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## QUALITY INDICATORS THAT IMPACT THE DESIGN AND DELIVERY OF ONLINE INSTRUCTION\*

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### ABSTRACT

Universities are expanding their resources to be digitally linked, offering convenience to students who are seeking nontraditional way of education a better fit for their busy lifestyles. This study aims to examine quality indicators pertaining to the design and delivery of online instruction and its impact on students learning perspectives and outcomes. Quality indicators pertaining to course structure, course content, course navigation, and course assessments are used to examine their overall experience in taking online course. 110 undergraduate students responded to an online survey questionnaire. The findings indicated that ninety five percent of the students agreed that they received all the relevant information required to complete their assessments and ninety seven percent of them were comfortable in using the technology to submit their assignments. Challenges to online instruction included the impact of physical distance between instructor and student, adapting to the technology, and time management. We argue that it is equally significant to consider factors pertaining to the type, quality, and quantity of information presented to students, as online instruction demands a balance in the use of technology. We provide the lessons learned and recommendations for enhancing the quality of online instruction.

**Keywords:** Course structure; Content; Navigation; Assessment; Quality indicators.

### INTRODUCTION

With the advancement of information technology and the extensive use of Web-based technologies, there is a dramatic change in the way academic institutions are delivering information (Leonard & Guha, 2001). Nearly 30% of university students currently take online courses, and the rate of growth in online learning is greater than the rate of growth in higher education (Kearns, 2012). In addition, a variety of software and social media applications have made teaching online necessary for most academic institutions. In particular, with the changing work force, employees are either, telecommuting and/or teleconferencing, and videoconferencing from home. In particular, it provides an opportunity for second career students, commuting from their place of employment and conflicting time schedules that pose major barriers to attending regular classes (Rayburn & Rayburn, 1999). Similarly, studies

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have shown “convenience,” as a major motivational factor for students to enroll in online courses.

Alternatively, the growth of online learning globally poses challenges to faculty. According to Kearns (2012), one of the great challenges in online learning is the lack of face to face interaction. Instructors find it difficult to accurately convey their intentions and provide feedback in order to keep students targeted on the learning objectives. Other major concerns to online instruction include: time management, student responsibility and initiative, structure of the online medium, complexity of content and informal assessment.

Instructors perceived barriers include lack of compensation for time and class size, added responsibilities, inability to grasp visual cues from students, concerns on the quality of content, concerns about ownership of courses developed, inadequate training and resources, increased workload, tenure and promotional value, lack of administrative and technical support, and a change in the faculty’s institutional role (Lloyd et al., 2012). They suggest that an instructor’s willingness to participate in online education is most positively impacted by increased training, expectation of high student evaluation scores, and comfort with technology. From the students’ perspective, despite an increase in interaction, students still experience barriers with online courses that include:

- Lack of interaction, either among students, or between the student and the instructor,
- Inappropriateness of course content for online delivery,
- Absence of a strong collaborative, supportive learning environment,
- Poor course design that involves the mere distribution or "dumping" of information,
- Low student familiarity with technology when entering or taking a course; and
- Low student motivation. (Milheim, 2012:160)

In an effort to overcome the barriers to online instructors, this study aims to examine quality indicators in the design and delivery of online courses. We aim to answer questions such as: What are the key quality indicators or characteristics used in the design and delivery of an online course? What types of technologies should be applied? How can student learning be assessed in an online course? Based on the above questions the purpose of this study is to examine quality indicators in the design and delivery of online instruction and its impact on students’ perspectives and learning outcomes. In order to accomplish this purpose, two courses namely: Business Information Management (CIS 1600) and Management Information Systems (CIS 3630) were taught in an online format instead of the conventional face to face classroom style.

The methodology applied in this study is an online survey questionnaire. We received 110 surveys and received 100% response, as students were given extra credit points for responding to the survey. The next section of the paper presents a review of the current literature in online instruction, followed by the research model, research method, findings, lessons learned, and recommendations, and conclusion sections. The study contributes to theory as it extends the current literature on quality indicators not only from the design and delivery of online instruction, but also from the students’ perspectives and learning outcomes. The study contributes to practice as the quality indicators could be applied by other instructors to enhance their online teaching instruction.

## **LITERATURE REVIEW**

Previous studies have provided evidence on online teaching and its associated outcomes. Sorenson and Baylen (2009) suggest that Web environment such as; Web-Board, Embranet, Blackboard, or WebCT provide five areas of communication that makes online instruction feasible. They include: posting announcements, questions and answers, content discussion, social and team areas that can be set to meet specific needs of online instruction.

Three factors that impact the design and implementation of online courses namely; adequate resources, appropriate knowledge and skills, and a general dissatisfaction with status quo. Hirumi (2009) identified two views for quality instructions. First, is the conventional view where the instructor teaches in front of the class and provides face-to-face feedback. Second, is the industrial view that focuses on the technology, reusability, and interoperability of the learning objectives in online instruction. We apply the industrial view where instructors rely on the web environment to provide online instruction. Quality indicators applied in this study were taken from previous studies that focused on factors that impact technology quality.

Milheim (2012) took another view applying Maslow's hierarchy of needs for online instruction discussed as follow. Physiological needs are the first needs that must be met for the student. These include access to course materials, and a computer with appropriate software, and sufficient bandwidth to access the online materials. These must all be addressed before the course can begin at an institutional level. Therefore, the instructor should receive all appropriate training and support on materials and software before the class begins. Second, safety in the online classroom environment which can be a source of stress that could interfere with the learning process. Unfamiliarity with the software, for example, can be a stressful situation. Third relationships building in the form of collaboration seen in discussions, forums, and study groups in an online learning environment is important in online courses. The instructor should get students comfortable interacting with each other, especially between the instructor and student. One way to start this would be to require students to post a short introduction of them; but it is also important that the instructor respond to these posts and create that rapport so the student feels included. Fourth, self-esteem in the form quick, positive feedback provided to students can reinforce learning. For example, seeking mid-semester feedback from students could assist the instructor makes changes thus meeting the needs of students. Finally, self-actualization can be seen when students feel like they are reaching their fullest potential. Students' should be provided with ways to self-direct their learning.

Simonson (2008) suggests that when designing an online course three categories should be considered namely; the course structure, contents and artifacts of learning. We extend the artifacts of learning to include course navigation and course assessments leading to students perspectives and learning outcomes in this study.

### **Course Structure**

Designing course structure involves course planning which is a process that requires time, energy and commitment as well as knowledge and skills (Draves, 2007). Well-designed course structure is based on a systems perspective, where components are meaningful and interrelated (Dick & Carey, 1996). Course structure is illustrated in the syllabus which out the schedule, when each assessment is conducted, time line, due dates and expectations of the course. Lee et al., (2012) suggest that the structure of online course not only impacts students' outcomes but also the instructor's evaluations, course environment and institutional decision making and reputation. They defined course structure as "*the standardized layout, design, arrangement of materials, location of information and use of communication tools to enhance and facilitate learning and course navigation and ambiance.*" (Lee et al., 2012:1).

Hanny & Venne (2012) noted that instructors need to realize that students are the center of the learning experience. Online instruction can actually be more work for instructors than a lecture-hall style classroom because of the individualization required. However, since the students are not restricted to just the time in class to interact with the instructor and other students, the learning curve can be stretched out over the semester; allowing for deeper, richer learning and self-reflection. Self-discipline and time-management are also crucial skills

for students in an online learning environment. Therefore, online learning needs to be well-structured to help assist navigation and avoid overload by students (Clark & Mayer, 2011).

### **Course Content**

Gautreau et al., (2012) identified two major themes when using Web tools to design and deliver course content. First, the shift of instructors from deliverers of content to learning facilitators and second, an effort to build online communities. They suggest that in order to help instructors to feel comfortable in the use of technology, there should be adequate, ongoing training in the tools and methods to be used. Using pilot programs to test new technologies and methods could help. The benefits of using technology can help build online communities via increased communications, interactions and connectedness with students. Simply using technology to post lectures, notes, presentations, and a syllabus on the web does not constitute the systemic design of an online course. Likewise, Draves (2007) proposes that course content should be structured differently, organized by units or modules, and then broken up into even smaller subunits.

Carlson et al., (2012), identified four dimensions of learning that higher education instructors need to consider when evaluating Web tools. These learning dimensions were applied when designing the course content in this study via the syllabus that serves as a “contract” that both the instructor and students must follow.

1. Declarative learning (learning what) referred to the syllabus that outlined the course objectives and schedule,
2. Procedural learning (learning how), referred to the syllabus that outlined the types of assessments used for this course,
3. Conditional learning (learning when and where) referred to the course schedule as to when certain topics are covered and where the course materials can be accessed. For example, lecture materials are posted in the Lectures folder in Blackboard. Likewise, assignments with due dates are posted in the Assignment folder in Blackboard; and
4. Reflective learning (learning why) that referred to students perspectives and learning outcomes. The syllabus outlined outcomes that CIS majors would attain after completing the course such as; gaining business knowledge and technical skills.

Further, course content includes the instructor’s contact information both in the syllabus and posted in Blackboard (Announcement folder). The syllabus describes the course objectives, pre requisites of the course and types of assessments and contact information of the instructor. Boettchier (2010) suggest that the *Announcements* were a popular way to inform the entire class. Students can view important messages from the instructor posted in this section.

### **Course Navigation**

Studies on media research have shown that students can gain significant learning benefits from audio visual multi-media if used properly (Kozma, 2001). Previous research suggests the following Web tools used in online instruction. PBworks (wikis), Final Cut Pro, Adobe Audition, Facebook, Twitter, Camtasia, Adobe Captivate, Wimba, GoToMeeting, and Second Life. These tools were broken down into subsections, wikis, audio/video editing packages, social networking services, screen-recording software, synchronous web conferencing platforms, and 3D virtual worlds (Carlson et al., 2012). Similarly, screen-recording software such as; Camtasia, Adobe Captivate, Tegrity and Screen Cast provided ways to record audio and video from a computer. This can be used to narrate power point slide presentations, library tours, or software tutorials.

Online instructors can help students taking online courses by becoming familiar and comfortable in the use of technology as this can help bridge the gap for interaction, access to

resources and help with technical issues (Zheng & Smaldino, 2009). With new technologies and faster internet speeds now available to students, synchronous tools are becoming more viable (Falloon, 2011). Further, both asynchronous and synchronous tools have their place in online education. Asynchronous lends itself to delivery of content and administrative purposes, while synchronous is good for a development of an online learning community. Until now, most interactions have been asynchronous. Technical support telephone number and contact details should be provided to the students in case they needed help to log onto the software. Blackboard has folders that allow students to navigate and access information such as; Lectures, Assignment folders. Further, students who work in group projects are able to use the Discussion Board, Faculty Information, Announcement folders, emails and other collaboration tools to cooperate and communicate with their group members.

### Course Assessment

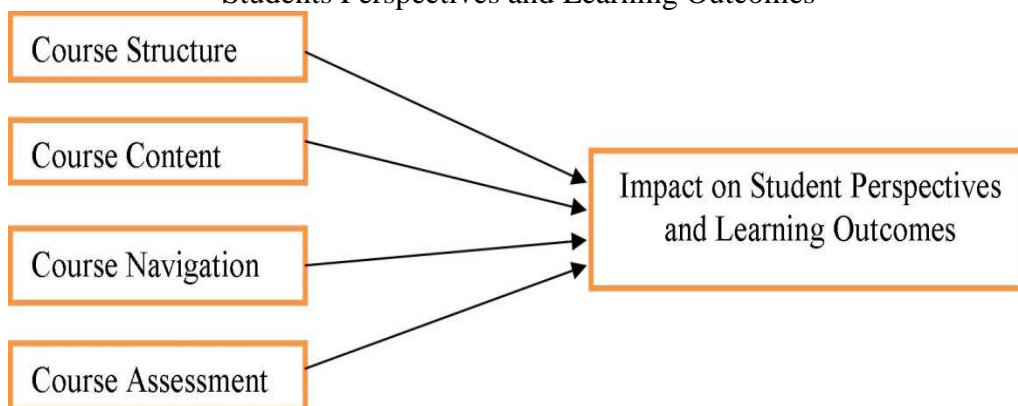
The four dimensions of learning adapted from (Carlson et al., 2012) were considered in designing both the course content and course assessments highlighted in the syllabus. The grading section along with the detailed schedule for the semester points out to how the course will be delivered and assessed. The dates when assessments such as; quizzes, assignments, examinations and group projects are due is outlined in the syllabus. Then when the students open up each assignment, the rubric provides details as to how the points for that assignment are assessed.

Students enrolled in CIS 1600 were able to view their feedback in the SAMs software by going to the Results tab which gave them the score they earned, along with a *Summary Report* that provided an explanation in red for the questions where they lost points. In addition, students were given an “*Integrated Exit Assignment*,” to complete at the end of the semester so that they can apply and reflect on what they learned during the semester. The instructor gave students four attempts to complete their assignment so that their confidence in both the use of technology and learning the material will increase. Similarly, students enrolled in CIS 3630 were able to see their grade in the Connect software which gave the correct answer for the questions that they missed.

### RESEARCH MODEL

The research model was implemented from an analysis of previous literature on online instruction and quality indicators used to examine quality of web technologies. Figure 1, below presents the research model.

**FIGURE 1**  
Quality Indicators on the Design and Delivery of Online Instruction and its Impact on Students Perspectives and Learning Outcomes



## RESEARCH DESIGN

A pilot study was conducted during the mid-semester for students to participate. At the same time students in the traditional course were given the same questionnaire to elicit their views if the same course was taught online. Section A, of the questionnaire pertained to the demographic questions such as age, gender, and if it was their first online course? How comfortable is the student in using the technology, such as SAMs 2010, Connect software by McGraw-Hill etc. Section B pertained to questions on the course structure, course content, course navigation, course assessments, and its impact on students' perspectives and learning outcomes. The questionnaire consisted of items on a 5-point Likert scale that was used to rank the responses. The scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree) and was used to categorize each student's response to the questions.

The formal questionnaire was then revised and posted in Blackboard. It had a due date and students were given ten extra credit points for responding to the survey during the last week of the semester. Students had to email the completed survey to their instructor. We received 100% response and all 110 students from four classes participated in this study. The sample in both the pilot and formal studies included students whose ages were between 20 and 35. 110 undergraduate students mostly sophomore and junior level students participated in this survey. 78 students who participated in this study were enrolled in CIS 1600 and the remaining 32 students were enrolled in CIS 3630. One of the courses had three sections taught online and the second course had one section. The majority of these students were female (75 females and 35 males). Participation in this study was mandatory as it earned extra credit points towards their final grade. Two thirds of the students were enrolled in at least one online course in the past.

## FINDINGS

The August 2011 and the 2007–2008. The Course Management System as in Blackboard, SAMs web site by Cengage Learning and the Connect software by McGraw-Hill provided the technology platform for students to access the following information in this study.

- Beginning of the Semester
  - Welcome announcement in Blackboard
  - Announcements on “*how to log on to and Navigate in the SAMs website and Blackboard,*” was posted in Blackboard and a “*personalized screencast video*” was recorded for students.
  - Announcements on how to log onto the “*Connect software,*” along with weekly “*Things to do,*” announcements were emailed to students. Reminders when assignments were due and final reminders were posted in the announcement folder and emailed to students.
- Pairing the Connect software with Blackboard
  - This enabled students to click on the assignment in Blackboard and it took them directly to the Connect website to begin their quiz and other assignments.
- Syllabus
  - Outlined course objectives, outcomes, assessments and other expectations as to what was happening each week, and when assignments were due. The syllabus was posted in the syllabus folder in Blackboard. In addition, the syllabus was recorded via Tegrity for CIS 3630 and posted in the Connect software.
- Instructor Accessibility

- Announcements of the instructor's office hours were posted in the syllabus and Blackboard. Further, the instructor responded quickly to students' emails.
- Lectures
  - Lecture power points for each topic were posted in the Lectures folder in Blackboard for each week.
  - Lectures were recorded via Tegrity and posted in the Connect website for CIS 3630.
- Class Practice Personalized Instructional Videos
  - Instructional videos were recorded for each topic that correlated with the assignments. Students viewed the video and learned the skills required to complete their assignments for CIS 1600.
- Assignments
  - Assignment due dates were posted in Blackboard and in SAM 2010 website.
  - Reminders as to when assignments were due and a final reminder the night before the assignment was due were sent to students. Students were given four attempts to complete the assignments by the due date.
- Resources for this course
  - Announcement emailed to students on the resources available for CIS 1600 which included: e-textbook, personalized instructional videos via screencast of the class practice exercises that covered the skills required for the assignment and related them to real life examples, SAM 2010 online training videos, tutor and his time availability, exam study guides and the excel textbook on reserve in the library for CIS 1600.
  - Provision of exam study guides for students to focus on certain key concepts
  - Announcement emailed to students on the resources available for CIS 3630 which included: textbook, personalized instructional videos via Tegrity of each chapter's concepts that related to real life examples posted on the Connect website, and exam study guides posted in Blackboard for CIS 3630.
- Monitoring the performance of the course
  - Mid semester teaching feedback was given to students in order to seek feedback of the course. Based on the feedback, changes were made to extend all assignments to be due on Sunday nights instead of Friday nights.
- Monitoring performance of each student
  - The Connect website provided an avenue to monitor each student's performance as to whether they did attempt the assignment, when and what did they score etc.
- Feedback to students
  - Feedback was emailed to each student on their exam grade as to where they lost points. The SAMs software provided a summary report of their assignment as feedback and an explanation in red as to where they made mistakes and lost points for CIS 1600 course.
  - The Connect software graded the quizzes, examinations and interactive chapter cases automatically. Students were able to view their grades and their mistakes with the correct answer as feedback of their performance.
  - Provided group feedback on their Cohesion Case Analyses assignments via email.
- Integrated Exit Assignment for CIS 1600
  - This assignment covered all the skills learned in the entire semester. The goal of this assignment was to reapply, repeat and retain the skills they learned in this course

- Variety of Assessments
  - Provided a variety of assessments in the form of: quizzes, exams, chapter interactive case analysis and group cohesion case analyses in the Connect software along with the ability to set policies and manage students extensions
  - Encouraged group interactions for the Cohesion Case Analyses via emails and Discussion Board
- Creation of AACSB reports for THINKING:1.2: Analysis
  - The Connect software provided statistics on students learning outcomes that measured the percentage of students who met the core competencies for the CIS 3630 course.

The *Course Structure* suggests the introduction, the initial process the instructor undergoes in planning and design of the course syllabus. It is also the initial stage for the students as it allows them to initiate their learning process by accessing the course materials. It includes the title of the course, when it was offered, how many weeks, details as to what was covered each week, when are the assessments in the form of assignments, quizzes and examinations due. The instructor is responsible for introducing the course expectations, and outcomes of the course. A *Welcome* announcement was sent out via email to the students at the beginning of the semester. The goal is to present the material in manageable segments since it was over sixteen weeks semester course and provide a logical progression of the content beginning with the basic concepts leading to the more advanced, complex material towards the end of the semester. However, students who worked full time or who were parents felt rushed to complete the assignments. The mid-semester feedback gave an opportunity for the instructor to be flexible and change the assignments to be due on “Mondays” so that students could work on their assignments over the weekend. Ninety five percent of the students agreed that the course structure and design was appropriate for an online course and that they were able to cope with their weekly workload. The course was made comparable to the conventional course. Blackboard, emails and online chats were the common technology tools used in the CIS 1600 in addition to Tegrity, and the Connect software for CIS 3630 course. *“The instructor was very organized, knowledgeable, and clear in expectations, and seemed to really want everyone to do well.” She constantly emailed reminders as to when the assignments were due.”*

Table 1 below presents the total responses for each question pertaining to design quality of the course structure for all four classes. The results indicated that ninety percent of the students agreed that *“the structure of the course presented the course materials in segments that were manageable and that the instructor clearly communicated the course objectives, expectations of the course in the syllabus.”* By doing this it avoid unnecessary confusion from the part of the students and unwanted emails to the instructor to clarify any expectations of the course. Further, ninety-five percent of the students agreed that *“they were able to keep pace with the structure of the schedule.”* The design of the course structure took into consideration students overall workload from other courses and their lifestyle. Therefore, it enabled students to cope with the quantity of material they had to read and assignments to complete each week. Further, seven percent of the students agreed that *“they liked the multi-faced learning style as it gave them a variety to learn and apply the concepts thereby enabling it to retain the concepts and skills they learned for the exam.”*



**TABLE 1**  
Findings of the Course Structure

Item #	Description	SD	D	N	A	SA
		1	2	3	4	5
1	The instructor clearly communicated important course objectives (e.g. presented course learning objectives in the syllabus)			10	5	95
2	The instructor clearly communicated important due dates/time frames for learning activities that helped my students keep pace with this course (e.g. provided a clear and accurate course schedule, due dates, etc.)			6	19	85
3	The course was presented to students in manageable segments i.e. organized by weeks/modules/units/chapters in a logical progression.			11	19	80
4	The course materials were presented to students via multi-faceted learning styles (PowerPoint narration via Tegrity recording of my voice (audio), video introducing real life examples for each chapter was provided).		20	5	10	75

*Note.* SD refers to Strongly Disagree 1; D refers to Disagree; N refers to Neutral; A refers to Agree, and SA refers to Strongly Agree.

*Course Content* was made possible with the use of technology (Course Management System – Blackboard) that allowed for the course materials to be presented to students in a multifaceted style such as; power point lectures, assignment videos, personalized recordings of the lectures via Tegrity (in the Connect software) that applied real life examples to students past experiences and their age group that allowed them to relate easily to the concepts. In addition, personalized screen cast video recordings of the relevant skills were recorded and posted in Blackboard so that students can view and learn the skills needed to complete the assignments. An e-version of the textbook was made available for the students in addition to online tutorials and training videos for students to view that contributed towards the resources made available for the courses. Further, online chat and emails were used to communicate with the students. Frequent reminders as to when assignments were due were sent via email announcements to students each week.

Course content included the instructor’s contact information both in the syllabus and posted in Blackboard – announcement folder. The syllabus describes the course objectives, pre requisites, assessment and contact information of the instructor. Text information and other course materials are highlighted in the syllabus. Links to other online resources created by the instructor such as real life examples of cases explained via personalized instructional videos via screen cast (for CIS 1600) and Tegrity (for CIS 3630) were posted in Blackboard and Announcements emailed to students. Further, the course content to be covered on a weekly basis was highlighted in the syllabus as an announcement at the beginning of each week titled “*Things to do this week,*” and emailed to the students.

Ninety five percent of the students stated that they received all of the relevant and complete instructions they needed in order to be able to complete the online assignments and other assessments outlined in the syllabus. They indicated spending between one to four hours per week following the professor's instructions and interacted with the professor at least twice per week via email. Students were motivated to learn by positive reinforcement of their performances, identifying real life examples in the Tegrity videos and other personalized instructional screen cast videos that related to students’ past experiences and age group. Specific goals to achieve after each module were emphasized in the syllabus and were emailed to students in the form of an announcement.

Table 2 below presents the total responses for each question pertaining to the delivery of the course content quality for all the four classes. Ninety percent of the students indicated that “*the instructor provided us with complete, relevant course materials and all the*

*resources needed for us to complete the assignments.*” This enabled them to complete their assignments easily as all the resources needed were provided. Further, the instructor “*used personalized instructional videos and Tegrity to illustrate the concepts and skills needed for us to complete the assignments.*” By viewing the videos students were able to familiarize themselves with the relevant skills and enhance their understanding of the concepts in order to complete the assignments with high scores. The videos made it easy for most students due to their busy lifestyle as it quickly captures what was needed and expected of them to complete the assignments. Therefore, the instructor did not simply dump or upload information in Blackboard but rather ensured that the quality of the content was relevant for students to learn the material.

**TABLE 2**  
Findings of the Course Content

Item #	Description	SD 1	D 2	N 3	A 4	SA 5
1	The instructor clearly delivered the course content via Tegrity and personalized instructional videos			10	40	60
2	The instructor clearly communicated important course topics (e.g. provided a clear and accurate course overview and where to obtain course materials and resources for the course).		8	15	25	75
3	The instructor provided clear instructions on how to participate in course learning activities (e.g. clear instructions were provided on how to complete course assignments successfully).		10	10	35	55

*Note.* SD refers to Strongly Disagree 1; D refers to Disagree; N refers to Neutral; A refers to Agree, and SA refers to Strongly Agree.

The *Course Navigation* was mostly conducted using the University Course Management System was called *Blackboard*, the SAMs website from *Cengage Learning*, and the *Connect* software from McGraw-Hill along with emails and online chat with the instructor served the technology portion of the courses. First, students reported that they had little difficulty accessing the course materials or staying connected to the university's system. Thirty out of the thirty six students in CIS 3630 knew how to submit assignments online, and one student mentioned that, when she had a problem, she contacted the instructor who guided her via email. *Ninety seven percent of the students in CIS 1600 were comfortable in submitting assignments via the SAMs 2010 web site. This is because the instructor created personalized instructional videos with demonstrations of the actual website on “how to navigate,” and “submit the assignments,” in the SAMs website. Similarly, there is a power point slide guidelines on how to log onto the Connect software titled “First Day of Class,” that students in the CIS 3630 class had to view. However, it was found that the remaining three percent of the students in CIS 1600 who initially had difficulty in submitting assignments in SAMs did not read the instructions carefully and were guided by the instructor. Thus, a majority of students in both courses in the four classes had a high level of comfort with the technology.*

Eighty four percent of the students agreed that the instructor provided them with the “*technical support telephone number and contact details,*” in case they needed help to log onto the software. We found that students who had problems initially, and with guidance from the instructor and some assistance from their classmates, these students became comfortable with the technology and instructional mode. When we were unable to solve a technical problem, the students were directed to call the technical support service at the university. Blackboard has folders that allow students to navigate and access information such as; Lectures, Assignment folders. The students also mentioned that they spent between

one to two hours per week interacting with their peers for CIS 3630 course. This course had group projects in the form of Cohesion Case Analysis. Students had to use the discussion board, emails and other collaboration tools to interact, communicate and cooperate with members of their group.

Table 3 below presents the total responses for each question pertaining to the quality of the course navigation for all the four classes. Eighty three percent of the students indicated that “*the instructor constantly emailed us reminders and posted announcements in Blackboard as to when the assignments were due and a final reminder on the date it was due.*” The students felt that they were taken care and that the instructor really cared about their progress. It also helped the instructor to interact and keep in touch with the students throughout the semester. It helped students to keep track with the course as most of them were enrolled in at least four courses and were working part-time. Further, eighty six percent of the students agreed that “*the instructor responded to our emails promptly.*” The frequent communication from the instructor via emails, Blackboard announcements, and online chat brought the students closer to the instructor.

**TABLE 3**  
Findings of the Course Navigation

Item #	Description	SD 1	D 2	N 3	A 4	SA 5
1	The instructor acknowledged student participation in the course (e.g. replied in a positive, encouraging manner to students’ emails and conducted a mid-semester feedback)		5	10	14	81
2	The instructor clearly communicated important course goals and expectations (e.g. directing students to Cengage Learning & Blackboard Help Desk for assistance and resources for help students).		2	15	45	48
3	The instructor presented content or questions that helped students to learn via weekly announcements titled “Things to do.”			10	34	65
4	The instructor motivated the students to learn via constant reminders and exam study guides		3	15	38	54

*Note.* SD refers to Strongly Disagree 1; D refers to Disagree; N refers to Neutral; A refers to Agree, and SA refers to Strongly Agree.

*Course Assessment* details were outlined in the syllabus. The assignments were automatically graded by the software. Students enrolled in CIS 1600 were able to view their feedback in the SAMs software by going to the *Results* tab which gave them the score they earned, along with a *Summary Report* that provided an explanation in red for the questions where they lost points. In addition, students were given an “*Integrated Exit Assignment*,” to complete at the end of the semester so that they can apply and reflect on what they learned during the semester. The instructor gave students four attempts to complete their assignment by the due date so that their confidence in both the use of technology and learning the material will increase. Similarly, students enrolled in CIS 3630 were able to see their grade in the *Connect* software which gave the correct answer for the questions that they missed.

Table 4 below presents the total responses for each question pertaining to quality of course assessments for all the four classes. Ninety percent of the students liked the multi-face variety of assessments as it gave them an opportunity to apply what they learned in the assignments. Ninety percent of the students also liked the fact that the instructor emailed them reminders as to when the assignments were due. This is due to their busy lifestyle, and they felt that the constant reminders forced them to stay on track with the course expectations. Eighty five percent of the students indicated that “the instructor gave us timely

feedback.”Further, another eighty percent indicated that “*the instructor provided rubrics and guide as to how to complete the assignments and how the points were distributed.*” This enabled students to do well as they were aware of where the points were distributed. Further, this reduced the number of emails the instructor received after the grades were posted as the students were made aware where they lost points according to the rubric that was posted in Blackboard before the assignment was due.

**TABLE 4**  
Findings of the Course Assessment

Item #	Description	SD 1	D 2	N 3	A 4	SA 5
1	Types and a variety of assessments selected were consistent with course objectives and learning outcomes.		2	9	40	59
2	Deadlines on assignments, projects, exams, etc. are included as email reminders via Blackboard announcements.		5	6	40	59
3	Evaluation criteria (Rubrics), grading policy, and scale are clearly presented in the syllabus.			22	43	45
4	A clear statement about academic honesty is included in the syllabus.		5	10	50	45
5	Students received timely feedback both from the instructor and the software as it graded the assignments, automatically and produced a summary report of their score.		11	5	45	49

*Note.* SD refers to Strongly Disagree 1; D refers to Disagree; N refers to Neutral; A refers to Agree, and SA refers to Strongly Agree.

The findings on *Students Perspectives and Learning Outcomes* were positively received. It revealed that students who enrolled in online courses were much more positive about their perceived effectiveness and had the potential to succeed in the course. Students thus made it very clear that they appreciated coherent presentation of the courses. Most of the students said they enjoyed their respective online course, even though seventy percent of the students believed that taking an online course was more challenging than taking a traditional course. Sixty percent of the students rated the tool effective for relationship building. In particular, foreign students rated the tool highly, seeing it as a way to quickly build friendships, help overcome self-consciousness associated with being a non-native English speaker, and help them to feel more secure and supported in an online learning community. Ninety percent of the students said they would like to take another online course, if offered due to convenience. Similarly, ninety percent of the students stated that they were satisfied with their online experience, and the same percentage felt their respective online courses had met their expectations. Forty percent of the students said they had more participation in the online course than they usually did in a conventional classroom setting. Furthermore, seventy percent of the students believed that the online courses gave them more opportunities to interact with their classmates as compared to a face-to-face course, and ninety percent stated that the online course gave them a better learning opportunity as compared to the traditional course. Although, students did perceive that more effort was required in an online course than a conventional course. This was because they “*couldn’t rely on classmates or the instructor for immediate answers to questions,*” and because “*working independently always takes more effort.*”

Table 5 below presents the total responses for each question pertaining to students’ perspectives and learning outcomes for all the four classes. Ninety percent of the students agreed that “*they felt free to email the instructor as she responded promptly.*” Students felt attended to and important as the instructor promptly responded to their emails and gave

timely feedback. Further, they had to email the instructor their personal details, major and career choice at the beginning of the semester as a form of introduction to the instructor. The instructor solicited mid semester feedback from the students, in an effort to make changes for the remainder of the semester. Further, another ninety percent of the students agreed that *“the length, variety and depth of the assignments were appropriate and met the course objectives and learning outcomes, as it gave them an opportunity to learn the concepts and skills.”* Eighty one percent of the students agreed that *“they learned in this course.”*

**TABLE 5**  
Findings of the Students Perspectives and Learning Outcomes

Item #	Description	SD	D	N	A	SA
		1	2	3	4	5
1	The students were given an opportunity to interact with their group members for their Cohesion case analysis assignment.	5	16	33	56	
2	Overall, the instructor stimulated critical thinking and motivated students to explore.	7	35	28	40	
3	Types of assessments selected are consistent with course objectives and learning outcomes.	3	5	54	48	
4	The number, length, and depth of assessments are adequate to the course objectives and learning outcomes.	5	5	85	15	
5	Overall the students feel free to email the instructor if they are unclear.	4	6	70	30	
6	Overall I feel I learned in this course.	5	15	55	35	

*Note.* SD refers to Strongly Disagree 1; D refers to Disagree; N refers to Neutral; A refers to Agree, and SA refers to Strongly Agree.

### LESSONS LEARNED AND RECOMMENDATIONS

The findings of the study suggest that in order to effectively practice online instruction the following lessons learned and recommendations can be used.

- Complex assignments can be effectively broken down into smaller pieces that could be delivered over the course of the assignment. This will give instructors multiple opportunities to assess students and provide them feedback. Instructors should take a proactive approach and provide students with guidelines at the beginning of the course. Further, providing online tutorials, Tegrity lecture recordings of each chapter and personalized instructional videos over complex subjects was found to be effective. Therefore, it was found effective to divide the complex projects into phases with interim feedback. The use of asynchronous, pre-recorded videos may increase flexibility for students. Rubrics, in the form of a scoring guide that lists criteria against each assignment submissions was found to be effective. For example, in online discussions, instructors would look for frequency of posts, and level of critique and analyses used. Instructors use this to report back to students in their group projects.
- Providing detailed feedback on their assignments helped students reinforce their learning experience. The assignments would provide students with a score, then show students their mistakes, and provide them with the correct answer with an explanation.
- Instructors also found ways to use technology effectively. They found ways to target their feedback, like using Course Management Systems such as; Blackboard, Connect software to deploy tests and quizzes, then use special sections to grade and comments the tests. For written work, Microsoft Word was used for commenting specific sections of papers. Instructors used synchronous technology where appropriate to help create the “incidental opportunities” of communication. Further, they looked for

opportunities to address the whole class to reduce time spent on feedback via Blackboard Announcements.

### CONCLUSIONS

This study examined quality indicators pertaining to the design and delivery of online courses and its impact on students' perspectives and learning outcomes. 110 responses from four classes were collected and analyzed. The components pertaining to course structure, course content, course navigation, course assessments and its impact on student perspectives and learning outcomes were identified in the questionnaire. The majority of students taking online courses found that they met their academic needs and improved their technological skills.

The application of quality indicators not only enhanced the instructor's positive experience in online teaching, but also impacted their reputation, and posed a quality control, meeting of accreditation standards, instructor evaluations and alignment of student learning outcomes and overall student satisfaction. The limitations of the study were on how to effectively assess a students' progress, and how to constructively communicate back to students.' Further, with the increased demand for online teaching, administrators need to look at and attempt to resolve perceived barriers in technology, compensation, workload, and training to help both the instructors and students meet their goals.

The study contributed to theory as it extended the current literature to include quality indicators not only from the design and delivery of online instruction, but also from the students' perspectives and learning outcomes. The study also contributed to practice as the quality indicators used in the design and delivery of online courses could be applied by other instructors to enhance their online teaching expectations. Future research should explore this model in a variety of courses as it will shed some light to the effect of the quality indicators highlighted in the literature review section and examined the survey questionnaire.

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