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# An Empirical Study on the Perceptions of Students Enrolled In Business Programs toward Online Courses and Online Course Engagement Strategies during Covid-19


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## ABSTRACT

This research aims to address the gap in the literature about the perceptions of students enrolled in business programs toward online learning and engagement strategies, within three types of interactions: learner-to-content, learner-to-teacher, learner-to-learner, during the COVID-19 pandemic. An empirical data analysis was conducted using the results of three survey instruments administered in the Spring of 2021 to business students enrolled at two higher institutions in the United States. Results indicate an overall neutral perception toward online learning among business students. Further analysis of t-tests among various groups (gender, online course experience, age) indicate significant differences in perceptions. Women respondents indicate more preference for online courses over traditional courses as compared to men and indicate preference to enroll in more online courses in the future. Younger respondents indicate higher confidence in making a good grade in a traditional as well as an online course as compared to older respondents. Respondents with more online course experience indicate higher confidence toward online courses and feel more confident to make a good grade in an online course as compared to respondents with less online course experience. Further analysis of engagement strategies indicates respondents value the learner to instructor interactions the most, followed by learner-to-content interactions, but consider the learner-to-learner interactions to be of least importance. In the learner-to-instructor subscale, important strategies include instructor sending/posting regular announcements or email reminders, creating a forum for students to contact the instructor with questions about the course, posting due date checklists and posting grading rubrics for all assignments.



Keywords: Online teaching, COVID-19 pandemic, Business program, Engagement strategies.
JEL classification codes: A20, 22, M19, Y1.



## 1.0 Introduction

In the middle of the spring 2020 semester, a rapid transition to online learning occurred in the United States, triggered by the novel coronavirus (COVID-19) outbreak, forcing instructors to abruptly transition their face-to-face courses to online delivery (Meade and Parthasarathy, 2020; Richardson and North, 2020), disrupting business schools worldwide (Krishnamurthy S., 2020), leaving institutions "grappling with how to replicate the face-to-face learning experience in online courses" (Banerjee et al., 2020, pg. 190) and in most cases, leading "to frustrations from student and instructors alike" (Wyatt, 2020, pg. 1). Although online course


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offerings provide many advantages such as, flexible study times, variety of degree programs, balance between work and class, effective, efficient methods to deliver skills and content globally (Richardson and North, 2020), it is also important to stress two main points; prior to the pandemic, only a small percentage (16%) of students attending higher education institutions were enrolled in distance learning (Kordrostami and Seitz, 2021) and online classes can be semi-anonymous in nature and often have an asynchronous structure which can reduce student's engagement with the course and among themselves (Purinton and Burke, 2020). According to the 2020 Longevity Project – Morning consult poll on online education, 92% of respondents indicated courses or training programs offering academic credit, degree, or certification, they engaged in during the shelter-in-place period, to be highly or somewhat beneficial and 81% indicated they are likely or somewhat likely to continue this type of online learning activity after the quarantine period (Sutton, 2021). But when asked about challenges faced during online learning, 38% reported "staying focused and on track of assignments" and 26% reported "not getting face-to-face time with professors and teachers" (Longevity Project, 2020, pg. 8). This stresses more need for improvement of student engagement in online courses.

Engagement "refers to the amount, type, and intensity of investment students make in their educational experiences" (Purinton and Burke, 2020, pg. 30) and is crucial to student learning, influences satisfaction, motivation to learn, improves student performance and reduces the sense of isolation (Martin and Bolliger, 2018). Engagement strategies can include "active learning opportunities, such as participating in collaborative group work, having students facilitate presentations and discussions, sharing resources actively, creating course assignments with hands-on components, and integrating case studies and reflections" (Martin and Bolliger, 2018, pg. 206). Certain engagement strategies, for instance, collaborative learning activities have been found to increase student motivation (Ozkara and Cakir, 2020). Student engagement can be developed through interactions (Martin and Bolliger, 2018, pg. 206) and three types of interactions; learner-content, learner-teacher, learner-learner, have been found to have "different effects on students and on the effectiveness of the teaching-learning experience" (Van Den Berg, 2020, pg. 224).

With the onset of the COVID-19 pandemic and the abrupt transition to online learning that followed, online learning in higher education has now taken a front seat "with a renewed focus on quality" (Kordrostami and Seitz, 2021, pg.2) and interest as well as research on this topic is likely to grow in the future. However, studies on the perceptions of students enrolled in business programs towards online learning and on engagement strategies is currently limited. Therefore, this study contributes to the limited literature by addressing this gap and aims to gain a thorough understanding by conducting an empirical investigation on student perceptions toward online learning and toward various engagement strategies, in enhancing learner-to-learner, learner-to-instructor, and learner-to-content, interactions. More specifically, our research questions are as follows:

(i) What are the perceptions of students enrolled in business programs toward online learning during COVID-19 and which type of learning will students enrolled in business programs prefer after COVID-19?

(ii) Are there any significant differences in student perceptions toward online learning during COVID-19 with regards to gender, age, and online course experience?

(iii) Which strategies do students enrolled in business programs perceive to be important in enhancing learner-learner, learner-instructor, and learner-content, in the online environment?

This study employs three survey instruments to study the perceptions of students enrolled in business programs toward online learning and engagement strategies at two higher institutions in the United States. Both the universities selected in the study offered undergraduate and graduate business courses in online and traditional format prior to the pandemic. A total of 115 responses were collected in the Spring of 2020. Further, differences among perceptions of respondents in terms of gender, online course experience and age were studied using independent samples t-test and descriptive statistics. Results of this study will further help toward online course development and future preparedness of online course transitions during a pandemic.

The next section of the paper provides a brief literature review of studies on student perceptions of online learning and engagement strategies in various fields of higher education across multiple nations. This is followed by a presentation on the methodology, followed by results and discussions. Finally, we present our conclusions and implications of the study.

## 2.0 Literature review

Distance education is growing at an exponential rate due to the affordability of technology such as computers and ease of accessibility to technology using the internet (Dobbs et al., 2017). It is further fueled by students who can easily travel anywhere with a smart phone, or a tablet equipped with a computer operating system and low-cost internet access (Lockman and Schirmer, 2020) thus enabling learners to be more wired (Leong et al, 2021). However, perceptions toward online education can differ among countries and universities with mixed perceptions on its success (Hajjej et al., 2021). Kanik (2021) investigated online student perceptions and engagement of 46 students enrolled at a university in North Cyprus during COVID-19 pandemic, using both qualitative (open ended questions survey) and quantitative (GPA) data. The study found that despite high

engagement and higher academic achievement in online education, students had negative perceptions of their experience. With regards to online class perception, students felt disconnected from their teacher and other students and disagreed with the statements; online quality of education was better, they learned more online, were more satisfied with online classes, quality of instruction was better online. With regards to level of engagement with online courses, results indicated that students found it difficult to connect with the course and could not engage through participation. However, comparing the GPA in the fall and spring semesters, it was found students' academic achievement was higher in the spring semester (with reactive online education). Similarly, Angelova (2020) investigated perceptions and attitudes of Brazilian students toward online education during the pandemic when all their lectures and activities transitioned to the online platform. Data was submitted anonymously and consisted of 197 responses (73.6% female, 26.4% male). Results indicated 68% of respondents felt the quality of online course lectures to be the same as traditional course lectures, 74 students reported the intensity of online classes to be less as compared to traditional lectures, 126 respondents reported it was easier to work on individual tasks as compared to the teamwork in the online environment.

There are also several studies that found positive perceptions toward online learning. Hajjej et al., (2021) studied student perceptions toward online learning during COVID-19 lockdown using survey data collected from all students enrolled in a public women's university in Saudi Arabia and found an overall positive perception towards online learning. Results derived from analyzing 5010 students' data indicated that student satisfaction levels toward online learning differed by field of study (students enrolled in the Humanities discipline were more satisfied than Science students), student satisfaction level decreased as practical orientation of the courses increased, and the use of diverse online teaching tools and methods (interactions) had a positive effect on students acquiring new skills and knowledge. It is also found that dedication and support for students positively impacted student outcomes. Similarly, Dobbs et al (2017) conducted a study on student perceptions towards online learning for students enrolled in the criminal justice program and found students who had taken online courses had a favorable view of such courses, however it is found differences in perceptions exist among different age groups and gender. The study found 44% of students who had taken previous online classes indicated that they learnt about the same in online classes as compared to traditional classes. Further 39.4% of the 70.7% of students who had taken online courses indicated that the courses are of very high quality with only 7% reporting they are of not at all good quality. The most important reason given for taking the online course (45.4% of students reported) is reported to be "courses fit their schedule due to the flexibility of hours" (pg. 10). When asked if they will take more online courses in the future, 81.8% of the students chose the Yes response. Interestingly, survey results between students who had not taken an online course and students who had taken an online course indicated that students who had taken online courses, as well as students who had taken five or more online courses, indicated they are more confident to make a good grade in a traditional course as well as in an online course. Age is also found to be positively related to the student perception that traditional courses are easier than online courses. Results indicated that both male and female students who had taken online courses felt confident they could make a good grade in an online course and could complete a traditional course. Differences in perceptions are found when compared to male and female students who had not taken online classes. Positive student perceptions toward online learning are also found by Verma et al., (2021) while investigating student perceptions toward online teaching and learning during the COVID-19 transition. Analyzing 564 responses from students enrolled in post graduate management programs at four universities in Maharashtra revealed an overall positive perception and satisfaction (more than 60%) with the online mode of teaching. Further, the study found three factors (interaction with instructors, ease of learning, the instructor's ability to motivate, influence and inspire) significantly influenced the perception and satisfaction of students toward online learning. Students also indicated instructors sharing power point presentations and notes worked best in the online environment while organizing webinars worked the least. In addition to student perceptions, Lei and So (2021) also studied teacher perceptions in the tourism and hospitality programs by analyzing 117 faculty member responses and 491 student responses and found students perceived greater advantages from online learning as compared to teachers and rated the quality of communication higher and indicated higher preference for future online courses. The study revealed teachers perceived benefits of online teaching affected their satisfaction of online teaching while student's perception of the effectiveness of the technology used in online learning, their perceived benefits of learning online, along with their evaluation of the teachers' attitude and performance, all positively affected their online learning satisfaction. Satisfaction of online learning is also found to positively affect their future online course preference. However, the sudden transition to online learning is found to negatively affect student's online learning satisfaction.

Although E-learning is economical, convenient offering access 24 hours a day (Mensah et al., 2021), there is still concern among students with regards to academic support and the quality of instruction in online learning and a need to implement effective instructional strategies to increase the quality of learning (Doo et al., 2020). The quality of E-learning often gets questioned since there is minimal interactivity in E-learning, often with lack of pedagogical considerations (Mensah et al., 2021), thus a critical challenge to online learning is in providing effective student and teacher interactions as found in the face-to-face learning environment (Park and

Kim, 2020) and student engagement is a "major factor in academic success and satisfaction" (Lockman and Schirmer, 2020, pg. 136). While studying learner- to-learner interactions, Van den Berg (2020) found students appreciated the assistance received in the form of social, emotional, learning support as well as knowledge gained from fellow peers through participation in online debates. He found that students with positive online experience are grateful to belong to a group and felt safe communicating within their group. However, it is found to not be the same in all cases as 22 out of 358 respondents reported having difficulty interacting with other students. The study found that majority of the students who responded positively to their online course experience reported being satisfied with the frequent communication received from their instructors and teaching assistants. For learner-to-learner engagement, it is found that students appreciated when the teaching assistant monitored their progress and felt the instructor was concerned with their success. Similarly, Mensah et al., (2021) studied e-learning effectiveness in Ghana and ways to improve E-learning interactivity by collecting cross-sectional data on 2115 students from 194 tertiary institutions in Ghana. Results indicated strong correlations between course effectiveness and E-learning activity (student-teacher, student-system, student-student), with student-system interactivity to be the strongest predictor of course effectiveness. He found course effectiveness can be improved by improving student-student, student-teacher interactions, while student-system interactivity and student-system interactivity should be reduced to improve students independent learning skills. Another study by Leong et al., (2021) investigated the impact of learner-content, learner-learner, and learner-instructor interactions along with internet self-efficacy and self-regulated learning and gender effects on learner satisfaction using 742 responses from a college in Malaysia which offered courses in the management and accounting discipline in traditional as well as e-learning formats. Results indicated two types of interactions (learner-instructor, learner-learner), self-regulated learning, internet self-efficacy were positively related to learner satisfaction. With regards to gender effects, it was also found that gender differences only existed in the case of internet self-efficacy and learning satisfaction, however it was not related to learner satisfaction for female respondents. This indicated that female learners needed assistance in developing internet skills. Further, Martin and Bolliger (2018) analyzed 146 responses collected from online students in eight universities and found that for learner-to-learner engagement, the most important strategy identified was the use of icebreaker discussions. The second most important strategy for learner-to-learner engagement was working collaboratively using online tools. The least important strategy was the use of a virtual lounge for discussions. For learner -to-Instructor engagement, the most important engagement strategy identified was regular announcements or email reminders from the instructor. The second most important engagement strategy was found to be, providing grading rubrics for all assignments. Interestingly, the study found that students did not find it important to be given the opportunity to reflect on important elements of the course. For learner-to-content engagement, the study found that the most beneficial strategy identified was working on realistic scenarios to apply content such as working on case studies, research papers etc. Respondents found discussions structured with prompts that deepen the understanding of the content to be also important. It was also found students did not find live, synchronous web conferencing class sessions important.

## 3.0 Data and methodology

For this study, three survey instruments, derived from previous literature, developed by researchers after an extensive literature review, were used to collect data (Appendix A). To study participant perceptions of online learning, respondents were provided with a survey instrument that included 16 Likert-type items ranging from strongly they agree or disagree with each item, (1 being strongly agree and 5 being strongly disagree) derived from Dobbs et al., 2017. Five additional items to study participant perceptions of online learning, were also included from the work of Blizak et al., 2020. The 5 Likert-type items ranged from strongly agree or disagree with 1 being strongly disagree and 5 being strongly agree. To study participant perceptions of learning strategies, respondents were provided with a survey instrument which included 29 Likert-type items ranging from very unimportant to very important (1 being very unimportant and 5 being very important), derived from Martin and Bollinger, 2018. Data on demographic variables such as age, gender, level of education, ethnicity etc. and course preference post COVID, were also collected to further study participant's perceptions.

After approval from the Institution research board, a self-administered, survey link using google forms tool, consisting of 69 items was distributed in the Spring of 2021 to all undergraduate and graduate students enrolled in business programs at two universities in the United States, using the listserv of students. These two universities were selected because they both offered undergraduate and graduate business degrees with courses in both online and traditional (face-to-face) format. When students clicked on the link, a cover letter including information on the survey was provided before the start of the survey. Students were instructed that the survey was voluntary and not to complete the survey if they had already done so in another course. A follow up email was sent three weeks after the initial survey distribution. Some faculty members also agreed to post a link to the survey in the learning management platform. Although each observation is unique, it is unclear how many students had access to the survey link since the survey was sent using the listserv and posted in the learning management systems by the instructors. Thus, we are unable to compute the response rate on the survey.

The final data consisted of 115 observations of which 58% of the respondents were female and 42% were male (figure 1). Since we had a relatively even split among the two genders, we decided to further analyze our data within the two subsamples. To examine differences among the two sub-groups, descriptive statistics, and independent samples t-tests were used to ascertain differences in perceptions based on gender, age, and online course experience.

## 4.0 Results and discussion

Among the responses, 36% of respondents were enrolled in the master's business program and 64% were enrolled in the undergraduate business program (table 2). As summarized in table 1, among the female respondents, 26% were enrolled in the master's program and 32% were enrolled in the undergraduate program. Likewise, among the male students 10% were enrolled in the master's program and 32% were enrolled in the undergraduate program. A wide assortment of age ranges was found in our sample; however, the largest portion of the respondents were within the age range of 21-23 (table 2), representing 20.87% male and 29.57% female respondents.

Table 1.

*Descriptive statistics of gender and program enrollment.*

| Which program are you currently enrolled in? | Female | Male | Total |
|---|---|---|---|
| **Masters** | 26% | 10% | 36% |
| **Undergraduate studies** | 32% | 32% | 64% |
| **Total** | 58% | 42% | 100% |

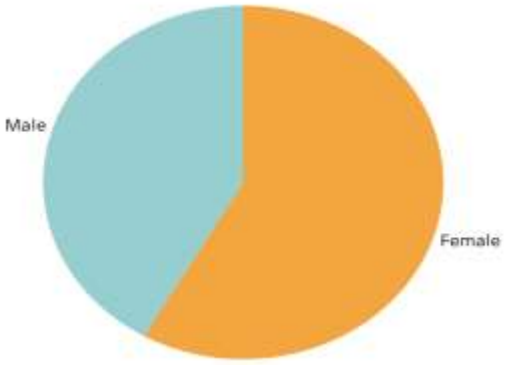


Figure 1. Respondents by gender

Table 2.

*Age of respondents.*

| Age | Female | Male | Total |
|---|---|---|---|
| **18-20** | 7.83% | 8.70% | 16.52% |
| **21-23** | 29.57% | 20.87% | 50.43% |
| **24-26** | 5.22% | 2.61% | 7.83% |
| **27-29** | 4.35% | 3.48% | 7.83% |
| **30-32** | 5.22% | 0.87% | 6.09% |
| **33-35** | 0.00% | 0.87% | 0.87% |
| **above 35** | 6.09% | 4.35% | 10.43% |
| **Total** | 58.26% | 41.74% | 100.00% |

The survey was administered at two universities in the United States, and both offered business courses in online format as well as in person using either blackboard or canvas learning management systems, prior to the occurrence of COVID-19. However, due to COVID-19, students were forced to take online classes which was a different situation than taking online classes by choice. As expected, when asked how many online courses the respondents had taken (table 3), our results indicated majority of students (88%) had taken 5 or more online courses, among whom 52% were female and 36% were male students. Laptop was the most used device to access online classes, by both male and female respondents (Appendix B).

Table 3.
*Descriptive statistics by gender.*

| Variable | Attribute | Female | Male | Total |
|---|---|---|---|---|
| **# Of online courses** | 0 to 1 | 1% | 0% | 1% |
| | 2 to 4 | 5% | 6% | 11% |
| | 5 or more | 52% | 36% | 88% |

Among our total sample (Appendix B), White/Caucasian was the most represented ethnic group, followed by African American, Hispanic/Latino and the other category. With regards to employment, 40% of female and 31.3% of male respondents were employed off-campus which was the highest (71.3%) when compared to the employed on-campus group (13.04%). When considering computer skill level, 59% of respondents identified as having advanced level and 49% as having beginner or intermediate level. More women (31%) identified as having advanced computer skill level as compared to men (28%).

We further examined the perceptions of online courses among male and female students in terms of learning experience and quality of course content (table 4). With regards to learning experience, responses among the two groups appear to be similar. When asked how their current online education compares to the traditional education received before the pandemic, 47.83% of the students reported they learned less in online courses while 40.87% of students reported they learned about the same in online courses. Among the group that reported they learned less in online courses, 27.83% were female and 20% were male students and among the group that reported they learned about the same in online courses, 23.48% were female and 17.39% were male. When asked about the quality of course content, differences among the two groups are noticed. Majority (29.57%) of the female respondents reported the course content to be of good quality while majority (20%) of the male respondents reported the course content to be of fair quality. Overall, 86.96% of male and female respondents reported the quality of the course content to be or fair or good quality. Only 5.22% reported the course content was not of good quality.

Table 4.
*Perceptions of online courses based on learning experience and course content.*

| Learning Experience | Female | Male | Total |
|---|---|---|---|
| **Learned about the same in online courses** | 23.48% | 17.39% | 40.87% |
| **Learned less in online courses** | 27.83% | 20.00% | 47.83% |
| **Learned more in online courses** | 6.96% | 4.35% | 11.30% |
| **Total** | 58.26% | 41.74% | 100.00% |
| **Quality of course content** | | | |
| **Fair quality** | 24.35% | 20.00% | 44.35% |
| **Good quality** | 29.57% | 13.04% | 42.61% |
| **Not at all good quality** | 1.74% | 3.48% | 5.22% |
| **Very high quality** | 2.61% | 5.22% | 7.83% |
| **Total** | 58.26% | 41.74% | 100.00% |

When asked the most important reason for choosing an online course, 21.74% of the respondents stated Covid-19 and 33.04% reported job-related responsibilities (Appendix B). This indicated that Covid-19 alone may not have been the only reason for online course enrollment. Similarities among responses were observed within the two groups, with both female (20.87%) and male (12.17%) reporting job-related responsibilities as the most important reason. But when asked about the number one obstacle encountered while accessing online courses, differences among responses were observed within the two groups; women reported having less time (11.3%) as compared to men (2.61%), facing more stress (20%) as when compared to the male respondents (6.09%). While stress was the number one obstacle reported by women respondents, 18.26% of male respondents reported lack of communication as the one number one obstacle.

Despite the perceptions toward online learning experience and course content, when asked about their preference between online courses and traditional courses (table 5), majority (44.35%) of the respondents indicated they preferred an online course and 74.78% of the respondents stated they would like to enroll in more online courses in the future. When asked which type of learning they would prefer after COVID-19 (table 10), majority of the respondents (44.35%) selected a blended/hybrid type of learning, with majority of female (25.22%) and male (19.13%) respondents stating the same. Responses indicated low (20%) preference for face-to-face type of learning post COVID-19.

Table 5.
*Course preference by gender.*

| Preference between online course & traditional course | Female | Male | Total |
|---|---|---|---|
| **No Preference** | 8.70% | 5.22% | 13.91% |
| **Online course** | 24.35% | 20.00% | 44.35% |

| | | | |
|---|---|---|---|
| **Traditional course** | 25.22% | 16.52% | 41.74% |
| **Total** | 58.26% | 41.74% | 100.00% |
| **More online courses in the future** | | | |
| **No** | 13.91% | 11.30% | 25.22% |
| **Yes** | 44.35% | 30.43% | 74.78% |
| **Total** | 58.26% | 41.74% | 100.00% |

Table 6.
*Type of learning after COVID-19.*

| Which type of learning will you prefer to adopt after COVID-19? | M | F | Both |
|---|---|---|---|
| **Blended learning/Hybrid** | 19.13% | 25.22% | 44.35% |
| **Online learning** | 12.17% | 23.48% | 35.65% |
| **Face-to-Face** | 10.43% | 9.57% | 20.00% |

Next, we examined the perceptions of students toward online learning during COVID-19. As indicated in table 7, majority of the average scores on the items were above 3, with a total average of the estimate of 3.39 for female and 3.09 for male respondents, thus the perception toward online learning appeared to be neutral; neither negative nor positive. More than 60% of respondents agreed or strongly agreed that there was a general satisfaction with online learning on the university's platform (60.87%) and the university's platform was a very effective way to learn (61.74%). However, differences within the two sub-groups were observed. While among female respondents, 71.64% agreed or strongly agreed the university's platform was a very effective way to learn, only 47.92% of male respondents agreed the same. Among male respondents, only 52.08% agreed or strongly agreed there was a general satisfaction with online learning on the university platform, while 67.16% of female respondents agreed the same.

Table 7.
*Perceptions of students toward online learning during covid-19.*

| Items | Female | | Male | | Both | |
|---|---|---|---|---|---|---|
| | M | SD | Male | SD | M | SD |
| **There is a general satisfaction with online learning on the university platform (example: Blackboard, Canvas)** | 3.84 | 1.08 | 3.48 | 0.99 | 3.69 | 1.05 |
| **The university's platform (example: Blackboard, Canvas) is a very effective way to learn** | 3.97 | 0.98 | 3.54 | 0.97 | 3.79 | 1.00 |
| **Using online learning promotes interactivity with teachers** | 2.55 | 1.13 | 2.19 | 1.04 | 2.40 | 1.11 |
| **The courses available on the university platform (example: Blackboard, Canvas) are easy and affordable** | 3.58 | 1.17 | 3.46 | 1.13 | 3.53 | 1.15 |
| **Online learning on the university's platform (example: Blackboard, Canvas) was fun** | 3.00 | 1.18 | 2.77 | 1.08 | 2.90 | 1.14 |

Note: 1 being strongly disagree and 5 being strongly agree

Next, we conducted an independent samples t-test to investigate if any significant differences exist among the respondents' perceptions toward online learning during COVID-19, with regards to gender, age, and online course experience (Appendix B). The results of the independent-samples t-test indicated significant differences for three items between female and male students with regards to their perception towards online learning. Both groups agreed there was general satisfaction with online learning on the university platform and the university's platform was an effective way to learn. However, female students agreed more strongly than the male respondents. While both groups disagreed that using online learning promotes interactivity with teachers, female respondents agreed more with this statement than the male respondents.

Since majority of our respondents were between the age group of 21 – 23 (table 3, 50.43%), we assessed differences among perceptions of students for the age group less than 21 and more than or equal to 21 years. Results indicated that both groups agreed that the University's platform was a very effective way to learn. However, respondents with age less than 21 agreed more strongly than the respondents with age equal to or above 21.

Next, we conducted same test to investigate if any significant differences exist between the groups: those who were taking more than 4 online courses and those who were taking less than 5 online courses. We chose these two sub-groups since our results indicated 88% of the respondents had taken 5 or more online courses. Results indicated both groups agreed there was general satisfaction with online learning on the university platform and the university's platform was an effective way to learn. However, the groups taking more than 5 online courses agreed more strongly than the group who were taking less than 5 online courses. We did not find any significant result for other items.

Since data was collected at two universities which offered business courses in both online and traditional format, we further compared the perceptions of students enrolled in business programs toward the online courses (table 8), using 16 Likert scale items, with 1 being strongly agree and 5 being strongly disagree. As shown in table 13, more than 70% of the respondents agreed or strongly agreed they were confident to make a good grade in a traditional course (71.30%), confident to complete a traditional course (77.39%) and confident to complete an online course (74.78%). Female respondents also agreed with the same statements. However, while more than 70% of male respondents agreed or strongly agreed, they were confident to make a good grade in a traditional course (70.83%) and confident they could complete a traditional course (75%), only 68.75% agreed or strongly agreed they were confident to complete an online course.

Table 8.

*Perceptions toward online course experience as compared to traditional course.*

| No. | Items | Female | | Male | | Both | |
|---|---|---|---|---|---|---|---|
| | | M | SD | M | SD | M | SD |
| 1 | Online courses easier than traditional courses | 2.91 | 1.32 | 3.00 | 1.22 | 2.95 | 1.28 |
| 2 | Traditional courses are easier than online courses | 3.30 | 1.18 | 3.27 | 0.98 | 3.29 | 1.10 |
| 3 | Students learn more in traditional courses | 2.67 | 1.33 | 2.42 | 1.23 | 2.57 | 1.29 |
| 4 | Students learn more in online courses | 3.42 | 1.08 | 3.67 | 0.93 | 3.52 | 1.02 |
| 5 | Confident I can make good grade in traditional course | 2.03 | 1.17 | 2.04 | 1.24 | 2.03 | 1.19 |
| 6 | Confident I can make good grade in online course | 2.18 | 1.15 | 2.17 | 1.15 | 2.17 | 1.15 |
| 7 | Confident I can complete traditional course | 1.79 | 1.31 | 1.88 | 1.31 | 1.83 | 1.31 |
| 8 | Confident I can complete online course | 1.84 | 1.24 | 2.04 | 1.32 | 1.92 | 1.27 |
| 9 | More interaction between students in online courses | 3.51 | 1.28 | 4.00 | 1.20 | 3.71 | 1.27 |
| 10 | More interaction with instructor online | 3.67 | 1.11 | 3.94 | 1.42 | 3.78 | 1.25 |
| 11 | Online courses are too time consuming | 2.82 | 1.10 | 2.85 | 1.24 | 2.83 | 1.15 |
| 12 | Quality of online courses is not as good as traditional courses | 2.81 | 1.17 | 2.52 | 1.34 | 2.69 | 1.25 |
| 13 | Inconvenient to attend traditional courses | 2.45 | 1.23 | 2.98 | 1.34 | 2.67 | 1.30 |
| 14 | Takes more effort to complete online course | 2.87 | 1.06 | 2.88 | 1.25 | 2.87 | 1.14 |
| 15 | Technology used in online courses is too advanced for me | 4.27 | 1.16 | 4.38 | 1.20 | 4.31 | 1.17 |
| 16 | Would like to see more instructors put materials online | 2.46 | 1.03 | 2.67 | 1.23 | 2.55 | 1.12 |

Note: 1 being strongly agree and 5 being strongly disagree

To examine mean differences among male and female students for the 16 perceptual items used to measure perceptions toward online courses an independent-samples t-test was conducted (Appendix B). Results of the t tests for the 16 items along with sample size, mean, standard errors, and t values, are shown. We found statistically significant differences for only two items: Items 9 and 13. Both groups disagreed that there was more interaction between students in online courses, with male respondents disagreeing more than female students who were more neutral towards the statement. In terms of convenience, both male and female respondents agreed it was inconvenient to attend traditional courses, with women agreeing more to the statement than the male respondents. Next, we examined results for t-tests examining mean differences among two groups of students; those who were taking more than 4 online courses and those taking less than 5 online courses (Appendix B). We found significant differences in the perceptions between the two groups for 7 of the 16 items. Both groups agreed online courses were easier than traditional courses, were confident to make a good grade in an online course, confident to complete a traditional course, confident to complete an online course, inconvenient to attend traditional courses, takes more effort to complete an online course, would like to see more instructors put materials online, but the group that had taken more than 4 online courses agreed more

with the statements than the group that had taken less than 5 online courses. The results indicated at 95 % confidence level that students those who were taking more than four online courses felt online courses were easier than traditional courses and felt more confident to receive good grades. Surprisingly, students who were taking more than four online courses also felt 99 % more confident to complete an online or a traditional course. Most importantly, those who were taking more than four online courses were more likely to be taking the online courses because of inconvenience and would like to see more instructors put materials online.

Since majority of our respondents were between the age group of 21 – 23 (table 3, 50.43%), we assessed differences among perceptions of students for the age group less than 21 and more than 21 years (Appendix B). Out of the 16 items, we found 7 items to be statistically significant. The result indicated both groups generally agreed they were, confident to make a good grade in traditional course as well as in an online course, confident to complete an online course and felt it was inconvenient to attend traditional courses and would like to see more instructors put materials online. However, respondents below the age of 21 more strongly agreed with the above statements than respondents above or equal to the age of 21. Results also indicated that both groups generally disagreed that there was more interaction between students in online courses, or with the instructor, but respondents above or equal to the age of 21 strongly disagreed more than the respondents below the age of 21.

Next, we examined the importance of student engagement strategies among male and female respondents (table 9) on three subscales: learner to learner subscale, learner to instructor subscale, and learner to content subscale. Based on the 29 items, the possible maximum score for each respondent was 145, where a higher score indicated the strategy to be very important. In general, male respondents thought the strategies were somewhat important. The scores for the male respondents ranged from 44 to 141 (M=98.38; SD=21.25) with a total mean score range of 1.40 to 2.46 (M=3.39; SD=.13).

On the learner-to-learner subscale, more than 70% of male respondents agreed that Item 2 (75%), Item 4 (72.92%), Item 5 (72.92%), Item 8 (72.92%), Item 10 (70.83%) were somewhat important or very important. Over 60% of the male respondents believed Item 9 (64.50%) to be somewhat important or very important and 50% of the male respondents agreed Item 5 and Item 10 to be important or very important. Among female respondents, more than 80% agreed that Item 2 (80.60%) and Item 5 (83.58%) were somewhat important or very important and more than 70% agreed Item 4 (73.13%) and Item 10 (74.63%) to be somewhat important or very important.

Like the male respondents, 52.24% of the female respondents believed Item 5 to be important or very important. The learner-to-learner subscale also has the lowest mean scores as compared to the other two subscales. This indicated learner-to-learner engagement strategies were considered least important. When examining results of both genders, more than 50% of the respondents found strategies that give student's choices in the selection of readings (articles, books) that drive discussion group formation (Item 5; 51.30%) and where students are required to rate individual performance of team members on projects (Item 10; 52.17%) to be important or very important.

Table 9.

*Importance of engagement strategies.*

| Items | Female | | Male | | Both | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD |
| **Learner to Learner subscale** | | | | | | |
| **1. Students use a virtual lounge where they can meet informally to share common interests** | 2.61 | 1.21 | 2.63 | 1.20 | 2.62 | 1.20 |
| **2. Students complete an integrated profile on the learning management system that is accessible in all courses** | 3.24 | 1.09 | 3.04 | 1.13 | 3.16 | 1.10 |
| **3. Students introduce themselves using an icebreaker discussion** | 2.57 | 1.32 | 2.71 | 1.40 | 2.63 | 1.35 |
| **4. Students moderate discussions** | 3.01 | 1.05 | 3.06 | 1.02 | 3.03 | 1.03 |
| **5. Students have choices in the selection of readings (articles, books) that drive discussion group formation** | 3.55 | 1.08 | 3.17 | 1.21 | 3.39 | 1.14 |
| **6. Students post audio and/or video files in threaded discussions instead of only written responses** | 2.40 | 1.38 | 2.85 | 1.27 | 2.59 | 1.35 |
| **7. Students interact with peers through student presentations (asynchronously or synchronously)** | 2.79 | 1.24 | 2.85 | 1.22 | 2.82 | 1.23 |
| **8. Students work collaboratively using online communication tools to complete case studies, projects, reports, etc.** | 3.15 | 1.26 | 3.10 | 1.28 | 3.13 | 1.26 |
| **9. Student's peer-review classmates' work.** | 2.69 | 1.34 | 3.06 | 1.33 | 2.84 | 1.34 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **10. Students are required to rate individual performance of team members on projects.** | 3.39 | 1.35 | 3.48 | 1.32 | 3.43 | 1.33 |
| Learner to Instructor subscale | | | | | | |
| **11. The instructor refers to students by name in discussion forums** | 3.67 | 1.16 | 3.54 | 1.32 | 3.62 | 1.23 |
| **12. The instructor sends/posts regular announcements or email reminders** | 4.51 | 0.70 | 4.33 | 0.97 | 4.43 | .83 |
| **13. The instructor creates a forum for students to contact the instructor with questions about the course** | 4.45 | 0.72 | 4.15 | 1.11 | 4.32 | .91 |
| **14. The instructor creates a course orientation for students** | 4.09 | 1.07 | 4.00 | 1.03 | 4.05 | 1.05 |
| **15. The instructor posts a "due date checklist "at the end of each instructional unit** | 4.42 | 0.86 | 4.48 | 0.85 | 4.44 | .85 |
| **16. The instructor creates short videos to increase instructor presence in the course** | 4.12 | 0.99 | 3.75 | 1.08 | 3.97 | 1.04 |
| **17. The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals)** | 3.94 | 1.07 | 3.92 | 1.20 | 3.93 | 1.12 |
| **18. The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys)** | 3.18 | 1.21 | 3.10 | 1.12 | 3.15 | 1.16 |
| **19. The instructor posts grading rubrics for all assignments** | 4.36 | 0.88 | 4.42 | 0.82 | 4.38 | .85 |
| **20. The instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat)** | 3.61 | 1.18 | 3.40 | 1.05 | 3.52 | 1.13 |
| Learner to Content subscale | | | | | | |
| **21. Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations** | 3.43 | 1.18 | 3.25 | 1.16 | 3.36 | 1.17 |
| **22. Students use optional online resources to explore topics in more depth** | 3.34 | 1.04 | 3.31 | 1.06 | 3.33 | 1.04 |
| **23. Students experience live, synchronous web conferencing for class events and/or guest talks** | 3.12 | 1.25 | 3.19 | 1.18 | 3.15 | 1.22 |
| **24. Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content** | 3.84 | 0.99 | 3.54 | 1.15 | 3.71 | 1.07 |
| **25. Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation)** | 3.52 | 1.06 | 3.08 | 1.07 | 3.34 | 1.08 |
| **26. Students search for and select applicable materials (e.g., articles, books) based on their interests** | 3.46 | 1.03 | 3.38 | 1.02 | 3.43 | 1.03 |
| **27. Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community)** | 2.49 | 1.06 | 2.46 | 1.11 | 2.48 | 1.08 |
| **28. Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects).** | 3.94 | 1.07 | 3.69 | 1.07 | 3.83 | 1.08 |
| **29. Students use self-tests to check their understanding of materials.** | 3.69 | 0.94 | 3.44 | 1.11 | 3.58 | 1.02 |

Note: Scale ranging from 1 (very unimportant) to 5 (very important)

As seen in table 10, both male and female respondents appear to value learner to instructor engagement strategies which had the highest mean (3.98), followed by learner-to-content strategies (3.36). Majority of the items received a mean score of above 3.5. Among male respondents, more than 90% agreed Item 12 (91.67%), Item 14 (91.67%), Item 15 (95.83%) and Item 19 (95.83%) to be somewhat important or very important. While more than 90% of female respondents also agreed the same, additionally female respondents also reported Item 13 (98.51%), Item 14 (91.04%), Item 16 (94.03%), and Item 17 (91.04%) to be also somewhat important or very important. More than 80% of male respondents agreed Item 12 (81.25%), Item 15 (85.42%) and Item 19 (87.50%) to be important or very important. Similarly, female respondents also agreed Item 12 (88.06%), Item 15 (82.09%), Item 19 (83.58%) to be important or very important. Additionally, 89.55% of female respondents agreed Item 13 was important or very important but only 79.17% of male believed the same. Examining both genders, more than 80% of the respondents agreed the most valued strategies in the learner-to-instructor subscale were instructor sending/posting regular announcements or email reminders (Item 12; 85.22%),

creating a forum for students to contact the instructor with questions about the course (Item 13; 85.22%), posting a "due date checklist "at the end of each instructional unit (Item 15; 83.48%) and posting grading rubrics for all assignments (Item 19; 85.22%).

On the learner to content subscale, 60.42% of male respondents and 65.67% of female respondents agreed Item 28 to be important or very important. Additionally, 67.16% female respondents believed Item 24 to be important or very important while only 54.17% of male respondents agreed the same. More than 60% of all respondents found engagement strategies where discussions were structured with guiding questions and/or prompts to deepen their understanding of the content (Item 24; 61.74%) and when they worked on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects) (Item 29; 63.48%) to be important or very important.

Table 10.

*Means and standard deviations for strategies.*

| Sub-scale | Female | | Male | | Both | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD |
| **Learner-to-learner** | 2.94 | .12 | 3.00 | .11 | 2.96 | .11 |
| **Learner-to-instructor** | 4.03 | .18 | 3.91 | .15 | 3.98 | .15 |
| **Learner-to-content** | 3.43 | .09 | 3.26 | .05 | 3.36 | .07 |

Note: Scale ranging from 1 (very unimportant) to 5 (very important)

To find out whether the male and female respondents had statistically significant differences in responses to the subscales, with regards to gender, age and online course experience, an independent t-test was conducted (Appendix B), results indicated that both male and female respondents agreed strategies where students have choices in the selection of reading materials that drive discussion group formation, research an approved topic, and present their findings in a delivery method of their choice, to be somewhat important. While both male and female respondents indicated strategies where the instructor creates a forum for students to contact the instructor with questions about the course and creates short videos to increase instructor presence in the course, to be important, female respondents felt it was more important than the male respondents. Both groups found strategies where students post audio and/or video files in threaded discussions instead of only written responses to be unimportant, with female students agreeing more than the male students.

With regards to age (Age $<$ 21 and age $>=$ 21), results indicated that respondents found strategies where the instructor sends/posts regular announcements or email reminders to be important and respondents less than or equal to age 21 agreed more. Respondents found strategies where students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects) to be somewhat important, and respondents above the age of 21 agreed more.

For perceptions toward engagement strategies based on online course experience, out of the 29 items we found significant results for 8 items and observed differences among the two groups. Respondents who were taking more than 4 online courses found strategies where students' moderate discussions, post audio and/or video files in threaded discussions instead of only written responses, interact with peers through student presentations (asynchronously or synchronously), peer-review classmates' work, to be unimportant, while respondents who were taking less than 5 online courses found them to be somewhat important. Both groups found strategies where the instructor sends/posts regular announcements or email reminders to be important, with students who had taken less than 5 online courses agreed more strongly. Both groups found strategies where the instructor provides students with an opportunity to reflect (e.g., via a journal or surveys), interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations, to be somewhat important. However, respondents who had taken less than 5 online courses agreed more. Respondents who had taken less than 5 online courses found strategies where the instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat), to be important, while respondents who had taken more than 4 online courses indicated it to be somewhat important. For all other questionnaires, we do not have enough evidence to conclude statistically significant differences between the two subpopulations.

## 5.0 Conclusion

This study found student perceptions toward online learning to be neutral to favorable among both male and female respondents. However, female respondents agreed more that they were satisfied with the learning management platform and found the online courses to be affordable and easy, as well as effective and fun as compared to the male respondents. It could be because more women identified as having an advanced level of computer skill, agreed they learned more in online courses and found the content to be of good quality, as compared to the male respondents. More women respondents also indicated that they preferred online courses over traditional courses as compared to men and agreed they would like to enroll in more online courses in the future. This decision is likely to be influenced by the top two reasons given by female respondents which were, the ability to study at their own pace and job-related responsibilities.

When perceptions toward online course experience were compared to perceptions toward traditional courses, it was found majority (above 70%) agreed they were confident to make a good grade in a traditional course as well as confident to complete an online course. This is consistent with a previous study where it was found that despite the abrupt transition to online learning, students had a positive perception toward course planning, implementation, organization, faculty technology skills and use of tools in the COVID-19 to communicate effectively with students as well as to deliver feedback, resources, and content to students (Hajjej et al., 2021).

This study also found significant differences in the perceptions toward online learning within different groups of students in terms of gender, number of online courses taken and age. With regards to age, younger respondents were more confident to make a good grade in a traditional as well as an online course and more confident to complete an online course. Younger respondents also agreed more that it was inconvenient to attend traditional courses. This could be since COVID-19 vaccinations were initially made available to older adults and introduced in phases. Further research is required to study these effects. Older respondents disagreed there was more interaction between students or instructors in online courses.

Although both female and male respondents indicated it was inconvenient to attend traditional courses and 80% of students indicated preference for blended/hybrid and online learning after COVID-19, pedagogical factors need to be taken into consideration. This pedagogical gap between E-learning and traditional classroom instruction can be closed by enhancing interactivity in E-learning systems (Mensah et al., 2021, Salamat, Ahmad, Bakht, & Saifi, 2018). In the knowledge creation process, teachers, who are instructors become facilitators and thus need to adopt effective strategies to "diagnose, reflect, and self-assess the teaching and learning encounters" (Mensah et al., 2021, pg. 61) and the students must become an active participant. Although there was greater positive perception toward online courses, we cannot ignore the negative perceptions. Results indicated 27.83% of female respondents and 20% of male respondents felt they learned less in online courses and 30.44% of female respondents and 21.74% of male respondents felt they learned about the same or more in online courses. Lack of communication was the main obstacle encountered by both genders while taking online courses. Further evidence was found when both genders disagreed with the statement, that using online learning promotes interactivity with teachers. Although both female and male respondents disagreed more with the statement "traditional courses are easier than online courses" as compared to the statement "online courses are easier than traditional courses", they also agreed more that "students learn more in traditional courses" than the statement "students learn more in online courses". Both respondents agreed they "would like to see more instructors put materials online". The online course experience can thus be improved by using engagement strategies which were rated as very important by both respondents, such as, the instructor, sends/posts regular announcements or email reminders, creates a forum for students to contact the instructor with questions about the course, creates a course orientation for students, posts a due date checklist at the end of each instructional unit, creates short videos to increase instructor presence in the course, provides feedback using various modalities (e.g., text, audio, video, and visuals), posts grading rubrics for all assignments. Findings from past research on faculty pedagogy have shown a "positive relationship between the number of student posts and course learning" and stressed on the importance for faculty to provide effective feedback (timeliness, usefulness) which can be written, verbal or dialogic, as they tend to be highly valued by students than peer feedback (Lockman and Schirmer, 2020, pg.136).

Students who had taken more online courses indicated more confidence toward online courses. This is not surprising as previous studies have indicated "that students with prior experience are more receptive" (Verma et al., 2021, pg. 119). They agreed more with the statements, confident I can make good grade in online course, confident I can complete online course, as compared to students who had taken less than 5 online courses. Although they felt online courses are too time consuming, they also agreed more with the statement that online courses were easier than traditional courses. Surprisingly they agreed more that the quality of online courses was not as good as traditional courses, whereas students who had taken less than 5 courses were more neutral toward the statement. The online course design could thus be improved by including engagement strategies where the instructor uses various features (e.g., polls, emoticons, whiteboard, text, or audio and video chat) in synchronous sessions to interact with students which will allow the student to interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations). Instructors can also provide student with an opportunity to reflect (e.g., via a journal or surveys) and interact with peers through student presentations (asynchronously or synchronously).

Often poor performing technology can be a weakness of online lectures (Angelova, 2020), affect student performance and online course effectiveness (Mensah et al., 2021) and be the biggest challenge (Verma et al., 2021). However, when analyzing the results within sub-groups (gender, age, online course experience) technological factors did not seem to be an issue with students in all groups strongly disagreeing with the statement, that the technology used in online courses was too advanced. Instead both male and female respondents in this study identified as having advanced computer skill level and students perceived technology effectiveness has been found to affect student satisfaction in online learning (Lei and So, 2021, Schramm et al., 2001). Another reason for this positive perception could be because the learning management platform was

used adequately during traditional and online course offerings prior to the pandemic. Evidence of this was found in the responses when all three groups agreed with the statement that the university's platform (example: Blackboard, Canvas) was a very effective way to learn.

Using results of this study, instructors can design or modify existing online business courses with effective engagement strategies suitable for business students or use it to develop undergraduate and graduate business blended/hybrid courses, since 44.35% indicated preference for the mode of instruction post COVID-19. Mensah et al., (2021), found student-content interactivity should be reduced to improve course effectiveness in E-learning, student-system interactivity should be reduced to improve students E-learning behavior. But student-student interactivity and student-teacher interactivity should be included to improve students learning behavior and was found to be positively related to learner satisfaction (Leong et al., 2021). Thus, the online course design should include communication among students and the instructor as important factors (Lee and McLoughlin, 2010, Dixson, 2010). Better engagement with students is also said to be a key solution to issues related to dropout, retention, and graduation rates (Martin and Bolliger, 2018, Banna et al., 2015), thus implementing the results derived from this study may help business schools retain and increase graduation rates. Prior to designing online courses, universities can also provide training to instructors to better equip them with the skills to structure and design their online courses to make it more suitable for student interactions.

Although several studies on student perceptions exist, there is only a limited number of studies on student perceptions toward online learning in business programs, especially during a transition followed by abrupt transition to online learning. Thus, this study contributes to the research literature on online learning in business programs by providing empirical evidence and a thorough study using three instruments. However, our study has certain limitations. Although the survey was administered at two institutions which offered both traditional and online courses pre and post covid, the sample size was low and not representative of the full student population in terms of race and gender. Thus, the results must be interpreted with caution. Additionally, student perception can be multidimensional, and psychological factors which are factors "concerning their emotional state and their motivation" (Kanik, M, 2021, pg. 1074) should also be considered since the pandemic prevented students from socializing as they normally would prior to COVID-19, which could have had a negative effect on their psychological state. Our analysis did not control for the impact of psychological factors more likely present during the pandemic.

This paper studied student perceptions of engagement strategies but lacked evidence on the actual use of the various engagement strategies currently in use, from the perspective of the instructor. Thus, further research may include the perspectives of both instructors and students toward online course design and on the actual participation rate of the various engagement strategies which currently exist. Additionally, further research can be included to study the influence of individual or cultural values on student perceptions toward online learning in business programs since different learning styles can exist among students from different countries.

This study provides some guidelines for policy implications. To improve learner's satisfaction, it is necessary to improve student interactions with the system, content, instructor as well as other students, thus policy should be to build an interactive environment to allow for more interactions in the online modality by using effective strategies perceived to be of most importance, as identified in this study. This will help create a mentally healthy environment for both learner and instructor.

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**Appendix A. Variables and Items**

| Variables | Items |
|---|---|
| Perceptions toward online learning, (adapted from Dobbs et al., 2017). | Online courses easier than traditional courses |
| | Traditional courses are easier than online courses |
| | Students learn more in traditional courses |
| | Students learn more in online courses |
| | Confident I can make good grade in traditional course |
| | Confident I can make good grade in online course |
| | Confident I can complete traditional course |
| | Confident I can complete online course |
| | More interaction between students in online courses |
| | More interaction with instructor online |
| | Online courses are too time consuming |
| | Quality of online courses is not as good as traditional courses |
| | Inconvenient to attend traditional courses |
| | Takes more effort to complete online course |
| | Technology used in online courses is too advanced for me |
| | Would like to see more instructors put materials online |
| Perceptions toward online learning, (adapted from Blizak et al., 2020). | There is a general satisfaction with online learning on the university platform |
| | The university's platform is a very effective way to learn |
| | Using online learning promotes interactivity with teachers |
| | The courses available on the university platform are easy and affordable |
| | Online learning on the university's platform was fun |
| Perceptions of learning strategies (Adapted from Martin and Bollinger, 2018). | Students introduce themselves using an icebreaker discussion. |
| | Students' moderate discussions. |
| | Students have choices in the selection of readings (articles, books) that drive discussion group formation. |
| | Students post audio and/or video files in threaded discussions instead of only written responses. |
| | Students interact with peers through student presentations (asynchronously or synchronously). |
| | Students work collaboratively using online communication tools to complete case studies, projects, reports, etc. |
| | Student's peer-review classmates' work. |
| | Students are required to rate individual performance of team members on projects. |
| | The instructor refers to students by name in discussion forums. |
| | The instructor sends/posts regular announcements or email reminders. |
| | The instructor creates a forum for students to contact the instructor with questions about the course. |
| | The instructor creates a course orientation for students. |
| | The instructor posts a "due date checklist" at the end of each instructional unit. |
| | The instructor creates short videos to increase instructor presence in the course. |
| | The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals). |
| | The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys). |
| | The instructor posts grading rubrics for all assignments. |
| | The instructor uses various features in synchronous sessions to interact with |

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| | students (e.g., polls, emoticons, whiteboard, text, or audio and video chat). |
| | Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations). |
| | Students use optional online resources to explore topics in more depth. |
| | Students experience live, synchronous web conferencing for class events and/or guest talks. |
| | Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content. |
| | Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation). |
| | Students search for and select applicable materials (e.g., articles, books) based on their interests. |
| | Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community). |
| | Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects). |
| | Students use self-tests to check their understanding of materials. |

**Appendix B. Data Analysis Results**

I. Device used by Students

| Device used by Students | 18-20 | 21-23 | 24-26 | 27-29 | 30-32 | 33-35 | above 35 | Grand Total |
|---|---|---|---|---|---|---|---|---|
| Desktop computer | 2 | 2 | | 1 | 1 | 1 | | 7 |
| Female | | | | 1 | | | | 1 |
| Male | 2 | 2 | | | 1 | 1 | | 6 |
| Digital tablet | | | | | | | 1 | 1 |
| Male | | | | | | | 1 | 1 |
| Laptop | 16 | 56 | 9 | 8 | 5 | | 11 | 105 |
| Female | 9 | 34 | 6 | 4 | 5 | | 7 | 65 |
| Male | 7 | 22 | 3 | 4 | | | 4 | 40 |
| Smartphone | 1 | | | | 1 | | | 2 |
| Female | | | | | 1 | | | 1 |
| Male | 1 | | | | | | | 1 |
| Grand Total | 19 | 58 | 9 | 9 | 7 | 1 | 12 | 115 |

II. Descriptive statistics by Gender

| Race/Ethnicity | Female | Male | Total |
|---|---|---|---|
| African American | 2.6% | 1.7% | 4.3% |
| American Indian/Native American | 0.9% | 0.0% | 0.9% |
| Asian or Pacific Islander | 2.6% | 0.0% | 2.6% |
| Hispanic/Latino | 1.7% | 2.6% | 4.3% |
| Other | 0.9% | 3.5% | 4.3% |
| White/Caucasian | 49.6% | 33.9% | 83.5% |
| Total | 58.3% | 41.7% | 100.0% |
| | | | |
| Employment Status | | | |
| employed off-campus | 40.00% | 31.30% | 71.30% |
| employed on-campus | 8.70% | 4.35% | 13.04% |
| not employed | 9.57% | 6.09% | 15.65% |
| Total | 58.26% | 41.74% | 100.00% |
| | | | |
| Computer Skill Level | | | |

| | | | |
|---|---|---|---|
| advanced | 31% | 28% | 59% |
| beginner or intermediate | 27% | 14% | 41% |
| Total | 58% | 42% | 100% |

III. Reasons for taking online courses & Obstacles encountered

| Most important reason for taking online courses | Female | Male | Total |
|---|---|---|---|
| Ability to study at own pace | 9.57% | 5.22% | 14.78% |
| Course only offered online | 7.83% | 6.96% | 14.78% |
| Family responsibilities | 4.35% | 0.00% | 4.35% |
| Job-related responsibilities | 20.87% | 12.17% | 33.04% |
| Other | 2.61% | 6.09% | 8.70% |
| University too far from home | 0.87% | 1.74% | 2.61% |
| Covid-19 | 12.17% | 9.57% | 21.74% |
| Total | 58.26% | 41.74% | 100.00% |
| Obstacles encountered while accessing online courses | | | |
| Lack of communication | 11.30% | 18.26% | 29.57% |
| Lack of time | 11.30% | 2.61% | 13.91% |
| Many homework | 8.70% | 9.57% | 18.26% |
| Stress | 20.00% | 6.09% | 26.09% |
| Weak internet | 6.96% | 5.22% | 12.17% |
| Total | 58.26% | 41.74% | 100.00% |

IV. Two-sample T test with equal variances of Perceptions of Students Toward Online Learning During COVID-19 for Total Sample by Gender

| No. | Items | Female N = 67 | Male N = 48 | T value |
|---|---|---|---|---|
| 1 | There is a general satisfaction with online learning on the university platform (example: Blackboard, Canvas) | 3.84 (0.132) | 3.48 (0.142) | -1.806* |
| 2 | The university's platform (example: Blackboard, Canvas) is a very effective way to learn | 3.97 (0.120) | 3.54 (0.139) | -2.319** |
| 3 | Using online learning promotes interactivity with teachers | 2.55 (0.138) | 2.19 (0.150) | -1.759* |
| 4 | The courses available on the university platform (example: Blackboard, Canvas) are easy and affordable | 3.58 (0.142) | 3.46 (0.162) | -0.568 |
| 5 | Online learning on the university's platform (example: Blackboard, Canvas) was fun | 3.00 (0.144) | 2.77 (0.155) | -1.064 |

Note: 1 being strongly disagree and 5 being strongly agree. *p < .10 **p < .05 ***p < .01

V. Two-sample T test with equal variances of Perceptions of Students Toward Online Learning During COVID-19 for Total Sample by Age

| No. | Items | Mean Age >= 21, N = 96 | Mean age < 21, N=19 | T value |
|---|---|---|---|---|
| 1 | There is a general satisfaction with online learning on the university platform (example: Blackboard, Canvas) | 3.47 (0.28) | 3.73 (0.10) | 0.97 |
| 2 | The university's platform (example: Blackboard, Canvas) is a very effective way to learn | 3.37 (0.24) | 3.88 (0.10) | 2.055** |
| 3 | Using online learning promotes interactivity with teachers | 2.21 (0.26) | 2.44 (0.11) | 0.82 |
| 4 | The courses available on the university platform (example: Blackboard, Canvas) are easy and affordable | 3.47 (0.34) | 3.54 (0.11) | 0.24 |

| | | | | |
|---|---|---|---|---|
| 5 | Online learning on the university's platform (example: Blackboard, Canvas) was fun | 2.74<br>(0.26) | 2.94<br>(0.12) | 0.70 |

Note: 1 being strongly disagree and 5 being strongly agree. *p < .10 **p < .05 ***p < .01

VI. Two-sample T test with equal variances of Perceptions of Students Toward Online Learning During COVID-19 for Total Sample by Online course Experience

| No. | Items | Mean > 4 courses, N = 101 | Mean< 5 courses, N = 14 | T value |
|---|---|---|---|---|
| 1 | There is a general satisfaction with online learning on the university platform (example: Blackboard, Canvas) | 3.68<br>(0.10) | 3.71<br>(0.38) | 0.10 |
| 2 | The university's platform (example: Blackboard, Canvas) is a very effective way to learn | 3.85<br>(0.09) | 3.36<br>(0.32) | -1.757* |
| 3 | Using online learning promotes interactivity with teachers | 2.36<br>(0.10) | 2.71<br>(0.41) | 1.14 |
| 4 | The courses available on the university platform (example: Blackboard, Canvas) are easy and affordable | 3.53<br>(0.11) | 3.57<br>(0.37) | 0.14 |
| 5 | Online learning on the university's platform (example: Blackboard, Canvas) was fun | 2.88<br>(0.11) | 3.07<br>(0.32) | 0.58 |

Note: 1 being strongly disagree and 5 being strongly agree. *p < .10 **p < .05 ***p < .01

VII. Two-sample T test with equal variances for Total Sample by Gender

| No. | Items | Female N = 67 | Male N = 48 | T- value |
|---|---|---|---|---|
| 1 | Online courses easier than traditional courses | 2.91<br>(0.16) | 3.00<br>(0.17) | 0.369 |
| 2 | Traditional courses are easier than online courses | 3.30<br>(0.15) | 3.27<br>(0.14) | -0.132 |
| 3 | Students learn more in traditional courses | 2.67<br>(0.16) | 2.42<br>(0.18) | -1.044 |
| 4 | Students learn more in online courses | 3.42<br>(0.14) | 3.67<br>(0.13) | 1.293 |
| 5 | Confident I can make good grade in traditional course | 2.03<br>(0.14) | 2.04<br>(0.18) | 0.052 |
| 6 | Confident I can make good grade in online course | 2.18<br>(0.14) | 2.17<br>(017) | -0.057 |
| 7 | Confident I can complete traditional course | 1.79<br>(0.16) | 1.88<br>(0.19) | 0.338 |
| 8 | Confident I can complete online course | 1.84<br>(0.15) | 2.04<br>(0.19) | 0.086 |
| 9 | More interaction between students in online courses | 3.51<br>(0.15) | 4.00<br>(0.17) | 2.082** |
| 10 | More interaction with instructor online | 3.67<br>(0.14) | 3.94<br>(0.20) | 1.127 |
| 11 | Online courses are too time consuming | 2.82<br>(0.13) | 2.85<br>(0.18) | 0.151 |
| 12 | Quality of online courses is not as good as traditional courses | 2.81<br>(0.14) | 2.52<br>(0.19) | -1.213 |
| 13 | Inconvenient to attend traditional courses | 2.45<br>(0.15) | 2.98<br>(0.19) | 2.193** |

| | | | | |
|---|---|---|---|---|
| 14 | Takes more effort to complete online course | 2.87 (0.13) | 2.88 (0.18) | 0.043 |
| 15 | Technology used in online courses is too advanced for me | 4.27 (0.14) | 4.38 (0.17) | 0.478 |
| 16 | Would like to see more instructors put materials online | 2.46 (0.13) | 2.67 (0.18) | 0.964 |

Note: 1 being strongly agree and 5 being strongly disagree. *p < .10 **p < .05 ***p < .01

VIII. Two-sample T test with equal variances for Online course Experience Online course Experience

| No. | Items | Mean < 5 courses, N = 14 | Mean > 4 courses, N = 101 | T-value |
|---|---|---|---|---|
| 1 | Online courses easier than traditional courses | 3.643 (0.34) | 2.851 (0.12) | 2.211** |
| 2 | Traditional courses are easier than online courses | 3.714 (0.28) | 3.228 (0.11) | 1.563 |
| 3 | Students learn more in traditional courses | 2.571 (0.35) | 2.564 (0.12) | 0.019 |
| 4 | Students learn more in online courses | 3.643 (0.27) | 3.505 (0.10) | 0.472 |
| 5 | Confident I can make good grade in traditional course | 2.429 (0.42) | 1.98 (0.11) | 1.324 |
| 6 | Confident I can make good grade in online course | 2.929 (0.38) | 2.069 (0.11) | 2.693*** |
| 7 | Confident I can complete traditional course | 2.500 (0.49) | 1.733 (0.11) | 2.090** |
| 8 | Confident I can complete online course | 2.857 (0.47) | 1.792 (0.11) | 3.042*** |
| 9 | More interaction between students in online courses | 3.714 (0.30) | 3.713 (0.13) | 0.004 |
| 10 | More interaction with instructor online | 3.571 (0.43) | 3.812 ().12) | -0.674 |
| 11 | Online courses are too time consuming | 3.071 (0.40) | 2.802 (0.11) | 0.817 |
| 12 | Quality of online courses is not as good as traditional courses | 3.000 (0.41) | 2.644 (0.12) | 1.004 |
| 13 | Inconvenient to attend traditional courses | 3.571 (0.31) | 2.545 (0.13) | 2.849*** |
| 14 | Takes more effort to complete online course | 3.357 (0.36) | 2.802 (0.11) | 1.729* |
| 15 | Technology used in online courses is too advanced for me | 4.429 (0.31) | 4.297 (0.12) | 0.392 |
| 16 | Would like to see more instructors put materials online | 3.500 (0.31) | 2.416 (0.10) | 3.571*** |

Note: 1 being strongly agree and 5 being strongly disagree. *p < .10 **p < .05 ***p < .01

IX. Two-sample T test with equal variances for Online course Experience by age group

| No. | Items | Mean Age < 21 N = 19 | Mean Age >= 21 N = 96 | T-value |
|---|---|---|---|---|
| 1 | Online courses easier than traditional courses | 2.969 (0.13) | 2.842 (0.35) | 0.394 |
| 2 | Traditional courses are easier than online courses | 3.219 (0.11) | 3.632 (0.24) | -1.505 |
| 3 | Students learn more in traditional courses | 2.583 (0.13) | 2.474 (0.27) | 0.337 |

| | | | | |
|---|---|---|---|---|
| 4 | Students learn more in online courses | 3.469 (0.11) | 3.789 (0.17) | -1.255 |
| 5 | Confident I can make good grade in traditional course | 1.917 (0.11) | 2.632 (0.33) | -2.441** |
| 6 | Confident I can make good grade in online course | 2.083 (0.11) | 2.632 (0.25) | -1.923* |
| 7 | Confident I can complete traditional course | 1.76 (0.13) | 2.158 (0.35) | -1.214 |
| 8 | Confident I can complete online course | 1.823 (0.12) | 2.421 (0.33) | -1.895* |
| 9 | More interaction between students in online courses | 3.625 (0.13) | 4.158 (0.24) | -1.686* |
| 10 | More interaction with instructor online | 3.677 (0.13) | 4.316 (0.29) | -2.067** |
| 11 | Online courses are too time consuming | 2.823 (0.11) | 2.895 (0.29) | -0.247 |
| 12 | Quality of online courses is not as good as traditional courses | 2.656 (0.13) | 2.842 (0.31) | -0.593 |
| 13 | Inconvenient to attend traditional courses | 2.552 (0.13) | 3.263 (0.34) | -2.211** |
| 14 | Takes more effort to complete online course | 2.854 (0.11) | 2.947 (0.33) | -0.326 |
| 15 | Technology used in online courses is too advanced for me | 4.292 (0.12) | 4.421 (0.26) | -0.438 |
| 16 | Would like to see more instructors put materials online | 2.469 (0.10) | 2.947 (0.31) | -1.720* |

Note: 1 being strongly agree and 5 being strongly disagree. *p < .10 **p < .05 ***p < .01

X. Two-sample T test with equal variances for Engagement Strategies by Gender

| No. | Items | Female, N = 67 | Male, N = 48 | T-value |
|---|---|---|---|---|
| 1 | Students use a virtual lounge where they can meet informally to share common interests | 2.61 (0.15) | 2.63 (0.17) | 0.06 |
| 2 | Students complete an integrated profile on the learning management system that is accessible in all courses | 3.24 (0.13) | 3.04 (0.16) | -0.94 |
| 3 | Students introduce themselves using an icebreaker discussion | 2.57 (0.16) | 2.71 (0.20) | 0.55 |
| 4 | Students' moderate discussions | 3.02 (0.13) | 3.06 (0.15) | 0.24 |
| 5 | Students have choices in the selection of readings (articles, books) that drive discussion group formation | 3.55 (0.13) | 3.17 (0.17) | -1.80* |
| 6 | Students post audio and/or video files in threaded discussions instead of only written responses | 2.40 (0.17) | 2.85 (0.18) | 1.78* |
| 7 | Students interact with peers through student presentations (asynchronously or synchronously) | 2.79 (0.15) | 2.85 (0.18) | 0.27 |
| 8 | Students work collaboratively using online communication tools to complete case studies, projects, reports, etc. | 3.15 (0.15) | 3.10 (0.18) | -0.19 |
| 9 | Student's peer-review classmates' work. | 2.69 | 3.06 | 1.49 |

| | | | | |
|---|---|---|---|---|
| | | (0.16) | (0.19) | |
| 10 | Students are required to rate individual performance of team members on projects. | 3.39 ((0.16) | 3.48 (0.19) | 0.36 |
| 11 | The instructor refers to students by name in discussion forums | 3.67 (0.14) | 3.54 (0.19) | -0.56 |
| 12 | The instructor sends/posts regular announcements or email reminders | 4.51 (0.09) | 4.33 (0.14) | -1.11 |
| 13 | The instructor creates a forum for students to contact the instructor with questions about the course | 4.45 (0.09) | 4.15 (0.16) | -1.76* |
| 14 | The instructor creates a course orientation for students | 4.09 (0.13) | 4.00 (0.15) | -0.45 |
| 15 | The instructor posts a "due date checklist “at the end of each instructional unit | 4.42 (0.10) | 4.48 (0.12) | 0.38 |
| 16 | The instructor creates short videos to increase instructor presence in the course | 4.12 (0.12) | 3.75 (0.16) | -1.90* |
| 17 | The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals) | 3.94 (0.13) | 3.92 (0.17) | -0.11 |
| 18 | The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys) | 3.18 (0.15) | 3.10 (0.16) | -0.34 |
| 19 | The instructor posts grading rubrics for all assignments | 4.36 (0.11) | 4.42 (0.12) | 0.36 |
| 20 | The instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat) | 3.61 (0.14) | 3.40 (0.15) | -1.01 |
| 21 | Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations | 3.43 (0.14) | 3.25 (0.17) | -0.82 |
| 22 | Students use optional online resources to explore topics in more depth | 3.34 (0.13) | 3.31 (0.15) | -0.16 |
| 23 | Students experience live, synchronous web conferencing for class events and/or guest talks | 3.12 (0.15) | 3.19 (0.17) | 0.3 |
| 24 | Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content | 3.84 (0.12) | 3.54 (0.17) | -1.47 |
| 25 | Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation) | 3.52 (0.13) | 3.08 (0.15) | -2.18** |
| 26 | Students search for and select applicable materials (e.g., articles, books) based on their interests | 3.46 (0.13) | 3.38 (0.15) | -0.45 |
| 27 | Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community) | 2.49 (0.13) | 2.46 (0.16) | -0.17 |
| 28 | Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects) | 3.94 (0.13) | 3.69 (0.16) | -1.25 |
| 29 | Students use self-tests to check their understanding of materials | 3.69 (0.11) | 3.44 (0.16) | -1.3 |

Note: Scale ranging from 1 (very unimportant) to 5 (very important), *p < .10 **p < .05 ***p < .01

XI. Two-sample T test with equal variances for Engagement Strategies by Age

| No. | Items | Mean Age >= 21 N = 96 | Mean Age < 21 N = 19 | T-value |
|---|---|---|---|---|
| 1 | Students use a virtual lounge where they can meet informally to share common interests | 2.47 (0.35) | 2.65 (0.11) | 0.57 |
| 2 | Students complete an integrated profile on the learning management system that is accessible in all courses | 3.16 (0.33) | 3.16 (0.10) | -0.01 |
| 3 | Students introduce themselves using an icebreaker discussion | 2.58 (0.34) | 2.64 (0.13) | 0.17 |
| 4 | Students' moderate discussions | 3.26 (0.28) | 2.99 (0.10) | -1.05 |
| 5 | Students have choices in the selection of readings (articles, books) that drive discussion group formation | 3.53 (0.30) | 3.37 (0.11) | -0.56 |
| 6 | Students post audio and/or video files in threaded discussions instead of only written responses | 2.63 (0.40) | 2.58 (0.13) | -0.14 |
| 7 | Students interact with peers through student presentations (asynchronously or synchronously) | 2.90 (0.35) | 2.80 (0.12) | -0.3 |
| 8 | Students work collaboratively using online communication tools to complete case studies, projects, reports, etc. | 2.90 (0.30) | 3.18 (0.13) | 0.89 |
| 9 | Student's peer-review classmates' work. | 3.05 (0.38) | 2.80 (0.13) | -0.74 |
| 10 | Students are required to rate individual performance of team members on projects. | 3.53 (0.31) | 3.41 (0.13) | -0.36 |
| 11 | The instructor refers to students by name in discussion forums | 3.47 (0.34) | 3.65 (0.12) | 0.56 |
| 12 | The instructor sends/posts regular announcements or email reminders | 4.79 (0.12) | 4.37 (0.09) | -2.07** |
| 13 | The instructor creates a forum for students to contact the instructor with questions about the course | 4.53 (0.14) | 4.28 (0.09) | -1.07 |
| 14 | The instructor creates a course orientation for students | 4.26 (0.24) | 4.01 (0.11) | -0.96 |
| 15 | The instructor posts a "due date checklist "at the end of each instructional unit | 4.53 (0.018) | 4.43 (0.09) | -0.46 |
| 16 | The instructor creates short videos to increase instructor presence in the course | 4.11 (0.24) | 3.94 (0.11) | -0.64 |
| 17 | The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals) | 4.11 (0.24) | 3.90 (0.12) | -0.74 |
| 18 | The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys) | 3.42 (0.29) | 3.09 (0.12) | -1.12 |
| 19 | The instructor posts grading rubrics for all assignments | 4.42 (0.16) | 4.38 (0.09) | -0.21 |

| | | | | |
|---|---|---|---|---|
| 20 | The instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat) | 3.58 (0.22) | 3.51 (0.12) | -0.24 |
| 21 | Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations | 3.42 (0.29) | 3.34 (0.12) | -0.26 |
| 22 | Students use optional online resources to explore topics in more depth | 3.21 (0.32) | 3.35 (0.10) | 0.55 |
| 23 | Students experience live, synchronous web conferencing for class events and/or guest talks | 2.95 (0.32) | 3.19 (0.12) | 0.79 |
| 24 | Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content | 3.47 (0.29) | 3.76 (0.10) | 1.07 |
| 25 | Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation) | 3.00 (0.34) | 3.41 (0.10) | 1.5 |
| 26 | Students search for and select applicable materials (e.g., articles, books) based on their interests | 3.47 (0.26) | 3.42 (0.10) | -0.22 |
| 27 | Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community) | 2.21 (0.29) | 2.53 (0.10) | 1.19 |
| 28 | Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects) | 3.37 (0.27) | 3.93 (0.10) | 2.10** |
| 29 | Students use self-tests to check their understanding of materials | 3.53 (0.27) | 3.59 (0.10) | 0.26 |

Note: Scale ranging from 1 (very unimportant) to 5 (very important), *p < .10 **p < .05 ***p < .01

XII. Two-sample T test with equal variances for Engagement Strategies by Online Course Experience

| No. | Items | Mean > 4 courses, N = 101 | Mean < 5 courses, N = 14 | T-value |
|---|---|---|---|---|
| 1 | Students use a virtual lounge where they can meet informally to share common interests | 2.56 (0.11) | 3.00 (0.42) | 1.28 |
| 2 | Students complete an integrated profile on the learning management system that is accessible in all courses | 3.14 (0.11) | 3.29 (0.37) | 0.47 |
| 3 | Students introduce themselves using an icebreaker discussion | 2.55 (0.13) | 3.14 (0.44) | 1.54 |
| 4 | Students' moderate discussions | 2.96 (0.10) | 3.57 (0.29) | 2.10** |
| 5 | Students have choices in the selection of readings (articles, books) that drive discussion group formation | 3.38 (0.11) | 3.50 (0.39) | 0.38 |
| 6 | Students post audio and/or video files in threaded discussions instead of only written responses | 2.48 (0.13) | 3.43 (0.44) | 2.53** |
| 7 | Students interact with peers through student presentations | 2.71 | 3.57 | 2.51** |

| | | | | |
|---|---|---|---|---|
| | (asynchronously or synchronously) | (0.11) | (0.39) | |
| 8 | Students work collaboratively using online communication tools to complete case studies, projects, reports, etc. | 3.06<br>(0.12) | 3.64<br>(0.32) | 1.64 |
| 9 | Student's peer-review classmates' work. | 2.76<br>(0.13) | 3.43<br>(0.45) | 1.76* |
| 10 | Students are required to rate individual performance of team members on projects. | 3.37<br>(0.13) | 3.86<br>(0.37) | 1.3 |
| 11 | The instructor refers to students by name in discussion forums | 3.56<br>().12) | 4.00<br>(0.35) | 1.25 |
| 12 | The instructor sends/posts regular announcements or email reminders | 4.38<br>(0.09) | 4.86<br>(0.10) | 2.06** |
| 13 | The instructor creates a forum for students to contact the instructor with questions about the course | 4.30<br>(0.08) | 4.50<br>().29) | 0.78 |
| 14 | The instructor creates a course orientation for students | 4.01<br>(0.10) | 4.36<br>(0.31) | 1.16 |
| 15 | The instructor posts a "due date checklist "at the end of each instructional unit | 4.40<br>(0.08) | 4.79<br>(0.15) | 1.62 |
| 16 | The instructor creates short videos to increase instructor presence in the course | 3.98<br>(0.10) | 3.86<br>(0.33) | -0.41 |
| 17 | The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals) | 3.88<br>(0.11) | 4.29<br>(0.32) | 1.27 |
| 18 | The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys) | 3.07<br>(0.11) | 3.71<br>(0.37) | 1.97* |
| 19 | The instructor posts grading rubrics for all assignments | 4.34<br>(0.08) | 4.71<br>(0.16) | 1.56 |
| 20 | The instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat) | 3.46<br>(0.11) | 4.00<br>(0.26) | 1.71* |
| 21 | Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations | 3.29<br>(0.11) | 3.86<br>(0.36) | 1.72* |
| 22 | Students use optional online resources to explore topics in more depth | 3.31<br>(0.10) | 3.50<br>(0.34) | 0.65 |
| 23 | Students experience live, synchronous web conferencing for class events and/or guest talks | 3.12<br>(0.12) | 3.36<br>(0.39) | 0.69 |
| 24 | Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content | 3.69<br>(0.10) | 3.86<br>(0.31) | 0.54 |
| 25 | Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation) | 3.33<br>(0.10) | 3.43<br>(0.39) | 0.33 |
| 26 | Students search for and select applicable materials (e.g., articles, books) based on their interests | 3.40<br>(0.10) | 3.64<br>(0.32) | 0.84 |
| 27 | Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community) | 2.45<br>(0.10) | 2.71<br>(0.32) | 0.87 |

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|---|---|---|---|---|
| 28 | Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects) | 3.79<br>(0.11) | 4.14<br>(0.29) | 1.15 |
| 29 | Students use self-tests to check their understanding of materials | 3.53<br>(0.09) | 4.00<br>(0.39) | 1.65 |

Note: Scale ranging from 1 (very unimportant) to 5 (very important), *p < .10 **p < .05 ***p < .01

**Appendix C. Survey questions**

| # | Survey Questions |
|---|---|
| 1. | Which program are you currently enrolled in? |
| 2. | What is your major? |
| 3. | What is your gender? |
| 4. | How old are you? |
| 5. | What is your current level in your college/university? |
| 6. | What is your employment status? |
| 7. | What is your current Room and board/housing status? |
| 8. | What is the computer skill level you most identify with from below? |
| 9. | How many numbers of online course you have taken? |
| 10. | Which device did you use the most to access your online courses? |
| 11. | From the following, select the number one obstacle you encountered while accessing your online courses? |
| 12. | Which learning management system/platform did you use the most for your online classes? |
| 13. | As compared to your traditional classroom courses, how would you describe your learning experience in your online classes? |
| 14. | How would you describe the Quality of course content in your online classes? |
| 15. | From the following, which is the most important reason for taking online courses? |
| 16. | If given a choice between online classes and traditional classroom courses, which option would you choose? |
| 17. | Would you like to enroll in more online courses in the future? |
| 18. | Which type of learning will you prefer to adopt after COVID-19? |
| 19. | There is a general satisfaction with online learning on the university platform (example: Blackboard, Canvas) |
| 20. | The university's platform (example: Blackboard, Canvas) is a very effective way to learn |
| 21. | Using online learning promotes interactivity with teachers |
| 22. | The courses available on the university platform (example: Blackboard, Canvas) are easy and affordable |
| 23. | Online learning on the university's platform (example: Blackboard, Canvas) was fun |
| 24. | Online courses easier than traditional courses |
| 25. | Traditional courses are easier than online courses |
| 26. | Students learn more in traditional courses |
| 27. | Students learn more in online courses |
| 28. | Confident I can make good grade in traditional course |
| 29. | Confident I can make good grade in online course |
| 30. | Confident I can complete traditional course |
| 31. | Confident I can complete online course |
| 32. | More interaction between students in online courses |
| 33. | More interaction with instructor online |
| 34. | Online courses are too time consuming |
| 35. | Quality of online courses is not as good as traditional courses |
| 36 | Inconvenient to attend traditional courses |

| | |
|---|---|
| 37. | Takes more effort to complete online course |
| 38. | Technology used in online courses is too advanced for me |
| 39. | Would like to see more instructors put materials online |
| 40. | Students use a virtual lounge where they can meet informally to share common interests |
| 41. | Students complete an integrated profile on the learning management system that is accessible in all courses |
| 42. | Students introduce themselves using an icebreaker discussion |
| 43. | Student's moderate discussions |
| 44. | Students have choices in the selection of readings (articles, books) that drive discussion group formation |
| 45. | Students post audio and/or video files in threaded discussions instead of only written responses |
| 46. | Students interact with peers through student presentations (asynchronously or synchronously) |
| 47. | Students work collaboratively using online communication tools to complete case studies, projects, reports, etc. |
| 48. | Student's peer-review classmate's work. |
| 49. | Students are required to rate individual performance of team members on projects. |
| 50. | The instructor refers to students by name in discussion forums |
| 51. | The instructor sends/posts regular announcements or email reminders |
| 52. | The instructor creates a forum for students to contact the instructor with questions about the course |
| 53. | The instructor creates a course orientation for students |
| 54. | The instructor posts a due date checklists at the end of each instructional unit |
| 55. | The instructor creates short videos to increase instructor presence in the course |
| 56. | The instructor provides feedback using various modalities (e.g., text, audio, video, and visuals) |
| 57. | The instructor provides students with an opportunity to reflect (e.g., via a journal or surveys) |
| 58. | The instructor posts grading rubrics for all assignments |
| 59. | The instructor uses various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat) |
| 60. | Students interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations |
| 61. | Students use optional online resources to explore topics in more depth |
| 62. | Students experience live, synchronous web conferencing for class events and/or guest talks |
| 63. | Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content |
| 64. | Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multi-media presentation) |
| 65. | Students search for and select applicable materials (e.g., articles, books) based on their interests |
| 66. | Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community) |
| 67 | Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects). |
| 68 | Students use self-tests to check their understanding of materials |
| 69 | What is your race/ethnicity? |