AN INSIGHT OF ONLINE TEACHING & LEARNING AMID COVID-19 PANDEMIC AT POLITEKNIK BRUNEI: LESSONS LEARNED

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Abstract: The second wave of Covid-19 pandemic in Brunei has forced all education providers to resort to online teaching and learning again, including Politeknik Brunei. This study aims to gain some insights of students' and lecturers' perspectives of online learning activities. The online questionnaire links were sent via email, where 989 students and 92 lecturers from across all schools under the polytechnic responded. Descriptive and inferential analysis were employed for all data collected. Overall, the findings suggest that the effectiveness of online learning at Politeknik Brunei is at a **moderate level** with a mean of 23.8 and a standard deviation of 4.13 (Cronbach's α=0.71). There is **no statistical significant difference** in effectiveness of online learning among five different study focus groups as revealed by Tukey-Kramer post-hoc test. Meanwhile, the effectiveness of online teaching is also at a **moderate level** with a mean of 28.8 and a standard deviation of 3.72 (Cronbach's α=0.68). The results also show that while the main challenge is internet instability for everyone, the main benefit is time and/or energy saved from travelling. Although online learning poses many limitations to everyone, it is probably high time to reconsider a permanent shift in the post pandemic education setting to prepare ourselves for the new norm.

Keywords: online-learning; pandemic; effectiveness; benefits; challenges

Introduction

The entire world has been profoundly affected by the coronavirus ever since its first outbreak in Wuhan, Hubei Province, China in 2019 (World Health Organization, n.d.). The global spread of Sars-Cov-2 and the resulting thousands of deaths caused by the coronavirus has led the World Health Organization (WHO) to declare a pandemic on 11 March 2020 after it covered 114 countries in three months and infected more than 118,000 people in the world (WHO, n.d.). From then on, we are constantly being bombarded with mundane questions about food, exercise, and the formerly simple tasks of human interactions without touching each other. It has threatened not only emotional, mental, and physical health but also the long-term livelihoods and wellbeing of millions brought about by the social and economic disruptions (Cullen et. al., 2020; Montemurro, 2020).

In terms of education, according to the UNESCO[1] report 2021, 1.6 billion learners were affected by school closures at the peak of the pandemic. Students had to make changes in their lifestyle, accept limited freedom in their physical socialization with friends and at the same time endure anxiety over the rapid spread of the disease. The pandemic has exposed academics, parents and students to unfamiliar 'education territories'. As a result, distance learning solutions using digital platforms, educational applications and resources are utilized with the aim of helping students, teachers and parents.

[1] United Nations Educational, Scientific and Cultural Organization

Covid-19 and Higher Education in Brunei Darussalam

Brunei's first case of Covid-19 was announced on 9 March 2020 which was an imported case (MOH[2], 2020). A travel ban was imposed to all Bruneians to infected countries and all unnecessary travel to coronavirus-affected countries was to be postponed to reduce the possibility of more imported cases. School closures were announced not long after. Higher institutions under the Ministry of Education remained open and operational by taking precautionary measures to ensure infections were contained.

Brunei quickly adopted World Health Organization regulations, including social distancing and self-isolation, as well as contact tracing through the Sultanate's Bruhealth application to a majority of citizens. The situation eased down and Bruneians' life was back to 'normal' as zero cases were reported for **457** days without community infections since June 2020 (PMO[3], 2021). Schools were fully operational, where teaching and learning face-toface commenced like usual.

However, in early August 2021, a second-wave broke which brought the whole country to a total panic. It was much worse than the first wave, where infections were quite rapid, and movement restrictions were imposed nationwide. Schools were closed again and everyone started to work from home and were advised only to go outside when necessary. This continued until mid-November and the transition phase started in preparation for the early endemic in December. By this time, more than 90% of the population have received 2 doses of Covid19 vaccinations (PMO, 2021).

Education at Politeknik Brunei

Politeknik Brunei was established in 2012, as the nation's only institution offering diploma programmes (equivalent to Higher National Diploma programmes) in fields such as business, information and communications technology (ICT), engineering, health sciences and petrochemical. Although it is quite young relative to other national higher institutions, a learning space called PBLMS (Politeknik Brunei Learning Management System) has been set up and fully utilized since 2014. The administration and academic teams have ensured that all learning materials such as slides, tutorials, assignments and videos are accessible to all learners before the start of every semester.

During the partial lockdown due to the second wave in August 2021, the institution was closed and everyone reverted to online teaching and learning. All sorts of tools were used to conduct lessons and tutorials. Assessments were also reviewed in terms of structure and delivery to accommodate the shift in learning.

As Brunei Darussalam announced the transition phase in mid-November 2021, Politeknik Brunei staff started working from the office, taking into consideration standard operating procedures such as wearing face masks, practicing social distancing and performing Antigen Rapid Test (ART) once every fortnight to ensure everyone's safety. During this period, students have completed their first semester of the academic year.

In early January 2022, when the early endemic phase is announced, the door is opened to all students, stage by stage. Capacity is reduced to 50% hence students take their turns to have face-to-face traditional classes, while also continuing with remote learning.

[2] Ministry of Health, Brunei Darussalam

[3] Prime Minister's Office, Brunei Darussalam

Literature Review

Education worldwide has shifted to online learning, which serves as the major learning option throughout the Covid-19 pandemic. Lack of internet connectivity, information technology, educational materials, digital technology skills and the existence of digital divide, however, pose real complications and make remote learning challenging for students, teachers and parents alike (UNESCO, 2021). Less fortunate ones in some developing countries may not have any access to learning resources at home when lessons are delivered through radios and televisions.

According to UNICEF report 2021, children worldwide had learned remotely for three-quarters of the school year. In several countries, an increase in Covid-19 cases due to newly emerging coronavirus variants has slowed down the return to traditional classroom setting. As a consequence, the education system continues to face problems and long-term effects of school closures while exploring and responding to gaps and disparities in learning. (Schleicher, 2020).

Colleges and universities worldwide have had to shift to remote learning. There have been reports of significant success, as well as severe failure. Access to appropriate technology and access to the internet, if at all, pose significant challenges reflecting imminent disparities among students. While Covid-19 crisis will significantly expand the use of remote learning, a profound and lasting technological revolution in higher education leaves some to remain doubtful even with the presence of opportunities offered by hybrid teaching models (Altbach & De Wit, 2020).

The challenges of remote learning are largely caused by the inadequacy of technology, physical infrastructures, facilities, and human resources as well as a lack of knowledge of students' learning from the society and parents (Neak, 2020). While another study has revealed that besides technological infrastructure, other concrete key challenges include digital competence, socio-economic factors, assessment and supervision, heavy workload, and content compatibility (Adedoyin & Soykan, 2020). According to a study in Malang, Indonesia, although virtual infrastructure has been prepared well, the school community needs to understand more about the important essence of remote learning. The discrepancy has resulted in less self-regulated student's learning activities and parents' lack of understanding on the nature of teaching and learning activities carried out at home (Churiyah et al., 2020).

To ensure quality and equitable higher education mainstream for all, we need to reflect on opportunities presented by the Covid-19 pandemic. Supportive and inclusive ecosystem, which includes quality assurance and recognition of online and blended learning programmes, infrastructure development, institutional strategic planning, budgeting and capacity building, as well as support for continuous professional development for the academic faculty must be considered. For the learners, holistic support is also critical as they face isolation and uncertainties about the future of work (Teter & Wang, 2020). Approaches and tactics in education as well as other related social areas can be learned from other successful nations and adopted or modified to suit one's nation.

Methods

Purpose

The study was conducted to address three research questions:

How effective is online teaching and learning as perceived by students and teachers at Politeknik Brunei during the second wave coronavirus pandemic in 2021?

Is there any statistical difference in effectiveness of online learning for students from different study focus groups?

The null hypothesis below is assumed:

H0 – There is no significant difference between the effectiveness of online learning between five different study focus groups at Politeknik Brunei.

What are the main challenges and benefits of remote teaching and learning?

Participants and Procedure

The study was conducted on a random sample of 989 students and 92 teachers who had experienced 100% remote teaching and learning during the COVID19 pandemic crisis in 2021. To invite participants in the survey, two separate online questionnaires were sent via the institutions' emails to all continuing students (those who were undergoing internship programmes were excluded) and academic staff of Politeknik Brunei. Data was voluntarily collected by the Research and Statistics team where participants were fully informed of the purpose of the study and the confidentiality statement was included in the email.

Findings & Discussions

Descriptive and inferential analysis were employed for all collected data.

The students' perspectives

- Popularity of online tools

E-learning tools have completely revolutionized education, allowing people to learn in their own way, at a distance and in their own time – without having to step foot in a classroom. There is a flood of information and resources related to the coronavirus and the preparation for remote learning shared in many learning communities. It can be overwhelming at times even for educators who have been teaching online or are more experienced with implementing digital tools in the classroom. Sometimes it would be hard to select the most suitable tool or applications, which again depends on the content and method of delivery.

According to the survey, online tools used by the students and teachers are Zoom, PBLMS, Camstudio, Google Meet, EdPuzzle and many more. However, 26% (n=257) stated that Zoom is their most preferred tool. This may be related to its dependability and uncluttered interface which makes it friendly to use. Automatic one-click to join a meeting, automatic sound and video prompts, integrated chat and easy screen share are some of the most useful features being used.

- Effectiveness of online learning

The effectiveness of online learning was measured based on seven (7) positive statements related to learning aspects. Students were to rate these statements on a 5 Likert scale where 1 indicates strongly disagree and 5 indicates strongly agree. For simplicity in calculating item's rate of agreement, scores 1 and 2 are grouped as 'disagree', 3 as 'neutral', while 4 and 5 as 'agree' (refer to Table 1).

Figure 1 shows the index of the items used in the effectiveness of the online learning questionnaire. Item 1 and item 3 are the two statements with the higher agreement indices (3.90 and 3.80) respectively among all the items.

Table 1: Effectiveness of Online Learning

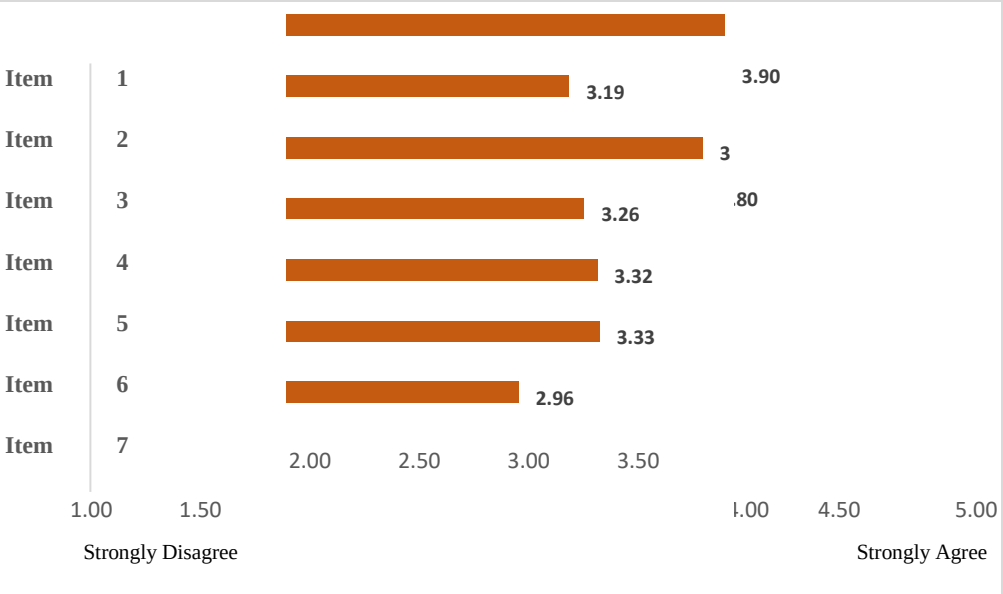
Items	Statements	*Population of students (N = 989)* Agree (%)	Neutral (%)	Disagree (%)
1	It is easy to access all learning materials	76	19	5
2	I can easily understand the online classes on a daily basis	36	48	16
3	There are enough activities on online classes for all my modules	70	24	6
4	It is easy to communicate with my friends and teachers during online classes	45	35	20
5	It is easy to share my work during online classes	46	37	17
6	I am able to learn on my own with minimal supervision	46	38	16
7	Overall, I can learn better with online tools	25	49	26

Accessibility to learning materials is important as it incorporates interactive learning and motivates learners to participate in lessons. Students can prepare beforehand which ensures a better learning experience. In terms of accessibility, 76% (n=781) of students agreed that learning materials are easily accessible as they are readily available through the online portal PBLMS throughout the semester.

The inclusion of collaborative online learning activities promotes student engagement and enhances learning outcomes. Introducing online activities during online class and providing feedback after the activity is completed can help to 'close the gap' for students' learning. 70% (n=692) of students agreed that there were ample activities provided by their teachers during online classes. Activities may range from case-studies, online debates, quizzes, presentations and many more.

Only 25% (n=247) of students agreed that they can learn better with online tools. Traditional classroom offers real time face-to-face instruction and sparks innovative questions. Teachers can respond immediately and allow more flexible content delivery. During online instruction, the learning process is dampened as students must shorten their questions and wait for the teacher and peers to respond (Salcedo, 2010). With time and practice, online teaching will probably improve and enhance digital classroom dynamics. However, for now, according to Kemp and Grieve (2014), online classrooms cannot provide the dynamic learning attributes offered in a traditional classroom setting.

Figure 1: Agreement Index of Learning Effectiveness Items



The effectiveness of online learning was measured on a score of 7 – 35, where higher scores indicating higher online learning effectiveness. The categories are as follows:

- Scores ranging from 7 – 16 is considered as low level of effectiveness;
- Scores ranging from 17 – 25 is considered as moderate level of effectiveness; ➢ Scores ranging from 26 – 35 is considered as high level of effectiveness.

The value of Cronbach's alpha (α= 0.71) indicates good internal consistencies of all the items. The findings suggest that the effectiveness of online learning at Politeknik Brunei is at a **moderate level** with a mean of 23.8 and a standard deviation of 4.13. Overall, 5.5% (n=54) students indicated that online learning at Politeknik Brunei has low effectiveness, 58.4% (n=578) indicated moderate effectiveness and 36.1% (n=357) indicated that it is of high effectiveness.

Table 2: Effectiveness of Online Learning Category

Category	***Score***	***N***	***Mean***	***Standard Deviation***
Low Effectiveness	7 – 16	54	14.1	1.90
Moderate Effectiveness	17 - 25	578	22.1	2.13
High Effectiveness	26 - 35	357	27.9	1.94

Students at Politeknik Brunei can be categorized according to five (5) study focus groups: business, ICT, engineering, health sciences and petrochemical. A one-way ANOVA was performed to compare the effect of five different study focus groups on effectiveness of online learning scores. The null hypothesis H_0 is assumed, where there is no significant difference between the effectiveness of online learning between different study focus groups.

Table 3: Descriptives of effectiveness online learning scores

Study Groups	N	Mean	Std.	95% Confidence Interval for Mean		Min	Max	Deviation	Error	Bound
				Std.	Lower Bound					Upper Bound
Business	128	20.6	4.19	0.371	19.8	21.3	28	7		
ICT	180	20.7	3.86	0.287	20.1	21.3	28	7		
Engineering	238	21.2	4.22	0.273	20.7	21.8	28	7		
Health Sciences	282	21.7	4.04	0.241	21.3	22.2	28	7		
Petrochemical	161	21.1	3.57	0.281	20.5	21.6	28	11		

Table 4: ANOVA of study focus groups

Source of Variation	Sum of Squares	df	Mean Square	F	p-value	$F_{critical}$
Between Groups	175.00	4	43.8	2.73	0.03	2.38
Within Groups	15741.79	984	16.0			
Total	15916.80	988				

*p=0.05

Initially, the omnibus test revealed that there was a statistically significant difference in mean score between at least two study focus groups (F (4, 984) = [2.73], p = 0.03) due to a Type-I error. However, the Tukey-Kramer post-hoc test as shown in Table 5 revealed that there was no statistically significant difference in mean scores between any pairs of the five different study focus groups. Hence, the null hypothesis H_0 cannot be rejected.

Table 5: Tukey-Kramer Post-Hoc Test

		Studentised Q-value = 3.860		
Study Focus Groups		Mean difference	Standard Error	Q-value
Business	*ICT*	0.146	0.327	0.448
	Engineering	0.673	0.310	2.172
	Health Sciences	1.160	0.301	3.849
	Petrochemical	0.486	0.335	1.450
ICT	*Engineering*	0.527	0.279	1.887
	Health Sciences	1.014	0.270	3.757
	Petrochemical	0.339	0.307	1.106

Engineering	*Health Sciences*	0.487	0.249	1.955
	Petrochemical	0.188	0.289	0.651
Health Sciences	*Petrochemical*	0.675	0.279	2.415

- The challenges and benefits of online learning

The universal challenge of online learning is the lack of internet connectivity. 73% (n=719) of our students stated that they experience slow internet connection, if there is any. This may be explained by the lack of internet infrastructure as there are only three major telecommunication companies offering internet services throughout the nation. It is also well known that Brunei has one of the most expensive broadband in the world. 41 % (n=401) has stated that expensive data is one of the main challenges.

Bruneian families are relatively large, ranging from three and may go up to ten members in a household. This is because Brunei is a closed-knit society, where staying under one roof for a family is highly treasured by the head of the house, or the elders. For the less fortunate ones, they may have to share rooms with their siblings, or other family members. Even without the structure of a traditional classroom, online learning can also be challenging and incite distractions. This may be the reason why 67% (n=661) of students stated that they have difficulties in focusing during their online lessons or in their independent studying time due to the distractions from their surroundings. Social media such as televisions, Facebook, Instagram, texting and younger siblings can pull one's attention away from the task at hand and diminish productivity as these distractions seem impossible to avoid. It is therefore very important for students to establish boundaries and make their family members or friends understand that these are acceptable, as long as their study goals for the day have been achieved. For the active social media users, it may help to minimize these disruptions by getting more organized, setting up schedules and keeping to them, as well as avoiding procrastination.

Although most of our learners are digital natives and human interactions can still occur online, 65% (n=641) stated that they have lost their motivation due to no 'physical' interaction with their teachers and peers. Some stated that they feel 'isolated' and with no emotional feedback, they may start to feel depressed. The lack of motivation will directly impact their learning as it lowers their energy level, their persistence in reaching a specific goal and their thinking processes.

Students from the health sciences and engineering study groups suffer the most in terms of hands-on learning due to the nature of their programmes. Overall, 53 % (n=522) stated that they have no practical or clinical laboratory work where 44% (n=229) of these comments are made by health science students and 25% (n=131) by the engineering students (see Figure 2).

26% (n=258) of students commented that one of their challenges is their lack of skills in using online tools. From Figure 3, the majority (35%, n=90) of these comments was from health science students. Not surprisingly and as anticipated, ICT students have the lowest rate of 14% (n=35).

The main benefit of online learning is time and energy saved from travelling and a majority of students (77%, n=758) agreed with that. Class schedules can also be flexible so long as everyone can be present virtually, as space is limitless.

Adjusting to a remote learning model could be a challenge at first, but once we adapt to the format, there are numerous benefits to be realized. 7 out of 10 students (70%, n=691) mentioned the benefit of their own learning. Traditionally, students are expected to learn at the same pace, which most often than not, depends on the teacher's pace. Students are not always comfortable asking to repeat a point made in the previous lecture or dive into deeper

detail on a specific topic. When learning remotely, they can revisit past material or stop the recorded lesson and work through the lesson at their own pace, in their own time and space.

52% (n=517) of students commented on the flexibility of classes, 47% (n=691) mentioned that they can learn independently, 43% (n=427) felt that they are comfortable in asking questions as they can just type them in chat box or personal messages and 30% (n=293) prefered their relatively nicer home environment for learning.

Figure 2: Portions of students lacking hands-on experience

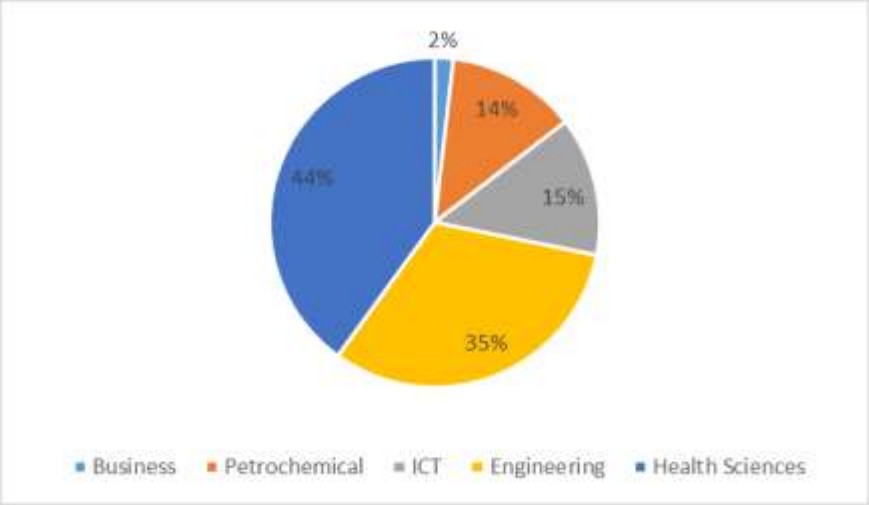
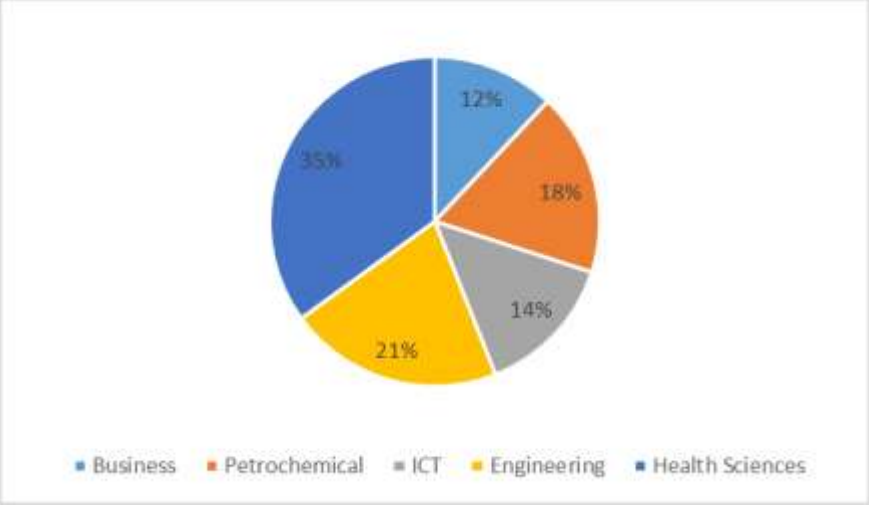


Figure 3: Portions of students lacking skills in using online tools



The teachers' perspectives

- Popularity of online tools

93% (n=86) of teachers preferred to use Zoom as the platform for delivering their lessons. Zoom is a popular video conferencing tool that allows users to meet synchronously online via computers or mobile phones, with or without using videos. It can be very useful in giving 'live' lectures and having discussions, or recording lessons to be viewed by the students asynchronously. The next favoured tool is PBLMS (91%. n=84) and this is anticipated since it is the official platform where teachers are required to upload their teaching resources to be shared with others, and learning materials for students to access at any time. For those who pre-recorded their lessons, PBLMS is a convenient platform for them to make these available for the students. Other tools used are Whatsapp (79%, n=73), Powerpoint (75%, n=69) and GoogleDrive (58%, n=53), all of which are usually used in combination with the other formerly mentioned tools.

- Effectiveness of teaching

The effectiveness of online teaching was measured based on eight (8) positive statements related to teaching aspects. Similarly, teachers were to rate these statements on a 5 Likert scale where 1 indicates strongly disagree and 5 indicates strongly agree. Table 6 shows itemised rate of agreement.

Figure 4 shows the index of the items used in the effectiveness of the online teaching questionnaire. Item 2 and item 7 are the two statements with the higher agreement indices amongst all the items (3.87 and 3.90 respectively).

Table 6: Effectiveness of Online Teaching

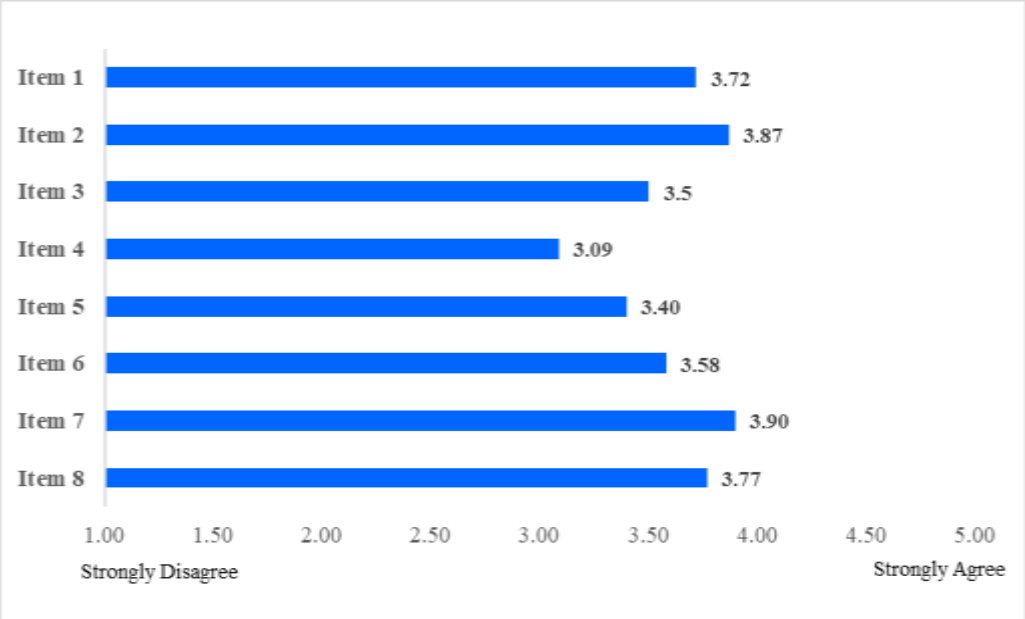
	Population of teachers (N = 92) Items Statements	**Agree (%)**	**Neutral (%)**	**Disagree (%)**
1	Lesson content can be delivered easily and effectively	70	24	6
2	Online learning tools are easy to use	73	25	2
3	Online learning sessions have been interactive	63	26	11
4	Online assessments can be conducted easily	36	40	24
5	I am able to keep track of students' progress with ease	53	28	19
6	I am able to provide useful feedback on assignments and questions to students on time	64	24	12
7	I am available to students for assistance and support most of the time	82	9	10
8	I am able to keep track of students' attendance easily	72	21	8

In terms of availability, it is considered a norm for teachers at Politeknik Brunei to have Whatsapp group chats with their students, hence both parties can communicate easily. Hence, 82% (n=75) of teachers agreed that they are available for their students should they require assistance and support.

73% (n=67) claimed that online learning tools are easy to use. Limitless online resources are available where teachers can customize the site accordingly, add videos, quizzes and share the links with the students. One of the most common interactive tools mentioned by teachers is Edpuzzle (n=24). It is a web-based tool used for editing and tweaking online videos, which are easily available on the same site, and add interactive content such as quizzes, where these can then be uploaded to PBLMS.

The most challenging task is conducting online assessment, which most of our teachers have very little exposure to. Although educators at all levels have embraced online technology as a teaching tool, the issue of online assessment for students has not been properly discussed or addressed. Only 36% of teachers (n=33) claimed that online assessments can be conducted easily. Online assessment is more than just testing and evaluating students' understanding and progress. Although it may be difficult to measure students' learning, that does not mean learning has not taken place. Online instructors can devise and adapt assessment activities so as to provide useful feedback, accountability and opportunities to demonstrate quality.

Figure 4: Agreement Index of Teaching Effectiveness Items



The effectiveness of online teaching was measured on a score of 8 – 40, where higher scores indicating higher online teaching effectiveness. The categories are as follows:

- Scores ranging from 8 – 18 is considered as low level of effectiveness;
- Scores ranging from 19 – 29 is considered as moderate level of effectiveness; ➢ Scores ranging from 30 – 40 is considered as high level of effectiveness.

The value of Cronbach's alpha (α= 0.68) indicates good internal consistencies of all the items. The findings suggest that the effectiveness of online teaching at Politeknik Brunei is at a **moderate level** with a mean of 28.8 and a standard deviation of 3.72. Overall, 1.1% teachers perceived that their online teaching at Politeknik Brunei has low effectiveness, 52.2% indicated moderate effectiveness and 46.7% indicated that it is of high effectiveness.

Table 7: Effectiveness of Online Teaching Category

Category	*Score*	*N*	*Mean*	*Standard Deviation*
Low Effectiveness	8 – 18	1	16.0	n/a
Moderate Effectiveness	19 – 29	48	26.5	2.69
High Effectiveness	30 - 40	43	31.7	1.71

- The challenges and benefits of online teaching

Consistent with the main challenge for online learning, 73% (n= 67) of teachers commented on the instability of internet connection. As discussed above, the lack of internet infrastructure nationwide may be the main contributing factor. Not much can be done at the moment besides having to resort to conducting lessons asynchronously where students are to learn on their own schedule, within a certain timeframe. This has brought about another challenge where in the absence of an instructor, real-time interaction with students becomes minimal and lacking personal touch. Thus, 70% (n=64) of teachers commented on the lack of interaction with their students. Another disadvantage is lesson content may be misunderstood and misconstrued without the real-time interaction with teachers and peers.

Academic performance is one of the most critical issues in higher education. Learners need to attend lectures regularly and participate actively in class. According to researchers, class attendance is a predictor of student success and reflects a student's positive learning habits, skills, and attitudes, all of which are directly related to their ultimate success. Absenteeism has always been an existing problem in the traditional classroom settings. With the emergence of new educational technologies and new online learning methods, the rates of students' interest and attendance have decreased even more. 64% (n=59) of teachers commented that students were absent from synchronous online lessons due to reasons related to failure in connectivity while 36% (n=33) commented that students were just 'missing in action' without indicating any valid reasons.

For lessons to be delivered effectively in traditional classrooms or online settings, preparation has to be done meticulously. Advancements in technology have opened new ways of teaching and learning but without failing to highlight a key difference between traditional and online classrooms. Teachers need to be fluent in using basic technology such as setting up computers for video conferencing, using digital boards and digital pens; workspace at home needs to be comfortable to maintain focus and productivity; creating activities to ensure active participation and engagement of students; tracking progress and ensuring that learning continues outside of class; ensuring that the digital setup fosters a genial atmosphere which is important in making students feel welcome in the class; all of which has to be taken into consideration when preparing online lessons. This requires proper planning, time and effort by the teachers. When the partial lock-down was announced, teachers had literally a few days to make preparations for full online teaching. Hence, 59 % (n=54) stated that they required more time in compiling and creating resources for their lessons. Other challenges include limited data availability (32%, n=29), lack of IT knowledge (22%, n=20) and limited access to digital devices (19%, n=17).

Benefits of online teaching include the ability to deliver learning materials to a mass of students (71%, n=65). As lectures can be pre-recorded (59%, n=54), more time can be saved and used for consultation and helping weak students instead. 67% (n=62) of teachers mentioned that they do not have to travel to work resulting in time, energy and money saved. 65% (n=65) mentioned about the flexibility in scheduling classes as space is limitless unlike the rigid traditional classroom setting. As a blessing in disguise, 50% (n=46) of teachers commented that online learning has improved communications as it gives students with reservations the platform to 'voice' out their ideas and opinions more confidently, such as by using chat-box, texts, icons and digital boards.

The Overall Reaction

When asked about the preference of online learning, 12% (n=122) of students stated that they liked it, 27% (n=270) were unsure while 60% (n=597) disliked it. In terms of modes of teaching, only 3 % (n=3) preferred fully online setting, 8% (n=7) preferred fully traditional classroom setting while the majority (89%, n=82) preferred blended setting.

Conclusion

Politeknik Brunei has taken the necessary step in adapting our educational services to the new norm postpandemic. A system called PB-Hyflex will be adopted and piloted in 2022 which integrates complementary faceto-face and online learning. Students have the freedom to choose whether to participate in face-to-face synchronous class sessions in person, face-to-face synchronous video conference or fully asynchronously via coursework.

According to Thomson in the World Economic Forum 2015, it is predicted that 80% of the population will have internet presence and 90% will have internet access. The Fourth Industrial Revolution IR4.0 is fast changing how we live, work and communicate. With this notion in mind, it may form a basis of worthy discussions among academics, administrators and policy-makers to rethink education, its policy and approach – Education 4.0, a desired approach of learning which aligns itself with the emerging IR4.0 in terms of curriculum, pedagogy and assessment.

The lack of robust infrastructure is one of the main challenges in ensuring effectiveness in online education. The Ministry of Education, supported by the Government and the relevant authority has to play their parts in improving the existing infrastructure. On the other hand, educators with the support of the administrators are to equip themselves with the competency in improving students' experience by utilizing effective pedagogical methods. Nevertheless, support from stakeholders such as school communities, parents and learners are vital to ensure the success of online learning.

Limitations

It should be noted that all measuring instruments used in this study are self-report based. Due to this, there may be self-inflation or negative bias in the responses. Regardless, this study presents the necessity for further research in order to better understand the issue better. Future studies may employ mixed methods (quantitative and qualitative) to investigate the effectiveness of online pedagogical strategies employed by teachers and the measure of academic and socio-emotional performance of the students.

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