

Wide Survey on Online Teaching and Learning During Movement Control Order in Malaysia due to Covid-19 Pandemic

Ahmad Hata Rasit¹, Hamimah Ujir², Chen Chwen Jen³, Rohana Sapawi⁴, Irwandi Hipiny²

¹Faculty of Health and Medical Sciences, Universiti Malaysia Sarawak, Malaysia, ²Faculty of Computer Science and Information Technology, Universiti Malaysia Sarawak, Malaysia,

³Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak,

Malaysia, ⁴Faculty of Engineering, Universiti Malaysia Sarawak, Malaysia

Email: uhamimah@unimas.my

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Abstract

“Prepare for the new norm” is a common saying among Malaysians since the federal government introduced the Movement Control Order on March 18th, 2020. Among the many enforced measures to control the spread of Covid-19 virus are the stay-at-home ruling and the ban on mass gatherings. These measures force Higher Education providers (HEPs) to drastically change the way Teaching and Learning (T&L) activities are conducted at their institutions. Conventional guided face-to-face (f2f) T&L and assessments are no longer tenable; the only workable solution is converting the remaining course plan to full online mode. Universiti Malaysia Sarawak’s (UNIMAS) students and academics are relatively familiar with the concept of blended learning. UNIMAS had started using Learning Management System two decades ago and the current system, e-Learning Enrichment and Advancement Platform or eLEAP, is actively used by all UNIMAS students. However, most of the courses were designed with blended learning relegated to supporting act status; existing only to complement the guided f2f T&L activities. The Movement Control Order (MCO) requires blended learning to be delivered in substitution mode, which is to replace the f2f sessions instead of merely complementing them. To assess the status of UNIMAS’s academics and students for this scenario, an online survey was conducted from March 22nd till March 31st. A total of 640 academics and 6,871 students had participated in the survey. This paper reports on the survey findings that provide insights on how to mitigate the infrastructure and policy shortcomings as to afford effective blended learning (in substitution mode) delivery in UNIMAS as well as to minimise inequitable education for students from diverse online learning readiness.

Introduction

Starting on March 18th, 2020, the federal government of Malaysia had enforced the Movement Control Order (MCO) (Majlis Keselamatan Negara, 2020) due to the Covid-19 pandemic. The Movement Control Order is implemented in successive two-week phases, and at the time of writing, we are entering the third phase. Amongst the many enforced measures to control the spread of the Covid-19 virus are the stay-at-home ruling and the ban on mass gatherings [Majlis Keselamatan Negara, 2020]. As a higher education provider, Universiti Malaysia Sarawak (UNIMAS) reacts to these measures by drafting a plan to deliver the remaining course plan for Semester 2 2019/2020 using a blended learning approach in substitution mode. Blended learning substitution refers to the use of online teaching and learning (T&L) to replace the conventional face-to-face (f2f) T&L sessions. This proposal is in line with the Malaysian Qualification Agency's (MQA) circular (Kementerian Pendidikan Malaysia, 2020) on allowing 30% - 80% of the Student Learning Time (SLT) to be delivered using blended learning in substitution mode.

The demographics of UNIMAS's students are historically unique compared to other local public HEPs. Situated at the largest state in the country, i.e., Sarawak, UNIMAS mainly accommodates students originating from the state itself and UNIMAS has 58% of B40 students. According to the reports by the Statistics Department and Khazanah Research Institute (Khazanah Research Institute, 2018), the income range for B40 is lower than RM4,360 per household. A report released by the Malaysian Communications and Multimedia Commission (MCMC) a (2018), estimated Sarawak to have a 5.3 fixed broadband penetration rate per 100 inhabitants with a national average of 8.1. The penetration rate is almost a third of the more affluent states in Malaysia such as Selangor (14.6), Kuala Lumpur (13.9), and Putrajaya (15.0). The fact is that most rural areas in Sarawak are lacking the infrastructure to support fixed and mobile broadband connectivity.

UNIMAS was in a unique situation when the Movement Control Order was first announced as some of the students (and academics) had returned to their hometown for the mid-semester break. This situation necessitates a survey to assess the students' and academics' internet accessibility index at the location where they are currently observing the Movement Control Order. The survey is important as the findings guide our counter-strategies and proactive plans.

This paper presents findings from the survey conducted from March 22nd until March 31st. Section 2 describes the related work, followed by a brief explanation of the survey instrument used in Section 3. The findings of the survey are deliberately discussed in Section 4. In Section 5, we outline our various initiatives to mitigate the infrastructure and policy shortcomings as to afford effective blended learning (in substitution mode) delivery in UNIMAS as well as to minimize inequitable education for students from diverse online learning preferences. Finally, we conclude our report in Section 6.

Background

Ministry of Higher Education Malaysia (MoHE), in their media statement (Malaysia Ministry of Higher Education, 2020), announced that all teaching and learning (T&L) activities should be implemented online by December 31, 2020, and therefore, all T&L activities face-to-face are not allowed. However, for postgraduate students who require specialized types

of equipment or to conduct research, they are allowed to return to the university to continue their works at the labs, workshops, design studios. For undergraduate students, who need to do clinical work, charity training, laboratory, workshop, design studio, practical, or in need of specialized equipment, they are allowed to apply for T&L on campus as early as July 1, 2020. This also applies to the final semester and final year students who do not have the required internet access and their current environments are not conducive to implement online T&L. MoHE also directs the implementation of academic activities on campus in full compliance with the Standard Operating Procedures (SOPs) and prioritize security measures and social distancing.

To support the MoHE statement, Malaysian Agency Qualifications (Malaysian Qualifications Agency, 2020) and other professional bodies, i.e. Engineering Accreditation Council and Engineering Accreditation Council (Engineering Accreditation Council and Engineering Accreditation Council, 2020); Malaysian Institute of Accountants Education Board (Malaysian Institute of Accountants (a), 2020; Malaysian Institute of Accountants (b), 2020) ; Nursing Board Malaysia (Nursing Board Malaysia, 2020) ; Malaysian Medical Council (Malaysian Medical Council, 2020); Malaysian Counsellor Board (Malaysian Counsellor Board, 2020); Council of Architectural Accreditation and Education (Council of Architectural Accreditation and Education, 2020; Council of Architectural Accreditation and Education, 2020); Quantity Surveyor Accreditation Council (Quantity Surveyor Accreditation Council, 2020), have come out with their T&L guidelines for all Higher Education Providers (HEPs) in planning temporary actions and recovery measures on the current academic systems which are affected by the implementation of the Movement Control Order (MCO) and Conditional Movement Control Order (CMCO). Based on their statements, all temporary actions and measures taken during this crisis period are placed under the responsibility and autonomy of the HEPs' Senate/ Academic Boards who are responsible for making the necessary decisions within the appropriate time frame (current and post-crisis). The guidelines produced in (Malaysian Qualifications Agency, 2020; Engineering Accreditation Council and Engineering Accreditation Council, 2020; Malaysian Institute of Accountants (a), 2020; Malaysian Institute of Accountants (b), 2020; Nursing Board Malaysia, 2020; Malaysian Medical Council, 2020; Malaysian Counsellor Board, 2020; Council of Architectural Accreditation and Education, 2020; Council of Architectural Accreditation and Education, 2020; Quantity Surveyor Accreditation Council, 2020) consist of T&L, Student Learning Time (SLT) / Credit, Industrial Training, Student Assessment, and Readjustment of the Semester System. On 28 July 2020, MQA has release a Guideline to Alternative Methods of Program Delivery and Evaluation Student Learning in Standard Program (Malaysian Qualifications Agency, 2020). This method of re-adjusting program delivery and student learning assessment applies to twenty-two program standards issued by MQA.

Anderson's Online Learning Model (Anderson, 2011) described the communications between the learners and academics, type of learning (independent versus paced, collaborative learning), resources, and support from family, peers, and professionals. The learner can only perform independent study if the knowledge content and support are provided. The interaction of learners and academics can take place within a community of inquiry.

Based on (Anderson, 2011), there are two online learning modes, asynchronous and synchronous. (Shahabadi & Uplane, 2015) deliberated these two modes in detail. According to (Clark et al. 2007) and (Chen, Lucas, Hafiza, Sharifah, 2020), synchronous online learning refers to real-time online learning in which both the instructor and students are required to present virtually at the same time at different locations. It is best exemplified by online classes and webinars taught through an online virtual classroom. A virtual classroom replicates the physical classroom experience and can be highly interactive, engaging, and collaborative. Synchronous online teaching mode is only feasible when all students have a strong internet connection. Asynchronous online learning refers to the type of learning that does not occur in real-time, but it is done on students' own time and at their own pace (Mayadas, 1997). The interaction between the instructor and students occurs at different times and different locations. Asynchronous online learning is recommended for all Blended Learning (Substitution) implementation but is particularly crucial when not all students have a strong internet connection (Chen, Lucas, Hafiza, Sharifah, 2020).

A report conducted by the Malaysian Department of Statistics (2018), estimated 97.9% of individuals in Malaysia aged 15 years and above are mobile phone users, 70.5% are computer users and 81.2% are internet users. From the same report, the percentage of households with internet access is 87.0%, with access to the computer(s) is 71.7%, and with access to the mobile phone(s) is 98.2%. Malaysian Communications and Multimedia Commission (MCMC) had conducted a similar survey (Malaysian Department of Statistics, 2018) back in 2018. The survey revealed some disparity in the distribution of internet users by strata, i.e., 70.0% are from the urban areas and the remaining 30.0% are from rural areas. The study had also revealed that 12.1% of internet users are full-time students. For this group, 70.7% are enrolled in a higher education institution.

The university needs to understand students' online learning preferences and design their T&L as well as the assessment accordingly to ensure the achievement of learning outcomes. In other words, the quality will not be compromised. Another issue that would need to be considered at the university is the academics load calculation (Ujir et al., 2020). To some academics, online teaching and learning might be easy to conduct as we are assisted with so many available online tools. As technology evolved faster, some of the tools we used this semester, might not be available in the next semester. The academics need to redo may be part of the lesson and assessments, or worst, all T&L materials, to suit the available technology. This requires constant effort and to a point, it is burdensome.

Survey Instrument

In this study, the survey is consisted of self-administered questionnaire. The purpose of this survey is to assess internet accessibility and devices for online learning among UNIMAS academics and students. Our respondents are relatively familiar with the concept of blended learning, however only as the complement to support the guided T&L. With the experience of using the LMS as the support, both groups are asked whether they are prepared to embark on fully online T&L during MCO. The questions are designed to be closed-ended version. Respondents were provided several options and for some questions, they could volunteer an option, not on the list.

On devising the questions for internet devices, what we want to know is the type of devices that they owned and whether their devices can access the LMS features. Based on the responses, we should know what type of online teaching materials and tools that we can provide to the students. Some students might live in rural vicinity and the only online apps that they can access is Whatsapp or Telegram app. The internet connection is another important question that will determine whether the asynchronous or synchronous lesson should be designed for a certain group of students. The survey also included questions designed to explore the suitability and ease of online teaching and learning for academics and students. Some might not comfortable with the online T&L as they are only familiar with f2f kind of T&L. Eleven questions for students are devised and it also consists of their whereabouts and level of study. For academics, only eight questions and includes the reason why they do not prefer online teaching. The wording of the survey questions is shown in the figures presented in the next section.

UNIMAS has conducted a thorough online survey from March 22nd till March 31st. A total of 640 academics and 6,871 students had participated in the survey. The findings and conclusions of this paper apply only to the population of respondents and should not be generalized to other populations. The following section presents the findings.

Survey Findings

This section presents the findings of the survey and analyzes the potential reason(s) behind each finding. Slightly more than 45% of UNIMAS active students had participated in the survey. These include undergraduates, postgraduates, and pre-university students. As mentioned earlier, the first phase of the Movement Control Order was announced during the mid-semester break of the university, hence explaining why 73% of the student population is currently outside the campus.

Students' Opinion on Online Learning

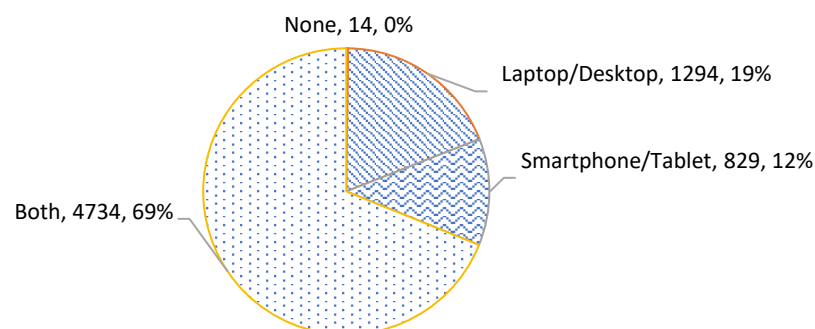


Figure 1. Students' smart device ownership.

Figure 1 shows the students' smart device ownership. From the total student respondents, 19% of the students own either a laptop or a desktop computer, 12% of them own a smartphone or a tablet and 69% of them own both types of smart devices. Although the number is low, 14 respondents reported that they do not have any personal smart device for participating in online learning. These numbers are in line with the findings from (Malaysian Department of Statistics, 2018) and (Malaysian Communications and Multimedia

Commission (MCMC) b, 2018), which state that most students own a personal smart device to access the internet. As stated earlier, a majority of our students are from the B40 group, hence the 14 respondents without an ownership of a personal smart device is plausible.

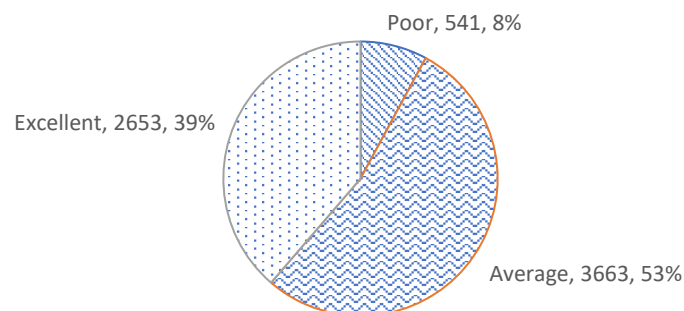


Figure 2. Students' smart device ability to access LMS common features.

Device ownership does not depict the actual situation. Using Likert scale, students were required to rate their smart device capability to access the common features such as video playback, access to file repository, timed quiz, forum and so forth in eLEAP, the official LMS of UNIMAS, see Figure 2. Fifty-three percent (53%) of these students rated the ability of their smart devices as average while another 8% of them rated it as poor. Only 39% of these students are fully confident of the ability of their smart devices to access the common features without any hiccups. For those who rated average or poor access, their smart devices could be outdated or not in an optimised condition.

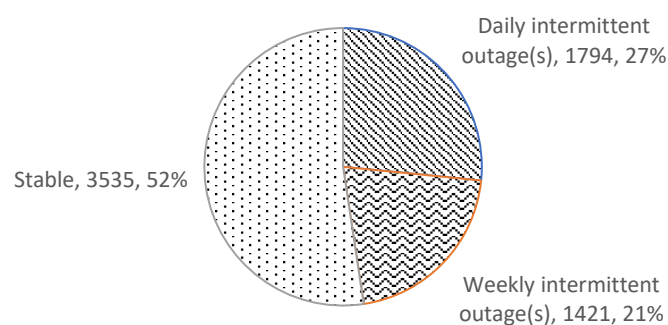


Figure 3. Students' internet connection stability.

The next two figures, i.e., Figure 3 and 4, show the students' internet connection stability and type. These two findings are very important for academics in planning feasible online learning materials and activities for their respective courses. Fifty-two percent (52%) of the students have a relatively stable internet connection and another 21% of them have reported weekly intermittent outage(s). The remaining 27% of these students reported having an unstable internet connection with daily intermittent outage(s). This is likely due to the quality of internet infrastructure at the location where the students are currently observing the Movement Control Order.

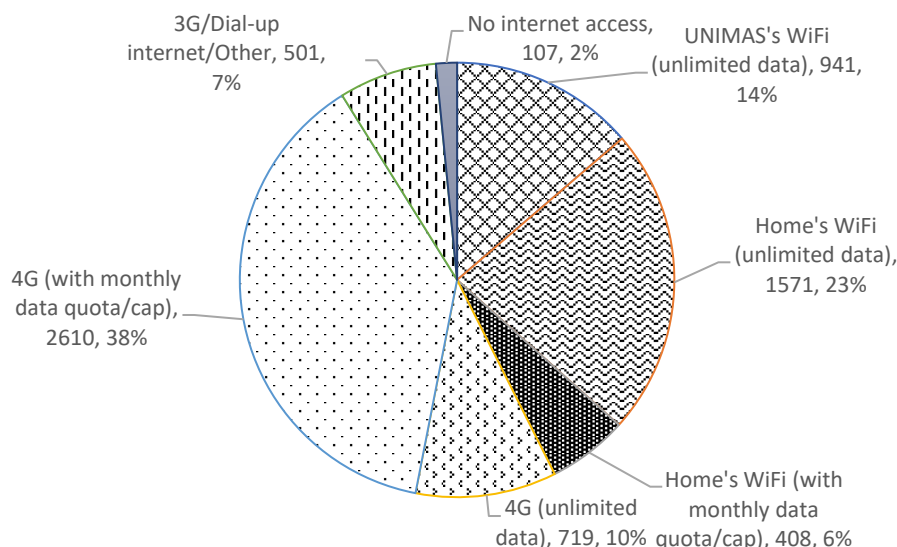


Figure 4. Students' internet connection type.

In Figure 4, only 47% of the students reported to have an ideal connection type, which is 4G/Broadband with unlimited internet data. This configuration is considered to be ideal as it allows smooth video streaming and large file downloads/uploads. Forty-four percent (44%) of them reported to have 4G/Broadband connection but with daily or monthly data quota. The remaining 7% of these students have inadequate connection speed, which is 3G or lower while the remaining 2% do not have any internet connection at all. Students' internet connection type is often determined by their geographical and socioeconomic status.

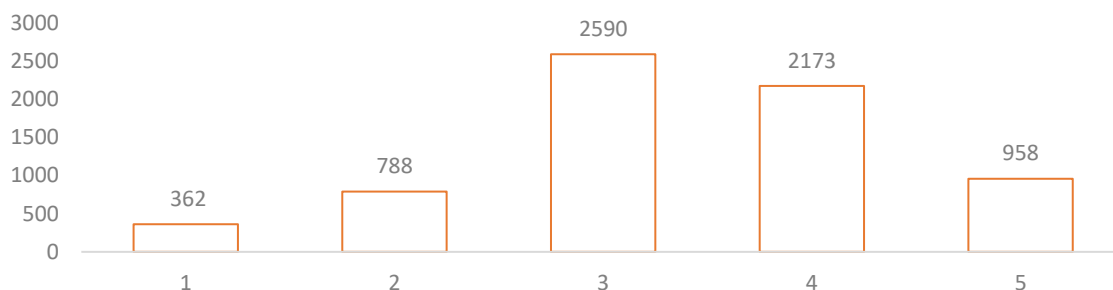


Figure 5. Students' preference for online learning, (1: Strongly Disagree to 5: Strongly Agree).

Lastly, we surveyed the students' individual preference for online learning. Using a 5-point Likert scale, we found out that 1,150 (17%) rejected online learning. Unavailability of devices and poor connection may explain this rejection. The strong preference towards f2f sessions may also contribute to this rejection.

Academics' Opinion on Online Learning

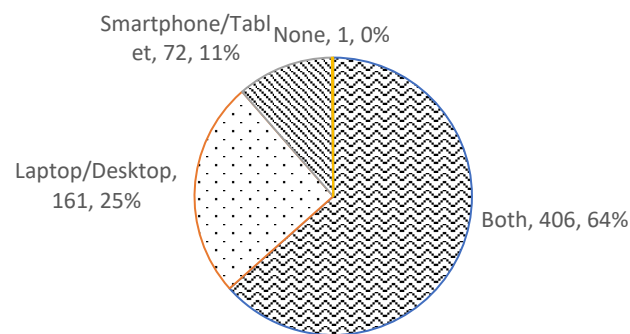


Figure 6. Academics' smart device ownership.

A total of 640 academics or 86% of the academic population responded to this survey. Figure 6 shows UNIMAS academics' smart device ownership. All respondents possess at least one smart device to access the internet, except for one individual. This result indicates a large majority of academics, hardware-wise, will be able to conduct blended learning substitution activities from their own home.

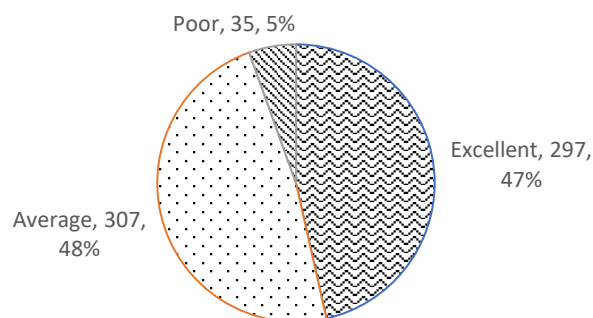


Figure 7. Academics' smart device ability to access LMS common features.

Referring to Figure 7, 47% of the academics have excellent access to eLEAP common features, 48% of them have average access while the remaining 5% have poor access. Similar with students, their poor access could be due to their outdated or not in optimised condition device.

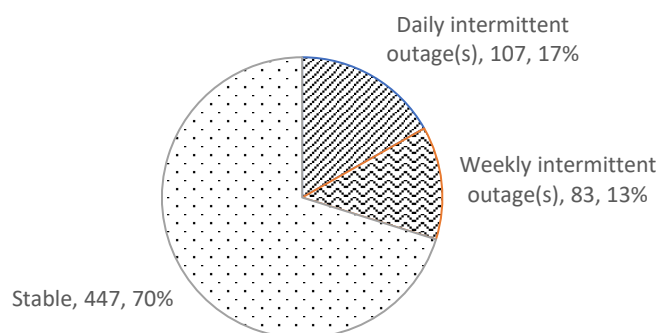


Figure 8. Academics' internet connection stability.

In Figure 8, 70% of the academics reported to have a relatively stable internet connection while 13% of them do not. We expected this result as 4G/Broadband coverage in Kota Samarahan (where the campus is located) is sparse and erratic. A solution is thus required to provide stable internet connection for this affected group.

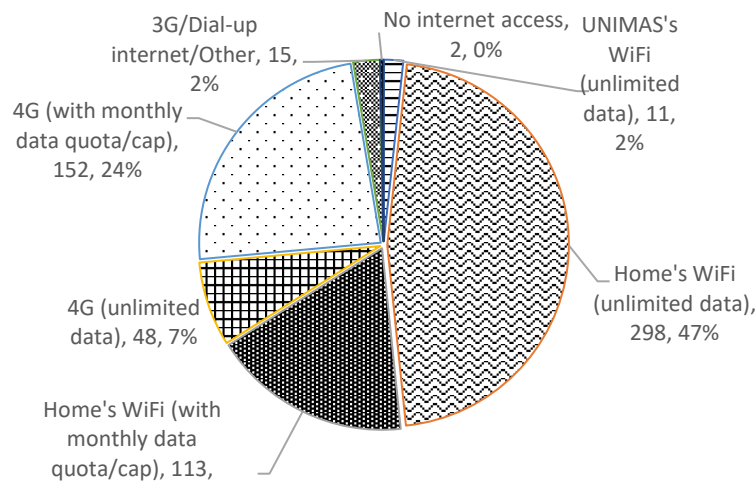


Figure 9. Academics' internet connection type.

Figure 9 shows the academics' internet connection type. Fifty-four percent (54%) of these academics have Wifi/4G/Broadband connection with unlimited data and another 42% of them Wifi/4G/Broadband connection with limited data. The remaining 4% of these academics have lower speed internet connection or none. Generally, academics' internet connection does not seem to hinder blended learning substitution implementation.

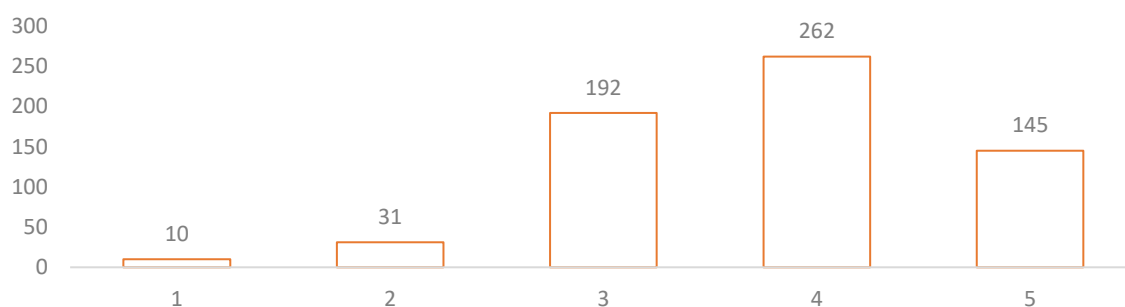


Figure 10. Academics' preference for online learning, (1: Strongly Disagree to 5: Strongly Agree).

We also include a question for the academics to gauge their personal preference to online learning using a Likert scale of 1 to 5, see Figure 10. From the 640 academic respondents, 192 (30%) academics were undecided and 407 (64%) academics indicated their preference for online learning. This result is as anticipated as the university had consistently conducted many blended learning workshops over the past few years. Almost all academics

had received some form of training to incorporate blended learning tools in their course(s) and many have adopted this delivery approach. Sixty-nine percent (69%) of the university courses have fully implemented blended learning in 2019.

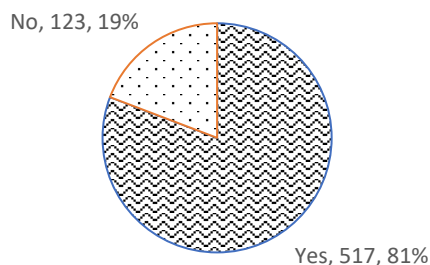


Figure 11. Academics' preferences on the implementation of blended learning substitution mode.

Academics were also asked on their preferences on the implementation of blended learning in substitution mode for the remainder of the semester and the result is shown in Figure 11. A majority, which is 81% of these academics, answered positively. However, 19% of them indicated that their negative preferences. For the latter group, we further inquired about the reason(s) of their "No" answer. The respondents were allowed to select more than one pre-defined answers (5 in total). The result is shown in Figure 12. The need to employ f2f mode for specific course contents and assessments is ranked as the top reason. Further examination into the characteristics of the latter group's respondents revealed that most respondents are from faculties governed by professional bodies. This explains their reluctance to drastically change the way they deliver the course content and assess their students' learning outcome.

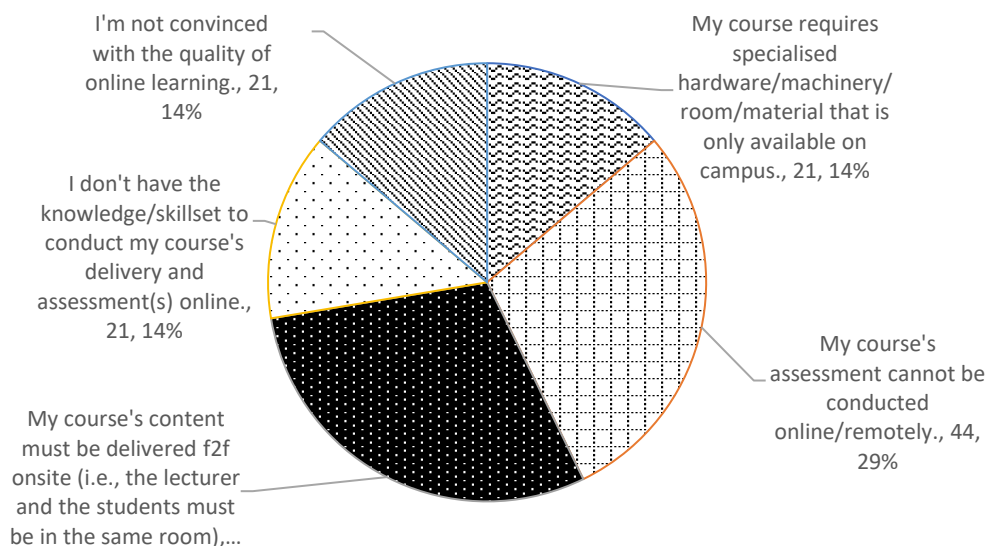


Figure 12. Academics' reason(s) of why they do not want to embark on full online learning.

Initiatives

This online learning accessibility survey is the first action by the university to understand the learning community. The survey findings point to us the diversity of students in terms of their access to basic requirements for online learning, which include their access to the

internet and possession of the needed device to learn online. Another round of comprehensive survey that includes all students is vital to find out the status of device ownership and internet accessibility of every student as not a single student is to be neglected. This information is crucial to determine the type of assistance that the university can offer to every student. The Endowment and Waqaf Division of the university have been mobilized to provide some financial assistance to support the telecommunication plan as well as the provision of devices to the very needy group of students.

The online teaching and learning information is also essential for academics as it will inform them of the appropriate design of the online T&L resources, activities, and assessments of their courses or to prepare non-online materials for those in need. The findings of this survey also reveal three (3) groups of students that need to be taken into consideration. The first group (G1) has adequate online learning affordances as this group of students have good internet access and possess a device for online learning. The second group (G2) consists of those who own a device but do not have access or have poor access to the internet while the third group (G3) comprises students who do not own a device as well as do not have access to the internet.

The survey also reveals that not every academic is ready for the new norm in teaching. We have 30% of the respondents who are still unsure of their preference towards online learning and about 6% who seem to reject online delivery. As online learning is the best option the university can adopt in this pandemic and realizing the needs as well as struggles among academics to adopt this new norm in teaching, the university has also produced a comprehensive guide for online teaching (Chen, Lucas, Hafiza, Sharifah, 2020) to prepare UNIMAS academics to transform their teaching delivery during this pandemic. It provides a step-by-step guide on the design, development, and implementation of an online course. Online knowledge sharing sessions in the form of live streaming or recorded videos have also been extensively compiled and disseminated to prepare them with the necessary knowledge and skills to embark on this new normal of teaching. To date, a total of 288 learning videos and recorded online sharing sessions prepared by UNIMAS as well as through the collective effort by all public universities in Malaysia have been compiled and disseminated to all academics.

At this time of crisis, alternative assessment is one of the most feasible approaches in accommodating student evaluation that cannot be done by conventional means, which is the written examination in an examination hall. To assist academics in designing their alternative assessment, which also includes online assessments, UNIMAS has provided a comprehensive guideline for the implementation of various types of alternative assessments in replacement of the conventional assessment during this critical time (Rasit et al., 2020).

Figure 13 shows the student assessment compatibility guideline, which has been prepared based on the survey conducted. From the survey, students can be categorized into three different groups (G1, G2, and G3) as described earlier. For G1, any online or alternative type of assessment is feasible to be conducted. They can also submit their assessment online. However, for students in G2 who own a device but have a weak internet connection or no access at all, the instructor needs to weigh the appropriateness of employing a take-home examination for a particular subject. If it is inappropriate, the instructor will need to opt for

an alternative assessment and allow submission either online or via postal service. The last group, G3, is the group with no internet access and no device. The only measure available at this point is to provide them with a take-home examination and employ postal submission.

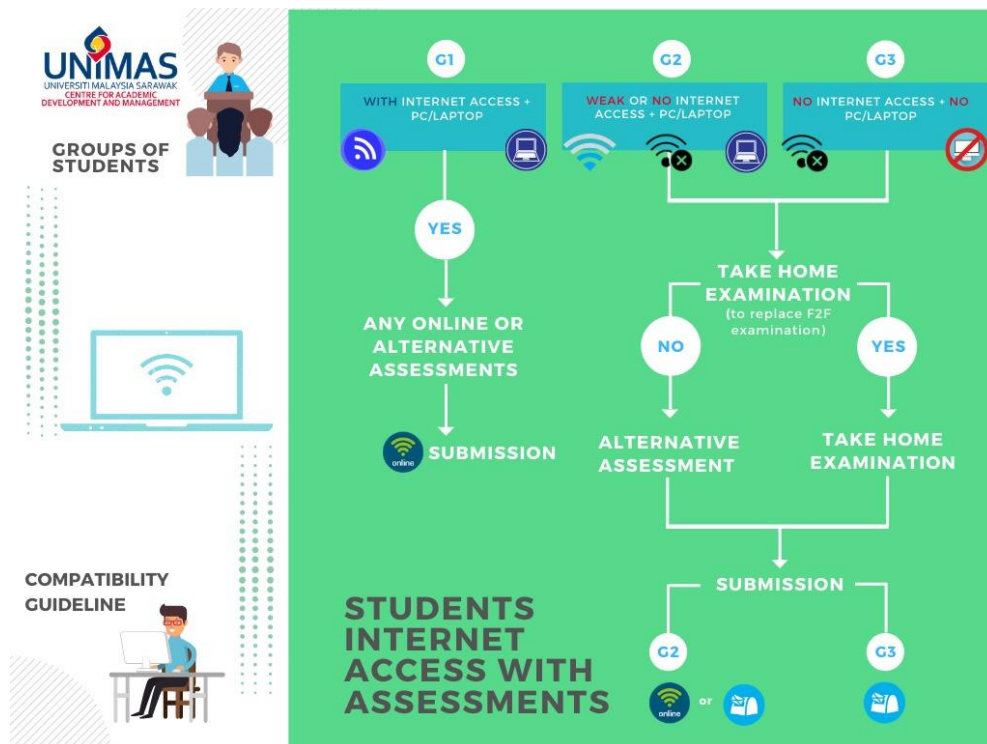


Figure 13. Student's assessment compatibility guideline. The image was taken verbatim (Rasit, 2020)

The university has also organized online sharing and training sessions related to various types of alternative assessments to assist academics in employing alternative assessment in their respective courses. These sessions emphasize on designing various types of alternative assessments, developing assessment rubrics, developing multi choice questions (MCQ), and sharing of best practices in an open-book examination as well as a take-home examination.

To assist the academics to conduct the online final examination, one new server to cater to examination needs is also made ready. All academics are required to declare whether their courses are conducting the synchronous or asynchronous type of final examination. For the synchronous type of examinations, they need to use the new server as it will lift the heavy traffic from accessing our LMS which is used in the asynchronous type of examination. A designated exam schedule is also prepared for the synchronous type of examinations, and this allows the larger class to conduct the synchronous final examination without any internet problem.

Such full online delivery and assessment mode has been piloted by the Pre-University Studies programme as the programme had four remaining weeks before the MCO was announced. So far, more than 600 students had successfully completed their programme using this fully online mode including an online examination as their final assessment. This success provides a good indication on the enthusiasm of the university to move into a full

online mode. It also a good hint that university has the capability to offer Online and Distance Learning type of academic program in the near future.

Conclusion

The Covid-19 pandemic pushes the Malaysian Government to implement the MCO that brings disruptive force to all sectors including higher education. All universities are closed, leaving most academics and students unprepared for the subsequent teaching and learning endeavor. UNIMAS proactively responding to the pandemic by devising several plans and strategies that tap into the existing university resources to enable the T&L implementation to proceed accordingly. Forty-five percent (45%) of the student population and 86% of the academic population responded to the survey. The findings reveal that almost 100% of student respondents possess a device and 98% of them have access to the internet for online learning purposes. The findings reveal that almost 100% of academic respondents possess a device and have access to the internet for online teaching purposes. The percentages of students and academics who have an ideal internet connection to access the common features of UNIMAS LMS are 54% and 47% respectively. Eighty-three percent (83%) of students and 94% of academics have indicated their preference for online learning. Most academics who rejected online T&L viewed the need to employ f2f mode for their specific course contents and assessments and they are mostly from faculties governed by professional bodies. This explains their reluctance to drastically change the way they deliver the course content and assess students' learning outcomes. The university responded to the situation by providing clear guidelines for online teaching and alternative assessments to academics, initiating financial and telecommunication support to students, providing related online sharing and training to equip academics with the necessary knowledge and skills for implementing an online course as well as improving the e-Learning infrastructure and support to implement the new norm during and post-pandemic.

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References

- Anderson, T. (2011). *The theory and practice of online learning*. (2nd Edition). Edmonton, AB: AU Press.
- Chen, C. J., Lucas, T., Hafizah, A. H. Y., and Sharifah, N. W. Z. (2020). *UNIMAS Online Teaching Guidelines*
- Clark, R., Dublin, L., Gottfredson, C., Horton, B., Mosher, B., Parks, E., ... & Rossett, A. (2007). *The eLearning Guild's Handbook of e-Learning Strategy. A eLearning guild, community & resources for eLearning professionals. Retirado em, 9.*
- Council of Architectural Accreditation and Education. (2020). *Nota Khas MAPS #1-2020: Pencegahan Jangkitan Penyakit COVID-19 dan Impaknya terhadap Program Senibina dan Rekabentuk Dalaman Institusi Pengajian Tinggi.*
- Council of Architectural Accreditation and Education. (2020). *Nota Khas MAPS #2-2020: Perlaksanaan Pengajaran dan Pembelajaran serta Penilaian bagi Program Senibina dan Rekabentuk Dalaman di Institusi Pengajian Tinggi dalam Tempoh Perintah Kawalan Pergerakan sempena Penularan Wabak COVID-19.*

- Engineering Accreditation Council and Engineering Accreditation Council. (2020). Guiding Principles on Teaching-Learning and Assessment Implementation During Covid19 Pandemic.
- Kementerian Pendidikan Malaysia. (2020). Garis Panduan Pelaksanaan Pembelajaran Teradun Gantian (Pembelajaran dalam Talian).
- Khazanah Research Institute. (2018). The State of Households 2018: Different Realities, Perpustakaan Negara Malaysia.
- Majlis Keselamatan Negara. (2020). *Majlis Keselamatan Negara, Jabatan Perdana Menteri, Kenyataan Media*, Retrived from: <https://www.mkn.gov.my/web/wp-content/uploads/sites/3/2020/03/PERGERAKAN-KAWALAN-COVID19-amended-18032020-UPDATED-12.12AM.pdf>.
- Malaysia Ministry of Higher Education. (2020). *Pengendalian Aktiviti Akademik di Kampus Institusi Pendidikan Tinggi Semasa Dan Pasca Perintah Kawalan Pergerakan*.
- Malaysian Communications and Multimedia Commission (MCMC) (a). (2018). Internet Users Survey, Retrived from: <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Q1-2019.pdf>.
- Malaysian Communications and Multimedia Commission (MCMC) (b). (2018). Internet Users Survey, Retrived from: <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Internet-Users-Survey-2018.pdf>.
- Malaysian Counsellor Board. (2020). *Nota Khas Lembaga Kaunselor (Malaysia) Bil. 1-2020: Pelaksanaan Pengajaran dan Pembelajaran di Institusi Pengajian Tinggi Sejajar dengan Perintah Kawalan Pergerakan – Krisis Wabak COVID-19*.
- Malaysian Department of Statistics. (2018). "ICT Use and Access By Individuals and Households Survey Report", Retrived from: https://dosm.gov.my/v1/index.php?r=column/cthemebByCat&cat=395&bul_id=U3VCWU95MFNZK2kxbHd6cnBYZDY5dz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09
- Malaysian Institute of Accountants (a). (2020), Temporary Approval By MIA Education Board for Industrial Training Replacement.
- Malaysian Institute of Accountants (b). (2020). Temporary Approval by MIA Education Board to Conduct Online Assessment.
- Malaysian Medical Council. (2020). *Panduan Pengendalian Program Pendidikan Perubatan (Ijazah Asas) Semasa dan Pasca Perintah Kawalan Pergerakan COVID-19*.
- Malaysian Qualifications Agency. (2020). Guidelines on the Delivery Of Higher Education Programmes During and Post Covid-19 Movement Control Order (MCO).
- Malaysian Qualifications Agency. (2020). Guidelines to Alternative Methods of Program Delivery and Evaluation Student Learning in Standard Program.
- Mayadas, F. (1997). Asynchronous Learning Networks: A Sloan Foundation Perspective. *Journal of Asynchronous Learning Networks*, 1(1), 1-16.
- Nursing Board Malaysia. (2020). Conducting Academic Programs and Examinations of the Malaysian Nursing Board / Malaysian Midwifery Board throughout the Movement's Control Order.
- Quantity Surveyor Accreditation Council. (2020). *Makluman Khas QSAC #1-2020: Pencegahan Jangkitan Wabak COVID-19 dan kesan terhadap program Ukur Bahan di Pemberi Pendidikan Tinggi Malaysia*.

- Rasit, A. H. (2020). Shifting to the New Normal in Teaching: Responsibilities of UNIMAS Academics, UNIMAS DVCA&A Webinar.
- Rasit, A. H., Sapawi, R., Razali, N. T., Wahy, R., Annuar, A., Hashim, M. H., and Goh, M. (2020). UNIMAS Guideline for Alternative Assessment.
- Shahabadi, M. M., & Uplane, M. (2015). Synchronous and asynchronous e-learning styles and academic performance of e-learners. *Procedia-Social and Behavioral Sciences*, 176(20), 129-138.
- Ujir, H., Salleh, S. F., Marzuki, A. S. W., Hashim, H. F., & Alias, A. A. (2020). Teaching Workload in 21st Century Higher Education Learning Setting. *International Journal of Evaluation and Research in Education*, 9(1), 221-227.