QM courses since the inception of the program. Finely (as cited in Shattuck, 2012) conducted a QM funded study in which end of course evaluations after course design improvement were analyzed and found that student satisfaction increased. A review of student evaluations in several online redesigned health courses also saw that results improved over time (Chen, Lowenthal, & Baer, 2016). All courses saw a decrease in student satisfaction the first time the redesigned course was taught. However, the student perceptions of faculty enthusiasm, preparation, and learner encouragement increased in positivity during subsequent semesters. Yang (2017) reviewed student evaluations to gain detailed feedback on how students perceived instructional strategies in a newly designed online statistics course. Overall, course evaluations showed evidence that the students positively perceived the course. Additionally, instructional methods that

aligned with clear course objectives was the main reason cited by students as impacting their positive perception of the course.

This exploratory case study examined the actual impact to course design by instructors who have completed the Applying the QM Rubric (APPQMR) workshop and conducted informal reviews using the QM Rubric. This study attempted to analyze the actual impact to course design by faculty and its perceived impacts on the student learning experience as captured by student responses to a Student Ratings of Instruction (SRI) instrument developed by the Individual Development and Educational Assessment (IDEA) Center. The purpose of this research was to identify the changes made to course design after faculty underwent professional development Specifically, this research examined the actual change in the course as well as the instructor perception of change combined with student perceptions The research questions are as follows:

(1) Do QM professional development workshops have an impact on course design?

(2) What types of changes do instructors report as a result of developing expertise with the QM approach?

(3) What is the actual impact of course redesign on student evaluations?

METHODS

A case study approach was used for this study in which the instructors all completed the APPQMR workshop and conducted an informal review. Each course/instructor represent an embedded unit of the case (Yin, 2017). This study took place in a natural environment and utilized multiple forms of data collection (i.e., observations, IDEA evaluations, and interviews) to investigate patterns of change in course design as well as student perceptions of the courses. Therefore, a case study that utilized qualitative methods of data collection was optimal for this study.

As part of this study, each iteration of the course offered (both before and after the workshop) was analyzed to determine the impact of the workshop and the application of conducting a review on another instructor's course. A content analysis was completed using the QM Rubric on the instructor's course 1) prior to taking APPQMR, 2) after the instructor completed the APPQMR, and 3) after the instructor completed an informal review. The course iteration after the instructor completed an informal review was analyzed to assess if reviewing a peer's course led to any specific changes in the instructor's course. In order to determine the changes made to the course, the research team used the QM Rubric for each iteration and grouped the results according to Legon's (2015) clusters. The research team followed QM standards with three reviewers per course. Cluster indices helped isolate those elements of a course that underwent the greatest amount of change in response to professional development and the application of the QM Rubric.

Once the reviews were completed, the instructors were interviewed to determine why each change was made and if there were any additional external influences that led to the improvement of their online courses. The interviews were semistructured with a list of questions to guide the researcher yet conversational in nature with additional questions being added based on the QM evaluations.

Finally, instructors were asked to provide IDEA Student Response to Instruction (SRI) surveys for each term of the course to correlate the course design changes to student perception (Legion, 2015). The SRIs are also commonly used to describe the end of course evaluations completed by students. Both the quantitative and qualitative data from the IDEA survey were analyzed to determine whether there was an increase in student satisfaction with each iteration of the course. Questions from IDEA SRIs were categorized to align with Legon's clusters. The data from course reviews, instructor interviews, and IDEA surveys were triangulated to strengthen construct validity.

Data analysis consisted of course reviews using the QM rubric. The score for each specific standard was applied to the corresponding cluster. The score for each cluster was summed and divided by the next iteration of the course to determine the cluster index and thus where changes were made in the course.

At the time the study was being implemented, QM updated the rubric from 5th edition to the 6th edition. Quality Matters recommends three reviewers per course to determine whether the standard was Met or Not Met. If two reviewers

determine a standard Met, then the standard is Met. There are no partial points. Two of the three reviewers are QM Peer Reviewer certified and one reviewer completed the APPQMR training and participated in an informal Peer Reviewer training. The three reviewers completed the reviews on all nine courses. Each member of the team independently reviewed the clusters using the 6th edition of the rubric for interrater reliability. The researchers were all in agreement regarding the clusters with the 6th edition.

Instructors were then interviewed to determine their perceptions of where changes were made in the course and any additional influences other than the APPQMR workshop that prompted them to make course design changes. Each interview was approximately one hour. The interviews were semistructured and conversational in nature. Each instructor was asked the following questions.

1. How long have you been teaching online?
2. Do you feel you made significant changes to your course after participating in the Applying the QM Rubric workshop? Where do you feel you made the most significant changes and why did you feel these would make an impact on student learning?
3. How many informal QM reviews have you conducted?
4. What did you feel the benefits were after conducting an informal review?
5. Did you make any changes to your course as a result of participating as an informal reviewer? What areas did you make changes to and why? Where you able to see a difference with your learners?
6. Were there other factors other than APPQMR and/or conducting an informal review that influenced you to make changes to your course? Please describe.
7. Do you have any additional information you would like to share regarding the Applying the QM Rubric Workshop, participating as an informal reviewer, or other external forces that have assisted you with improving your online course?

The interviews were transcribed and Nivio 12 was used to analyze the data. Pattern matching, specifically explanation building, was utilized to determine if the instructors had made changes to the course based on the QM professional development or were there other outside influences. The instructors were not informed of the results of the content analysis. The interviews done after the content analysis served to compliment or counter the quantitative data collected and to assist the researchers with explaining "why" the course changes were made. The instructors were also asked about their perceived changes to the course. The instructor perception of change was then compared to the actual change made to the course.

Finally, IDEA SRI scores from the teaching methods sections of the instrument were obtained (with the consent of the faculty participants) for each iteration of the course. The teaching methods section of the IDEA SRI instrument consists of nineteen questions related to frequency with which students observed certain teaching methods teaching—these questions utilize Likert questions from (1) Hardly Ever to (5) Almost Always. To group questions, the team worked to develop a crosswalk between the teaching method questions of IDEA SRI and the corresponding cluster (Table 1). The questions were grouped into Legon's clusters by three reviewers for norming. Two of the reviewers were QM experts and one reviewer was an IDEA expert. The questions in each cluster were averaged to give a cluster score.

The QM/IDEA crosswalk was the same for all courses except during Fall 2018. The IDEA evaluations were modified during Fall 2018 due to a natural disaster that resulted in a shortened semester. The qualitative data from the IDEA SRI instrument was also reviewed for comments related to course design.

Participants

Purposeful sampling was utilized for this research as participants needed to have completed the Applying the Quality Matters Rubric (APPQMR) workshop and participated in an informal review. The faculty also needed to teach the same course for at least three semesters. A total of six faculty met these criteria. One faculty was unable to participate since she had taught the same course only twice. Two faculty did not respond to the request after three attempts; therefore, three faculty met the minimum criteria and agreed to participate in the study. The courses identified were offered between Fall 2015 and Fall

2018. Each faculty identified one course that was offered at least three times.

FINDINGS

Course One

The instructor of Course One identified a course taught in Spring 2015 prior to taking the APPQMR, Spring 2016 after the APPQMR, and Spring 2017 after applying the QM rubric informally on another course. The instructor made significant changes after taking the APPQMR and made minimal changes after conducting an informal review (Table 2). The instructor perceived that greater effort was needed to design and develop a new course rather than make changes to an existing course.

Table 1. Crosswalk between Quality Matters Clusters and IDEA SRI Teaching Questions.

The numbers for the IDEA SRI refer to the IDEA Diagnostic Feedback (2016) instrument.

QM Cluster	IDEA SRI Question
Clarity and Purpose Standards	Q4: Demonstrated the importance and significance of the subject matter. Q6: Made it clear how each topic fit into the course. *Q7: Provided meaningful feedback on students' academic performance.
Ease of Use Standards	Q1: Found ways to help students answer their own questions. Q10: Explained course material clearly and concisely. *Q17: Asked students to help each other understand ideas or concepts.
Course Alignment Standards	Q6: Made it clear how each topic fit into the course. Q10: Explained course material clearly and concisely.
Learner Engagement Standards	*Q2: Helped students to interpret subject matter from diverse perspectives (e.g., different cultures, religions, genders, political views). *Q3: Encouraged students to reflect on and evaluate what they have learned. *Q5: Formed teams or groups to facilitate learning. *Q7: Provided meaningful feedback on students' academic performance (QM 3.5 only). *Q8: Stimulated students to intellectual effort beyond that required by most courses. *Q12: Created opportunities for students to apply course content outside the classroom. *Q14: Involved students in hands-on projects such as research, case studies, or real-life activities. *Q16: Asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own. *Q17: Asked students to help each other understand ideas or concepts. *Q18: Gave projects, tests, or assignments that required original or creative thinking.
Accessibility Standards	none
Knowledge Acquisition Standards	*Q2: Helped students to interpret subject matter from diverse perspectives (e.g., different cultures, religions, genders, political views). *Q8: Stimulated students to intellectual effort beyond that required by most courses. *Q11: Related course material to real-life situations. *Q12: Created opportunities for students to apply course content outside the classroom. *Q13: Introduced stimulating ideas about the subject. *Q14: Involved students in handson projects such as research, case studies, or real-life activities. *Q17: Asked students to help each other understand ideas or concepts. *Q18: Gave projects, tests, or assignments that required original or creative thinking.
Compliance Standards	none
Learner Support Standards	Q1: Found ways to help students answer their own questions. *Q9: Encouraged students to use multiple resources (e.g., Internet, library holdings, outside experts) to improve understanding. *Q19: Encouraged student-faculty interaction outside of class (e.g., office visits, phone calls, email).

*Question was omitted during the Fall 2018 semester.

Table 2. Point Value and Cluster Index of Each Course within Each Cluster for Course One.

	Clusters	Point Value	Before workshop	After workshop	After internal review
Course 1	Clarity and Purpose Standards	23	11	17 (.064706)	17 (1)
	Ease of Use	15	8	15 (.533333)	15 (1)
	Course Alignment Standards	18	15	15 (1)	15 (1)
	Learner Engagement Standards	11	9	11 (.8182)	11 (1)
	Accessibility Standards	10	3	8 (.3.75)	8 (1)
	Knowledge Acquisition Standards	9	9	9 (1)	9 (1)
	Compliance Standards	6	2	4 (.5)	6 (.66667)
	Learner Support Standards	*7*	*6*	*7 (.85714)*	*7 (1)*

Most changes to the courses were made after the workshop and not after an informal review. For Course One, clarity of purpose, ease of use, learner engagement, accessibility, compliance, and learner support standards were all addressed after the APPQMR workshop. Additional changes were made to the course after conducting an informal review in the area of compliance.

The instructor of Course One has been teaching online for about six years. The instructor started at another institution under the guidance of another professor who had QM training but was "not a fan" according to the interview. The instructor stated that when you make changes it is better to redesign your course, but essentially, you are rewriting or recreating your course, and therefore, it is done when necessary. At the time of initial implementation, the instructor used third-party materials and stated presently they would be able to redesign the course without the use of third-party materials. But as a new faculty under time constraints, the incorporation of third-party materials was essential. The instructor stated that the QM training "… gives you a little more clarity, understanding how the course looks from the student point of view and tweaking it to make it clearer. My goal is to get almost no emails about little confused things, confusing about the assignment …" In the most recent courses the instructor has designed, they incorporated module objectives that make the connection between the content and the course goals clearer to them and thus clearer for the student. Instructor One did complete other trainings through the institution's Center of Teaching Excellence such as a Course Design Institute. The instructor also stated that being able to complete a review of another faculty's course helped to conceptualize organization and instructional strategies since the instructor was unfamiliar with the content.

For this course, the IDEA scores varied due to response rate(s), which were relatively high compared to the other courses in the study (and to the institutional average, which is typically between 40% and 50%). In Fall 2015 the response rate was 100%, in Spring 2016 the response rate was 81%, and in Spring 2017 the response rate was 80%. There was an increase in student evaluation scores in the Clarity and Purpose (3.97 to 4.49), Course Alignment (3.71 to 4.06), Learner Engagement (3.71 to 4.23), and Knowledge Acquisition (4.16 to 4.21) clusters (Figure 1). The Ease of Use cluster saw an increase after the APPQMR workshop (3.97 to 4.15) but then a decrease (3.96) after completing an informal review. Student evaluations for Learner Support saw a slight decrease after the workshop (4.11 to 4.05) but then a significant increase (4.17) in the third iteration of the course.

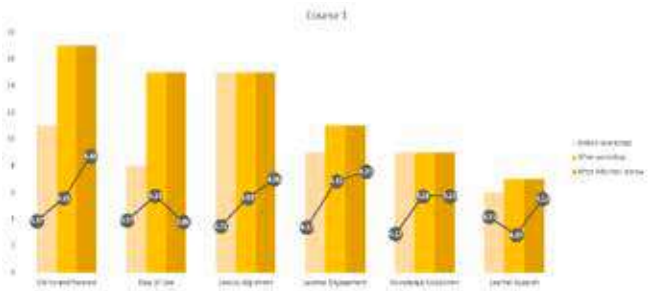

Figure 1. QM score per course with corresponding student evaluation averages related to a particular cluster.

At the end of the student response to instruction, students are asked to rate the course. Over time, as the course improved, so did the overall global scores (3.17 to 4) (Figure 2). Student comments in the qualitative section of the IDEA SRI supported

this change. In Fall 2015, students referenced "streamlining" the course and changing the course schedule to match the dates in the LMS. In Spring 2016, students did not reference any changes that needed to be made to course design. By Spring 2017, a majority of the comments were positive and even stated that "[Professor] has done a great job designing this class."

Figure 2. Global IDEA student response to instruction score for Course One.

Course Two

The instructor of Course Two identified a course taught in Spring 2017, Spring 2018, and Fall 2018. The analysis of Course Two determined that the instructor made changes to the course in the following cluster areas: Ease of Use, Learner Engagement, and Learner Support Standards. According to the QM Rubric analysis the remainder of the clusters and areas within the course were not adjusted. There was regression after the QM workshop for the Ease of Use cluster but after completing an informal review, the instructor made improvements within that particular cluster. There was also a regression noted in the Learner Engagement cluster after the informal review but an improvement after the QM workshop. This was also similar for the Learner Support cluster (Table 3).

The instructor of Course Two has taught online for about 17 years and started with building a course website. The instructor has taught using a variety of Learning Management Systems. When asked about changes made to the course based on the APPQMR workshop, they stated that they are still making changes, but the takeaway was creating alignment in the course.

> *I feel like I'm doing that okay, but I don't think it is clear or explicit enough in my online courses where the alignment of the assignment goals, to the course goals, to the departmental university goals all line up together. I don't feel, while I can recognize that when I review other courses, I'm not spending enough time on mine and making sure that that alignment is very clear and explicit.*

The instructor for Course Two met all the alignment standards except for the inclusion of module objectives, which did not change over time.

When asked about outside influences that motivated the instructor to make changes, they stated, "My research is in pedagogy, online pedagogy in particular." They also stated that they were part of a campus movement on applied learning and continually making changes to incorporate experiential learning into the online class. This is indicative that for this course, external influences did play a role in impacting the course design in addition to the QM workshops.

The instructor had completed multiple informal reviews and stated that the benefit from conducting the informal reviews allowed then to " [see] more

Table 3. Point Value and Cluster Index of Each Course within Each Cluster for Course Two.

	Clusters	Point Value	Before workshop	After workshop	After internal review
Course 2	Clarity and Purpose Standards	23	15	15 (1)	15 (1)
	Ease of Use	15	13	11 (1.1818)	14 (.7857)
	Course Alignment Standards	18	15	15 (1)	15 (1)
	Learner Engagement Standards	11	5	8 (.625)	7 (1.143)
	Accessibility Standards	10	8	8 (1)	8 (1)
	Knowledge Acquisition Standards	9	9	9 (1)	9 (1)
	Compliance Standards	6	2	2 (1)	2 (1)
	Learner Support Standards	7	4	7 (.85714)	4 (1.75)

ways of trying to integrate student interaction I think, or collaboration amongst students, or trying to get students to be more interactive with each other." When asked about making changes to the course after completing informal reviews, the instructor stated,

> *Yeah, I made some changes that I can make quickly before a … you know, I don't particularly like to make huge changes right before a semester. But if I have time, I'll change what I can. I typically, when I redo bigger courses, or need to do a larger overhaul, I'll do it during the summer.*

This may be an indicator as to why there were fewer documented changes to the course through the QM analysis.

The response rate for IDEA SRI for this course are as follows: Spring 2017 (23%), Spring 2018 (23%), and Fall 2018 (20%). The student evaluation did not correlate with the changes made to the course. For instance, the clusters that demonstrated improvement after the APPQMR workshop (Learner Engagement and Learner Support), saw a decline in the student evaluations. Conversely, with the clusters that either remained the same or regressed (Clarity of Purpose, Course Alignment, and Knowledge Acquisition), the student evaluations fluctuated. Ease of Use was the only cluster where the student evaluations correlated with the course design clusters, with a decrease after the workshop (4.18 to 4.03) and an increase (4.56) after conducting an informal review (Figure 3). Due to unforeseen circumstances during the Fall 2018 semester, the IDEA surveys were modified, and questions omitted; therefore, there were no data for Learner Engagement and Knowledge Acquisition after completing an informal review. Qualitative feedback in Spring 2018 alluded to dissatisfaction with responses and response time on feedback from the instructor. In Spring 2018, there were only two comments, which contradicted one another: One comment referred to timely feedback while the other referenced feedback taking too long.

Figure 3. QM score per course with corresponding student evaluation averages related to a particular cluster.

The overall global scores followed a similar pattern to the cluster scores with a decrease after the APPQMR workshop and an increase after completing an informal review (Figure 4). Although the pattern is consistent with the cluster evaluations, there is no pattern related to changes with course design and student evaluations.

Figure 4. Global IDEA student response to instruction score for Course Two.

Course Three

The instructor of Course Three identified a course in Spring 2017, Fall 2017, and Fall 2018. Multiple changes were made to the course in Fall 2017 after completing the APPQMR workshop in the following clusters: Clarity and Purpose, Ease of Use, Course Alignment, Accessibility, and Compliance. Two areas that did not change over time were Knowledge Acquisition and Learner Support. After conducting an informal review, additional changes were made to Clarity and Purpose, Course Alignment, and Learner Engagement so the course met all the specific standards associated with each cluster (Table 4). After conducting an internal review, the accessibility cluster regressed but this course was taught in Fall 2018 and modifications were made to the course during the semester to accommodate unforeseen circumstances.

The instructor has been teaching online for

about 13 years. When asked about changes made to the course, the instructor felt that the changes were not significant but the addition of module objectives made the presentation of the course more "transparent." When asked about where the changes were made the instructor stated,

> *It's just forced me, I think, to really think of ways to meet those requirements, those kind of transparent things, but also not make it too, frankly, off-putting. In doing that, I think it's forced me to reexamine what I teach and how I teach because I've been doing it for a really, really, really long time, so in that sense, it was nice to get a refresh….*

Although only two clusters were improved after conducting a review on peer's course, the instructor stated,

> *I think probably that was even more helpful than me ... It was probably even more helpful than when my class just being reviewed, because you got to see the ways that other people did things, and you don't ... Sometimes when you're forced with like, okay, I've gotta do these things, and let's be frank. I've gotta do these things to check these boxes. Maybe it's not because I really feel strongly that these things should exist in the course. I feel strongly that I should have a quality course and agree that this is a good way to go about it, but seeing the way somebody else does it was like another way to get honestly a bit of a refresh and say, "Oh, okay, well this is how this person did it. I could apply it this way.*

Although the course demonstrated overall improvements according to the QM rubric, there was a decline in the student evaluations over time across all clusters. There was no student evaluation data for Learner Engagement and Knowledge Acquisition after the informal review due to modifications made to the IDEA SRI instrument as a result of unforeseen circumstances (Figure 5). The qualitative feedback on the IDEA SRI evaluations also varied. In Spring 2017, the students referenced the instructor, the discussion boards, and timeliness of feedback. For example, one student stated, "Communicates well and responds to emails quickly." There was no qualitative feedback in Spring 2018. Although the overall evaluation scores were lower in Fall 2018, the qualitative feedback was positive with one student stating, "… was very organized and helpful throughout the course." Another student stated, "Wonderful teacher, and great course, and very informative." Only one student reference dissatisfaction, "The course was frustrating because we never got feedback on our discussion posts."

Figure 5. QM score per course with corresponding student evaluation averages related to a particular cluster.

The overall global evaluation score followed the same pattern as the cluster evaluations in depicting

Table 4. Point Value and Cluster Index of Each Course within Each Cluster for Course Three.

	Clusters	Point Value	Before Workshop	After Workshop	After informal review
Course 3	Clarity and Purpose	23	12	17 (.70588)	23 (.739)
	Ease of Use	15	11	15 (.7333)	15 (1)
	Course Alignment Standards	18	9	15 (.6)	18 (.8333)
	Learner Engagement Standards	11	7	7 (1)	7 (1)
	Accessibility Standards	10	5	10 (.5)	8 (1.25)
	Knowledge Acquisition Standards	9	7	7 (1)	7 (1)
	Compliance Standards	6	2	4 (.5)	4 (1)
	Learner Support Standards	7	7	7 (1)	7 (1)

a downward trend over time even though the course analysis demonstrated overall improvements in course design (Figure 6).

Figure 6. Global IDEA student response to instruction score for Course Three.

DISCUSSION

Our first research question addressed whether there was any impact on course design as a result of professional development. The results from each course indicated that changes were made to course design as a result of the APPQMR workshop. Both Course One and Course Three demonstrated changes made to multiple clusters. In fact, Course One and Course Two addressed all but two clusters. This indicates that QM professional development impacts course design. Although there were minimal changes to Course Two, positive changes were made to Learner Engagement and Learner Support clusters. A majority of the changes were made after attending APPQMR workshop rather than after applying the QM rubric to a peer's course. As Instructor One stated, many changes they implemented have been in newly created courses, and the researchers may not have been able to observe all the impacts from the application of the rubric.

The instructors indicated that they perceived professional development to be beneficial to course design. Specifically, they noted the value in reviewing others' courses and reflecting on how the course was perceived by students, both of which led to better alignment of course goals and content. All the instructors were experienced online instructors who also had exposure to other types of professional development over their tenure. Although none of the instructors stated that there was a direct correlation between the changes made and previous professional development, the previous experience may have assisted with their understanding of the QM professional development and the ability to demonstrate the standards rather than just being able to identify or recognize the specific standards within the QM rubric. Another outside influence that was not mentioned by the instructors is the end of the semester SRI. Student feedback, especially if negative, could have prompted the instructors to make additional changes, particularly if it aligned with the QM professional development. Conversely, positive student feedback may influence instructors to not make additional changes suggested by a QM review.

The second research question investigated the types of changes that were made as a result of QM professional development. A majority of the changes were made in the areas that affected the students such as Ease of Use, Learner Engagement, and Learner Support. Minimal changes were made in Knowledge Acquisition, which represents the instructional materials chosen for the course. Since the instructors are the subject matter experts, they may have felt the instructional materials were appropriate for the course goals. Instructor Two stated that it takes time to make many of the changes particularly related to course alignment and the creation of module objectives. From the instructor perspective, changes aligned with Knowledge Acquisition take more time to address, which causes a delay in perceivable impact.

Many studies ask faculty to self-report changes made to course design or implementation after professional development in which the categories are general (e.g., pedagogical implementation, reflective, confidence with motivating students) (Brinkley-Etzkorn, 2018; Chen et al., 2017; Ganza, 2012; Kearns & Mancilla, 2017). The perception does not always reflect the actual changes as some instructors may under report or over report changes. For example, Instructor One was focused on clarity from the student perceptive. Although they did not state that course alignment was improved by incorporating module objectives, it was an actual change made to assist with making the course more student-centered. Instructor Two stated that changes were made in the area of alignment and that was a focus, yet the course did not reflect the instructor's perception. The timing of the professional development may have impacted the actual changes made as Instructor Two hesitated

to make big changes so soon to the start of the semester. This is an area worthy of exploration in future studies.

The third research question addressed the impact of improving course design on student evaluation. Linking course design to student response to instruction is long overdue. Quality Matters states that meeting the standards on the QM rubric ensures quality for learners. The findings suggest that QM revisions are not directly linked to student evaluations, since no patterns were seen across courses where improvement were made to course design. Course One demonstrated the strongest correlation between course design and student evaluations. The instructor for Course One stated that changes were minimal but many of the QM standards have been applied to courses that have been newly created. However, the results were not consistent with Course Two and Course Three. Quality Matters also states that many factors contribute to online course quality including course delivery. Swan et al. (2014) found that course design alone did not contribute to increased learning outcomes, but the combination of QM and Community of Inquiry (CoI) led to improved student performance. Based on the qualitative feedback from the students, instructor presence is also an indicator of student satisfaction. The students frequently referenced in the qualitative responses elements that are consistent with the teaching presence dimension of the COI framework: timeliness of feedback, type of feedback, frequency and timeliness of email responses, and availability of instructor. These elements allow the instructor and the student to engage in a manner that encourages reflection of content meaning and confirmation of mutual understanding. The findings of this exploratory case study suggest that there are other components that may directly or indirectly affect student evaluation.

LIMITATIONS

The limitations of the results must be viewed within the limitations and delimitations of the present study. The criteria for the study limited the sample size to three participants, but this also allowed the researchers to gain a snapshot into potential patterns between course design and student evaluations. In Fall 2018, there was a natural disaster that occurred during the middle of the semester resulting in a month of lost instructional time. Since many courses were adjusted to make up for lost instruction time, the institution opted to utilize a shorter version of the IDEA SRI instrument. The shorter instrument, IDEA Teaching Essentials, focused on a subset of teaching methods but omitted some of the questions posed to students in previous iterations of the courses in the study. Finally, the nature of the research is subjective including the QM reviews. The researchers ensured that there were three reviewers for each course following the protocol set forth by Quality Matter course review standards, but even QM recognizes the subjective nature of QM reviews. Although three reviewers developed the crosswalk between IDEA questions and QM clusters to increase interrater reliability, the crosswalk is subjective given that the IDEA SRI instruments are intended for data collection in both online and face-to-face courses.

This study has the potential for further enhancement by increasing the sample size, which could strengthen the ability to generalize across institutions to determine whether the application of QM is a viable solution for student satisfaction and a measure of quality courses. Further research also needs to be conducted on the correlation of course design to student evaluations as well as determining whether student satisfaction is attributed more to course design or instructor social presence.

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