Student Perceptions of Online Course Design Elements in a Post-Pandemic Environment

Carrie Lewis Miller, Ph.D., Minnesota State University, Mankato

Michael Manderfeld, MS, Minnesota State University, Mankato

Odbayar Batsaikhan, Ed.D., Minnesota State University, Mankato

Adeyemi Adelekun, MBA, Minnesota State University, Mankato

Abstract

Instructional designers conducted a survey of students to determine their perceptions of online course design in a post-pandemic environment. The questions were based on Quality Matters General Standards and asked students to indicate whether they experienced the design element and the importance they placed on it. Open-ended questions gathered additional detail about the students' online course experience. Results indicate overall online course design at the university adheres to QM standards, but improvement is needed in online teaching practice, specifically teacher communication and availability, grading, and feedback. When compared to results of the same survey administered pre-pandemic, similar trends are seen although students in the current post-pandemic study place higher importance on the need for accessible course design. Implications for faculty development programming are discussed.

Keywords: Quality Matters, online course design, online pedagogy, student perceptions

Student Perceptions of Online Course Design Elements in a Post-Pandemic Environment

According to the UN Educational, Scientific and Cultural Organization report (2020), the COVID 19 pandemic had affected over 1.07 billion students worldwide in about 111 countries, around 61% of the global student population (Yan et al., 2021). Because of the global COVID-19 pandemic, a rapid shift to online delivery in higher education became necessary. While during the early months of the pandemic, synchronous or asynchronous online classes were the norm out of necessity, a gradual shift to more hybrid environments emerged to begin to move students and faculty back to campuses (Singh et al., 2021). There has long been a debate about which modality is more effective and in recent years, a preference for the hybrid format has emerged from student research (Hapke et al., 2020; Singh et al., 2021; Yu, 2020). Although hybrid is the current preference, there is no shortage of online, asynchronous courses being taught at colleges and universities. Prior to the pandemic shift in spring of 2020, approximately 38% of college students in the United States were taking at least one online course and 15% took exclusively online courses (National Center for Education Statistics, 2022). After the pandemic shift, the numbers in the fall 2020 increased to 75% and 44% respectively (National Center for Education Statistics, 2022). Although many campuses are pushing to return to traditional face-to-face courses, some students and faculty are still wary of returning to the classroom at full capacity or may have health concerns preventing them from doing so, leaving online and hybrid courses as a good option (Singh et al., 2021).

Now that the emergency shift to online learning is over, the need to increase faculty training opportunities in online course design and online pedagogy is evident (Rapanta et al., 2021). This transition to online teaching and shift in learning modality has necessitated adjustment to the online environment via course design, teaching strategies, and assessment

methods in a short amount of time (Van Nuland et al., 2020). When there was a need for emergency online course design in March 2020, many faculty were supported through online workshops held by instructional designers and other faculty development, or IT (Information Technology) staff designed to help the faculty successfully implement online teaching (Jackson et al., 2021). Some workshops focused on using synchronous technology, online assessments, and the promotion of online engagement strategies (Danyluk & Burns, 2021). Some workshops met synchronously weekly or monthly, allowing faculty to share their online teaching resources, lesson plans, and approaches. Many universities offer the same support to full-time faculty and part-time adjuncts, although this support did not always continue beyond an adjunct faculty's contracts, meaning they often were on their own outside of the semester start and end dates (Danyluk & Burns, 2021).

Full-time tenured faculty usually have the advantage of having better access to support and training (Merillat & Scheibmeir, 2016). According to Allen and Seaman (2010), many faculty were reluctant to teach online classes, viewing it as inferior to face-to-face teaching prior to the Covid-19 pandemic. Now, however, faculty are gaining more computer skills, becoming tech savvier and embracing online classes having had experience using the technology (Danyluk & Burns, 2021). Fortunately, a wide variety of course design frameworks exist to assist faculty in delivering well-designed online courses, such as Quality Matters Rubric (Quality Matters, 2021); the Online Learning Consortium Quality Scorecard (Online Learning Consortium, 2022); the CSU Quality Learning and Teaching Rubric (California State University, 2022); the University of Illinois Quality Online Course Initiative (QOCI) Rubric (University of Illinois Springfield, 2022); and the Penn State Quality Assurance e-Learning Design Standards (Pennsylvania State University, 2022).

A wide variety of research has been conducted on the impact of using frameworks, such as the Quality Matters (QM, 2021) framework, on the outcomes of an online course (Gaston & Lynch, 2019; Hollowell et al., 2017; Wang, 2019). However, many of the elements of the Quality Matters rubric can exist outside of formal QM training or certification. The question then turns to how these elements, whether intentionally following the QM rubric or not, are perceived by students. At a medium-sized, public, comprehensive university in the Midwest, instructional designers conducted a pre-pandemic study of students' perceptions of online course quality based on the Quality Matters Rubric and Brookfield's (1995) Critical Incident Questionnaire (Miller & Manderfeld, 2022). The same survey was conducted post-pandemic shift to determine how the results compared pre- and post-pandemic in terms of student perceptions of online learning.

Theoretical Framework

What Makes a Good Online Course Experience?

A wide variety of elements combine to make a good online course. Student engagement is one of the primary elements of making an online course successful, and engagement can be broken into learner-to-learner engagement, learner-to-instructor engagement, and learner-to-content engagement (Martin & Bolliger, 2018). A variety of course materials, structured online discussions, and real-world application of the information are other perceived elements of a successful online course (Martin & Bolliger, 2018). Martin, Ritzhaupt, Kumar, and Budhrani (2019) also indicated "using a variety of assessments, using traditional and authentic assessments and used rubrics to assess students, course templates and quality assurance process and surveys, learning analytics, and peer reviews for assessment and evaluation" (p. 34) lead to successful student experiences. Award-winning online faculty were found to use a backward design

process, where learning outcomes are created prior to determining assessments and selecting course materials, and they were present in the course, providing timely formative feedback and communicating with students on a regular basis (Martin, Ritzhaupt, Kumar, & Budhrani, 2019).

Kumar et al. (2019) emphasized the importance of an online faculty member's comfort in the digital space as well as being open to self-reflection to make continual improvements in the course. Another area of importance is the use of data to make evidence-based course design changes (Kumar et al., 2019). Davis et al. (2019) indicate any approach taken should align to the course outcomes and systematic course design should always be the priority when choosing tools or methods to integrate into an online course.

Traditional, face-to-face teaching strategies can still be adequate for online teaching, yet there are additional competencies needed in online teaching. For example, current online instructors should be able to use the learning management system, have basic technology skills for emails and browser navigation, create audio and video recordings for upload and sharing, and communicate using basic technical writing (Martin, Budhrani, Kumar, & Ritzhaupt, 2019). Online faculty should also have a willingness to learn and experiment with pedagogical and technological skills, an understanding of online pedagogy, content expertise, course design skills, the ability to design assessments and provide formative feedback, and good time management skills (Martin, Budhrani, Kumar, & Ritzhaupt, 2019).

Course Design

Online course design is "effectively a context-specific form of instructional design oriented to online learning spaces. Therefore, online course design includes both the features of the online course, and the processes and procedures used to create that online course" (Martin,

Ritzhaupt, Kumar, & Budhrani, 2019, p. 35). There are many best practices in online course design which can provide consistency for the learners and encourage a continual improvement process of the course over time. Online course design standards, such as the Quality Matters Rubric or the Online Learning Consortium Scorecard help provide a framework and goals around those online course design best practices to which faculty can aspire (Martin, Ritzhaupt, Kumar, & Budhrani, 2019, p. 35).

The Quality Matters General Standards categories are Course Overview and Introduction; Learning Objectives (Competencies); Assessment and Measurement; Instructional Materials; Learning Activities and Learner Interaction; Course Technology; Learner Support; and Accessibility and Usability (Quality Matters, 2021). Sadaf et al. (2019) found the categories of Course Activities and Learner Interaction were perceived by students as the most impactful on their learning and engagement. Studies have also indicated implementing the QM rubric can result in improved student learning outcomes (Hollowell et al., 2017; Swan et al., 2012); student motivation and self-efficacy (Simunich et al., 2015); and student retention (Al Naber, 2021).

Student Perceptions of Online Learning

According to some studies, the online learning and teaching environment is associated with reduced student engagement, a crucial prerequisite of student satisfaction, retention, and success (Andrew et al., 2021; Cole et al., 2021; Kaufmann & Vallade, 2020; Martin & Bolliger, 2019). Students in online classes can often feel a sense of disconnect between themselves and their peers, as well as between themselves and their professors which can often cause problems with motivation and engagement in class (Martin & Bollinger, 2018). Active learning strategies and instructor presence can help decrease the feeling of disconnection and increase the sense of community in the course (Cole et al., 2021). Kaufmann et al. (2016) defined four factors

contributing to a more positively perceived online course environment including instructor behaviors, student connectedness, clear communication, and course design.

During the Covid-19 pandemic, students' prior perceptions of online learning may have influenced their satisfaction and overall experience in their emergency online courses (Conrad et al., 2022). Students cited information overload, technical skill requirements, online learning difficulty, and course design as factors contributing to their overall negative perception of their online learning experience during the emergency move to online learning during the Covid-19 pandemic (Conrad et al., 2022). In contrast, Kern and Tague (2022) found students positively perceived synchronous lectures and the ability to learn from the comfort and safety of their own homes during the pandemic despite challenges with internet connectivity and social isolation. Boardman et al. (2021) also found students valued the synchronous interactions during the emergency switch to online learning and they perceived a higher quality of interaction with their professors during that time over previous face-to-face interactions.

To determine the students' perceptions of online course design post-pandemic shift at a medium-sized, public, comprehensive university in the Midwest, instructional designers conducted a mixed methods study to answer the following research questions:

1. What are the overall perceptions and experiences of students who took or are taking online classes in the post-pandemic environment?
2. What elements of online course design do students consider to be important?
3. How do the students' experiences post-pandemic compare to their pre-pandemic experiences?
4. Based on the students' experiences, what areas of online course design should be the focus of future faculty professional development?

Method

Participants

At a medium-sized, public, comprehensive university in the Midwest, participants were recruited by posting an announcement to students only in the university learning management system. A total of 482 students participated in an anonymous, online survey in the spring semester of 2022. One hundred forty-two participants were excluded from the analysis as they completed less than 15% of the questionnaire, completed the questionnaire in less than 2 mins, or responded the same way to every item (e.g., answering strongly agree to every item). Of the remaining participants, 68% identified as female; 61.2% were between the ages of 18-24; 76.2% had taken more than one fully online class; 81.2% were enrolled in their most recent online course at the time of the survey; 34.4% were in their sophomore or junior years; 25.3% were graduate students. Most of the participants (53.5%) had taken 5 or more online courses at the time of the survey. The racial make-up of the survey participants was representative of the population of the campus with 76.8% of the participants identifying as White, 7.6% identifying as Black, 8.5% identifying as Asian, 0.3% identifying as American Indian or Alaska Native, and the remaining 6.8% selecting other or declining to self-identify.

Measures

Survey

An anonymous online survey was designed for the purposes of this study. The survey was comprised of demographic questions, eight blocks of Likert-style questions about various aspects of their online course experience, and two open-ended questions. The questions were broken into sections mapped to the Quality Matters General Standards. For the purposes of this study, the categories *Learner Support and Accessibility* were combined, and *Usability* was broken out into its own category. The questions asked participants to rate their opinion of

whether they experienced a specific component of the standard in their online course (*Strongly Agree – Agree – Disagree – Strongly Disagree*) and if they considered the component to be important (*Important – Somewhat Important – Not Important*). Participants in this survey were specifically asked to consider only fully online courses in their responses rather than those offered via the Hyflex model. The open-ended questions asked students to expand on their responses and add any other information they would like the researchers to know. For a large percentage of participants, the open-ended question that asked students *Regarding the answer to the previous question [How did your online course experience pre-Covid 19 pandemic compare to your most recent online experience], what made that experience {participant response inserted here}?,* the function of the survey tool that piped in their previous response did not work correctly and the participant saw nothing rather than their response therefore no meaningful data were collected for many respondents (34%) to this question (N=93).

The survey was reviewed by multiple experts on the Quality Matters rubric, including a Master Course Reviewer, and it was found to be a valid measure representing the QM general standards. This survey was piloted in previous semesters and internal consistency was determined for the items and subitems on the survey using Cronbach's Alpha ((Miller & Manderfeld, 2022). The combined Cronbach's Alpha for Opinion and Importance of all items is at a minimum in the acceptable range ($0.7 \leq \alpha < 0.8$).

Analysis

A quantitative analysis was conducted on the survey data using SPSS 27 to calculate frequencies and descriptive statistics. The correlation between the reported experience and the importance placed upon the element was also calculated. Responses to the eight Likert sections were categorized into high-low favorability and high-low importance. Favorability scores are the

percentage of participants who selected either strongly agree or agree to the 'opinion' questions. Importance scores are the percentage of participants who selected either important or somewhat important to the 'importance' questions. The data from this survey was compared to the data from the pre-Covid survey (Miller & Manderfeld, 2022) to compare the change in student experiences. ANOVA was used to compare the previous pre-Covid survey data to the current survey data and both Levene's test and Welch's test were run on the comparison data after the Levene's test results indicated the assumption of homogeneity of variance was violated for one of the comparison variables (Importance of Accessibility category).

The qualitative question data (N=151) was coded using Qualtrics Text IQ. The researchers independently assigned codes to the responses and the inter-coder reliability was calculated using the formula described in Miles and Huberman (1994): reliability = # of agreements / # of agreements + # of disagreements. For these qualitative results, the inter-coder reliability was 94.8%. The results from this analysis were broken down into seven distinct categories: Course Design Elements, General Comments, Instructor Comments, Peer or Instructor Communication, Technology, Universal Design, and Unrelated. Each category was broken down into specific codes such as accessibility or good instructor practice as seen in Table 10.

Results

The results from this survey show that overall, the participants are experiencing most of the elements of good online course design based on the Quality Matters Rubric.

Course Overview and Introduction

There was a moderate positive relationship between student experience and importance (r = .49, p = .18) in the course overview and introduction section. The more participants agreed

with the course overview and introduction items, the more likely they were to indicate the items were important to their experience. The frequency results from this section can be seen in Table 1.

Table 1

Course Overview and Introduction Items Ranked by Favorability

Item	Experienced	Importance
Q7.3 I understood what behavior was expected of me in the online classroom.	90.4%	89.9%
Q7.8 The instructor introduction was appropriate.	90.2%	90.2%
Q7.4 The course introduction made me aware of the course and institutional policies.	87.9%	93.8%
Q7.2 I understood the purpose of course resources.	86.1%	97.2%
Q7.5 It was clear what technologies I needed to complete the course and how to obtain these.	84.6%	95.5%
Q7.6 The course content clearly stated the prerequisites and required competency that I would need in order to complete the course successfully.	81.4%	93.8%
Q7.1 It was easy to get started and find information in the course.	80.6%	99.7%
Q7.7 The content clearly stated the technical skills that I needed in order to complete the course successfully.	74.4%	91.5%
Q7.9 I was prompted to introduce myself to my classmates at the beginning of the course.	64.5%	67.1%

Learning Objectives (Competencies)

There was no significant relationship between the experience ratings and importance ratings by participants on the learning objectives items ($r = .45$, $p = .55$). The results from this section can be seen in Table 2.

Table 2

Learning Objective Items Ranked by Favorability

Item	Experienced	Importance
Q8.4 The objectives of the course were appropriate for my level.	91%	97.93%
Q8.1 The learning objectives for the course clearly stated what I would do during the course.	89.2%	96.90%
Q8.2 I understood what the learning objectives/purpose was for all of the modules in the course.	82%	96.22%
Q8.3 The activities during the course helped me reach the learning objectives for each module and for the course.	81.5%	98.62%

Assessment and Measurement

There was a small positive relationship between student experience and importance (r = .46, p = .43) in the assessment and measurement section. The more participants agreed with the assessment, feedback, and grading items, the more they indicated the items were important to their experience. The results from this section can be seen in Table 3.

Table 3

Assessment and Measurement Items Ranked by Favorability

Item	Experience	Importance
Q9.2 The course grading policy was clear and easy to access.	85.57%	98.55%
Q9.3 The course documentation clearly described course grading/feedback system.	85.20%	98.54%
Q9.1 The assessments during the course accurately measured my progress towards the learning objectives.	83.28%	96.35%
Q9.4 There were a variety of types of assessment throughout the course (papers, exams, projects, etc.).	76.80%	92.73%
Q9.5 Up-to-date grades were available throughout the course.	74.75%	97.45%

Instructional Materials

There was no significant relationship between student experience and importance (r = .42, p = .41) in the instructional materials section. The results from this section can be seen in Table 4.

Table 4

Instructional Materials Items Ranked by Favorability

Item	Experienced	Importance
Q10.2 The materials were relevant to the activities and assessments in the course.	93.29%	98.80%
Q10.4 The materials in the course were up-to-date and relevant.	86.93%	97.99%
Q10.5 There were a variety of materials and resources included in the course.	85.51%	92.43%
Q10.1 The resources in the course provided appropriate information to help me reach the learning objectives.	84.10%	98.02%
Q10.3 The instructor cited all of the resources that they included in the course.	80.14%	80.08%
Q10.6 It was easy to tell the difference between required and optional information.	71.83%	96.02%

Learning Activities and Learner Interaction

There was a moderate positive relationship between the experience ratings and importance ratings by participants on the learning activities and learner interaction items (r = .63, p = .02). The results for this section can be seen in Table 5.

Table 5

Learner Activities and Learning Interaction Items Ranked by Favorability

Item	Experienced	Importance
Q11.11 The course allowed me to take responsibility for my own learning.	92.02%	93.53%
Q11.1 The activities in the course helped me reach the learning objectives.	88.30%	98.70%
Q11.6 The course documentation described the expectations for my performance in the online classroom.	88.21%	96.96%
Q11.10 Instructor effectively communicated any changes/clarifications regarding course requirements.	85.17%	97.82%
Q11.8 The instructor was accessible to me outside of the course (both online and in person).	83.65%	97.38%
Q11.5 Feedback was informative, supportive, and articulate.	79.92%	99.13%
Q11.9 The amount of contact with the instructor was satisfactory (email, discussions, face to face meetings, etc.)	79.47%	95.20%
Q11.4 Feedback was delivered in a timely fashion and within the limits described in the course documentations.	77.57%	98.69%
Q11.13 I felt comfortable interacting with the instructor and other students.	76.52%	92.21%
Q11.2 The course used realistic assignments that motivated me to do my best work.	75.00%	98.27%
Q11.3 The activities encouraged me to engage with learning.	74.62%	98.70%
Q11.7 The instructor was enthusiastic about online teaching.	71.59%	92.98%
Q11.14 This course included activities and assignments that provided me with opportunities to interact with other students.	67.92%	76.09%
Q11.12 The course was structured so that I could discuss assignments with other students.	64.15%	81.22%

Course Technology

There was a moderate positive relationship between student experience and importance ($r = .5$, $p < .31$) in the course technology section. The more participants agreed with the technology use in course items, the more they indicated the items were important to their experience. The results for this section can be found in Table 6.

Table 6

Course Technology Items Ranked by Favorability

Item	Experienced	Importance
12.1 Technological tools were used appropriately for the course content.	91.37%	95.93%
12.4 The technology tools for the course were easy to obtain.	88.14%	97.30%
12.5 The technologies and links in the course were up-to-date and functioned correctly.	87.40%	98.20%
12.3 Technological requirements were clearly stated, with links or documentation to support and any necessary software.	87.35%	96.40%
12.6 The documentation provided information and/or links to the policy statements of technology tools in the course.	86.80%	87.21%
12.2 Technological tools helped me reach the learning objectives and enhanced the learning experience.	85.38%	97.29%

Learner Support and Accessibility

There was a strong positive relationship between the experience ratings and importance ratings by participants on the learner support and accessibility items ($r = 1.0$, $p = .02$). The more participants agreed with the learner support and accessibility items, the more they indicated the items were important to their experience. The results for this section can be seen in Table 7.

Table 7

Learner Support and Accessibility Items Ranked by Favorability

Item	Experienced	Importance
Q13.2: Accessibility policies and resources were available through the course information.	88.54%	92.76%
Q13.3: There was information in the course for academic and student services that could help me succeed.	84.71%	92.38%
Q13.1: The course provided information on technical support.	80.71%	90.99%

Usability

There was no significant relationship between the experience ratings and importance ratings by participants on the usability items (r = .31, p = .49). The results for this section can be seen in Table 8.

Table 8

Usability Items Ranked by Favorability

Item	Experienced	Importance
Q14.6 The course is organized in a logical manner that facilitates information retrieval.	88.07%	98.60%
Q14.7 The multimedia in the course was easy to use.	86.36%	97.20%
Q14.3 The course contained information about the accessibility of the technologies in the course.	84.23%	92.02%
Q14.2 The sequence of online course activities was effectively organized and easy to follow.	83.13%	99.07%
Q14.5 The course provided an efficient learning environment.	78.28%	98.61%
Q14.1 The course was easy to navigate. It was easy to find information throughout the course.	77.78%	99.53%
Q14.4 There were multiple formats for course materials (audio, written, video, etc.).	73.97%	92.99%

The results from this survey were compared to the results of the same survey given before the Covid-19 pandemic emergency move to online course delivery using an ANOVA analysis. The results were split into the experience part of the question and the importance part of the question. Results indicate most composite scores on the post-Covid switch were higher, except for one composite score that was significantly different, the Importance of Accessibility. This difference was determined using a Welch's test for unequal variance because it violated the assumption of homogeneity of variance in a significant Levene's test. The Welch's test results are presented in Table 9.

Table 9

Robust Tests of Equality of Means (Importance)

Item Category	Statistica	df1	df2	Sig.
Overview_Importance_Composite	1.522	1	114.744	0.22
LearningObjectives_Importance_Composite	2.846	1	115.652	0.094
Assessment_Importance_Composite	0.394	1	133.762	0.531
Instruction_Importance_Composite	0.099	1	156.576	0.754
Activities_Interaction_Importance_Composite	1.759	1	140.909	0.187
Technology_Importance_Composite	0.559	1	140.288	0.456
Support_Importance_Composite	0.907	1	181.076	0.342
Accessibility_Importance_Composite	4.121	1	127.758	0.044

In general, the tone of the qualitative comments overall tended to be more negative in the areas of course design, peer or instructor communication, technology, and universal design (Figures 1-2). The general comments about the flexibility of online courses as well as comments about good online experiences were more positive in nature. The largest number of comments (55.6%) were directed at course design elements such as organization, how the course was structured, the use of specific elements such as discussions or group work, and the design of quizzes and other assessments. Technology and General Comments received the next largest number of comments (33% each) with many comments centering on the user-friendliness of the learning management system and the use of third-party tools such as publisher platforms. Many qualitative entries mentioned more than one topic and were therefore coded with multiple topic labels adding to the discrepancy we see in percentages above. Comments about survey design were limited to the malfunction with the first qualitative question and were not included in the analysis. The frequency of responses by code can be seen in Table 10.

Figure 1

OEQ1 Tone of Comments by Code

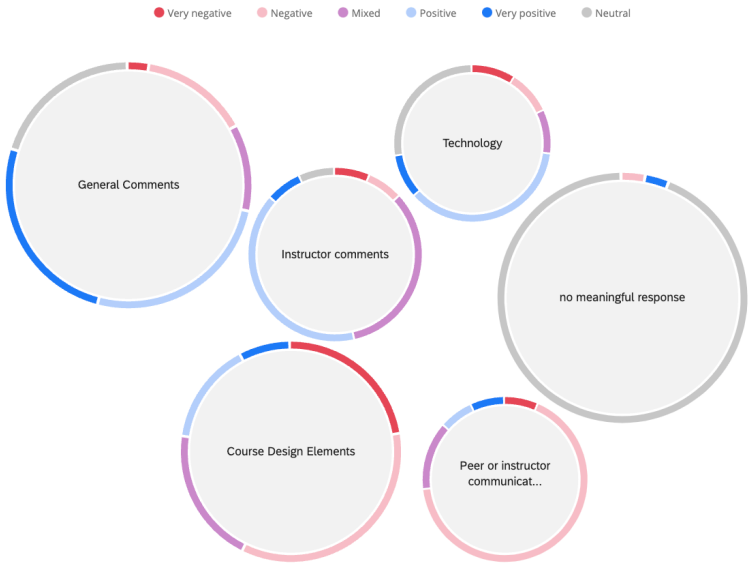

Figure 2

OEQ2 Tone of Comments by Code

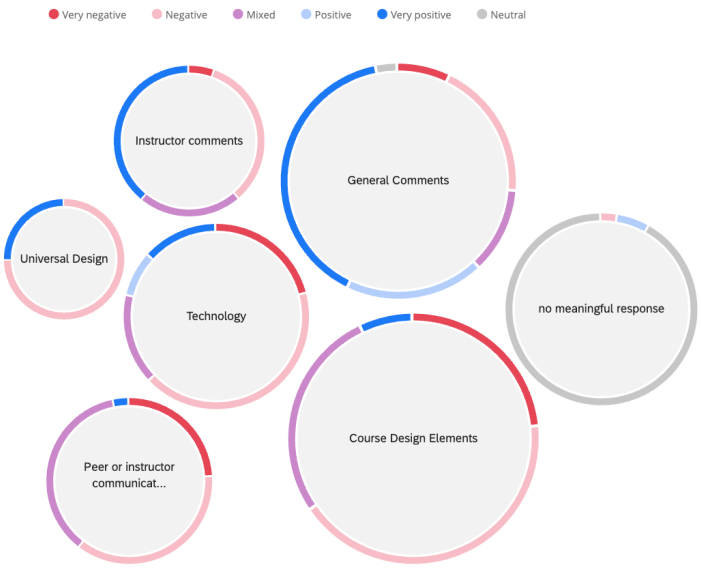

Table 10

Qualitative Data Categories, Corresponding Codes, and Response Counts

Category	Codes	Response Count – OEQ1	Response Count - OEQ2
	Assessments	2	8

Course Design Elements	Calendar	0	5
	Cheating	0	2
	Consistency	4	3
	Course Design	12	37
	Good Instructor Practice	1	5
	Grading	3	2
	Hybrid	0	1
	Instructor Presence	6	3
	Lack of Connection	2	5
	Lack of Engagement	4	9
	Learning and Retention	4	4
	Overload of Materials	0	4
	Poor Instructor Practice	2	14
General Comments	Appropriate Major for Online	1	1
	Flexibility	5	18
	Good Experience	15	27
	Mental Health	0	3
	Personal Preference	7	11
	Poor Experience	5	3
	Student Preparedness	2	5
Instructor Comments	Good Instructor	4	8
	Instructor Preparedness	6	5
	Poor Instructor	1	2
	Variation Between Instructors	4	3
Peer or Instructor Communication	Communication	9	14
	Feedback Mechanisms	0	3
	Peer Interaction	3	10
	Unresponsive Instructor	3	6
Technology	D2L Brightspace	2	10
	Technology Problems	1	3
	Technology Use	8	25
Universal Design	Accessibility	0	2
	Accommodations	0	2

Unrelated	Survey Design	2	1
	No Meaningful Response	32	36

Examples of some of the qualitative responses and the corresponding code category include:

- *The online content stayed consistent, yet professors were accommodating for the crisis many of us were going through that first year* (QEQ1, Consistency).
- *I have found the professors that teach online do a good job with a PPT and audio lecture, they provide good resources and are available for support* (QEQ2, Good Instructor Practice).
- *I just want to say that ALL courses should have the option to be online, specifically for working adults in post graduate studies. I don't mind in person learning, but if something happens in my building and I can't leave for class immediately, it is helpful to have the option to log in and not be penalized for having to take care of a pressing matter that would make me have to choose to be late or not make it to class at all if attendance affects my grades* (QEQ2, Hybrid).
- *My most recent teacher did nothing the whole time and the class was clearly just pre scheduled on D2l* (QEQ1, Instructor Presence).
- *My experiences varied widely between instructors. Some were organized and easy to follow while others were chaotic* (QEQ2, Variation Between Instructors).
- *The answers provided are based only on one course* (QEQ2, No Meaningful Response).

Discussion

What are the overall perceptions and experiences of students who took or are taking online classes in the post-pandemic environment?

The overall results of the study indicate an overall satisfactory experience for students in their online courses based purely on course design elements. Responses to the survey suggest students generally find their online courses containing appropriate introductions to the instructor, the course material, and the requirements of the course. Respondents indicated the presence of clear course objectives, activities, and assessments. Instructional materials and learning activities appear appropriate for the course and for students' expectations. Technology tools chosen by the instructor were clear and added to the experience while learner support mechanisms were available and contributed to student success.

A few areas for improvement include offering opportunities for students to connect with their peers in an online asynchronous environment, either in an introductory discussion or a peer-to-peer help forum. Disclosure of technical skills needed to be successful in the course is another area for improvement based on survey responses. Respondents indicated a variety of assessments and up-to-date grades were components of their online course experience they encountered less than was preferred. Martin, Ritzhaupt, Kumar, and Budhrani (2019) stress the need for these elements in an online course as part of online teaching excellence.

Another area for improvement is the distinction between required and optional information as well as the inclusion of multiple formats of course materials. Ease of navigation and overall consistency of course design was indicated as an area of concern in both the quantitative and qualitative results. Qualitative comments such as "*CONSISTENCY!!!!!! I don't like having to hunt around each D2L page because some people put assignment descriptions in the assignment tab but some put it in content and then some people put their syllabus/zoom link*

in announcements and some put it in the content area" support the feeling of frustration students have with the lack of organization and consistency around course organization.

The area of learner activities and learner interaction was the category with the greatest number of elements needing improvement according to survey respondents, echoing the results of Sadaf et al. (2019) showing these elements as the most impactful on the student online course experience. Timely and constructive feedback, amount of contact time with the instructor, motivating assignments, engaging activities, peer-to-peer interaction, and instructor enthusiasm were all areas offering opportunities for improvement. The qualitative data supports this and respondent comments such as "*I did not have final grades for any of my classes, the gradebook usually missed weeks of assignments at a time which made it hard for me to know how I was doing*" illustrate the need for improved instructor practice in this area. Martin and Bolliger (2018) suggest the trifecta of engagement (learner-to-learner, leaner-to-instructor, and learner to content) are required for a successful online course. If one of the three elements is missing, the student experience and their success will be lessened (Martin & Bolliger, 2018).

In general the tone of the qualitative comments is more negative in the areas of course design, peer or instructor communication, technology, and universal design, which supports the Kaufmann et al. (2016) premise of the four factors leading to a positively perceived online environment. The tone is more positive around the flexibility of online courses and multiple instructors were called out as superb examples of online course practice. The largest number of comments (55.6%) were directed at course design elements such as organization, how the course was structured, the use of specific elements such as discussions or group work, and the design of quizzes and other assessments which would seem to indicate a broader implementation of an online course design framework, such as Quality Matters, could mitigate some of the concerns

held by students (Martin, Ritzhaupt, Kumar, & Budhrani, 2019). Technology and General Comments received the next largest number of comments (33% each) with many comments centering on the user-friendliness of the learning management system and the use of third-party tools such as publisher platforms which may speak to the technology skills of the instructors and the comfort level they have interacting in a digital environment (Kumar et al., 2019).

What elements of online course design do students consider to be important?

Respondents indicated they considered all areas of course design important except for the introduction of themselves to their classmates at the beginning of the course and the inclusion of activities and assessments allowed them to interact with their peers. This is an interesting trend, given the recommendations of Martin, Ritzhaupt, Kumar, and Budhrani (2019) and Martin and Bolliger (2018) around the need for peer-to-peer interaction for online course success. The qualitative data contradicts the quantitative in comments such as "*interaction/discussion posts with other students and instructor from the class is preferred but was not an option with my most recent course; in previous [university] courses interactions with others students in discussions on the course page was very informative and insightful, but the instructors did not engage which was also not ideal regarding building on ideas or asking further thought on topics*" and "*Online courses will never facilitate the in-person energy that you can get within a classroom and the relationships developed between classmates and professors are far more superficial within an online classroom. In two years of online/remote learning at [university] that has been proven to me over and over. Even the best planned and executed classes on Zoom were not even close to creating a cohesive classroom community*". This would suggest to the researchers that the peer-to-peer activities occurring, such as a discussion forum where peers introduce themselves to one another, are not used in any meaningful manner. Students asked to post an introduction without

meaning and with no interaction requirement, would likely see this activity as pointless and not engaging. Ice breakers, group discussions, and structured peer assignments to encourage collaboration may all be useful to enhance the meaningful peer-to-peer interaction and community building students seem to crave in an online environment (Cole et al., 2021; Kaufmann et al., 2016; Martin & Bolliger, 2018; Martin, Budhrani, Kumar, & Ritzhaupt, 2019).

How do the students' experiences post-pandemic compare to their pre-pandemic experiences?

In general the trends of this study are similar to the previous (pre-pandemic) survey (Miller & Manderfeld, 2022); however, this survey shows improvement in almost all areas. The notable difference is in the area of accessibility. The current survey results indicate respondents show an increased awareness for the importance of accessibility policies, available resources, and accessible practice. This is also reflected in the qualitative data with statements such as "*I feel that, while some disabled students have found online classes helpful, for myself, as an autistic person and someone with ADHD, it can be very hard to know what kind of accommodations to even ask for and professors oftentimes don't understand this. Professors expect disabled students to be able to communicate in the exact same way that abled students are able to, which doesn't make any sense. I understand that there's many, many areas where these changes need to take place, but understanding that neurodivergent disabled students might not know what accommodations are needed for an online class ahead of time, and may need to make lasts second changes would be helpful...*" While there is little research on student perceptions of accessible learning practices, specifically under a Universal Design for Learning (UDL) framework, the importance placed by respondents on accessibility in their online courses

supports the work of Liu et al. (2022) and Zhang et al. (2022). Accessible online course design is also one of the Quality Matters General Standards for Higher Education (Quality Matters, 2021). **Based on the students' experiences, what areas of online course design should be the focus of future faculty professional development?**

Faculty development programming, as suggested by Olivier and Potvin (2021), specifically on the principles of UDL may be one way of increasing accessible practices in the online course environment. Moving a course through the QM certification process would be another approach to ensuring a course focused on providing accessible course materials. Based on the study results, an additional area of focus for faculty professional development would be overall course design and structure for consistency and organization. At the institution level, this could be something administrators could take under advisement, opening up the possibility for an institution-wide standard for course navigation in the form of a course template or minimum requirements within the learning management system. Finally, the most pressing issue based on the study results, revolves around instructor availability, communication, grading, and feedback, the importance of which can be emphasized in faculty development programming focusing on best practices in online teaching, humanizing online courses, and on active learning strategies and formative assessment (Borup, & Evmenova, 2019; Martin & Bolliger, 2018; Ogange et al., 2018).

At the university that was the subject of the study, instructional designers implemented a professional development program for faculty after the results of the pre-pandemic study were analyzed to provide evidence-informed best practices in online course design (Miller & Manderfeld, 2022). With the results of the current study, updates to the professional development program have been planned and conversations with university administration regarding the need

for consistency in the learning management system navigation for courses may lead to new standards for online course design.

Limitations

With any survey research, limitations include the reliability of self-reported data. For this survey, it is also difficult to ensure participants were referring only to online courses rather than hybrid or Hyflex courses. Additionally, the technology error with the first qualitative question impacted potentially meaningful results we could have received if the question displayed properly to all users.

Areas for Future Research

In this path of study, there are many opportunities for additional research. Further details about participant major, course, and college could be collected to determine if specific programs are performing well in online course delivery. Additional distinctions could be drawn in the survey questions for asynchronous and synchronous online course format or other online course design frameworks could be used in place of the Quality Matters framework. Students in fully online programs could be surveyed to determine course design effectiveness at the program level.

Conclusion

Student perceptions of online course design based on Quality Matters standards in a post-pandemic context were overall positive. Areas of online teaching practice that go beyond course design, such as instructor availability and formative feedback were areas students indicated as opportunities for improvement. Post-pandemic data compared to the same survey conducted pre-pandemic indicate similar trends in all areas with additional importance placed on the need for accessible practice under a Universal Design for Learning framework. Data from this study will

be used to provide faculty professional development to enhance online pedagogical practice in addition to online course design skills.

References

Allen, I. E., & Seaman, J. (2010). *Learning on demand: Online education in the United States*. Sloan Consortium, Newburyport, MA.

Al Naber, N. (2021). *The Effect of Quality Matters Certified Courses on Online Student Retention at a Public Community College in Illinois* (Publication No. 28966432) [Doctoral dissertation, University of St. Francis]. ProQuest Dissertations & Theses. https://www.proquest.com/openview/6b0ec5192f18ca9d39223e671d35c66e/1?pq-origsite=gscholar&cbl=18750&diss=y

Andrew, L., Wallace, R., & Sambell, R. (2021). A peer-observation initiative to enhance student engagement in the synchronous virtual classroom: A case study of a COVID – 19 mandated moves to online learning. *Journal of University Teaching and Learning Practice, 18*(4), 14-21. https://doi.org/10.53761/1.18.4.14

Boardman, L. K., Vargas, S. A., Cotler, J. L., & Burshteyn, D. (2021). Effects of emergency online learning during COVID – 19 pandemic on student performance and connectedness. *Information System Educational Journal, 19*(4), 23-36.

Borup, J., & Evmenova, A. S. (2019). The effectiveness of professional development in overcoming obstacles to effective online instruction in a College of Education. *Online Learning, 23*(2), 1-20. https://doi.org/10.24059/olj.v23i2.1468

Brookfield, S.D. (1995). *Becoming a critically reflective teacher* (1st ed.). Jossey-Bass.

California State University. (2022). Online and hybrid course certifications & professional development. https://ocs.calstate.edu/

Cole, A. W., Lennon, L., & Weber, N. L. (2021). Student perceptions of online active learning practices and online learning climate predict online course engagement. *Interactive Learning Environments*, *29*(5), 866-880. https://doi.org/10.1080/10494820.2019.1619593

Conrad, C., Deng, Q., Caron, I., Shkurska, O., Skerrett, P., & Sundararajan, B. (2022). How student perceptions about online learning difficulty influenced their satisfaction during Canada's Covid-19 response. *British Journal of Educational Technology*, *53*(3), 534-557. https://doi.org/10.1111/bjet.13206

Danyluk, P., & Burns, A. (2021). Experiencing the shift: How postsecondary contract and continuing faculty moved to online course delivery. *Brock Education Journal*, *30*(2), 63-63. https://doi.org/10.26522/brocked.v30i2.866

Davis, N. L., Gough, M., & Taylor, L. L. (2019). Online teaching: advantages, obstacles and tools for getting it right. *Journal of Teaching in Travel & Tourism, 19*(3), 256-263. https://doi.org/10.1080/15313220.2019.1612313

Gaston, T., & Lynch, S. (2019). Does Using a Course Design Framework Better Engage our Online Nursing Students? *Teaching and Learning in Nursing, 14*(1), 69–71. https://doi.org/10.1016/j.teln.2018.11.001

Hapke, H., Lee-Post, A., & Dean, T. (2021). 3-in-1 Hybrid Learning Environment. *Marketing Education Review, 31*(2), 154-161. https://doi.org/10.1080/10528008.2020.1855989

Hollowell, G.P., Brooks, R. M., & Anderson, Y. B. (2017). Course Design, Quality Matters Training, and Student Outcomes. *The American Journal of Distance Education*, *31*(3), 207–216. https://doi.org/10.1080/08923647.2017.1301144

Jackson, B., Burgess, P. & Schad, M. (2021). The Creation of Faculty Development for Emergency Remote Instruction in the Time of Covid. In E. Langran & L. Archambault (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 516-521). Online, United States: Association for the Advancement of Computing in Education (AACE). Retrieved July 28, 2022 from https://www.learntechlib.org/primary/p/219360/.

Kaufmann, R., Sellnow, D. D., & Frisby, B. N. (2016). The development and validation of the online learning climate scale (OLCS). *Communication Education*, *65*(3), 307–321. https://doi.org/10.1080/03634523.2015.1101778

Kaufmann, R., & Vallade, J. I. (2020). Exploring connections in the online learning environment: student perceptions of rapport, climate, and loneliness. *Interactive Learning Environments,* 1-15. https://doi.org/10.1080/10494820.2020.1749670

Kern, P., & Tague, D. B. (2022). Students' Perception of Online Learning During COVID-19: A US-Based Music Therapy Survey. *Journal of Music Therapy, 59*(2), 127-155. https://doi.org/10.1093/jmt/thac003

Kumar, S., Martin, F., Budhrani, K., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Elements of award-winning courses. *Online Learning*, *23*(4), 160-180. https://doi.org/10.24059/olj.v23i4.2077

Liu, H., Moparthi, D., Angrave, L., Amos, J., Dalpiaz, D., Vogiatzis, C., Varadhan, S., Reck, R., & Huang, Y. (2022, August). *Understanding the needs of students with and without disabilities for inclusive UDL-based design of Engineering courses through learning*

management systems. Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. https://peer.asee.org/41200

Martin, F., & Bolliger, D.U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning, 22*(1), 205- 222. https://doi.org/10.24059/olj.v22i1.1092

Martin, F., Budhrani, K., Kumar, S., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Roles and competencies. *Online Learning*, *23*(1), 184-205. https://doi.org/10.24059/olj.v23i1.1329

Martin, F., Ritzhaupt, A., Kumar, S., & Budhrani, K. (2019). Award-winning faculty online teaching practices: Course design, assessment and evaluation, and facilitation. *The Internet and Higher Education*, *42*, 34-43. https://doi.org/10.1016/j.iheduc.2019.04.001

Merillat, L., & Scheibmeir, M. (2016). Developing a quality improvement process to optimize faculty success. *Online Learning, 20*(3), 159 – 172. https://doi.org/10.24059/olj.v20i3.977

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage Publications.

Miller, C.L., & Manderfeld, M. (2022). Student Stories of Online Learning. Journal on Empowering Teaching Excellence, 6(2). https://digitalcommons.usu.edu/jete/vol6/iss2/5

National Center for Education Statistics. (2022). Undergraduate Enrollment. Condition of Education. U.S. Department of Education, Institute of Education Sciences. Retrieved July 28, 2022, from https://nces.ed.gov/programs/coe/indicator/cha.

Ogange, B. O., Agak, J. O., Okelo, K. O., & Kiprotich, P. (2018). Student perceptions of the effectiveness of formative assessment in an online learning environment. *Open Praxis*, *10*(1), 29-39. https://doi.org/10.5944/openpraxis.10.1.705

Olivier, E., & Potvin, M. C. (2021). Faculty development: reaching every college student with universal design for learning. *Journal of Formative Design in Learning*, *5*(2), 106-115. https://doi.org/10.1007/s41686-021-00061-x

Online Learning Consortium. (2022). *OLC Quality Scorecard Suite*. https://onlinelearningconsortium.org/consult/olc-quality-scorecard-suite/

Pennsylvania State University. (2022). Penn State quality assurance e-learning design standards. https://weblearning.psu.edu/resources/penn-state-online-resources/penn-state-quality-assurance-e-learning-design-standards/

Quality Matters. (2021). *Course Design Rubric Standards*. https://www.qualitymatters.org/qa-resources/rubric-standards/higher-ed-rubric

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021). Balancing technology, pedagogy and the new normal: Post-pandemic challenges for higher education. *Postdigital Science and Education*, *3*(3), 715-742. https://doi.org/10.1007/s42438-021-00249-1

Sadaf, A., Martin, F., & Ahlgrim-Delzell, L. (2019). Student Perceptions of the Impact of Quality Matters--Certified Online Courses on Their Learning and Engagement. *Online Learning, 23*(4), 214-233. https://doi.org/10.24059/olj.v23i4.2009

Simunich, B., Robins, D. B., & Kelly, V. (2015). The impact of findability on student motivation, self-efficacy, and perceptions of online course quality. *American Journal of Distance Education, 29*(3), 174-185. https://doi.org/10.1080/08923647.2015.1058604

Singh, J., Steele, K., & Singh, L. (2021). Combining the Best of Online and Face-to-Face Learning: Hybrid and Blended Learning Approach for COVID-19, Post Vaccine, & Post-Pandemic World. *Journal of Educational Technology Systems, 50*(2), 140-171. https://doi.org/10.1177/00472395211047865

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. https://doi.org/10.1016/j.iheduc.2011.07.002

University of Illinois Springfield. (2022). Quality online course initiative (QOCI) rubric. https://www.uis.edu/ion/resources/qoci/

Van Nuland, S., Mandzuk, D., Tucker Petrick, K., & Cooper, T. (2020). COVID-19 and its effects on teacher education in Ontario: a complex adaptive systems perspective. *Journal of Education for Teaching, 46*(4), 442-451. https://doi.org/10.1080/02607476.2020.1803050

Wang, H. (2019). Improving online STEM courses through Quality Matters Certification. *Journal of Online Engineering Education*, *10*(2). https://doi.org/10.18260/1-2--30629

Yan, L., Whitelock-Wainlock, A., Guan, Q., Wen, G., Gasevic, D., & Chen, G. (2020). Students' experience of online learning during the COVID-19 pandemic: A province-wide survey study. *British Journal of Educational Technology*, *52*(5), 2038-2057. https://doi.org/: 10.1111/bjet.13102

Yu, E. (2020). Student-Inspired Optimal Design of Online Learning for Generation Z. *Journal of Educators Online, 17*(1). https://www.thejeo.com/archive/2020_17_1/yu

Zhang, L., Jackson, H. A., Yang, S., Basham, J. D., Williams, C. H., & Carter, R. A. (2022). Codesigning learning environments guided by the framework of Universal Design for Learning: a case study. *Learning Environments Research*, *25*(2), 379-397. https://doi.org/10.1007/s10984-021-09364-z