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GETTING IN SYNCH: UNDERSTANDING STUDENT PERCEPTIONS OF SYNCHRONOUS ONLINE INSTRUCTION

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ABSTRACT

Aim/Purpose	This study examines the impact of transitioning from in-person classrooms to remote online business education and provides analysis of key factors impacting course and instructor ratings as well as strategies for higher education institutions to provide engaging instruction.
Background	"Zoom"ing into teaching and moving out of traditional classrooms during the COVID-19 pandemic has been a path full of twists and has impacted student perceptions of courses as well as instructors. One challenge has been to make the quality of synchronous online instruction perceived by students as positive as classroom-delivered ones.
Methodology	We analyze primary data collected in the course evaluation process from Business & Accounting students over six semesters between Fall 2019 to Spring 2022, covering pre-pandemic instruction in the classroom and the conversion to virtual instruction via Zoom. A total of 1782 observations for 38 courses were examined using mean comparison, regression and correlation analyses, and pairwise comparisons.
Contribution	We provide insights from the evaluation of those instructors who were able to make their Zoom-delivered courses perceived by students as equivalent or better than room-delivered ones. Specifically, clear presentation, stimulating delivery, providing feedback and encouraging discussion were positively correlated with successful online classes.

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Findings	We find that there is a clear downward shift in course and instructor ratings as the change to synchronous online delivery was made. However, in the Spring of 2022, even though instructors and students were still not completely back in the classroom, both instructor and course ratings moved back closer to the pre-pandemic levels. The parameters associated with instructor ratings, such as providing feedback, clear presentations, stimulating sessions, and encouraging discussion, showed similar downward fluctuations. Also, aspects related to course content were affected by the transition to online modality, including training on critical thinking quantitative analysis, research and writing abilities, and overall usefulness of the content. Moore's model of Transactional Distance helps explain these changes.
Recommendations for Practitioners	We recommend that practitioners allow sufficient time for students and faculty to learn through online instruction delivery and supply training for both populations in adapting to learning in this delivery mode.
Recommendations for Researchers	The disruption in higher education caused by COVID-19 has provided a wealth of information on the pluses and minuses of online delivery. Careful inspection of trends can help provide guidance to higher education leaders.
Impact on Society	One of the many changes the COVID-19 pandemic brought was the opportunity to try alternate ways of connecting and learning. This study shows how this experience can be used to guide the future of higher education.
Future Research	Further research is needed to explore the in-depth reactions of students and faculty to the switch from classroom to online delivery, to explore whether these findings can be more broadly applied to other subjects and other types of universities.

Keywords	online teaching, student evaluations, teaching and learning

INTRODUCTION AND BACKGROUND

Online meeting platforms such as Zoom exploded in classrooms across the world in the aftermath of the COVID-19 pandemic, a phenomenon we describe as a "Zoom boom." Zoom is an easy-to-use online meeting application, which offers a free basic package. Instructors can plan a meeting that can be accessed by a one-click link and with a telephone dial-in option. Beyond meetings, Zoom's interactive features make it a preferred teaching platform through its whiteboard, breakout rooms, emojis, chat, and other features (Szopiński & Bachnik, 2022). A video recording option makes it convenient for students missing class to catch up on coursework. As online teaching through Zoom and other platforms became part of the course, several challenges emerged that impact teaching and learning, such as privacy and security concerns as well as the difficulty to monitor participation or engagement and to hold learner attention (Daniel, 2020).

From early 2020, instructors and students were forced to use online course delivery modalities that allowed them to work from remote locations and avoid physical proximity and/or follow stay at home government orders to reduce transmission of COVID-19. Zoom was initially developed as a remote meeting and collaboration tool for industry application (Zoom.com, 2022). However, what is the effectiveness of online meeting platforms for higher education? How have students processed and rated this shift from physical classroom to online environments? Are the many features of online platforms used for delivery of instruction at par with in-person teaching and learning? Our study uncovers the many layers of learning and teaching in a pandemic-induced uncertain environment through analyzing primary data collected in the course evaluation process from undergraduate

Business & Accounting students over six semesters between Fall 2019 and Spring 2022 in a New York City college.

The objectives of the study were to examine the underlying elements behind student ratings of a broad range of undergraduate business and accounting courses immediately before and during the COVID19 pandemic as they experienced what we term "room to Zoom" transitions.

Its contributions include an understanding of the specific educational practices that improved student reception of courses that had been converted from face to face to online delivery.

The implications arising from this study point to a way forward where classes delivered online through platforms such as Zoom can been seen by students as an equally effective learning modality as classroom delivered ones.

LITERATURE REVIEW

Despite continuing concerns about COVID-19, the pandemic as a catastrophic event presented opportunities as a natural experiment (Bateman et al., 2022). Even with its myriad threats to pre-COVID-19 working styles, the opportunities for management and educational research have abounded (Beech & Anseel, 2020). For instance, Greenberg and Hibbert (2020) called for the use of research on workplace trauma to assist understanding the impact of the pandemic while Yang (2020) spoke to the value of evidence-based management research. Wade and Shan (2020) warned that the successful conversion to digital projects allowing working from home may not be replicable in non-pandemic situations. In the similar vein, many researchers have investigated online learning and transition to online teaching.

Online education has been studied for decades, and in the last three years many studies have investigated faculty attitudes towards the sudden shift to online teaching. Daumiller et al. (2021) established correlations between perception towards online teaching as a threatening change that could potentially result in high faculty burnout levels as well as lower student ratings of teaching quality. Bateman et al. (2022) focus on the involuntary move to online teaching and find that instructors experienced disruption in teaching and reduced comfort. Wu and Wang (2021) studied faculty teaching business courses in English via Zoom and found that on-going assessment by students was essential. Mahmood (2021) highlighted the value of Zoom teachers speaking more slowly, recording sessions, and adding teaching assistants. Levy (2020) published an inexpensive and practical guide to teaching effectively on Zoom early in the lock-down.

Student and faculty have been found to have divergent views of Zoom and room teaching. Lei and So (2021) found differences in how faculty rate the value of Zoom teaching viz a viz student's perception of Zoon teaching. Zoom fatigue has been widely covered. Peper et al. (2021) reported that 80% of students they surveyed found it harder to focus their attention during online classes. Difficulties included internet challenges, lack of feedback from facial expressions and other body language, compounded by increased multi-tasking. Mohapatra (2020) noted that many students report Zoom classes as being boring. Brammer and Clark (2020) discuss how universities are required to develop a structured adaptation to their new normal, considering the advantages of online class meetings – scalability and accessibility – as well as their challenges, such as difficulties in meeting student needs for individualized attention and support. Krishnamurthy (2020) provides a compelling argument that business schools need to embrace digital transformation and AI led innovation to reinvent instruction, student experience and online communities.

The topic of our study, students' perception towards instructor and course during the shift to online learning, has also received some attention. Szopiński & Bachnik (2022) examine student as well as faculty responses to the in-classroom experience following the shift to online business education and suggest that online instruction increases passivity and disengagement in students while instructors are challenged by technical difficulties, classroom management, and operational issues. Chauhan et al.

(2021) take a comparative, cross-cultural approach and examine the continuance intention among Italian and Indian business school students and faculty as a result of the transition to online learning. Their findings indicate a greater emphasis on task-technology fit in Italy as compared to India.

Teaching and learning satisfaction is the subject of Lei and So's (2021) examination of online tourism and hospitality programs and their instructor/ student review comparisons. Various management strategies have been noted in reaction to the educational challenges the pandemic presented. Calls for adoption and investigation of decisive leadership (Al Saidi et al., 2020), community leadership (Biddle, 2020), and three specific leadership practices (Fernandez & Shaw, 2020) have been made by researchers. Daniel (2020) suggests that students and parents would require reassurance about zoom based pedagogy and implications of technology on interpersonal relationships. Daniel (2020) also recommends varying assignments and understanding student assessments for online teaching. The drop in the learning and teaching satisfaction owing to the shift to online education is a consistent theme across these studies. Our research goes beyond the overarching satisfaction metric to dive into the specific items in course as well as instructor evaluations that witnessed a significant change during the transition from classroom to Zoom. The examination of data related to instructors as well as courses allows for analysis by a number of variables including course title, instructor availability and clarity, critical thinking and writing skills development.

Theoretical Background: Transactional Distance Theory

Particularly relevant to our examination is Moore's theory of transactional distance (1993). Transactional distance is defined as "the psychological and communicative space between the teacher and learner" (Moore, 1993, p. 1). Moore argues that online teaching increases the transactional distance between instructors and learners, defined by these variables: (1) structure (2) dialog and (3) autonomy. The learners' required autonomy level increases as transactional distance (measured through the level of structure and dialog) decreases.

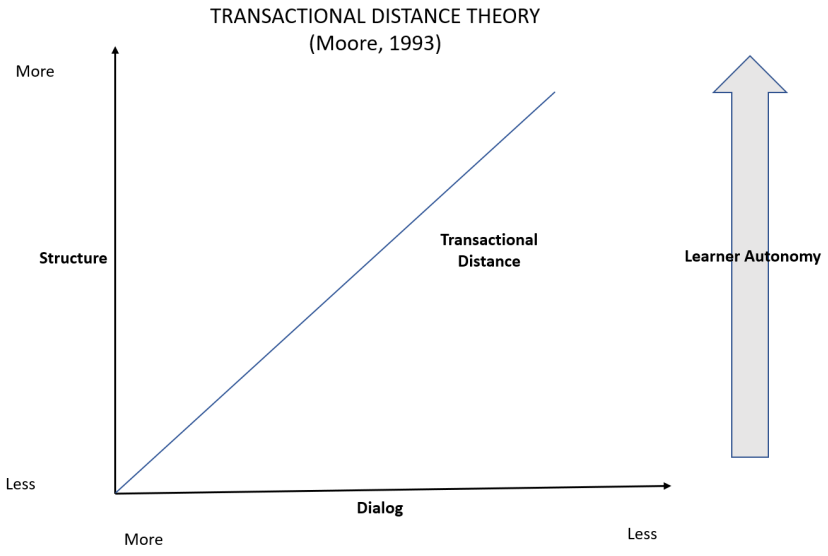

Figure 1. Based on Transactional Distance Theory (Moore, 1993)

When a program is highly structured and teacher-learner dialog is high, the transaction between learners and teachers is high and the need for learner autonomy is low. Conversely, lower structure and lower teacher-learner dialog leads to higher transactional distance and the need for higher learner autonomy.

The transactional distance theory has been widely applied for instructional design, instruction channel choice, and more specifically, to online learning contexts. Beyond its wide acceptance, Gorsky and Caspi (2005) offer a critique of the theory of transactional distance (TTD), questioning whether the theory considers and measures how transactional distance might impact learning outcomes. The authors acknowledge the value of TTD in highlighting distance learning as a transaction with opportunities for dialogue to create learner understanding or learner misunderstanding. Their research poses the question: How does real dialogue work, or fail to work, in "real situated learning environments" (Gorsky & Caspi, 2005, p. 10). In this study we use factors effecting faculty evaluation that are both instructional and non-instructional, and thus we hope to provide one view of such real online learning environments, albeit rife with pandemic disruptions.

Stapleford and Lee (2020) point out the potential anachronistic nature of the TTD, given that it was developed around correspondence-based distance learning, i.e., an instruction- and instructor-focused approach. In contrast, Stapleford and Lee (2020) take a learner-centric approach to the TTD and situate the theory within complex, multilayered student interactions that occupy multiple spaces – academic, professional, and sociocultural – made complex through technology and life context. By focusing on student evaluations, our research also attempts a more nuanced, learner-centric approach to TTD including adoption of online meeting technologies and their intersection with pandemic life backdrops.

To sum up, we find TTD to add value for interpreting our primary research data, i.e., course and instructor ratings in the following ways:

(1) The course content and quality related aspects could be associated with the "structure" element of Moore's model. These include clarity of requirements, usefulness of readings, as well as teaching across the dimensions of critical thinking, quantitative reports, and writing.

(2) The instructor delivery related aspects could be associated with the "dialog" element of Moore's model. These include presentation clarity, stimulating sessions, encouragement of discussion, feedback, availability, and respectfulness.

(3) The learner autonomy variable is impacted by the high/ low perception of structure and dialog variables, i.e., both contents of course and delivery of instructor. A perception of lower structure and lower dialog elements could lead to increased need for learner autonomy, which can potentially be detrimental for ratings because it adds to the "fatigue" resulting from classroom to Zoom transitions.

RESEARCH QUESTIONS

The following research questions guided our empirical investigation of the student evaluation and critical factors influencing their satisfaction with instructor and course delivery as colleges navigated online modalities for degree programs because of COVID-19 related restrictions.

(1) What changes occurred in student evaluations during the shift to online classes from in-person delivery across six semesters?
(2) How do the factors associated with course rating (positive or negative) change in students' evaluations across six semesters?
(3) How do the factors associated with instructor rating (positive or negative) change in students' evaluations across six semesters?
(4) Was the change in student evaluations pre to post pandemic different for full time versus adjunct instructors?
(5) Was there a difference between average ratings of male and female faculty because of the conversion from in-person classroom to online delivery?

RESEARCH METHODOLOGY

As a part of standard evaluation processes all students are asked to fill out course evaluations close to the end of every semester (survey is provided in the Appendix). They are assured their response are anonymous, and faculty do not see their rating until after grades are posted. Completion rate is generally 50–60%. Questions cover the following variables besides overall instructor and course rating (Tables 1 and 2).

Table 1. Course Related Questions

Requirements Clarity	Useful Evaluations	Teach critical thinking	Teach research	Teach understanding quant reports	Teach writing	Useful Readings

Table 2. Instructor Related Questions

Presentation Clarity	Sessions Stimulating	Encouraging Discussion	Provide Feedback	Availability	Respectful

We analyzed primary data collected in the course evaluation process from Business & Accounting students over six semesters between Fall 2019 and Spring 2022. The data was accessed in spreadsheet format with no personal identifiers for student respondents. The project's data analysis and human subject research methodology was vetted by the university's IRB Board.

The combined data collected consisted of 1782 observations for 38 courses spread across 6 semesters. We have used data from Fall 2019, which was a semester taught in the classroom and serves as baseline for comparison. We next analyzed data by taking Spring 2020 as baseline since this semester students started with in classroom coursework and had to suddenly shift to the online modality of attending classes. The consistency of results across both, Fall 2019 and Spring 2020, as baseline comparisons enabled us to present our findings as effect of transition from room to Zoom; also discuss the trend in student's evaluation and factors correlated with the same. After removing courses and professors for which we had overall less than ten survey responses, we were left with 1705 observations. These observations correspond to 5 full time and 25 part time faculty who taught 32 courses across six semesters.

FINDINGS

We first summarize the means of student responses as they rate both course and instructor on a five-point scale. Both course rating and instructor rating means decreased in Spring 2020 as COVID-19 epidemic severely disrupted the teaching and learning process, forcing all in-person courses to switch to remote instruction towards the end of semester. The following four semesters (Fall 2020 onwards) began with remote instruction modality. The mean of ratings decreased further from Fall 2020 onwards as institutions were forced to use online (and hybrid) modes of instructions. After two years into the pandemic the average instructor ratings showed improvement from Fall 2021 onwards, while average course ratings showed improvement in Spring 2022 and reached closer to pre-pandemic levels (Table 3). We grouped ratings as per instruction modality, i.e., online, offline (in-person), and a transition period from in-person to online (mix). Students who took in-person classes gave higher ratings to both instructor and course delivery (Table 4).

Table 3. Mean of Course and Instructor Rating Grouped by Semester
(Standard errors reported in parentheses)

	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022
Course Rating	4.498	4.399	4.338	4.244	4.292	4.441
	(0.773)	(0.898)	(0.973)	(0.913)	(0.907)	(0.868)
Instructor Rating	4.562	4.437	4.396	4.368	4.383	4.524
	(0.770)	(0.908)	(1.00)	(0.890)	(0.907)	(0.823)
N	313	323	275	266	274	254

Table 4. Mean of Course and Instructor Rating Grouped by Instruction's Modality
(Standard errors reported in parentheses)

	Offline	Online	Mix*
Course Rating	4.447	4.323	4.647
	(0.839)	(0.921)	(0.820)
Instructor Rating	4.494	4.415	0
	(0.847)	(0.938)	(0)
N	640	1048	17

* In Spring 2020, the shift from in person classroom to Zoom based teaching occurred. Hybrid modality was allowed from Fall 2020 but did not lead to significant enrollment.

Next, we compared means of rating across semesters with Fall 2019 as a baseline (fixed) independent group (Table 5). Student ratings for both course and instructor were significantly higher in Fall 2019 than those in Fall 2020, Spring 2021, and Fall 2021, i.e., students gave lower ratings in three semesters where the key modality of teaching was online. Despite being lower than Fall 2019, the average rating for Spring 2022 is not significantly different. These findings hold the same significance with non-parametric tests also except for comparison between Fall 2019 and Fall 2020. Mann-Whitney U test results showed that the mean rating of instructor was not statistically significantly different between the two groups ($z = 1.598$, $p = .1101$) at a significance level of 0.05.

Table 5 Difference in Mean of Course and Instructor Rating Grouped by Semester

	Fall 2019 vs Spring 2020	Fall 2019 vs Fall 2020	Fall 2019 vs Spring 2021	Fall 2019 vs Fall 2021	Fall 2019 vs Spring 2022
Course Rating	0.099	0.160*	0.254***	0.206**	0.0575
	(1.49)	(2.22)	(3.63)	(2.98)	(0.83)
Instructor Rating	0.126	0.166*[1]	0.194**	0.179**	0.387
	(1.88)	(2.26)	(3.09)	(2.59)	(0.58)
N	636	588	579	587	567

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We also compared means of ratings across semesters with Spring 2020 as a baseline (fixed) independent group (Table 6). We find that student ratings for instructor was not significantly different from Spring 2020 to Fall 2020 and also in Spring 2021, i.e., the first academic year of complete shift to the online classes. Mann-Whitney U test results also confirmed finding that the instructor ratings were not significantly different when compared to Spring 2020. Student ratings for course satisfaction declined in Spring 2021 in comparison from Spring 2020.

Table 6. Difference in Mean of Course and Instructor Rating Grouped by Semester

	Spring 2020 vs Fall 2020	Spring 2020 vs Spring 2021	Spring 2020 vs Fall 2021	Spring 2020 vs Spring 2022
Course Rating	0.0612	0.155*	0.1079[2]	-0.0416
	(0.80)	(2.07)	(1.45)	(-0.56)
Instructor Rating	0.0402	0.0681	0.0533	-0.871
	(0.51)	(0.91	(0.72)	(-1.19)
N	598	589	597	577

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Overall, mean and rank comparison methods confirm a dip in both instructor and course rating in Spring 2021. This was the most difficult semester for students and teachers both as COVID-19 cases were rising rapidly and there was uncertainty around vaccine availability, its effectiveness, and resuming of in-person classes. However, in Spring 2022 there was improvement in ratings because of the improved skill of faculty in online delivery mode (from training and practice) and increased comfort

[1] A Mann-Whitney U test Results showed that the mean rating was not statistically significantly different between the two groups (z = 1.441, p = .1496) at a significance level of 0.10.

[2] A Mann-Whitney U test Results showed that the mean rating was significantly different between the two groups, i.e., Spring 2020 and Fall 2021 (z = 1.943, p = .0520) at a significance level of 0.05.

of student with it, realizing the positive trade-offs to learning from the ability to join a class from anywhere.

To investigate the various aspects of course delivery and course content, we analyzed other questions asked from the students in the feedback survey. Surprisingly, most of declines were in spring of 2021, which was the 2nd year of the pandemic, with ratings of both faculty and courses showing a significant decline especially in stimulating sessions, perhaps due to Zoom fatigue on both the part of faculty and students. The semester of transition to online learning (Spring 2020) may also have reflected artificially high ratings because of relief just to have a way to continue education.

For understanding changes in mean instructor ratings, we first looked at the students' responses for questions that are associated with the instructor evaluations. We find that instructor ratings were positively correlated with their presentation clarity, stimulating session delivery, feedback provision, and encouragement towards discussions (Table 7). We further investigated these relationships by comparing means of student rating across these parameters. We expected it to follow a trend similar to instructor rating across semesters. We found a decline in average rating by students for presentation clarity, stimulating session delivery, and feedback mechanism in the year 2021 (both semesters in the second year of online mode of instructions). The decline was significantly higher for instructor's ability to provide feedback in the semesters at the beginning of the pandemic (Table 8), and as semester's progressed students were satisfied with the feedback they received. Similarly, students were not satisfied with presentation clarity via online modality of classes in the beginning of pandemic. We learned that students had difficulty focusing during online classes because they rated sessions as being less exciting. The switch to online mode also had some effect on student's perception of instructor's availability and respectful attitude towards them.

Table 7. Correlation with Instructor Rating

Instructor Rating	Presentation Clarity	Sessions Stimulating	Encouraging Discussion	Provide Feedback	Availability	Respectful
1	0.792	0.764	0.691	0.697	0.612	0.524

Similarly, we looked at the student's responses for questions that are associated with the course ratings.

Table 8. Pairwise Comparison of Instructor-related Items across Semesters

Term comparison	Presentation Clarity	Sessions Stimulating	Encouraging Discussion	Provide Feedback	Availability	Respectful
Fall 2019 vs Spring 2020	**-.132***	-.076	-.000	**-.098+**	-.035	-.007
Fall 2019 vs Fall 2020	**-.142***	**-.156***	-.023	-.009	-.061	**-.058+**
Fall 2019 vs Spring 2021	**-.140 ***	**-.250*****	-.066	**-.102****	-.069	-.013
Fall 2019 vs Fall 2021	**-.153****	**-.175****	-.070	-.064	**-.090+**	-.052

Term comparison	Presentation Clarity	Sessions Stimulating	Encouraging Discussion	Provide Feedback	Availability	Respectful
Fall 2019 vs Spring 2022	-.06	**-.109**$^{+}$	-.007	-.001	-.012	-.003
Spring 2020 vs Fall 2020	-.010	-.079	-.022	**-.088**$^{+}$	-.025	-.051
Spring 2020 vs Spring 2021	-.007	**-.173****	-.066	-.004	-.033	-.006
Spring 2020 vs Fall 2021	-.021	-.099	-.069	.033	-.055	-.045
Spring 2020 vs Spring 2022	.069	0.032	-.007	-.099	-.048	-.010

$^{+}$ p<0.1,* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We find that course ratings were positively correlated with students' satisfaction with delivery of course objectives, such as, training on critical thinking, research, writing abilities, quantitative analysis abilities, and usefulness of course content (Table 9). We then investigated these relationships by comparing means of student rating across these parameters as we expected it to follow a similar trend as course rating across semesters. We found a decline in average rating by students on contribution of course content towards teaching them critical thinking, writing abilities, and quantitative analysis abilities and on usefulness of course readings in the year 2021. No significant change was noted in means of usefulness of course for training students on research. The decline was significantly higher in the Spring of 2021 (Table 10).

Table 9. Correlation with Course Rating

Course Rating	Requirements Clarity	Useful Evaluations	Teach critical thinking	Teach research	Teach understanding quant reports	Teach writing	Useful Readings
1	0.645	0.615	0.750	0.703	0.698	0.700	0.673

Table 10. Pairwise Comparison of Course-related Items across Semesters

Term comparison	Require-ments Clarity	Useful Evalua-tions	Teach critical thinking	Teach research	Teach under-standing quant reports	Teach writing	Useful Readings
Fall 2019 vs Spring 2020	-.043	.0001	-.076	-.079	-.118*	-.116+	-.042
Fall 2019 vs Fall 2020	-.002	-.0035	-.016	-.046	-.078	-.022	.019
Fall 2019 vs Spring 2021	-.070	-.009	**-.147****	-.119*	**-.240*****	**-.218****	**-.195****
Fall 2019 vs Fall 2021	-.066	-.028	-.070	-.066	**-.221***	-.167*	-.128****
Fall 2019 vs Spring 2022	-.066	-.086	-.059	-.071	**-.035**	-.069	-.043
Spring 2020 vs Fall 2020	.046	-.003	.058	.033	**-.039**	.094	.061
Spring 2020 vs Spring 2021	-.027	-.009	**-.096+**	-.039	**-.122+**	-.101	**-.153***
Spring 2020 vs Fall 2021	-.023	-.028	-.070	.013	-.102	-.050	-.086
Spring 2020 vs Spring 2022	-.050	-.086	-.005	-.025	-.083	-.047	-.001

+ p<0.1, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Next, we analyzed data for effect of individual level time invariant characteristics of instructors (such as rated instructor's gender and employment type) by coding them as dummy variables (binary). We analyzed the effect of semester numbers, rated instructor's gender and employment type by running ordinary least square (OLS) regression (equation below). We clustered errors on area/subject code to control for autocorrelation because of area/subject (for example marketing, accounting) specific factors.

$$y_i = \alpha + \beta_1 Spring2020_i + \beta_2 Fall2020_i + \beta_3 Spring2021_i + \beta_4 Fall2021_i + \beta_5 Spring2022_i + \beta_6 Female_i + \beta_7 Fulltime_i + \beta_8 Female_i X Fulltime_i + u_j$$

Our analysis (Table 11) shows that there is no effect of instructor's gender and their employment status being full time on student ratings. However, there is an indirect effect such that female faculty with full time employment status had significantly higher average rating overall. Further, the coefficients of time points (term numbers) corroborate the findings noted earlier, particularly significant decline in average rating for spring 2021 and Fall 2021 (second year where online modality was preferred means of instruction).

Table 11. Regression Result DV= Ratings for Instructor and Course with Subject Fixed Effect

	Average course rating	Average instructor rating
Spring 2020	-0.125	-0.159
	(-0.077)	(-0.076)
Fall 2020	-0.188	-0.198
	(0.092)	(0.120)
Spring 2021	**-0.311^{+}**	**-0.272^{+}**
	(0.138)	**(2.30)**
Fall 2021	**-0.239***	**-0.232^{+}**
	(0.076)	**(0.084)**
Spring 2022	-.129	-0.131
	(.140)	(0.134)
Female	0.0669	0.148
	(0.142)	(0.148)
Fulltime	-0.070	0.088
	(0.115)	(0.104)
Female X Fulltime	**0.235^{+}**	**0.222^{+}**
	(0.097)	**(0.093)**
_cons	4.453***	4.498***
	(0.061)	(0.061)

t statistics in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2. Trend in Average Course's Rating Across Semesters

Next, we created a dataset of average course and instructor ratings by instructor codes as we had cross sectional data of ratings across six semesters. We plotted trend in rating of course (Figure 2) and instructor (Figure 3) for eighteen professors who had taught in fall 2019 (pre COVID-19 semester). Plots show that for most instructors who taught during pre COVID-19 semester and then later too, their average ratings took a dip around third or fourth semester and later there is an upwards trend for most of the instructors. There are some exceptions (code 12, 13, 18,19 and 25) to this as their average ratings showing upward trend from Spring 2020 once colleges shifted to online teaching modality. This indicates that further investigation into best practices among instructors while using online teaching is required.

Figure 3. Trend in Average Instructor's Rating Across Semesters

DISCUSSION AND IMPLICATIONS

Course and instructor rating averages from the semester of transition (Spring 2020) to the fifth semester of online learning (Spring 2022) reflect the ups and downs that have characterized COVID experiences within and outside classrooms. In retrospect, student and instructor relief at finding ways of continuing learning might have led to artificially high ratings for the Spring 2020 semester, while so-called "Zoom fatigue" striking in Spring 2021 might have led to a significant decline in both faculty and course ratings. A bounce-back occurs in Spring 2022, with average student ratings for both course and instructor almost reaching pre-pandemic or Fall 2019 levels. We attribute this to improved online instructional skills and increased learner fluency with this modality. Along with work from anywhere or WFA (Dans, 2021), the "learn and teach from anywhere" (LTFA) mindset appears to be here to stay.

In fact, as expected and shown by similar research, technology affords possibilities for more engaged participation, more access to online resources (Helda & Zaim, 2021). In line with this trend, we expect that the ratings on certain parameters might shift towards being more positive than pre-pandemic levels in the upcoming years. With engagement and continued interactions with technology, the proficiency of both instructors and students is expected to increase, and this could be a possible explanation for the positive change. People shared their experiences online and the use of Internet provided opportunities to faculty for innovation in their course content, pedagogy, etc. (Shabani et al., 2022). At the same time many people experienced Zoom fatigue and infrastructural issues (such as childcare, Internet access, limited workspace), which could be possible explanation for decline in ratings on certain aspects (Peper et al., 2021).

In terms of Moore's transactional distance theory, pivoting to online instruction impacted structure because of instructor's inability to predict or control learning environments. For example, requiring learner cameras to be on at all times during class proved difficult to implement because of technology issues or privacy concerns as classrooms impinged on home environments. The second variable of dialogue was also impacted as faculty and students puzzled over Zoom etiquette and conversational turn-taking. The ability to multitask and engage in non-instructional dialogs also decreased direct (or verbal) dialog between learners and instructors and increased transactional distance.

Student autonomy increased significantly while learning during the pandemic. Learner autonomy refers to, among other factors, the extent to which learning experiences are reliant on students rather than faculty (Moore, 1993). Given that students were juggling multiple priorities while being in class (technology access, family situations, health and safety concerns), the learning experience was significantly diffused compared to a more focused, in-person engagement within physical classrooms.

The practical and theoretical implications of our findings are related to four larger trends relevant for higher education. (1) Many platforms other than Zoom with features that could afford more interaction between students and teachers in higher education have emerged. We recommend universities explore those platforms and find best fit. (2) Universities have accepted online as a way to deliver besides in person; there is need to upgrade policies for "learn and teach from anywhere." (3) There is an emerging concern around the fact that evaluation tools previously developed for classroom face-to-face instruction now need to be updated to reflect the new reality, especially as faculty promotions and course redesigns depend on the ratings. (4) Updating the TTD to a predominantly online instructional mode needs new understanding of learner centric approaches and real situated instructional environments, factoring in both: the embracing of online learning platforms and at the same time concomitant fatigue and distraction.

CONCLUSION

The Covid-19 Pandemic has disrupted many aspects of higher education, and many are calling for a fresh look at the industry (Govindarajan & Srivastava, 2020). At the institution where this research

was conducted, most students commute and have jobs and family responsibilities. The advantage of online classes means a significant time savings in already over-busy lives. In addition, there is continued concern of infection and a segment who have chosen not to be vaccinated. Many students (and some faculty) are reluctant to return to the traditional classroom, i.e., "learn and teach from anywhere" even though some acknowledge that their learning may be superior.

Learning to learn in the new delivery model takes time and effort, which both students and faculty had to devote in this emergency era. For both groups their lives were being altered more broadly in jobs and family situations changing permanently. Faculty have been participating in intensive and ongoing training about how to teach in a virtual online environment and have had a chance to refine teaching techniques over the course of the six semesters since the sudden change to Zoom.

We believe and hope that the advantages of online instruction will be incorporated in future curricula with a combination of delivery techniques being offered, ideally with student options to select and faculty choices to match delivery mode to the needs of subject matter. This will require technology investment by the school and continued upgrading of skills by the faculty. We also expect online platforms such as Zoom to continue to upgrade features, and students are no doubt ahead of us in their comfort in learning outside the traditional classroom.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

We examined factors associated with instructors and course design because these two entities are the focus of this article. Future research could look into the relationship between changes in ratings and student-specific factors like prior experience with online learning, technology efficacy, infrastructure such as connectivity at home to attend online classes, and so on. This study solely uses a tool (a self-reported questionnaire survey) that is commonplace in higher education to examine the viewpoint of students. There is a need to understand how instructors and students feel about online teaching and learning with change in their environmental factors. It is important to find out what are the lessons learned by faculty at the beginning of the shift to online instruction and as the number of semesters on Zoom increased. Future studies could include instructors and administrators from higher education institutions and use other methods for data collection such as focus groups and interviews, or take a mixed-method approach (i.e., qualitative and quantitative) to gain a comprehensive understanding of the effects of online teaching modality.

Further in the future there is a need to compare job market performance of students learning online, offline, hybrid/mix.

In addition to this, the study involved only undergraduate business and accounting courses that were offered by a New York City metro area school for students who commuted to the classroom. It is possible that not only the subject matter but the average length of the average NYC commute being over an hour made the advantages of Zoom delivery more salient. There was also the added advantage of students being able to choose from any of the five dispersed campuses without regard to travel time.

REFERENCES

Al Saidi, A., Nur, F., Al-Mandhari, A., El Rabbat, M., Hafeez, A., & Abubakar, A. (2020). Decisive leadership is a necessity in the COVID-19 response. *Lancet, 396*(10247), 295-298. https://doi.org/10.1016/s0140-6736(20)31493-8

Bateman, K. M., Altermatt, E., Egger, A. E., Iverson, E., Manduca, C., Riggs, E. M., St. John, K., & Shipley, T. F. (2022). Learning from the COVID-19 pandemic: How faculty experiences can prepare us for future system-wide disruption. *GSA Today, 32*(2), 36-37. https://doi.org/10.1130/GSATG520GW.1

Beech, N., & Anseel, F. (2020). COVID-19 and its impact on management research and education: Threats, opportunities and a manifesto. *British Journal of Management, 31*(3), 447-449. https://doi.org/10.1111/1467-8551.12433

Biddle, C. (2020). Epidemics and pandemics as high consequence events: Expanding leadership challenges and responsibilities in business continuity during the COVID-19 pandemic and beyond. *Journal of Business Continuity & Emergency Planning*, *14*(1), 6-16. https://pubmed.ncbi.nlm.nih.gov/32847650/

Brammer, S., & Clark, T. (2020). COVID-19 and management education: Reflections on challenges, opportunities, and potential futures. *British Journal of Management*, *31*(3), 453. https://doi.org/10.1111/1467-8551.12425

Chauhan, S., Goyal, S., Bhardwaj, A. K., & Sergi, B. S. (2021). Examining continuance intention in business schools with digital classroom methods during COVID-19: A comparative study of India and Italy. *Behaviour & Information Technology, 41*(8), 1596-1619. https://doi.org/10.1080/0144929x.2021.1892191

Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, *49*(1), 91-96. https://doi.org/10.1007/s11125-020-09464-3

Dans, E. (2021). First there was WFH—now it's WFA. *Forbes*. https://www.forbes.com/sites/enriquedans/2021/02/16/first-there-was-wfh-now-itswfa/

Daumiller, M., Rinas, R., Hein, J., Janke, S., Dickhäuser, O., & Dresel, M. (2021). Shifting from face-to-face to online teaching during COVID-19: The role of university faculty achievement goals for attitudes towards this sudden change, and their relevance for burnout/engagement and student evaluations of teaching quality. *Computers in Human Behavior*, *118*, 106677. https://doi.org/10.31234/osf.io/yuwh8

Fernandez, A., & Shaw, G. (2020). Academic leadership in a time of crisis: The Coronavirus and COVID-19. *Journal of Leadership Studies*, *14*(1), 39-45. https://doi.org/10.1002/jls.21684

Gorsky, P., & Caspi, A. (2005). A critical analysis of transactional distance theory. *Quarterly Review of Distance Education*; 6(1), 1-11. https://www.openu.ac.il/personal_sites/download/avner-caspi/Gorsky&Caspi05.pdf

Govindarajan, V., & Srivastava, A. (2020). *A post-pandemic strategy for US higher ed.* Harvard Business Publishing. https://hbsp.harvard.edu/inspiring-minds/a-post-pandemic-strategy-for-u-s-higher-ed

Greenberg, D., & Hibbert, P. (2020). From the Editors—Covid-19: Learning to hope and hoping to learn. *Academy of Management Learning & Education*, *19*(2), 123–130. https://doi.org/10.5465/amle.2020.0247

Helda, T., & Zaim, M. (2021, April). Effectiveness of the zoom meeting applications in micro teaching lectures in the pandemic time COVID-19. Proceedings of the *English Language and Literature International Conference (ELLiC)* (Vol. 4, pp. 128-135). https://jurnal.unimus.ac.id/index.php/ELLIC/article/viewFile/7397/5477

Krishnamurthy, S. (2020). The future of business education: A commentary in the shadow of the Covid-19 pandemic. *Journal of Business Research*, *117*, 1-5. https://doi.org/10.1016/j.jbusres.2020.05.034

Lei, S. I., & So, A. S. I. (2021). Online teaching and learning experiences during the COVID-19 pandemic–A comparison of teacher and student perceptions. *Journal of Hospitality & Tourism Education*, *33*(3), 148-162. https://doi.org/10.1080/10963758.2021.1907196

Levy, D. M. (2020). Teaching effectively with Zoom: A practical guide to engage your students and help them learn. https://www.teachingeffectivelywithzoom.com/

Mahmood, S. (2021). Instructional strategies for online teaching in COVID-19 pandemic. *Human Behavior and Emerging Technologies*, *3*(1), 199-203. https://doi.org/10.1002/hbe2.218/v2/response1

Mohapatra, A. (2020). Impact of Covid-19 on higher education. *Journal of Management & Public Policy, 11*(2), 4-6. http://jmpp.in/wp-content/uploads/2020/07/Amiya-Kumar-Mohapatra.pdf

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22-29). Routledge. https://doi.org/10.4324/9780203803738.ch5

Peper, E., Wilson, V., Martin, M., Rosegard, E., & Harvey, R. (2021). Avoid Zoom fatigue, be present and learn. *NeuroRegulation*, *8*(1), 47-47. https://doi.org/10.15540/nr.8.1.47

Shabani, R. M., Mohammed, M. O., Yücel, E., & El Amri, M. C. (2022). Effects of teaching and learning through Zoom application. In M. M. Billah (Ed.), *Teaching and research methods for Islamic economics and finance* (pp. 181-195). Routledge. https://doi.org/10.4324/9781003252764-15

Stapleford, K., & Lee, K. (2020). Re-examining the theory of transactional distance through the narratives of postgraduate online distance learners. *Proceedings of the European Conference on e-Learning*. January 2020, pp. 579-586. https://www.proquest.com/openview/9af2bf6b1033d4ba5f6f052564ff6952/1.pdf?pq-origsite=gscholar&cbl=1796419

Szopiński, T., & Bachnik, K. (2022). Student evaluation of online learning during the COVID-19 pandemic. *Technological Forecasting and Social Change*, *174*, 121203. https://doi.org/10.1016/j.techfore.2021.121203

Wade, M., & Shan, J. (2020). Covid-19 has accelerated digital transformation but may have made it harder not easier. *MIS Quarterly Executive*, *19*(3), 213-220. https://doi.org/10.17705/2msqe.00034

Wu, P., & Wang, Y. (2021). Investigating business English teachers' belief about online assessment: Q methodology conducted during COVID-19 period. *The Asia-Pacific Education Researcher*, *30*(6), 621-630. https://doi.org/10.1007/s40299-021-00604-7

Yang, K. (2020). What can COVID-19 tell us about evidence-based management? *American Review of Public Administration, 50*(6/7), 706-712. https://doi.org/10.1177/0275074020942406

Zoom.com. (2022). *About us*. https://explore.zoom.us/en/about/

APPENDIX

A Sample Course Evaluation Questions

A sample copy of questions on the course evaluation form follows. Additional questions are sometimes added.

Exceptional	Very Good	Good	Fair	Poor

1. Overall, how would you rate this course?

2. Overall, how should you rate this instructor?

Please rate the instructor on the following questions

Always	Usually	Sometimes	Rarely	Never

3. Were the instructor's presentations clear?

4. Was the class sessions stimulating?

5. Did the instructor encourage questions and expressions of ideas?

6. Did the instructor provide feedback to guide students' progress in the course?

7. Was the instructor available for consultation outside the class?

8. Was the instructor respectful to students?

Totally clear	Mostly clear	Somewhat	Minimally	Not at all

9. Were the course expectations and requirement clear?

10. What did you especially like about the instructor? (open-ended)

11. Did the assignment and tests reflect course content and objectives?

12. How helpful was the course in teaching you to think critically?

On scale of Extremely helpful to Not Helpful, please rate the questions below

Extremely helpful	Very helpful	Somewhat helpful	Minimal helpful	Not helpful

13. How helpful was the course in teaching you to research and find relevant information?

14. How helpful was the course in teaching you to understand quantitative reports?

15. How helpful was the course in teaching you to write more effectively?

16. How helpful were the reading assignments to your understanding of the material?

17. How would you rate the technology used in the course?

18. What did you especially like about the course? (open-ended)

19. What suggestions do you have to make this course better? (open-ended)

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