A Review and Reflection on Online Learning and Assessments in Higher Education after the Pandemic

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Abstract: *The 2020 COVID-19 pandemic has pushed many higher education institutions to deliver courses using online mode due to the movement restrictions. However, many academicians were under-prepared. Now that the pandemic is over, it is time to reflect on these online teaching practices and consider their suitability and sustainability in this post-pandemic era. This study used a case study approach and examined blended and hybrid learning and online assessments and their use in higher education institutions. It adopted a crowdsourcing approach to gather the relevant literature and was backed by the reflection and experience of the academicians in a branch campus of an Australian university in Malaysia. This study suggests that academicians could still use blended and hybrid learning as an alternative but must upskill themselves. Furthermore, selective online assessments could still be used. This study would be helpful to academicians and policymakers in higher education when deciding the teaching mode and assessments in the post-pandemic era.*

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1. Introduction

The COVID-19 outbreak in 2020 and the movement restrictions imposed by many governments worldwide have forced all higher education institutions (HEIs) to shift the course delivery platform to the online mode. The alternatives to the traditional teaching methods, such as online learning, hybrid learning, and blended learning, as well as the various online assessments, were deployed to sustain the course delivery. In many ways, the pandemic accelerated the use and adoption of technology, as academics had to find a means to reconnect with learners in their own homes. Although a shift from physical to online mode is inevitable, inadequate preparation for academics and students has posed many challenges (Fung et al., 2022). Three years have passed, and many countries have opened up their borders and relaxed the movement restrictions. However, some HEIs still maintain certain, if not all, course delivery methods. As HEIs welcomed students back to campus, some students could not return due to various administrative and home country policy restrictions on labour movements due to health concerns during the post-pandemic cooldown period. Some HEIs had to transition their return to normalcy through 'hybrid' teaching to cater to different learners' needs. In fact,

many HEIs at this time had adopted teaching modes and content deliveries catered to flexible and accessible classrooms to meet the students wherever (in the physical classroom or the virtual classroom) and whenever they need to be engaged (through both synchronous and asynchronous delivery) (Gamage et al., 2023). Given the vast experience handling online delivery and designing online assessments, it is time to reflect and relook at the suitability of these teaching modes and practices now. Moving forward, we need to better manage our teaching quality by maintaining or improving the current online modes of course delivery.

This study, using a case study approach based on the literature and reflection on the academics' experience in an Australian branch campus in Malaysia, retrospectively explores the effects of the teaching practices during the pandemic and considers the suitability of these practices in the post-pandemic era. The aim is to determine suitable online teaching practices and assessments that could be beneficial and more inclusive, subject to further improvements, to the students in higher education.

2. Literature Review

2.1 Hybrid Learning
In the face of the pervasive challenges posed by the pandemic, many institutions of higher learning showed considerable adaptability by implementing hybrid delivery to ensure the smooth academic progress of the students. Hybrid learning (Raes et al., 2020) is a form of delivery that occurs in a physical place but with students accessing the learning both face-to-face and online. Hybrid learning allows the institution to maintain educational continuity while prioritising students' and staff's health and well-being (Müller et al., 2021). Remote students were able to engage with the curriculum by attending scheduled lectures online using the digital platform. Essentially, hybrid learning combines online course delivery with face-to-face sessions simultaneously (Meydanlioglu & Arikan, 2014).

2.2 Blended Learning
Blended learning is a mode of delivery that contains a mixture of online and face-to-face delivery but is mutually exclusive. As the name implies, blended learning blends both online and face-to-face course delivery (Hockly, 2018). The weightage of online and face-to-face elements varies. Institutions of higher learning can determine a mixture that best fit their students' profile and circumstances. Blended learning utilises computer-aided and collaborative learning to enrich students' learning experiences (Dangwal, 2017). Hrastinski (2019) highlighted that blended learning could refer to a mode of delivery that combines different instructional methods, pedagogical approaches, and technologies. Although some literature used the terms blended and hybrid learning interchangeably, they are not exactly identical. They have both online and face-to-face learning spaces, but the content delivery differs. Blended learning delivers the content either entirely online in specific components or topics or fully face-to-face. On the other hand, hybrid learning is the content delivery in both modes simultaneously. Tables 1 and 2 illustrate these differences in a hypothetical course with four topics.

Table 1: Blended Learning Delivery

Blended Learning	Topic 1	Topic 2	Topic 3	Topic 4
Online delivery	Yes	No	Yes	No
Face-to-face delivery	No	Yes	No	Yes

Table 2: Hybrid Learning Delivery

Hybrid Learning	Topic 1	Topic 2	Topic 3	Topic 4
Online delivery	Yes	Yes	Yes	Yes
Face-to-face delivery	Yes	Yes	Yes	Yes

Both blended and hybrid require the online delivery space. However, lecturers need more competency and technology support in managing both the online and face-to-face learning space as it happens concurrently in hybrid delivery (Meydanlioglu & Arikan, 2014).

2.3 Online Assessments

The pandemic has posed many challenges to educators, particularly in developing assessments in a non-traditional environment (Fung et al., 2022). Due to the pandemic restrictions, educators face the challenge of implementing assessments that should not only retain or enhance student engagement but also allow flexibility (e.g., time and place) for students to complete the assessments. In some universities, the face-to-face (F2F) invigilated exams at higher education have been replaced by formative assessment (FA). FA helps students to develop higher-order thinking and cognitive thinking, such as application and analysis, rather than recalling exam answers (Succi & Canovi, 2020). Often, these FA are situated in an online platform. In addition, FA offers students soft skills in line with workplace future professional practice (Woldeab & Brothen, 2019). The standing of soft skills identified amongst employers confirms that the shift to a knowledge emphasis on students' ability to communicate effectively throughout different channels (e.g., verbal (FA with presentation), written, non-verbal), on being self-effective, committed to results, building relationships with multiple co-workers and clients, and ability to be flexible to the external context (Hong et al., 2023; Succi & Canovi, 2020). Furthermore, FA provides the students with a more engaging experience with the lecturers that yields better results in terms of in-depth learning (Williams & Wong, 2009).

Apart from the FA, some universities encouraged academicians to adopt authentic assessments. Authenticity of assessments could promote learning and positively impact student learning autonomy, motivation, self-regulation, and metacognition. These outcomes are highly regarded for employability (Villarroel et al., 2018). It was observed that the application of online assessments, such as authentic assessments in the delivery of the subject, presented many benefits. For example, it overcomes the time and place constraints for completing the assessments (Baleni, 2015). With online assessments, students can complete them at any time, anywhere. This flexibility is especially important due to travelling and gathering restrictions that do not allow students to return to campus.

3. Methodology

This study adopts a case study approach to examine the effects of hybrid and blended learning and online assessments since its implementation in 2020. A case study is an examination of a subject matter within a real-world context that could be descriptive, explanatory, or exploratory (Yin, 2017). The present study is exploratory in nature and focused on the teaching practices within the School of Business of a foreign university branch campus in Malaysia from 2020 to 2022.

The data from this case study was crowdsourced by a team of academics in the School of Business, led by the Head of School (HoS), to collect and analyse relevant literature published from 18 March 2020 (i.e., the date of the lockdown in Malaysia) to 31 March 2023. These literatures were extracted from the Scopus database and other news websites concerning the teaching and assessment development in the HEIs during this period. The academics analysed

these literatures, summarised and reported them separately in an Excel file. All academics used these findings to reflect on their personal experiences in teaching and designing assessments during the pandemic and wrote them down. These write-ups were then further cross-checked by the HoS, who was not involved in the data collection process, to ensure its consistency with the articles found. This process, which demonstrates credibility (data from reliable sources), confirmability (i.e., cross-checking for consistency), and replicable (where the processes can be replicated), contributes to the reliability of the findings in this article (Guba, 1981; Lim et al., 2022).

4. Findings and Discussions

4.1 Benefits of Hybrid and Blended Learning (HBL)

One notable benefit of hybrid and blended teaching offered by the institution during the pandemic is the flexibility and accessibility it provides to students. With the hybrid model, students may adjust their learning preferences based on personal circumstances, such as health problems or caregiving responsibilities. Hybrid delivery, combining face-to-face and online components at the same time, allows students to select their preferred learning modality. Those who are returning to campus will have the option of attending face-to-face lectures. Students who were unable to attend physically due to visa restrictions or other personal circumstances were able to participate remotely. This flexibility accommodates students' diverse schedules, learning preferences, and personal circumstances such as health issues, work obligations, or family responsibilities. The hybrid mode demonstrates the institution's unwavering commitment to academic quality amid exceptional circumstances.

The major issues faced by the teaching team during hybrid delivery based on three consecutive deliveries (three semesters) can be summarised as follows: interestingly, even though students requested more interactive lectures, more than half did not want to turn their video cameras on during synchronous sessions. Previous research has identified a number of issues with mobile video calling, including feeling obliged to leave the room, being more perceptive of poor lighting, background noise, others intruding on their call, struggling to maintain the privacy of other household members, and wanting to control their appearance on camera (Pikoos et al., 2021). For some people, video calling highlighted bodily features they were unhappy with, known as dysmorphic concern; this was exacerbated for those who fixated on their own faces during the call. Students appeared satisfied that they could see the facilitator and their classmates through the webcam, which created a sense of belongingness and being part of a greater community. However, this did not reciprocate in wanting to be seen (Kohnke & Moorhouse, 2021). In fact, keeping the camera on during the online lecture could aid both students and the lecturers to know the emotions of each other, just like in face-to-face classes. This approach could make online classes more engaging (Gunasekara et al., 2022).

Opening up the classroom setting to cater to both face-to-face and online students creates increased demands on the facilitator to engage with two learner groups with distinct learning needs. When the learning needs diverge between groups, one group is often left behind by the other (Nebrida & Bangud, 2022; Gamage et al., 2023). Online learners would feel increasingly distanced as they could not tell when to interject to ask for clarification as they worry about interrupting the content delivery by the facilitator. At the same time, students attending the class face-to-face experienced inconsistent delivery of information when there was an inevitable breakdown in technology – with frequent on-site troubleshooting.

Benefits from the opportunity for real-time engagement between classmates for instances where they feel too tired to attend a class but still want to participate from home, which can reduce cases of absence on a course. Hybrid teaching can provide a broader range of locations, especially for international students, without them having to relocate. At the same time, hybrid learning can offer those who primarily like to learn remotely the option to participate in some of the social aspects of learning. Online learning comes with many freedoms. Students who excel at self-management and independent learning will thrive under these freedoms: the freedom to learn from their chosen location and the freedom to develop an in-depth asynchronous discourse with students using the online components.

4.2 Drawbacks of Hybrid and Blended Learning (HBL)

While this innovative approach was instrumental in mitigating disruptions to the learning process, it is crucial to recognise the drawbacks. These include a decreased availability of interactive and hands-on activities for remote learners. In this respect, the institution's implementation of the COVID-19 hybrid delivery served primarily as a coping mechanism rather than a proactive strategy. In the lack of a comprehensive Hybrid-Flexible, or HyFlex, classroom infrastructure, ensuring that all modalities were provided equivalent learning opportunities was not easy. In some instances, it turned out that remote participants felt left out because the virtual environment limited their ability to partake in interactive activities or collaborative tasks actively. Such a challenge is common in online synchronous classes (Fung et al., 2022). Due to the lack of a Pan-Tilt-Zoom camera and the use of a fixed webcam spot, remote students occasionally could not view the illustrations on the whiteboard. In the interim, class time was taken up for the hybrid delivery setup, especially when back-to-back sessions were running at the same venue. In the event that technical issues were not resolved in time, it prevented live streaming of the lecture. Online students ended up having to watch pre-recorded videos, which could have hindered the interactive elements of learning. Further, it was noted that the instructor's use of face masks may have impacted the audio's clarity during the live lecture streaming.

In the pursuit of a seamless educational experience using a hybrid teaching mode, the institution faces several challenges. Consistent with previous research (Detyna et al., 2023), these obstacles involve technology, acoustics, student equity, and pedagogy. Technological challenges arise from the need to upkeep and upgrade hardware, software, and internet access to provide seamless hybrid learning experiences. Obstacles to the success of hybrid teaching include a lack of access to the relevant technology infrastructure, internet connectivity, and digital literacy. In particular, implementing hybrid teaching requires instructors to be proficient with digital tools and platforms, and this was observed to be challenging for those less technologically adept. Acoustically, the design and optimisation of hybrid delivery facilities was also an important area requiring attention to ensure seamless communication with remote attendees. On the learner's part, disparities in resources and internet connectivity appear to be an obstacle preventing equitable learning opportunities for students.

Meanwhile, instructors in hybrid settings also found it challenging to focus on both the online and in-person students, which may have some extent of impact on student engagement and motivation. Active learning strategies, such as feedback, classroom response, or collaborative activities that can be employed in a face-to-face delivery may not be as easily implemented in a hybrid delivery for online students (Binnewies & Wang, 2019). In this respect, instructors require consistent professional development and guidance as they adjust their pedagogical approaches and strategies to effectively engage students who are physically present in the classroom, as well as those who are participating virtually. In sum, the smooth delivery of the

hybrid mode is contingent upon a reliable support system that can help instructors and students when they encounter technical problems. Since students in a hybrid learning environment have more freedom and flexibility, they need to be able to manage their time well to succeed. If they do not, they may fall behind in their studies or become overwhelmed.

For hybrid learning to be effective, students need reliable internet access, as students have different networks and devices. Without it, they cannot participate in the online portion of their studies, which can impede their learning (Fung et al., 2022). Hybrid learning requires students to be active in their education, but some may become disengaged, resulting in discouragement and a lack of participation.

Lecturers must always remember to communicate frequently and effectively by setting clear expectations for online students. They should also make available to answer any questions students may have or frequently ask the student questions. Whereas in the classroom setting, students still receive real-time interaction, body language, and in-person engagement such as text, drawings, and images as attention grabbers that lead to learning comprehension that can be crucial for learning, but this is not applicable if the online students off their camera (Gunesekara et al., 2022).

A reflection of experiences during the pandemic suggested that before classes begin, lecturers need to familiarize themselves with the tools, apps, learning technology, and resources that would cause confusion and frustration to enhance the hybrid class. Some tools cannot be accessed and mastered by students, which will hinder students from participating and interacting no matter where they are, in class discussions and asking questions.

Online learning can be isolating for some students, and it is hard to encourage online students and in-class students to work together. Therefore, online interactive content should be a key component of hybrid courses to ensure online discussions include both interaction groups. Doing so will keep online students accountable and allow them to leverage their strengths in small group work to combine forces to get more from learning activities.

There are a lot of similarities in terms of challenges faced within the Southeast Asia educational industry, especially in slow and unstable internet connections (UNICEF & UNESCO, 2021). As a result, lecture sessions are recorded. However, some virtual students are not ready for such a transition as it would require their commitment and resources in terms of extra time and effort to follow and engage in assisted study sessions (Chisadza et al., 2021; Fung et al., 2022).

4.3 Improvements in Hybrid and Blended Learning in the Post-pandemic Era

Whether hybrid teaching should continue at the institution post-pandemic is complex, as there are both possible benefits and drawbacks to consider. To decide whether or not to continue with the hybrid teaching post-pandemic, the institution must weigh the advantages and disadvantages, examine the community's particular needs, the resources available to support such initiatives, and the potential long-term impact on teaching and learning outcomes.

On the one hand, hybrid delivery provides students with greater flexibility and accessibility, allowing them to engage in courses regardless of location or personal circumstances. Particularly, hybrid learning can expand educational opportunities for students who might not otherwise have access to higher education due to financial or geographical barriers. This enhanced accessibility can help to create a more inclusive learning environment to promote educational equity. The hybrid model would also enable institutions to accommodate a broader

range of student learning preferences, styles, and needs, which may contribute towards enhanced student outcomes and satisfaction. As described by Binnewies & Wang (2019), the purpose of the model is to provide the advantages of online mode, such as the flexibility to study anywhere one prefers (Bertram, 1999) and allowing students who have other obligations besides study to participate in a course (Robinson, 2005), while retaining the optional advantages of face-to-face instruction, such as immediate feedback and synchronous communication (Hattie & Timperley, 2007; Vonderwell, 2003). It was also noted that the flexibility offered via the hybrid model accommodates various learning styles and strategies of learners and gives them greater control over their own education (Binnewies & Wang, 2019). On the other hand, the identified challenges, which include technological infrastructure, digital literacy, and student engagement, may impede the successful implementation of hybrid teaching. Hence, any endeavour to continue hybrid delivery should be supported by proper technical and pedagogical training, appropriate technology, and digital education support (Binnewies & Wang, 2019). Specifically, hybrid delivery requires a lot of mental effort from the instructor since they have to think about the content, the delivery, the audience, what they want to say, how they want to say it, whether or not they are being inclusive, and so on (Detyna et al., 2023). A simultaneous online and face-to-face delivery is possible, but it would be challenging to deliver and would entail technical hurdles. Hence, the design, setup, and implementation of a hybrid learning environment require significant thought from the instructors.

Meanwhile, selected lecture rooms can undergo acoustic evaluations and a trial of advanced hyflex classroom facilities. As part of the transition, improving the Wi-Fi network will also be necessary to meet the increased connectivity requirements of hybrid teaching. Ongoing research and assessment of Hyflex teaching practises are vital to guide these decisions and ensure that the institution remains flexible and responsive to the changing needs of learners. Through continued collaboration among stakeholders, the institution can better create innovative and effective solutions to help enhance educational equity and promote academic excellence in the post-pandemic era.

The hybrid delivery requires a reconceptualisation of the facilitator's role and how the course content is delivered in that, compared with traditional modes of instruction, more teaching and learning take place asynchronously, and a greater emphasis needs to be placed on the material for the online delivery (Kohnke & Moorhouse, 2021). Additionally, better pathing is required to simulate the students' experience for both groups undergoing face-to-face elements in the delivery and those engaging with pure online delivery – making equity a principal element of hybrid learning design (Nebrida & Bangud, 2022). It provides additional avenues to cater to students with varying learning needs from different socioeconomic backgrounds, students who may be attracted by a University's offering but due to disabilities, accessibility issues, or concerns about the location, do not want an on-campus experience but still want to engage with program offerings.

There are many benefits of the face-to-face format in hybrid learning; this teaching modality provides in-person, real-time interaction between faculty-students and student-students, which can spark innovative questions and conversations. Students have the opportunity to seek clarification or response to their questions in their classroom (Paul & Jefferson, 2019). Students who value face-to-face instruction, in-person class discussions, and organic bonding between faculty and students may not enjoy online learning (Roval & Jordan, 2004). It will be hard for them to shun face-to-face learning activities and sit in front of computers to complete the work. An increasing body of evidence suggests that in-person learning provides motivation, helps

build a sense of community, and provides much-needed encouragement to students. This also allows instructors to pick up on nonverbal cues and make appropriate changes in the content and teaching methodology (Kemp & Grieve, 2014; Paul & Jefferson, 2019).

The research found that the challenges could be primarily due to a lack of self-regulatory behaviour with the online components of hybrid learning (Muhria, 2023). However, students seemed to appreciate constant reminders to remind students to attempt the weekly tasks and online quizzes. By allowing students to communicate with the academic online, face-to-face, or by email, whichever students prefer, students would feel supported. Exercising empathy by spreading the assignment and various assessment submission deadlines to ensure students can cope is crucial for their well-being. The blended learning approach enables a more personalized and customized learning experience. Managing students' experience positively in implementing hybrid learning will increase students' satisfaction and thus positively impact their willingness and commitment to study (Batista-Toledo & Gavilan, 2023).

4.4 Advantages of Online Assessments
Online assessments offer flexibility to both students and lecturers concerning their format and marking (Fung et al., 2022). Students can take the assessments wherever they are, and it could be more time-efficient to mark online assessments than face-to-face invigilated exams. With the movement control restrictions being removed, students were expected to return to campus for face-to-face classes. Hence, online assessments would only be applicable to students who were not able to attend the courses on campus due to immigration restrictions or other issues such as illness, etc. However, online assessments can still be used for on-campus students due to their benefits and accessibility to both the students and the academics (Alruwais et al., 2018; Dumford & Miller, 2018).

4.5 Drawbacks of Online Assessments
Though it was observed that online assessments presented many benefits, it also presented challenges to both the educator and students. Firstly, assessments in a non-traditional, online environment involve distinct features compared to traditional (i.e., face-to-face) contexts. The primary cause of this is the asynchronous nature of the interaction between educators and students (Vonderwell et al., 2007). Therefore, in order to develop successful assessment procedures that facilitate higher-order learning, online assessments force educators to rethink online education pedagogy (Gikandi et al., 2011). The need for pedagogical consideration imposes challenges on educators, especially when educators are not equipped with pedagogical knowledge pertaining to online assessments.

Not only that, concerns about students' and educators' technological incompetence as well as mistrust of the digital infrastructure, were also noted (Khan & Khan, 2019). The use of online assessment requires convincing of both instructors and students, and extensive training and support were needed to help, particularly educators, in adopting online assessments. This process was not only time-consuming but also put stress on the university's support system and staff (e.g., Learning and Teaching Unit).

4.6 Improvements in the Online Assessments in the Post-pandemic Era
Integrating the authentic and online assessment will likely continue during the post-pandemic period. The assessment is designed instead of weighing a student's performance against a standardized benchmark. The students execute tasks and actively participate in situations using the skills and knowledge from the subjects. It is all about getting the students to solve real-life

problems by applying the skills and knowledge they have mastered rather than asking students to memorize and recall facts.

Though it was observed throughout the semesters that online assessments presented their pros and cons, online assessments have proven to be a vital component of teaching and learning. A review study by Gikandi et al. (2011) on online assessment (particularly formative assessment) provided evidence that online assessment offers educators and students a meaningful educational experience, and it offers a pedagogical approach that lays the groundwork for transforming the culture of assessment in ways that promote equitable education, meeting a variety of learning needs. Therefore, it is foreseeable that online assessments will stay after the pandemic.

5. Conclusion

This study explored the impact of the hybrid and blended learning and online assessment methods during the pandemic and considered the suitability of their continuance in the post-pandemic era. It was found that the knowledge and skills in utilising technology to deliver courses in hybrid and blended learning need to be enhanced if such a mode of teaching is to be continued. When students cannot attend classes physically due to some restrictions, hybrid or blended learning is the next best option since many academics have hybrid teaching experience. Online assessments would be suitable to promote more inclusivity that face-to-face assessments lack. However, academics need to consider other assessment methods to avoid overreliance on such methods since online assessments need a reliable internet facility.

Typical to many case studies, care must be taken when attempting to generalise the findings. This study focused on the impact of teaching and assessments issues faced by the academics in the foreign branch campus in Malaysia. Future research could explore the impact of teaching and assessments of institutions of higher learning in other countries. For generalisation, survey research could be carried out to confirm the findings of this study.

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