International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2022, Vol. 18, Issue 1, pp. 42-54

MBA students' perceptions of challenges and attitudes towards using a unified communication and collaboration software: A Canadian study during the COVID-19 pandemic

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ABSTRACT

This study discusses MBA students' perceptions of challenges and attitudes toward using a unified communication and collaboration software, that is, Microsoft Teams (MST) in a Canadian university during the early days of the COVID-19 pandemic. An online survey of students' perceptions of relevant issues was conducted. One hundred thirty-nine (139) valid responses were used for data analysis. The results show that students did not believe the IT readiness of their university regarding providing training for its faculty, staff, and students on the use of such tools was high. Students also did not believe Faculty IT skills and efforts toward using online learning tools were high. Likewise, the results show that students' attitudes toward using the software for learning during the period were low. Recommendations to address the challenges identified in the study include ongoing ICT training for faculty and students, making it mandatory for faculty to teach at least one of their courses in online format and development of dedicated software tools that could help to increase the use of such tools for online learning and teaching.

Keywords: *online learning; distance education; information systems; communication technology*

INTRODUCTION

Canadian universities canceled in-person teaching and adopted online education when the World Health Organisation declared the COVID-19 pandemic (WHO, 2020; Doreleyers & Knighton, 2020). During this period, the teaching and learning environment experienced dramatic changes, and faculty and students experienced problems relating to shifting from face-to-face learning to online learning. Some research has already been done including Bao (2020); Chen et al., (2020); Dhawan (2020); Moawad (2020) and Zia (2020). Bao (2020) noted that problems associated with learning and teaching during the pandemic include lack of university readiness and faculty member effort. Chen et al. (2020) suggested that focus be given to learning relevant software. Dhawan (2020) conducted a SWOT analysis of online learning in COVID-19 contexts and noted the problems that could arise with a shift to online education include lack of information technology (IT) infrastructure, inappropriate teaching, and learning support systems.

Almaiah et al. (2020) revealed that critical factors influencing students' utilization of online learning include lack of technological factors, online learning software quality factors, and students' self-efficacy factors. Other researchers showed that other challenges confronting students' utilization of online learning systems include a lack of technical knowledge of learning systems (Dhawan, 2020; Bao, 2020; Chen et al., 2020). Adnan and Anwar (2020) examined the factors that influence students' attitudes towards online learning and found that faculty member effort was a major determinant. Moawad (2020) concluded that students' primary concern is about the quality of the online learning systems, leading to uncertainty of exams and their assessments.

Challenges of teaching and learning in online spaces extend to all disciplines. The same holds for business school education that requires interactions, including the use of class presentations to enrich learning. Nevertheless, business schools need to adapt to the real-world business change

caused by the pandemic (Krishnamurthy, 2020; Verma & Gustafsson, 2020). The need for such transformations has led business schools to focus on understanding university readiness during the pandemic (Krishnamurthy, 2020). In that regard, Brammer and Clark (2020) pointed out that communication between students and staff, innovation, and staff adaptability are important factors to focus on in bringing about desired outcomes. Zia (2020) identified factors, including attitude, technology, and training, as determinants of success in online learning among business school students.

Considering the problems posed to teaching and learning by the pandemic, it is pertinent for empirical studies to investigate the challenges and attitudes of students toward using specific information and communication technologies (ICT) to learn in higher educational settings. This current study was designed to enlighten in that aspect by focusing on how MBA students in a Canadian university used an ICT product, universal communication, and collaboration software tool, that is, Microsoft Teams (MST), for learning during the pandemic. The research questions posed by the study are presented as follows:

1. What are students' perceptions of the university's IT readiness challenges during the pandemic?
2. What challenges do the university's students face as they use the software during the pandemic?
3. What are students' attitudes towards using the software during the pandemic?

BACKGROUND

Online learning and teaching have made significant progress in the past few decades (McBrien et al., 2009; Dhawan, 2020). Online learning applications are among the resources students receive from schools and universities to help them enhance knowledge acquisition in educational settings (Salloum et al., 2018). Individuals and companies used some ICT applications before the advent of the COVID-19 pandemic; however, usage of applications such as Zoom was not as pervasive as experienced during the pandemic (Chen et al., 2020). The original design of such platforms was for general use and not necessarily for the purposes of online learning. Such software was not designed with specific functions for real-time online learning, such as replaying a live course or zooming in parts of a screen during course demonstrations. The availability of such features can help students keep up with the pace of teaching and learning.

With the sudden pervasive demand for ICT-enabled technologies, many new functions have continuously been added to such applications making them more complicated to use. However, software complexity can negatively impact students' attitudes and utilization (Chang et al., 2017; Freeze et al., 2010). Prior research has focused on student engagement with various technologies, such as, Web-conferencing, blogs, and wikis in online environments (Schindler et al., 2017; Ifinedo & Usoro, 2016; Ifinedo, 2018). Few have investigated the use of unified communication and collaboration software, such as MST and Zoom. Unified communications and collaboration systems comprise a collection of applications or solutions such as audio, visual, text, and chat that are put together to facilitate smooth and secure connections for near real-time collaboration. This study is designed to contribute to the literature by investigating the challenges and attitudes of MBA students in a Canadian university relating to the use of MST. The software was adopted for online learning and teaching in the university during the pandemic.

As previously indicated, the relevant literature shows that factors such as university readiness, faculty member effort, lack of technical support, IT skills of faculty, IT skills of students, and attitude influence student use of the technologies used for online education (Schindler et al., 2017; Ifinedo, 2018; Almaiah & Alyoussef, 2019; Freeze et al., 2010; Bao, 2020, Chen et al., 2020; Zia, 2020).

More specifically, Internet speed (Demuyakor, 2020), students' technical skills, and easy access to support (Al-Araibi et al., 2019) are common challenges students face in online learning and teaching environments. Instructors' effort and support provided to students impact online learning effectiveness (Almaiah & Alyoussef, 2019; Almaiah et al., 2020). The method of instructors' teaching for online courses influences students' attention (Zhang et al., 2004; Freeze et al., 2010; Bao, 2020). Instructors' IT skills are essential for university readiness in an online teaching environment (Almaiah & Alyoussef, 2019; Almaiah et al., 2020). Similarly, access to hardware, such as a computer, laptop, or the Internet, could be burdensome to some students (Adnan & Anwar, 2020; Tiwari 2020).

Students with more opportunities for interaction with their instructors during the pandemic, reported higher learning outcomes (Chen et al., 2020) and students' attitudes positively influence software usage in general (Britt, 2006; Bao, 2020). A lack of interaction with instructors and peers negatively affected students' attitudes toward ICT usage in online environments (Welsh et al., 2003; Adnan & Anwar, 2020). In general, ICT infrastructure plays a critical role in delivering information in online learning and teaching environments (Ayebi-Arthur, 2017; Dhawan, 2020; Adnan & Anwar, 2020). As such, relevant training for both students and instructors on using learning applications is considered beneficial (Schindler et al., 2017). Overall, the IT readiness of schools matter for the successful implementation of technologies (Chen et al., 2020). The foregoing factors will be explored in this study.

RESEARCH METHODS

Procedure

Following closure of the university in March 2020 approval was sought from the Research Ethics Board to conduct an online survey using Qualtrics. Participation was sought from students enrolled in MBA programmes in a Canadian university. Teaching and learning shifted from physical classrooms to online delivery by mid-March 2020 and the MBA students were required to use MST as their online learning software.

In developing the questionnaire for the study, the authors consulted past studies in the area to determine the constructs of relevance to the study. A pilot study of the initial questionnaire was pre-tested by three (3) faculty members and fifteen (15) students. Feedback received from these participants was used to improve the final questionnaire administered. The factors (and their sources) considered relevant for the study were: IT Skills of Faculty (Britt, 2006; Almaiah & Alyoussef, 2019), Faculty Member Effort (Teo & Wong, 2013), Lack of Technical Support (Teo & Wong, 2013), IT Skills of Student (Chung et al., 2020; Zia, 2020), and Attitude (Ifinedo, 2018). We self-developed three measures related to University Readiness, which indicates the level of preparedness of the university's students, faculty, and staff for online teaching and learning. The final questionnaire administered used a seven-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7). The mid-value on the scale is 4.

Participants

Invitations were sent to MBA students, and they were directed to complete the survey hosted on Qualtrics. Participation in the survey was voluntary, and no incentives were offered to cause any biases in the data. The questionnaire's webpage was sent to an MBA coordinator who forwarded it to the MBA students' mailing lists. Given that the records showed 729 MBA students were registered during the research study period (Brock University Report, 2020-2021), we believe all of them received the invitation. However, data were collected from one hundred and fifty-three (153) respondents representing an effective response rate of 20.98%. We followed the recommendation

that Iacobucci and Churchill (2010) provided by splitting the data into two halves (that is, early responses and late responses) to check if non-response bias existed for the data. The result of a Chi-square ($\chi 2$) test significant at 0.5 level suggested that non-response bias was not a problem for this study's data. After deleting responses that were not adequately completed, such as those with many missing data and zero variance in choices (monotone pattern), the study was left with 139 valid responses, which we used for data analysis.

RESULTS

Demographic characteristics of the participants

Table 1 presents the demographic characteristics of the participants. 38.13% of the participants were males, and 61.15% were females. 44.60% were aged between 21 and 25 years, 25.18% were between 26 and 30 years, 12.95% were between 31 and 35 years, and 11.51% were above 36 years. Most of the participants were in their second year of study (63.31%), and many were based inside Canada (80.58%). The university's MBA program is a two-year program and any students in their third year might have extended their programme for one reason or another. The distribution of gender in our study is consistent with reports from the university indicating there were more females in the MBA programs during the research study period (Brock University Report, 2020-2021). Also, evidence suggests that females seem to want to participate in research studies more than males (Kwak & Radler, 2002; Saxon et al., 2003). The distribution of the MBA concentrations shows that 32.37% of the participants were enrolled in the General MBA, 21.58% were in Business Analytics, 12.23% in Finance, 5.76% in Accounting, 4.32% in HR, 3.60% in Marketing, 2.88% in Operations Management, 2.16% in Public health, 0.72% in Economics, and 14.39% did not indicate their concentrations. The data collected on enrollment was consistent with information gleaned from the university, suggesting that the three popular concentrations are the General MBA, Business Analytics, and Finance (Brock University Report, 2020-2021). Given that the MBA program is residential, many of the students were still in the country during the early days of the pandemic.

***Table 1**: Participants' demographic profile*

Measure	Category	Number	Percent
Concentration	General MBA	45	32.37
	Business Analytics	30	21.58
	Marketing	5	3.60
	Finance	17	12.23
	Economics	1	0.72
	Accounting	8	5.76
	Human Resources	6	4.32
	Public Health	3	2.16
	Operations Management	4	2.88
	Missing	20	14.39
Year of Study	1	39	28.06
	2	88	63.31
	3	4	2.88
	Other	8	5.76
Location	Inside in the Country	112	80.58
	Outside the Country	24	17.27
	Missing	3	2.16
Gender	Female	85	61.15
	Male	53	38.13

	Missing	1	0.72
Age	Less than 20	8	5.76
	21-25	62	44.60
	26-30	35	25.18
	31-35	18	12.95
	Above 36	16	11.51

Internal reliability of the scales

It is recommended that item validity be assessed when multiple measuring items are used to represent a construct (Hair et al., 2011). Table 2 shows the Cronbach alpha values of each of the main constructs used for the study. Values of 0.7 or greater are regarded as good reliability of measurements (Hair et al., 2011). As shown in Table 2, all the Cronbach alpha values are at or above 0.7, indicating that the scale had satisfactory reliability.

Table 2: *Cronbach Alpha Values*

Construct	**Cronbach Alpha**
University Readiness	0.82
Faculty Member Effort	0.80
Lack of Technical Support	0.70
IT Skills of Faculty	0.92
IT Skills of Students	0.82
Attitude	0.89

Descriptive statistics of individual items

Table 3 shows the descriptive statistics of the items used for the study's constructs. The sources of the items are indicated as well, while Table 4 provides details on proportions (percentages) of the responses for which respondents indicated disagreement (1 to 3 on the scale), neutrality (4), agreement (5 to 7 on the scale) along with the relevant items.

Table 3: *The questionnaire's items and their descriptive statistics*

Construct	**Item no.**	**Item description**	**Mean**	**Standard deviation**	**Item Source**
University Readiness	URD2	Professors at my university are trained in online teaching.	3.46	1.25	Self-created
	URD3	Students at my university received instructions for online learning.	3.07	1.33	Self-created
	URD4	Staff at my university received training on online teaching and learning.	3.41	1.43	Self-created
IT Skills of Faculty	ITSOF1	I don't believe my professors are very familiar with using MST for teaching.	3.57	1.58	Britt (2006)
	ITSOF2	I don't believe my professors have adequate IT experience	3.68	1.61	Self-created

		needed to use MST for teaching.			
	ITSOF3	I don't believe my professors have adequate MST usage experience.	3.66	1.66	Almaiah & Alyoussef (2019)
	ITSOF4	I don't believe my professors have adequate computer experience.	4.14	1.67	Almaiah & Alyoussef (2019)
Faculty Member Effort	FME1	My professors are focused on helping me to use MST.	3.50	1.41	Teo & Wong (2013)
	FME2	My professors are accessible when I needed to consult them about MST.	3.10	1.35	Teo & Wong (2013)
	FME3	My professors are patient when they interact with me about using MST to learn.	2.78	1.28	Teo & Wong (2013)
Lack of Technical Support	LOTS2	When I need help while using MST, I know where to seek assistance.	3.71	1.71	Teo & Wong (2013)
	LOTS4	My university provides adequate technical support to me when using MST for online learning.	3.62	1.28	Self-created
IT Skills of Students	ITSOS1	I am familiar with the Internet.	2.01	1.13	Zia (2020)
	ITSOS2	I am familiar with studying online.	2.57	1.36	Zia (2020)
	ITSOS3	I feel confident in performing basic functions of MST.	2.17	1.23	Chung et al. (2020)
Attitude	ATIT1	Using MST to learn is good.	2.87	1.37	Self-created
	ATIT2	I like the idea of using MST for learning.	3.15	1.60	Ifinedo (2018)
	ATIT3	Using MST for learning is pleasant.	3.57	1.53	Ifinedo (2018)
	ATIT4	Using MST for learning is a wise idea.	3.30	1.46	Ifinedo (2018)

Table 4: *Breakdown of responses in percentages*

Construct	**Item no.**	**Item description**	**Disagreement**	**Neutral**	**Agreement**
University Readiness	URD2	Professors at my university are trained in online teaching.	48%	35%	17%
	URD3	Students at my university received instructions for online learning.	63%	24%	13%

	URD4	Staff at my university received training on online teaching and learning.	47%	36%	17%
IT Skills of Faculty	ITSOF1	I don't believe my professors are very familiar with using MST for teaching.	54%	18%	27%
	ITSOF2	I don't believe my professors have adequate IT experience needed to use MST for teaching.	49%	22%	29%
	ITSOF3	I don't believe my professors have adequate MST usage experience.	52%	18%	30%
	ITSOF4	I don't believe my professors have adequate computer experience.	37%	24%	39%
Faculty Member Effort	FME1	My professors are focused on helping me to use MST.	48%	32%	20%
	FME2	My professors are accessible when I needed to consult them about MST.	57%	32%	11%
	FME3	My professors are patient when they interact with me about using MST to learn.	68%	24%	8%
Lack of Technical Support	LOTS2	When I need help while using MST, I know where to seek assistance.	45%	23%	32%
	LOTS4	My university provides adequate technical support to me when using MST for online learning.	36%	46%	18%
IT Skills of Students	ITSOS1	I am familiar with the Internet.	86%	12%	3%
	ITSOS2	I am familiar with studying online.	76%	15%	9%
	ITSOS3	I feel confident in performing basic functions of MST.	83%	11%	6%
Attitude	ATIT1	Using MST to learn is good.	66%	20%	14%
	ATIT2	I like the idea of using MST for learning.	61%	18%	21%

	ATIT3	Using MST for learning is pleasant.	45%	27%	28%
	ATIT4	Using MST for learning is a wise idea.	55%	25%	20%

FINDINGS

Research Question One: What are students' perceptions of the IT readiness challenges facing the university during the pandemic?

For University Readiness (Table 3), the mean of "Professors at my university are trained on online teaching." is 3.46. The mean score of "Staff at my university received training on online teaching and learning." is 3.41, and the mean score of "Students at my university received instructions for online learning" is 3.07. The middle-value in the questionnaire is 4, and as shown in the table, all the means are slightly below the middle-value, which suggests that the participants do not believe that professors, staff, and students in the research setting are well trained for online teaching and learning. Table 4 shows the percentage of students who disagree with the statements are more than those who agree with them, with about a third indicating neutrality.

For the construct of IT Skills of Faculty, Table 4 shows that about a third of the students agree that their professors do not have adequate IT and computer experience that is needed to use MST for teaching while about half believe their professors have sufficient IT skills to use MST for teaching. About 20% of them maintain neutrality.

Regarding the construct of Faculty Member Effort, the means of "My professors are focused on helping me to use MST" and "My professors are accessible when I needed to consult them about MST" are 3.50 and 3.10, respectively. These mean scores are below the mid-value on the questionnaire, indicating that students do not believe that their professors are easily accessible when help is needed with using MST for their learning. The item "My professors are patient when they interact with me about using MST to learn" is 2.78, below the mid-value of 4 on the Likert scale. This result indicates that professors in the research setting might not have been patient enough when students sought assistance with using MST during the pandemic. Table 4 elucidates the findings as it shows that about 60% of the students did not believe they received adequate support from their professors when using MST. About a third of them maintain neutrality, while less than 20% of them held positive perceptions of the assistance received from their professors.

Research Question Two: What challenges do the university's students face as they use the software during the pandemic?

For the construct of Lack of Technical Support, the mean score of "When I need help while using MST, I know where to seek assistance" and "My university provides adequate technical support to me when using MST for online learning" are 3.71 and 3.62, respectively. These mean scores are below the questionnaires' mid-value, indicating that students in the sample do not know where to seek assistance for use of the tool. For the construct of IT Skills of students, the mean scores of "I am familiar with the Internet", "I am familiar with studying online," and "I feel confident in performing basic functions of MST" are 2.01, 2.57, and 2.17, respectively. All the mean scores are below the questionnaire mid-value of 4, suggesting that students in the sample are not familiar with online learning and using MST for such a purpose. Table 4 shows that 45% of the students do not know where to get help when using MST for learning, a third of them indicate having knowledge, while about 20% are neutral.

Furthermore, 36% of the participating students did not believe the university provided adequate technical support when using MST for online learning. Almost half of them have a neutral view of the technical support received, while 20% indicated they believe the university offers them technical support. About 80% of the students stated familiarity with the Internet, how to use such a resource for learning, and were confident in performing basic functions of MST. About 10% indicated they did not possess IT skills, and another 10% hold an indifferent view.

Research Question Three: What are students' attitudes towards using the software during the pandemic?

Concerning the construct of Attitude, the mean scores of "Using MST to learn is good," "I like the idea of using MST for learning," "Using MST for learning is pleasant," and "Using MST for learning is a wise idea." are 2.87, 3.15, 3.57, and 3.30, respectively. All the mean scores are below the mid-value of 4 on the questionnaire. Moreover, Table 4 shows that about 60% of the students in the sample did not have a positive attitude toward using MST to learn during the period, about 20% of them had positive attitudes toward using MST to learn, and another 20% held an indifferent opinion on the matter.

DISCUSSION and RECOMMENDATIONS

Based on the findings noted, some answers are provided for the three research questions asked in the study. The first question sought to know the IT readiness of the university in terms of teaching and learning online during the pandemic. Challenges relating to the training of professors, staff, and students were highlighted in the study's findings. In that aspect, our findings agree with prior observations highlighting the lack of IT training and familiarity with the software used by professors to deliver online courses as important determinants to success (Almaiah & Alyoussef, 2019; Al-Araibi et al., 2019; Almaiah et al., 2020). We lend credence to prior findings suggesting that faculty effort and professors' interaction with students are worthy of attention when using technologies for learning, especially during a period such as a pandemic (Zhang et al., 2004; Freeze et al., 2010; Teo & Wong, 2013; Bao, 2020; Chen et al., 2020).

Our study adds to the body of knowledge discussing the perception of university students' challenges when they use new software for learning as has occurred during the COVID-19 pandemic. We showed that a lack of technical support from universities is one of the hindrances students face while learning online during the pandemic period. Our results mirror findings reported by Almaiah et al. (2020). Another concern students face is a lack of required IT knowledge of online learning tools or software. Our findings support previous studies that suggest inadequate IT skills negatively impacts learning in online environments (Abdullah & Ward, 2016). We found that students' attitudes toward using MST to learn during the COVID-19 pandemic appears to be unfavorable. It is possible that the sudden change from face-to-face to online learning was stressful for students.

Limitations of the study and future research avenues

There are limitations to this study. The findings are limited to responses from students enrolled in a single programme at a university in Canada. Thus, the conclusions discussed should not be generalized to all programmes in the university and for the country. Future studies could include the viewpoints of students from different programmes in the university or elsewhere to improve generalizability. While the study's findings help understand perceptions of challenges and attitudes of students towards the use of a unified communication and collaboration software during the COVID-19 pandemic in a programme at one university, it is not suggested that our study identified all potential issues in the research setting. Indeed, other factors, such as self-efficacy and perceived fit or compatibility that could influence students' perceptions, were not discussed herein. This study

did not use advanced statistical methods such as the structural equation modeling technique; and there is potential for future studies to use multivariate data analysis methods to test the relationships among identified constructs. Comparative analysis of results obtained from other programmes and regions of the country could be carried out to enrich perspectives.

RECOMMENDATIONS

The results of this study permit recommendations regarding using online tools such as MST to support online education during periods such as a pandemic. Challenges observed during the implementation of e-learning systems in higher education settings are already high in regular times (Ifinedo, 2005; Chang et al., 2017); but realities during a pandemic such as COVID-19 are even higher. University IT administrators should strive to provide professional IT training to faculty, staff, and students on using such a tool for learning. Faculty member efforts aligning teaching goals and students' needs in online environments could be proactively encouraged. Our results suggest a need for faculty to exert more helping effort toward students' learning needs in periods where sudden changes to teaching and learning are introduced. Forced by the ongoing COVID-19 pandemic, online learning/teaching might become a viable option for many university programmes. Universities could commit more resources to build more robust IT facilities and platforms to accommodate increasing needs for online learning/teaching in the future.

University IT administrators could better prepare faculty for sudden changes in the learning environment resulting from unplanned circumstances as a pandemic by making it mandatory for faculty to teach at least one of their courses in online formats. Such an effort, if possible, will ensure knowledge of how to use resources such as MST is maintained over time instead of waiting for usage during uncertain times. The need exists to train professors to become familiar with online teaching platforms. Similarly, students could be provided basic training on popular online learning tools or resources such as MST periodically as no one knows when the next pandemic or natural hazard event will occur. More resources could be dedicated for students indicating low IT skills and IT support services in the university could be tasked to offer extra training for such students.

To improve students' attitudes toward MST and similar software, developers of such tools could continue to create easy-to-use applications, especially those focusing on improving teaching and learning in virtual environments. Developing a dedicated online learning and teaching software tool instead of general communication and collaboration software might increase the attractiveness of such tools for online learning and teaching. A well-designed unified communication and collaboration software tool could include valuable functions, such as real-time replay, pause, and features that can zoom on parts of the screen to make it more suitable for online learning and teaching. We suggest that simplified versions of MST software could be produced in game app formats for students to use. Familiarity with the usage of such apps could positively impact students' attitudes toward the main software. In periods where face-to-face interactions are impractical, faculty could espouse the advantages of such tools to students to help cultivate favorable perceptions among them.

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