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Original Article

Student Perspectives on E-Learning in a Malaysian Medical College One Year into the COVID-19 Pandemic: A Cross-Sectional Study

Sylvia Wei Wei Kong,[1] Jade Lene Yong,[2] Sabrina Pei Yee Cheong,[3] Edmund Liang Chai Ong.[4]

Abstract

Background: During the coronavirus disease 2019 (COVID-19) pandemic, most in-person classes in Newcastle University Medicine Malaysia (NUMed) were replaced with e-learning. Our study aims to explore students' e-learning experiences and its perceived benefits and challenges during the pandemic. **Methods:** 285 students recruited via convenience sampling participated in this cross-sectional study. Participants completed a self-administered online questionnaire on sociodemographic factors and experiences with e-learning. Descriptive statistics and Spearman's correlation tests were used to analyze the data. **Results:** Most students used laptops (n=275, 96.5%) for e-learning and owned at least two electronic devices (n=245, 86%). Over half our students (n=148, 51.9%) reported no change to theoretical knowledge, while about three-quarters (n=213, 74.7%) perceived practical skills to have worsened. Students preferred paper-based exams (n=170, 59.6%) and objectively formatted online exams (n=193, 67.7%). Since transitioning to e-learning, the majority of students (n=207, 72.6%) reported difficulties studying online and were unsatisfied with their academic performance (n=166, 58.2%). Students preferred e-learning due to the lower risk of contracting COVID-19 (n=256, 89.8%), the convenience of online classes (n=244, 85.6%) and flexible schedules (n=219, 76.8%). However, the lack of patient contact (n=236, 82.8%), lecturer and peer interaction (n=234, 82.1%), and unreliable internet (n=201, 70.5%) made e-learning challenging. Students' experiences were generally affected by multiple factors encompassing personal, lecturer, and environmental aspects. **Conclusion:** E-learning during the COVID-19 pandemic has negatively impacted students' practical skills and performance satisfaction. Therefore, the university should look towards addressing e-learning constraints and providing adequate support to improve students' educational experiences in the ongoing pandemic.

Introduction

When Malaysia's Movement Control Order (MCO) was announced in March 2020 as a measure to combat the spread of the coronavirus disease 2019 (COVID-19) pandemic, Newcastle University Medicine Malaysia (NUMed) immediately suspended in-person classes and adopted an online approach for teaching. The complete switch to e-learning was implemented across all teaching programmes in the institution, using a variety of platforms.

E-learning has been widely used as a digital web-based educational approach which aims to enhance students' learning through an interactive, personalized, and enjoyable learner-centred environment.[1] Despite being conducted in a completely different setting from traditional in-person education, studies have shown that e-learning can be as effective as classroom teaching.[2,3] Current research has shown that e-learning is generally welcomed by students due to its flexibility and convenience, although many aspects make its implementation challenging.[2,4,5] For healthcare students, there is the added difficulty of replicating patient interaction and patient care in an online setting.[6,7] These are crucial elements of training medical students' clinical skills, which form a core requirement of their education in terms of assessments, and will inevitably shape their careers as future healthcare workers.

With strict lockdowns and physical distancing measures in place, limited in-person sessions on campus, and disrupted hospital attachments in the last one and a half academic years, most of the teaching in NUMed is still being delivered online. As such, there is concern over the effectiveness and satisfaction with e-learning amongst our students, and how this affects their overall academic performance. Hence, this study aims to explore students' perceptions on the impact, benefits, and challenges of e-learning during the COVID-19 pandemic.

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Methods

Study Design and Participants

We conducted a cross-sectional study, using a convenience sampling technique via a self-administered online survey. The survey (attached as *Supplementary Material*) was designed with Google Forms and distributed via an embedded link in an invitation email to all students registered with NUMed for the 2020/2021 academic year. This comprised of students on the following programmes: Bachelor of Medicine, Bachelor of Surgery (MBBS) (Year 1 to 5), Biomedical Science (BMS) (Year 1 & 2), and Foundation in Biological and Biomedical Sciences course. The data was collected between July 12th, 2021 and August 12th, 2021 of which the link was accessible to students for submission of their responses during this period.

The questionnaire consisted of sections on sociodemographic factors and students' experiences with e-learning. This included items where students were asked to report their technology use, e-learning exposure, and perceptions of their experiences over the last academic year (2020/2021). These questionnaires were adapted and modified based on surveys used in previous empirical studies on university students' experiences with online learning during the COVID-19 pandemic.[7-9] All the students who were studying at NUMed campus in the academic year 2020/2021 were eligible to participate as they were the first batch of students who have completed a full year of study with the e-learning adjustments undertaken by the university since the pandemic was first declared. Students who were taking a year off or had undergone an intercalation programme in another campus were not invited to the study. A total of 285 students responded to the questionnaire, amounting to a response rate of 40% of overall student population of 725 students.

Before dissemination, the survey was pretested with a sample of students, to ensure clarity in interpretation of the questionnaire.

Data Analysis

In this study, the data were analyzed using IBM SPSS Statistics Version 27, primarily through use of descriptive statistics for frequencies and percentages. Spearman's correlation test was used to identify correlation between students' e-learning experiences, the effects of e-learning, and academic performance. These variables were measured on a 5-point Likert scale from "1 = Strongly Disagree" through to "5 = Strongly Agree" and "1 = Never" to "5 = Always". A p-value of <0.05 was considered statistically significant.

Ethics

Ethical approval was granted by the NUMed Research Ethics Committee and the Newcastle Institutional Review Board (Ref: 13518/2020). Informed consent was gained from the students prior to their participation in this survey, and all responses collected were anonymized to maintain individual confidentiality.

Results

Our findings showed that from the total of 285 NUMed students who participated in the study, 81 (28.4%) were males and 204 (71.6%) females. The median age of the students was 22 ± 2 years. Most of the participants (n=239, 83.9%) were medical students, with two-thirds of the students being Malaysian (n=229, 66.7%). At the time of the survey, two-thirds of the students (n=190, 66.7%) were living in their hometowns, and the majority (n=258, 90.5%) were staying with family or friends. A total of 171 students (60%) had received at least one dose of the COVID-19 vaccine at the time of the survey.

The most popular electronic devices used for e-learning were laptops (n=275, 96.5%) More than half the students utilized tablets (n=159, 55.8%) and most students owned two or more electronic devices (n=245, 86%). A total of 263 respondents (92.2%) perceived their Information Technology (IT) proficiency level as good to proficient. For internet access, the majority of students (n=272, 95.4%) reported predominant use of broadband with 214 participants (96.1%) describing the quality of their internet service as ranging from acceptable to excellent (*Table 1*).

Table 1. NUMed Students' Technology Use in the 2020/2021 Academic Year (n=285).

Variables	Frequency (%)
Use of electronic devices	
Laptop	275 (96.5)
Smartphone	205 (71.9)
Tablet	159 (55.8)
Desktop	14 (4.9)
Number of electronic devices owned	
1	40 (14)
2	127 (44.6)
3	113 (39.6)
4	5 (1.8)
Perceived IT proficiency level	
Proficient	97 (34)
Very good	83 (29.1)
Good	83 (29.1)
Acceptable	22 (7.7)
Internet type	
Broadband	272 (95.4)
Mobile data	12 (4.2)
No personal internet access	1 (0.4)
Quality of internet service	
Excellent	25 (8.8)
Very good	82 (28.8)
Good	97 (34)
Acceptable	70 (24.6)
Bad	11 (3.9)

Legend: IT- Information technology

Table 2 showed that almost two-thirds of students (n=188, 66%) had no prior experience with e-learning before the COVID-19 pandemic. Since transitioning to e-learning, almost three-quarters of students (n=207, 72.6%) reported difficulties studying online which include unreliable internet, technical problems, lack

of self-discipline, poor learning environment, etc (*Table 3*). As a result of e-learning, students generally perceived that their practical skills have worsened, whilst their theoretical knowledge remains unchanged. (*Figure 1*). Alongside these, more than half (n=166, 58.2%) of the students reported feeling unsatisfied with their overall academic performance after switching to e-learning. Most students still preferred paper-based exams (n=170, 59.6%) to online-based exams and two-thirds of the students preferred objectively formatted online exams (n=193, 67.7%) over a subjective format.

Table 2. NUMed Students' Academic Experiences with E-Learning in the 2020/2021 Academic Year (n=285).

Variables	n (%)
E-learning before COVID-19 pandemic	
Yes	97 (34.0)
No	188 (66.0)
Difficulties studying online	
Yes	207 (72.6)
No	78 (27.4)
Satisfaction with academic performance	
Satisfied	119 (41.8)
Not satisfied	166 (58.2)
Exam preferences	
Type of exam preferences	
Online based	60 (21.1)
Paper based	170 (59.6)
No preference	55 (19.3)
Online exam preferences	
Objective	193 (67.7)
Subjective	19 (6.7)
Both	73 (25.6)

Table 3. NUMed Students' Perceptions of E-Learning Benefits and Constraints in the 2020/2021 Academic Year (n = 285).

Variables	n (%)
Benefits of e-learning	
Lower risk of contracting COVID-19	256 (89.8)
Convenience	244 (85.6)
Flexible schedules	219 (76.8)
Access to online materials	193 (67.7)
Comfortable/conducive environment	143 (50.2)
Better focus	51 (17.9)
Improved communication	24 (8.4)
Constraints of e-learning	
Lack of patient interaction	236 (82.8)
Reduced interaction with lecturers/peers	234 (82.1)
Unreliable internet	201 (70.5)
Technical problems	195 (68.4)
Lack of self-discipline	191 (67.0)
Social isolation	190 (66.7)
Poor learning environment	142 (49.8)

The lower risk of contracting COVID-19 (n=256, 89.8%), the convenience of attending classes from home (n=244, 85.6%) and the flexible schedules (n=219, 76.8%) are benefits of e-learning during the pandemic that students have chosen (*Table 4*).The majority of students also found the access to online materials (n=193, 67.7%) and the comfortable or conducive study environment (n=143, 50.2%) to be beneficial as well. Conversely, the most common constraints of e-learning according to students were the lack of patient interaction (n=236, 82.8%), as well as reduced interactions with lecturers and peers (n=234, 82.1%). Technological factors such as unreliable internet (n=201, 70.5%) and technical problems i.e., incompatible devices, power outage, etc. (n=195, 68.4%), in addition to personal factors like lack of self-discipline (n=191, 67%) and social isolation (n=190, 66.7%) were also reported by most students.

Multiple factors which were related to our students' e-learning experience are presented in *Table 4*. From the analysis using Spearman's correlation test, our study shows that students were facing difficulties with studying online and were unsatisfied with their academic performances due to various challenges faced during the COVID-19 pandemic. These included issues such as the inability to adjust to e-learning, feeling incapable of studying subjects online, as well as the lack of motivation and technical skills. Students who had difficulties studying online reported problems in terms of experiences with lecturers also. Particularly, this was when communication was poor, leading to a lack of clear direction from the lecturers (r=-0.331, p<0.001), when resources or skills for online teaching were lacking amongst them (r=0.273, p=<0.001), and when they were not technology-friendly (r=-0.137, p=<0.021). The results show that frequent fluctuations in lecture timings (r=-0.238, p=<0.000) affected these students as well. Conversely, environmental factors such as non-conducive learning environments, technical issues, unreliable internet or power disruptions, lack of infrastructure, and resources to support online teaching also have an impact on online learning and academic performance satisfaction.

Figure 1. NUMed Students' Perceptions of Changes to Academic Performance after Transition to E-Learning during Academic Year 2020/2021.

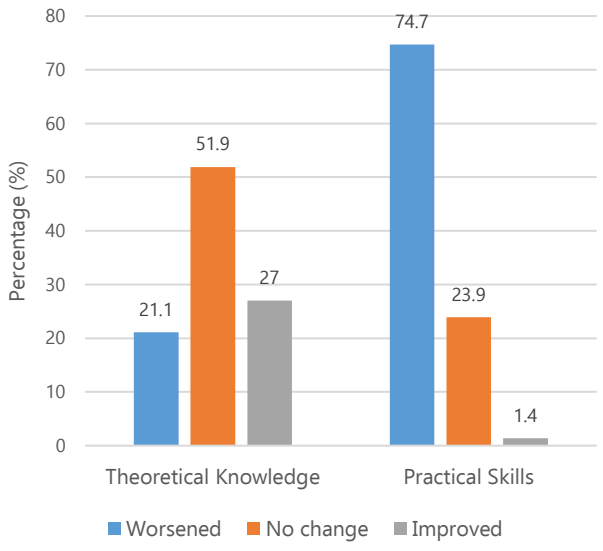

Table 4. Spearman Correlation Analysis: Student, Lecturer and Environmental Factors related to the E-Learning Experience (Difficulties Studying Online and Academic Performance) by NUMed Student during Academic Year 2020/2021.

	Difficulties studying online		Academic performance satisfaction	
	Correlation coefficient, r	p-value	Correlation coefficient, r	p-value
Student factors				
Inability to adjust to e-learning style	-0.314	<0.001*	0.288	<0.001*
Incapable of studying subjects online	0.409	<0.001*	-0.353	<.001*
Lack of motivation in online classes	-0.342	<0.000*	0.267	<0.000*
Lack of technical skills	-0.185	0.002*	0.136	0.022*
Academic grades negatively affected by the COVID-19 pandemic	-0.376	<0.000*	0.562	<0.000*
Lecturer factors				
Poor communication or lack of clear direction from lecturers	-0.331	<0.001*	0.196	0.001*
Lecturers' lack of resources or skills to teach courses online	0.273	<0.001*	-0.246	<0.001*
Lecturers not technology friendly in online teaching	-0.137	0.021*	0.340	0.568
Fluctuations in lecture timings	-0.238	<0.000*	0.057	0.340
Environmental factors				
Unconducive learning environment	-0.220	<0.001*	0.176	0.003*
Technical difficulties in online teaching	-0.259	<0.000*	0.087	0.142
Unreliable internet or power disruption	-0.263	<0.001*	0.150	0.011*
Lack of infrastructure and resources to support online teaching	0.269	<0.001*	-0.242	<0.001*

Discussion

In this study, we explored students' perceptions of e-learning during the COVID-19 pandemic. Across the world, the sudden and rapid shift of education from in-person teaching to an online setting has been met with mixed responses; varying degrees of students' acceptance of and adaptation to e-learning have been reported over the last two years.[2,10,11] Previous studies have been undertaken addressing various issues amongst medical students during the pandemic, but there have been no detailed studies in the Asia Pacific region.[12-15] Our study included medical students across all years (Year 1 to 5) in Bachelor of Medicine, Bachelor of Surgery (MBBS), Biomedical Science (BMS) and Foundation programme , being the first study of its kind in the Asia Pacific region.

Despite almost three-quarters of our participants facing difficulties studying online and more than half feeling unsatisfied with their academic performance since switching to e-learning, interestingly, about half the students did not perceive any changes in their theoretical performance. Conversely, three-quarters of students reported their practical skills to have deteriorated. The perceived worsening in practical performance is worrying, although not unexpected due to the traditional hands-on training of medical and biomedical science students in the clinical and laboratory settings, respectively. According to Keržič et al., students' experiences and satisfaction with e-learning are main factors which contribute to perceive academic performance.[16] Other studies amongst healthcare students have shown similar unchanged or negative trends in academic performance with the suspension of in-person teaching as well.[7,17,18]

With the unprecedented shift to distance-learning in the COVID-19 pandemic, educational institutions have been forced to improvise on the delivery of assessments as well. The data we collected from our students shows that paper-based exams were still preferred over online-based exams. The possible reasons for this could be explained by results from a systematic review by Montenegro-Rueda et al. which summarized some of the challenges to online examinations, including e-proctoring or online invigilation of students; dishonest student behaviour with cheating and plagiarism; lack of training and technological issues, i.e. internet or power outage, privacy issues, etc.[19] However, if exams were to be conducted online, about two-thirds of our students preferred them to be structured in an objective format over a subjective exam. Our study reported similar results with a study by Muthuprasad et al. amongst Indian graduates who preferred objective mode of examination.[20]

According to our participants, the most popular chosen benefits of the transition to e-learning in this pandemic were being at a lower risk of contracting COVID-19, followed by the convenience of attending classes from home and the flexible schedules. This concurs with a study by Dhawan et al. on Strengths, Weaknesses, Opportunities and Challenges analysis of e-learning which reported that the "Anywhere-Anytime" flexibility in time and location is thought to be one of its main strengths.[21] This is also in line with the findings from Muthuprasad et al. that preference for online education was due to the flexibility and convenience of its nature.[20]

Our data has also shown that the main downside of the virtual setting is the lack of human connection, where the vast majority of students perceived their e-learning experiences to be lacking in interactions with patients, as well as with lecturers and peers. Besides this, issues like unreliable internet and technical problems

were widely perceived as limitations amongst our students. Additionally, Dhawan's work proposed weaknesses in the online learning approach to education, including lack of communication with others and technical difficulties.[21] With previous research in Malaysia showing technological difficulties to be a barrier to e-learning amongst university students,[22] moving forward, this should be an important consideration when planning for a transition of education to an online setting in the future.

Our results reflected that students who faced difficulties studying online also tended to report problems with their experiences with lecturers. Thus, we infer that educators play an important role in improving a student's transition to e-learning. Research conducted amongst other healthcare students in Jordan and Iran have shown similar opinions amongst their students,[23, 24] where lecturers' readiness to engage in online learning and the effectiveness of their communication skills are thought to greatly influence the students' e-learning experiences. Hence, as proposed by Turnbull et al., there is a need to provide better training for university staff, allowing a higher level of online competence to be achieved,[25] and in turn, better outcomes for students.

Limitations & Recommendations

The limitations of this study include its cross-sectional design, resulting in only a brief snapshot of the respondents' perceptions towards e-learning. The study results are also limited in their broader interpretation as this is a single-centre study. Furthermore, data collection via a self-reported questionnaire, which was conducted during the students' summer breaks, likely could have led to reporting and recall biases. We also acknowledge that there may have been some element of selection bias in the recruitment of participants since this process was done on a voluntary basis through an email invitation disseminated to all students in NUMed. Thus, students interested in our research topic might have been more likely to respond to this study.

Understanding that our study population was relatively small at a total number of 285, and that students' perceptions of e-learning are subjective, diverse and can evolve over time, we believe that more research into this topic would be beneficial as the use of e-learning continues. While universities endeavour to improve their delivery of teaching with and beyond the 'new normal' of the COVID-19 pandemic, longitudinal research and qualitative studies on students' perceptions of e-learning over time could deepen general understanding on this topic for future use in education.

Conclusion

Overall, e-learning during the COVID-19 pandemic has impacted students negatively in terms of academics, particularly practical skills, and performance satisfaction. Nevertheless, students do perceive benefits of e-learning to include its convenience, flexibility, and safety, especially with the lower risk of contracting COVID-19. Constraints were predominantly focused on the lack of interactions, technological difficulties and personal factors. Generally, difficulties studying online and academic performance satisfaction are affected by personal, lecturer and environmental factors. With the likely incorporation of e-learning into educational systems, the university should strongly consider addressing students' concerns and providing academic support where appropriate to ensure the high quality of the student experience in the online setting as we continue to navigate this pandemic.

Summary – Accelerating Translation

Title: Student Perspectives on E-Learning in a Malaysian Medical College One Year into the COVID-19 Pandemic: A Cross-Sectional Study

Main Problems to Solve: The COVID-19 pandemic has affected students' education in Malaysia whereby in-person classes had to be converted into online learning. E-learning is a novel tool in the education, however, its effectiveness in replicating in-person classes still lacks evidence.

Aim of Study: This study would like to look at students' e-learning experiences and its perceived benefits and challenges during the pandemic. The outcomes might help future students learn more effectively online and rely less on traditional classroom sessions. Additionally, it will better equip the university to handle unforeseen situation such as the COVID-19 in the future.

Methodology: This study was conducted as a cross-sectional, self-administered online survey using a convenience sampling technique. The study included all students studying in NUMed in the academic year 2020/2021. The survey consists of sections on sociodemographic factors, students experience with e-learning which included items on technology use, e-learning exposure, and perceptions of their experiences over the last academic year.

Results: Overall, students find that their practical skills have been heavily affected due to the switch to online learning. The majority of students have contributed this to lack of interaction with patients, peers, and lecturers. However, students have also benefited from online learning as it gives students flexibility and convenience in learning whilst reducing the risk of contracting COVID-19.

Conclusions: This study has demonstrated that online education has both positives and negatives effects on students across the medical science programmes during the pandemic. Therefore, the institution should strive to address the drawbacks to enhance the overall educational experience.

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Author Contributions

Conceptualization: SWWK, ELCO. Supervision: ELCO. Data Curation, Investigation, Methodology, Project Administration, Resources, Software, Validation, Visualization, Writing – Review & Editing: SWWK, JLY, SPYC, ELCO. Writing – Original Draft Preparation, Formal Analysis: SWWK, JLY, SPYC.

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Supplementary Material

The impact of e-learning among students in Newcastle University Medicine Malaysia (NUMed) during COVID-19 pandemic: one year onwards

INFORMED CONSENT FORM

Dear Participant,

Thank you for taking part in this study which aims to understand the effects of online learning during the COVID-19 pandemic in NUMed. The information gathered through this survey will help to facilitate the integration of e-learning into the curriculum to improve the delivery of quality medical education in the future. Participation is open to all NUMed students. The questionnaire takes approximately 5 minutes to complete. You will not be asked to provide any personal data. Your data will remain completely anonymous, and it will not be possible to identify you individually from your answers. This study has received approval from the NUMed Research Ethics Review Committee. By taking part, you are agreeing that you have read and understood the information above about the study.

By ticking the box, you are agreeing that you have read the information about the study, and that you voluntarily agree to take part in it.

[ ] I agree to participate in this study.

SECTION A: DEMOGRAPHIC BACKGROUND

1. Age: _____

2. Gender: ☐Male ☐Female

3. Ethnicity:
☐Malay ☐Chinese ☐Indian ☐Other, please specify: _____

4. Programme and year of study in Academic Year 2020/2021:
☐MBBS Year 1 ☐MBBS Year 2 ☐MBBS Year 3 ☐MBBS Year 4
☐MBBS Year 5 ☐BMS Year 1 ☐BMS Year 2
☐Foundation Programme

5. Nationality:
☐Malaysian ☐International, please specify: _____

6. Where are you currently?
☐Hometown
☐University residences
☐Rental room/house
☐Friend's house
☐Relative's house
☐Others, please specify: _____

7. Who are you living with currently?
☐Alone
☐With family/relatives
☐With friends/coursemates

☐Others, please specify: _____

8. Do you suffer from any underlying medical illness? Check all that apply.

☐ Physical health problems, please specify: _____

☐ Psychological problems, please specify: _____

☐ Physical or learning disability, please specify: _____

☐ No

9. Are you vaccinated?

☐ Completed 2 doses

☐ Yes, first dose

☐ Secured an appointment, waiting for vaccination

☐ Registered, but no appointment yet

☐ Considering but not registered yet

☐ Considering to get vaccinated overseas

☐ Not considering, please specify the reason: _____

SECTION B: E-LEARNING

B1. Experience with e-learning

B1.1 Which of the following devices do you own and utilize for your learning? Check all that apply.

☐ Smartphone

☐ Tablet or iPad

☐ Personal laptop

☐ Desktop computer

☐ Others, please specify: _____

B1.2 What is your level of proficiency in using various electronic devices? (e.g. Computers, smartphones, tablet, etc)

☐ Proficient

☐ Very good

☐ Good

☐ Acceptable

☐ Inadequate

B1.3 What type of internet service do you use primarily?

☐ Broadband (Wi-Fi, LAN cable)

☐ Mobile data

☐ I don't have internet access and have to go elsewhere

☐ Others, please specify: _____

B1.4 How would you describe your internet service?

☐ Excellent

☐ Very good

☐ Good

☐ Acceptable

☐ Bad

B1.5 Have you ever participated in any type of e-learning before the pandemic?

☐ Yes

☐ No

B1.6 Do you face any difficulties studying online?

☐ Yes

☐ No

B1.7 How has your academic performance changed since you switched to e-learning?

B1.7.1 Theoretical knowledge

☐ Better

☐ No change

☐ Worse

B1.7.2 Practical skills

☐ Better

☐ No change

☐ Worse

B1.8 Are you satisfied with your overall academic performance?

☐ Yes

☐ No

B1.9 Which type of exam do you prefer?

☐ Online based

☐ Paper based

☐ No preference

B1.10 Which type of online exam do you prefer?

☐ Objective (SBA, MCQ, EMQ)

☐ Subjective (WRISKE, SAP, SAQ)

☐ Both

B2. Benefits and constraints of e-learning[1]

B2.1 What are the benefits of e-learning during the COVID-19 pandemic? Check all that you consider true.

☐ Access to online materials

☐ Flexible schedules (e.g. learning at your own pace)

☐ Convenience (e.g. ability to stay at home, option to request for recording)

☐ Comfortable/conducive environment

☐ Better focus with less distractions

☐ Improved communication/interaction

☐ Lower risk of contracting COVID-19 infection

☐ Others, please specify: _____

B2.2 What are the constraints of e-learning during the COVID-19 pandemic? Check all that you consider true.

☐ Reduced interaction with lecturers/colleagues
☐ Lack of interactions with patients
☐ Technical problems
☐ Unreliable internet connectivity/power interruption
☐ Poor learning environment at home
☐ Lack of self-discipline
☐ Social isolation
☐ Others, please specify: _____

B4. Challenges to e-learning[2]

	How often have you encountered these problems during this COVID-19 pandemic	Never	Rarely	Sometimes	Often	Always
B4.1	Inability to adjust learning style (include poor time management, lack of discipline)	1	2	3	4	5
B4.2	Lack of technical skills	1	2	3	4	5
B4.3	Poor communication or lack of clear direction from educators	1	2	3	4	5
B4.4	Unreliable internet access or power interruption	1	2	3	4	5
B4.5	Limited physical space for conducive studying	1	2	3	4	5
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
B4.6	I am physically and mentally capable of studying all the subjects online	1	2	3	4	5
B4.7	The lecturers have the resources and skills necessary to teach our courses online	1	2	3	4	5
B4.8	The university has the infrastructure and resources to support online teaching	1	2	3	4	5

B5. Effect of online teaching[3]

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
B5.1	The COVID-19 pandemic affected my academic grades negatively	1	2	3	4	5
B5.2	Fluctuations in lecture timings are one of the downsides of online teaching	1	2	3	4	5
B5.3	The students lack motivation in online teaching	1	2	3	4	5
B5.4	Lecturers not being technology-friendly are one of main issues in online teaching	1	2	3	4	5
B5.5	Recorded lectures are better than live lectures as it enables the student to set their own learning time	1	2	3	4	5
B5.6	Technical issues (e.g. poor Wi-Fi connection, incompatible devices) makes online teaching difficult	1	2	3	4	5