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From Crisis to Continuity: A Conceptual Analysis of Teaching and Learning Approaches in Malaysian Universities During the Pandemic and Endemic Periods

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Abstract

The Covid-19 pandemic profoundly disrupted higher education globally, necessitating a rapid shift to online and distance learning to ensure educational continuity (Sato et al., 2024). In Malaysian universities, this transition highlighted both the opportunities and challenges of technology-driven pedagogy. As the nation entered the endemic phase, institutions adapted to hybrid teaching models, blending digital and in-person approaches to address gaps observed during the pandemic (Eldy et al., 2023). This conceptual study compares teaching and learning (T&L) strategies employed in Malaysian universities during the pandemic and endemic periods, analysing their evolution and effectiveness. Drawing on a review of academic literature, the study identifies key pedagogical trends, challenges, and innovations. Findings reveal that while the pandemic catalysed significant digital adoption, it also exposed issues related to accessibility, engagement, and equity. Conversely, the endemic period emphasised resilience and sustainability through hybrid learning frameworks. The study offers insights into best practices for enhancing future higher education delivery and proposes recommendations for policy and institutional reforms to ensure inclusivity, adaptability, and preparedness for future disruptions. This research contributes to the growing discourse on post-pandemic higher education, with implications for Malaysia and similar contexts globally.

Keywords: Malaysian Universities, Pandemic, Endemic, Pedagogical Implications, Technological Implications, Policy Implications

Introduction

The Covid-19 pandemic brought unprecedented disruptions to higher education systems worldwide, including Malaysia. According to Kamaludin and Sundarasen (2023), traditional face-to-face teaching methods were rendered impractical due to public health restrictions,

particularly the Movement Control Order (MCO) from March 2020 to April 2022 (The Star, 2021), compelling universities to rapidly adopt alternative approaches such as Open and Distance Learning (ODL). This shift marked a significant transformation in teaching and learning practices, with digital platforms becoming integral to educational delivery. As Malaysia transitioned into the endemic phase of managing Covid-19 in April 2022, universities began blending online and in-person teaching approaches to create resilient and sustainable learning environments (Selvaraj & Ravindran, 2023). This dual period of transformation provides a unique opportunity to examine the evolution of teaching and learning practices and their implications for future educational strategies.

Malaysian universities faced numerous challenges during the pandemic, including issues of digital access (Subramaniam et al., 2024), student engagement (Malik & Derioh, 2023), and the effectiveness of remote assessments (Iskandar, Ganesan, & Maulana, 2021). As the endemic period unfolded, Othman et al. (2023) noted that new challenges arose in harmonising digital tools with traditional pedagogies and addressing the residual effects of prolonged online learning. Despite the innovative measures adopted during these periods, limited understanding exists regarding the comparative effectiveness of teaching and learning approaches in pandemic and endemic contexts. This knowledge gap highlights the need to systematically investigate the evolution of educational practices and extract actionable insights to improve future readiness. Hence, this study aims to:

1. Compare teaching and learning approaches in Malaysian universities during the Covid-19 pandemic and endemic periods.
2. Identify the key challenges and opportunities associated with each period.
3. Derive lessons and recommendations to support sustainable and adaptive teaching practices in higher education.

This conceptual paper contributes to understanding educational resilience by exploring how Malaysian universities adapted to the pandemic and endemic periods. By comparing the approaches taken during these two phases, the study aims to inform the development of robust teaching strategies and policies that can withstand future disruptions. The findings are particularly relevant for policymakers, educators, and administrators, providing evidence-based recommendations to enhance the preparedness and sustainability of higher education systems in Malaysia and beyond. The structure of this paper is as follows: Section 2 outlines the key findings and discussions, highlighting the teaching and learning strategies during the pandemic and the transition into the endemic period. Section 3 presents the conclusion and recommendations for sustainable practices in higher education.

Key Findings and Discussions

Teaching and Learning Approaches During the Pandemic

The COVID-19 pandemic caused unprecedented disruption to higher education systems worldwide, forcing institutions to adapt swiftly to new modalities of teaching and learning. The sudden transition to remote learning reshaped educational delivery, requiring substantial adjustments in infrastructure, pedagogy, and support systems. In Malaysia, the Ministry of Higher Education (MOHE) introduced comprehensive guidelines to facilitate this shift, including measures such as the implementation of the *Guidelines on Online Teaching and Learning for Higher Education Institutions* (HEIs), the development of blended learning policies, and the establishment of minimum requirements for digital infrastructure to support

online teaching platforms. These guidelines provided a structured framework for universities to continue operations online, emphasising flexible scheduling, the adoption of learning management systems (LMSs), and strategies to ensure equitable access for all students, particularly those in underserved regions (MOHE, 2021).

In response to the crisis, Malaysian universities adopted ODL methodologies to maintain educational continuity, with the MOHE mandating the implementation of ODL from March 2020, following the enforcement of the Movement Control Order (MCO). Digital platforms such as Google Meet, Zoom, and Microsoft Teams became essential tools, enabling synchronous and asynchronous interactions, including virtual lectures, discussions, and assessments (Azlan et al., 2020; Rusli et al., 2023). Subsequently, educators were required to transition from traditional face-to-face teaching methods to digital-first approaches, which necessitated rethinking pedagogy and adopting online methodologies (Ruslan & Mahadi, 2023).

However, the implementation of these measures exposed significant disparities, particularly for rural students (Azlan et al., 2020). Many of these students lacked reliable internet access and appropriate technological devices, limiting their ability to participate fully in online learning environments (Atan et al., 2023). These issues highlighted the pre-existing digital divide and its exacerbation during the pandemic, leaving vulnerable groups disproportionately disadvantaged. Globally, similar difficulties were encountered as institutions grappled with maintaining educational standards in the virtual space. Reduced student engagement became a pervasive issue, with learners often feeling disconnected from their peers and educators. Studies by Ahshan (2021) and Ngo (2021) highlight how the lack of physical presence and interactive elements in online settings contributed to declining motivation and active participation. Moreover, academic dishonesty emerged as a critical concern during online assessments. Research by Elsalem et al. (2021) and Sevnarayan and Maphoto (2024) documented an increase in malpractice due to the challenges of monitoring assessments remotely, raising questions about the validity and fairness of such evaluations. Additionally, concerns regarding academic integrity and equitable assessment practices led to the adoption of alternative formats, including open-book exams and project-based assessments (Vellanki, Mond, & Khan, 2023; Lai et al., 2022). Another pressing challenge was the psychological impact of prolonged isolation on students and educators alike. Ruslan and Mahadi (2023) emphasised the mental health repercussions for students, who faced feelings of loneliness, anxiety, and stress. Similarly, Wang (2023) reported that the lack of social interaction and support networks intensified emotional distress, particularly among younger learners unaccustomed to prolonged solitude. Additionally, educators had to quickly adapt to online teaching techniques, with varying levels of success. While some effectively implemented innovative methods such as flipped classrooms (Soon et al., 2022; Azmin et al., 2021) and gamified learning (Azar & Tan, 2020), others faced difficulties due to limited digital literacy and insufficient institutional support (Jafar et al., 2022; Bahar, Wahab, & Ahmad, 2020). Assessment practices required considerable reconfiguration to address the constraints of remote learning.

Despite these challenges, the pandemic catalysed significant innovations in Malaysian higher education, driving the creative use of technology to address emerging needs. According to Rahman and Azhar (2022), the integration of digital tools into teaching practices

became increasingly widespread, exemplified by the use of breakout rooms on platforms like Zoom and Microsoft Teams to foster collaborative learning in small, focused groups. They also reported that recorded lectures offered through LMS such as Moodle and Google Classroom enabled asynchronous teaching, allowing students to access material at their convenience and accommodating diverse schedules. Additionally, in a study by Muthuraman and Abdullah (2022), gamified learning platforms such as Kahoot!, Quizizz, and Classcraft were reported to have enhanced student engagement by introducing interactive quizzes, competitive elements, and rewards systems that motivated participation and reinforced learning in an enjoyable manner. These innovations reflected the growing adaptability and creativity of educators in leveraging technology to enrich the learning experience. Furthermore, universities made substantial investments in digital infrastructure and educator training programmes to address the challenges of remote learning (Azman & Abdullah, 2021). For instance, institutions like Universiti Malaya (UM) and Universiti Teknologi MARA (UiTM) upgraded their LMSs, such as Spectrum and UFuture, to accommodate higher traffic and improve user functionality (Azman & Abdullah, 2021). They also provided subsidies for students and staff to access essential devices and internet data plans.

Furthermore, according to Yeap, Suhaimi, and Nasir (2021), universities organised extensive training programmes, such as webinars and workshops on using tools like Microsoft Teams, Zoom, and Google Classroom, to enhance educators' digital literacy and teaching competencies. These initiatives were designed to prepare educators for a more technology-integrated pedagogy, equipping them with skills to develop interactive content, conduct virtual assessments, and manage online classrooms effectively (Azlan et al., 2020; Rusli et al., 2023). The pandemic period illustrated both the challenges and opportunities arising from the rapid adoption of ODL in Malaysian universities. While highlighting systemic inequalities and the limitations of digital infrastructure, it also fostered innovation and technological advancements, shaping a more flexible and resilient higher education landscape.

Transition to the Endemic Period

As Malaysia transitioned to the endemic phase of COVID-19 starting in April 2022, universities began to resume in-person teaching, albeit with modifications (Othman et al., 2023). Hybrid learning models emerged as a prevalent approach, combining face-to-face instruction with online components (Rahman & Azhar, 2022; Azman & Abdullah, 2021). This approach sought to balance the benefits of physical classroom interactions with the flexibility and inclusivity offered by digital platforms. According to Rosday et al. (2023), the Malaysian government and higher education institutions implemented a range of policies prioritising health and safety to mitigate the risks of COVID-19 transmission within campuses. These measures included reducing classroom capacities to comply with physical distancing requirements, with many universities limiting attendance to 50% of normal seating capacity (Rosday et al., 2023). To manage this, rotational attendance schedules were introduced, where students alternated between attending in-person classes and participating in online sessions (Ni, 2023). For instance, Azman and Abdullah (2021) reported that Universiti Malaya (UM) implemented a hybrid learning model, scheduling students for staggered physical attendance while maintaining online delivery for lectures and tutorials. Similarly, Universiti Kebangsaan Malaysia (UKM) adopted a "bubble campus" concept, where only essential in-person sessions, such as laboratory or practical classes, were conducted under strict health protocols (Azman & Abdullah, 2022). These policies were further supported by the mandatory use of face

masks, temperature screenings, and contact tracing measures via mobile applications like MySejahtera, ensuring a comprehensive approach to safeguarding health within Malaysian higher education institutions (Ministry of Health Malaysia, 2022). These measures allowed institutions to gradually reintroduce face-to-face interactions while leveraging digital tools for supplementary learning. In this period, too, higher learning institutions placed greater emphasis on student engagement and mental health (Wong et al., 2023). For instance, many universities developed holistic support systems, including counselling services, peer mentorship programmes, and co-curricular activities to rebuild a sense of community disrupted during the pandemic (Wong et al., 2023).

Nevertheless, Sia et al. (2023) highlighted that disparities in access to resources continued to present significant challenges, particularly for underprivileged students, raising critical questions about the inclusivity of these approaches. For instance, Sarimah et al. (2023) discovered that students from rural areas in Sabah and Sarawak struggled with inconsistent internet connectivity and lacked essential devices such as laptops, relying instead on shared or outdated technology, which hindered their ability to engage effectively in hybrid learning environments. Additionally, some institutions attempted to address these issues by providing loan programmes for devices and distributing internet data subsidies, but these efforts were not universally accessible or sufficient to close the digital divide (Yun, 2023). In addition, not all students and educators were comfortable with the hybrid learning models, as these required balancing the dual demands of in-person and online instruction (Yun, 2023). Educators often reported difficulty in designing lesson plans that effectively integrated both modes, while students found it challenging to navigate the differing expectations of each. For example, a survey conducted by Universiti Teknologi MARA (UiTM, 2022) revealed that nearly 40% of educators found the simultaneous management of physical and virtual classrooms overwhelming due to limited training and time constraints.

Moreover, the return to physical classrooms after extended periods of online learning exposed significant gaps in digital competency among both students and educators. According to Khong (2023), many educators, especially those from non-technical disciplines, struggled to adapt to using educational technology effectively, while students displayed varying levels of proficiency in navigating digital tools essential for blended learning. Furthermore, the extended reliance on online learning during the pandemic also brought attention to its long-term effects on students' learning habits, with many students reporting difficulty in transitioning back to traditional in-person learning settings (Ruslan & Mahadi, 2023). These findings emphasise the necessity for continuous improvement in policy, pedagogical, and technological implementations and strategies, which will be presented in the subsequent section.

Implications and Recommendations

The comparative analysis of teaching and learning approaches during the COVID-19 pandemic and the endemic period highlights several critical implications for educational policy, pedagogy, and technology. These insights provide a foundation for actionable recommendations aimed at enhancing the resilience and effectiveness of higher education in Malaysia.

Policy Implications

The findings highlight the need for robust and adaptable policies to support hybrid and online learning environments, particularly during crises. For instance, the Malaysian government could expand initiatives like the *Jaringan Prihatin Programme* (Yun, 2023), which provided internet subsidies to eligible students, by incorporating broader funding schemes or forging partnerships with technology providers such as Telekom Malaysia and Maxis to ensure reliable internet access. Universities could emulate Universiti Putra Malaysia's approach of distributing laptops and tablets to students in need, by establishing long-term programmes for affordable device procurement or rental. Clear guidelines for crisis management in education should also be established, akin to the Post-COVID-19 Higher Education Strategic Plan introduced by some universities, which included scenario-based planning for transitions between physical, hybrid, and fully online learning modes. These plans should detail protocols for swift adaptation, including timelines, faculty support systems, and communication channels to minimise disruption.

Addressing digital equity remains a critical challenge. The government could introduce specialised grants or bursaries for students from underserved regions, modelled on existing schemes like the *PerantiSiswa Keluarga Malaysia* Initiative, to reduce barriers to technology access. Additionally, partnerships with private organisations such as Microsoft or Google could facilitate discounted or free software licences for educational purposes, further bridging the digital divide. Establishing a national repository for digital learning materials, similar to Open Educational Resources (OER) initiatives in countries like the United Kingdom, would ensure consistent and equitable access to high-quality resources. This repository could include digitised textbooks, recorded lectures, and interactive modules in multiple languages to cater to Malaysia's diverse population. To maximise its impact, educator training programmes on creating and curating digital content, such as workshops conducted by Universiti Sains Malaysia on e-content development, should be prioritised. These initiatives would improve teaching quality and foster a collaborative culture of knowledge sharing across institutions, ultimately strengthening Malaysia's educational framework (Azman & Abdullah, 2022).

Pedagogical Implications

From a pedagogical perspective, the shift to online and hybrid learning demands a reimagining of traditional teaching methods to prioritise student engagement and inclusivity (Khong, 2023). For example, Universiti Malaya and Universiti Sains Malaysia introduced faculty development programmes that trained educators to use tools like Padlet for collaborative brainstorming, Miro for interactive visual mapping, and breakout rooms in platforms such as Zoom and Microsoft Teams for fostering small-group discussions. Regular workshops on integrating gamified learning platforms like Quizizz and Kahoot! have also been pivotal in maintaining student participation and motivation during online sessions. Student-centred learning approaches are increasingly adopted to accommodate diverse learning needs and styles. For instance, flipped classroom models have been implemented at Universiti Teknologi MARA, where students access pre-recorded lectures and materials beforehand, enabling synchronous sessions to focus on interactive discussions and hands-on problem-solving. Problem-based learning (PBL) has also gained traction, particularly in engineering and medical programmes, where students collaborate on real-world challenges, such as developing prototype solutions or case analyses.

Assessment methods are evolving beyond conventional exams to embrace alternative formats (Sato et al., 2024). Universiti Kebangsaan Malaysia, for example, has integrated project-based evaluations in its business and humanities courses, encouraging students to produce comprehensive reports, marketing strategies, or research papers. Reflective journals have become a standard component in teacher training programmes, helping students critically analyse their learning experiences. Similarly, e-portfolios are widely used in creative disciplines like design and media studies, allowing students to showcase their progress and achievements digitally. Recognising the emotional and psychological pressures associated with remote and hybrid learning, universities are embedding mental health support into their learning frameworks (Wang, 2023). For instance, Universiti Putra Malaysia has established a dedicated mental health helpline and online counselling services, accessible via mobile applications. Similarly, Universiti Malaysia Sabah organises regular webinars on stress management and mindfulness practices (Sarimah, 2023). Peer support programmes, such as buddy systems, have also been implemented to foster community and reduce isolation. These measures illustrate a holistic approach to addressing the evolving needs of learners and educators in the post-pandemic educational landscape.

Technological Implications

The pandemic exposed significant gaps in technological readiness within Malaysian universities, particularly in integrating digital tools into teaching and learning processes (Atan et al., 2023). For example, during the initial transition to remote learning, many institutions struggled to scale their existing systems to accommodate the sudden increase in users, resulting in inefficiencies and crashes in platforms such as Moodle and UFuture (Yeap, Suhaimi, & Nasir, 2021). Additionally, disparities in the functionality of LMS across universities hindered the standardisation of online education delivery, often leaving educators and students reliant on ad hoc solutions.

Moving forward, universities must prioritise investment in resilient digital infrastructures capable of supporting large-scale hybrid learning models. Developing a unified and robust LMS across institutions should be a key focus. Enhanced LMS platforms equipped with analytics capabilities could track student engagement, assess participation levels, and generate insights for personalised feedback. Universiti Teknologi MARA's efforts in upgrading its UFuture LMS to include attendance tracking and integrated assessment tools represent a step in this direction but require further scalability and customisation to meet broader needs.

Strategic partnerships with technology companies could ensure that universities stay at the forefront of educational innovation (Yun, 2023). Collaborating with tech giants like Microsoft or Google could enable the integration of advanced features such as AI-driven adaptive learning platforms, which tailor content delivery to individual students. Virtual reality (VR) technology offers transformative potential, particularly in resource-heavy disciplines like engineering and medical sciences, where immersive simulation-based learning can replace traditional methods. For example, VR-enabled anatomy lessons could allow medical students to explore 3D organ models beyond the limitations of physical dissections.

Technical support services must also be significantly enhanced to address ongoing challenges faced by educators and students (Ni, 2023). Initiatives such as the establishment of dedicated IT support centres, on-demand troubleshooting hotlines, and user-friendly

guides can help mitigate common issues. Universiti Malaya has set a precedent by organising regular digital tool workshops for educators and deploying mobile technical support teams for students in remote areas. These measures are essential to ensuring that both educators and students can fully leverage the available technology to enhance their learning experiences.

Conclusion

The COVID-19 pandemic and the subsequent transition to the endemic period have significantly reshaped the higher education landscape in Malaysian universities. These transformative years have highlighted the resilience and adaptability of institutions, educators, and students in overcoming unprecedented challenges. During the pandemic, the sudden shift to Open and Distance Learning (ODL) revealed the immense potential of digital education while exposing critical limitations, particularly in terms of accessibility, engagement, and equity. As the situation stabilised during the endemic period, universities adopted hybrid teaching models, integrating face-to-face and online instruction to combine the strengths of both approaches while addressing gaps identified during the crisis.

The resumption of in-person teaching offered a chance to revitalise the social and collaborative dimensions of learning, which had been significantly diminished during the isolation of the pandemic. This comparative analysis of teaching and learning approaches across these periods has yielded valuable insights for future educational practices. Key areas of focus include pedagogical innovation, enhanced technological integration, and prioritising student well-being. However, persistent challenges such as the digital divide, disparities in digital literacy, and the need for more effective assessment methods remain critical and require continued attention.

In conclusion, the experiences of Malaysian universities during the pandemic and endemic periods provide essential lessons for building a more resilient and inclusive higher education system. The findings of this study highlight the need for sustained investment in digital infrastructure, continuous professional development for educators, and policies that champion equity and accessibility. As higher education faces an increasingly uncertain future, Malaysian universities must aim to balance innovation with inclusivity, ensuring teaching and learning practices remain robust and adaptable in the face of future disruptions. Further research exploring long-term impacts and conducting broader regional comparisons could deepen understanding and contribute to shaping global educational strategies.

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