Chronic and Acute Disruptions in Higher Education: A Case Study of Malaysia

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Abstract: *Disruptions have direct implications on the curriculum of higher education. Some disruptions are more subtle yet chronic such as longer-term impact from ideological changes to the national agenda and societal values relating to the purpose of higher education. There are also disruptive events such as the recent coronavirus disease 2019 (COVID-19) pandemic. The combined challenges due to these disruptors have impacted the curriculum and adaptations in Malaysian higher learning institutions (HLIs). This paper aims to analyse the impact of chronic and acute disruptors on the university curriculum in Malaysian higher education. Our findings from semi-structured interviews with academics and focus group discussions with students suggest that while HLIs demonstrated rapid reactions to acute needs in the case of COVID-19 restrictions, the existing structural frameworks for curriculum design and implementation provide limited flexibility in longer-term adaptation to both acute and chronic disruptions. A series of questions are posed for various stakeholders to consider in navigating these disruptions in higher education.*

Keywords*: curriculum, employability, neoliberalism, OBE, COVID-19, assessment, remote online learning*

Introduction

Educational disruptions have been described as unplanned interruptions that may result in individual trauma or changes to established norms (Panther, 2021). Before the pandemic, disruptions were primarily discussed in the context of disruptive innovations and technologies, such as the rise in massive open online courses (Jacoby, 2014). We propose that disruptions to the higher education curriculum are akin to a perturbation in normal function in the human body. Such maladies can manifest under two main modes in the medical context: chronic and acute. A chronic disease tends to present subtly, at times undetectable, and slowly progresses to a critical point where the body can no longer cope with the accumulated damage. For example, many forms of cancer take months or years to develop before the symptoms become apparent and the medical condition is diagnosed. On the other hand, an acute disease is characterized by sudden and rapid progression, such as appendicitis or respiratory viral diseases, including COVID-19.

This paper examines disruptions to the university curriculum in the context of higher education in Malaysia. While the nuanced impacts of the disruptions elaborated in this paper are specific to the case of a developing higher education system, the disruptions themselves are globally relevant. The implications to university curriculum from these disruptions are equally pertinent and applicable to universities in developed, developing and emerging higher education systems.

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The approach of this paper is slightly unconventional. We begin with a discussion of the context and methodology followed by examining the two types of disruptions independently by concurrently drawing from the literature about each disruptor and the evidence gathered from our fieldwork. We then conclude by exploring the implications of these disruptions on the development of the university curriculum and pose a series of questions for further discussion.

The Context

Regardless of their features and characteristics, curricula form the skeleton of modern education systems, serving as the primary structure used to guide various teaching and learning (T&L) activities in the path towards earning an academic qualification. To be relevant, regardless of discipline, curricula necessarily require periodic review and updating based on advances in the field and contemporary needs of the ever-changing society.

Malaysia is an upper-middle-income economy with a population of 32 million, for which the higher education system is made up of equally sizeable public and private sectors with a total enrolment of 1.3 million students (MOHE, 2020). The public sector comprises 20 public universities that in 2019 enrolled 567,625 students. The public sector also includes polytechnics and community colleges geared towards technical and vocational education and training (TVET) and skills-based programmes. The private sector has 48 universities, 10 international branch campuses, 33 university colleges and 345 colleges that collectively enrolled 633,344 students. Importantly, all academic programmes by HLIs in Malaysia are accredited by the Malaysian Qualification Agency (MQA), the key regulatory body articulated under the Malaysian Qualifications Agency Act 2007 (Act 679).

In higher education, the curriculum itself is a challenging concept to define, in part due to different stakeholder perspectives on the purpose and nature of higher education and the role of higher learning institutions (HLIs) (Hicks, 2018). For instance, in the context of Malaysian higher education, specifically outlined in Malaysia Education Blueprint (Higher Education) 2015-2025 (MEBHE), the curriculum is regarded as the framework under which aspirations to produce graduates who are industry-ready employees, job-creating entrepreneurs, and adaptive members of an "ever-changing future" (MoE, 2015, p. E-1) can be realized. However, such aspirations hinge on the idea of curriculum design, which is still largely ambiguous due to the diversity in interpretation of the curriculum itself.

For this article, the curriculum is defined broadly as 'the planned learning opportunities offered to learners by the educational institution and the experiences learners encounter when the curriculum is implemented' (Print, 1987, p.9), whereby planned curriculum encompasses knowledge, skills and capabilities, as well as the learning activities, used to achieve the learning of the content in the university (Dewey, 1938; Eraut, 2009; Stenhouse, 1975). Using this definition, the curriculum is discussed not in the context of the outcomes (e.g. graduates) but instead from the perspective of the teaching and learning processes.

Specifically, the discussion about curriculum in the context of higher education in Malaysia requires the mention of outcome-based education (OBE) being the major approach for quality assurance under the MQA. Although the concept of OBE has existed since the 1950s, increasing emphasis on this concept in Malaysia only precipitated in the last decade (Mohayidin et al., 2008). From the OBE perspective, a programme's curriculum is developed based on the skills and knowledge that students are expected to possess upon graduation and designed to enable students to achieve the stipulated outcomes. In brief, these outcomes are categorized as cognitive (regarding what has been learned), psychomotor (practical skills acquired) and affective (covering 'soft' skills such as communication and teamwork). The cognitive outcomes are further divided into increasing levels according to Bloom's taxonomy, specifically knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956). The more dynamic concepts of these classifications, focusing on verbs such as to remember, understand, apply, analyse, evaluate and create, are proposed

in the revised taxonomy (Anderson et al., 2001). We shall return to the discussion about OBE in the section on chronic disruption.

Methodology

Apart from the conceptual perspective gathered from related literature, we derived an understanding of disruptors from empirical evidence gathered from interviews and focus-group discussions. A total of 41 interviews were conducted with academics across five public universities and three private universities. The academics were selected from the disciplines of biotechnology, economics, and engineering, as these represent different disciplines from science, social science and applied science (associated with strong professional bodies). In addition, we interviewed selected academics with experience in policymaking or administrative positions in the Ministry of Higher Education, Ministry of Education or other higher education agencies, including MQA and Higher Education Leadership Academy (AKEPT). In addition, 45 final-year undergraduates participated in seven separate focus group discussion sessions for each discipline and institution. All participants and their institutions provided informed consent, were anonymised and assigned codes that do not contain identifiable information.

Interviews and focus-group discussions were conducted between October 2019 and March 2021, first in-person, then online via video conference platforms due to social distancing requirements. The interviews and discussion followed a protocol prepared to explore various dimensions of the curriculum, including the content, teaching and learning activities, development and revision, and specific issues relating to the extent of relevance and currency including topics of employability, incorporation of Sustainable Development Goals and entrepreneurship. An additional section to investigate responses to the COVID-19 pandemic was added for sessions conducted after 1 April 2020, after Malaysia went into the first Movement Control Order (MCO) lockdown on 18 March 2020.

Interviews and focus-group discussions were digitally recorded, transcribed, and interview notes and summaries were prepared. Conceptually, we attempted to differentiate disruptions into 'chronic' and 'acute' where the former refers to medium- to long-term changes including ideology and key purpose, and the latter on ad-hoc, emergency and unpredictable changes. Thematic content analysis was used to identify themes that emerged in the interviews and focus-group discussions relating to the two over-arching disruptions (Corbin & Strauss, 2008; de Vaus, 2001).

The Chronic Disruption

Conceptual Discussion

Neoliberalism is a loose and shifting form of political-economic ideology (see Blyth, 2015; Brown, 2015; Harvey, 2005; Robison, 2004; Springer, 2009). Not only was neoliberalism acting as an economic policy, but neoliberalism has also been considered a modality of governance and an order of reason with globalisation. Importantly, neoliberalism strongly influences 'economising' all spheres and activities, including higher education. As Brown (2015) argues, neoliberalism should not be seen as a mere economic policy. Instead, neoliberalism is "a governing rationality that disseminates market values and metrics to every sphere of life and construes the human itself exclusively as *homo oeconomicus*" (p. 176).

Therefore, driven by the ideology of neoliberalism, managerialism as a modality of governance in higher education gained momentum and influence. In the case of public entities, such as public universities, the New Public Management (NPM) became the new form of governance. Among the common characteristics of managerialism and NPM include advocating metrics, key performance indicators (KPI), measurable outcomes, and accountability. As a result, they became a significant force that changed every aspect of HLIs, including their curricula.

However, there remain defining characteristics of Malaysian higher education that contradict neoliberalism and NPM. For instance, as acknowledged in the MEBHE (MOE, 2015), the government exercised 'tight control' over public and private institutions on the curriculum, tuition fees, and quality assurance and accreditation. The tight control on these key academic aspects, importantly, contradicted the dominant understanding of neoliberalism that reduces government intervention and enhances market forces. Likewise, despite the influence of NPM, higher education in Malaysia has not seen de-bureaucratisation nor decentralisation of public universities. Hence, despite maintaining strong and tight governmental control, higher education in Malaysia has evolved towards 'economising' higher education and extensive usage of metrics, KPIs and measurable outcomes to demonstrate performance.

Zooming into the influence on curriculum, we return to OBE to discuss this further to understand how this concept has changed university curricula and T&L activities in these institutions. At the crux of OBE is the need for constructive alignment between planned outcomes, curriculum design, and assessments. In and of itself, a curriculum following OBE principles may be useful for clarifying the relationship between T&L activities of a course/programme with attributes of the graduate upon completion. This is perhaps one of the reasons OBE has been adopted by the Malaysian higher education system, given the prevailing perspective that the role of universities is to produce employable graduates.

A curriculum rooted in OBE has been argued for more consistent T&L design, especially across various teaching staff, who at times may have only acquired discipline-specific expertise and very little pedagogical training (Cooper et al., 2015; Vereijken & van der Rijst, 2021). However, the recurrent criticism is that the OBE structure has become a basis for rigidity and serves managerial purposes rather than achieving curriculum outcomes (interview with Academic E02, HE Agency 01). Given that the rise of OBE, at least in Malaysia, began within the engineering discipline from the Washington Accord (interviews with Academic E02, HE Agency 01 and Academic F03, Engineering, Public University/HE Agency 02), OBE was then enforced onto other disciplines within the OBE framework. Yet, such practice raises questions whether the OBE framework is suitable to be adapted into other disciplines and whether discipline-specific nuances, such as those in life sciences, social sciences, or humanities, are being ignored. Regardless, such rigid and bureaucratic framework and extensive documentation required to enable audit of OBE practice became deterring factors for rapid review and adaptation of curricula to arising needs and developments.

Several disruptive elements further challenge curriculum design and delivery of different programmes in Malaysian HLIs. These include disruptions such as the ideology to economised and changed societal values about higher education and the function and nature of universities. Thus, the next section examines from the perspectives of university stakeholders in terms of how they make sense of chronic disruptions and ways that impact the curricula in Malaysian HLIs.

Insights from the Ground

From the thematic analysis, two inter-related themes have emerged which illustrate a gradual yet significant change to the curricula of universities. These changes are alike chronic disruption to higher education, namely: (i) enforcing new components into the curriculum and (ii) expansion of curriculum stakeholders.

New Components into the Curriculum

Academic programmes, at least across the three disciplines of economics, biotechnology and engineering, have in recent years incorporated new components. The first is a range of General Education Subjects (MPU) mandated by the Department of Higher Education and enforced through the accreditation process under the MQA. These compulsory courses were intended to promote nation-building by consolidating and broadening knowledge about Malaysia and enhancing the

humanity skills of students. However, these externally enforced components in the curriculum across public and private universities in Malaysia tend to be poorly implemented in practice, thus resulting in a disconnect between the core programme curricula and appearing irrelevant to academics and students alike. Across all sessions with students, the irrelevance of MPU subjects was a common sentiment, as succinctly summarised by Student C205:

> *MPU subjects are useless. … I do not need a lecturer to teach me common sense. MPU [subjects] like ethnic relations, TITAS (Islamic and Asian Civilizations), personal finance has no relevance. … Well, (about TITAS) is good to know about civilization and things like this, but it is irrelevant to what we learn and practice.*
> *Student C205, Economics, Private University*

Another recently incorporated new component is industrial training. In the past, having industrial training or a work attachment was largely optional. However, increasingly, industrial training or attachment has become mandatory, as observed in seven of the eight programmes in this study, but importantly, the structuring of this work attachment component aimed to enhance the opportunities for students to secure employment immediately upon graduation (Mohd Saruan et al., 2015), which a senior professor, Academic B02, further affirmed:

> *[Industrial training] was always in the third year [of a four-year programme]. What we did was we put it now into the final year, last two semesters. … So in that way, we feel that when they finish [the industrial training], they have a chance of continuing [with the job and company]. This is to improve graduate employability as well; when the companies are happy with them, they will be employed.*
> *Academic B02, Biotechnology, Public University 03*

In other words, incorporating industrial training and making it mandatory has been driven to help students secure employment. To further strategise this new component, the positioning and structuring of the curriculum were also modified accordingly.

In addition to the inclusion of new components into the curriculum, another major addition in the last two decades in Malaysian higher education has been the culture of quality assurance and accreditation. The days where the respective University Senate approves the academic programme, the highest academic entity of a university, have passed. That internal process is deemed insufficient.

External influences from regulators have now superseded the internal academic authority of a university. As explained by a retired academic, Academic E02, who has extensive experience being attached to a central higher education agency, such external influence primarily developed due to increasing emphasis on quality assurance. Yet, the understanding of quality assurance and its practice across HLIs have fundamental differences:

> *QA (quality assurance) is mostly about complying with requirements. … with public and also private institutions, meeting requirement is still the dominant way to think about QA. Although they may use words like quality enhancement and many other terms but if you strip things off from this trapping, you looked inside, and they still talking [sic] about addressing [or] meeting requirements of someone. [They are] not really thinking in terms of owning this requirement and adapting as your own in your own context, history, culture, vision. So [after more than two decades], it is still very much complying with external requirements.*
> *Academic E02, HE Agency 01*

Importantly, the underlying principle to this external influence driving quality assurance and accreditation is known as the OBE. This process has not developed a genuine culture of making the outcome and process of learning clearer and more transparent to all stakeholders but instead has remained very much an act of compliance by HLIs. While discussion about OBE and various concepts

have been published (see Avis, 2000; Jackson, 2000; Wan, 2021; Wolf, 1995), how OBE penetrated to become the dominant force of this external influence is as described:

> *The pioneers of OBE [in Malaysia] are the engineering group. … [While] the engineering fraternity has the power to compel [engineering] schools [in universities] to do it, and it may be not that much of a challenge in engineering because it is a set body of knowledge with boundaries of this field quite well defined. But once you take that idea and you put it into humanities, then you find it runs into the ground almost immediately. … [The OBE] has become so mechanical. I used to tell them you are the only guys in the world who can tell me the student has 69.7% on leadership skills. I do not think any leadership expert in the world could put that kind of a number; only engineers can. But they have put numbers on almost all the outcomes. … By and large, most people brought into this were with an engineering background, starting from Washington Accord in 2004 and [subsequently] the Malaysian Qualifications Framework in 2007.*
> *Academic E02, HE Agency 01*

Thus, as Academic E02 aptly described, the mechanistic ways in which OBE has been used in QA and curriculum development have over-emphasised the use of measurable competencies and outcomes, at the expense of the intangible elements of cognitive, affective and capability of learning through the curriculum.

Expansion of Stakeholders

The university and academic fraternity is no longer the sole custodian and stakeholder of curriculum and academic programmes. Apart from external influences, as postulated earlier, the industry and the so-called market have now become important stakeholders to the curriculum, very much influenced by the ideology of neoliberalism of economising higher education and giving more emphasis on the market. The increasing role of the industry in the development and accreditation of programmes is as explained by Academic F01:

> *When we (HE agency) process any applications [for the new academic programme], we look at the input from the stakeholders. One of the major stakeholders, in this case, should be the industry. So all the institution or programme owners need to engage with the industry to ensure that when they come out with the curriculum, it is in line with what the industry needs. We do not want a programme to be offered just for the sake of offering them. Even at the ministry level, when we talk about the public institutions, they will actually scrutinize this. They will look at whether that programme is marketable, the students can actually be marketable upon graduation. So, I think that is the most important thing.*
> *Academic F01, HE Agency 01*

The involvement of the market and industry can be further observed in the once every five-year curriculum review. As Academic A01 shared from the experience of a recent curriculum review, feedback from employers, market analysis, and alumni became an important determinant of what should be included and what should change in an academic programme, in this case, to increase the quantitative component in an economics programme:

> *[Curriculum review to strengthen the quantitative core in an economics programme] is to meet the industry need. This comes back from employers and market analysis that our students are not strong in the quantitative part. They [employers, market analysis, alumni] even demanded that [computer] programme be included.*
> *Academic A01, Economics, Public University 01*

However, the market and industry involvement is not straightforward and often problematic. As articulated eloquently by Academic A02, who questioned the role and authority of university and academics, challenging the increasing influence of the industry and market on academic programmes and curricula:

> *When we want to revamp the curriculum, what did the people say? What did everyone say? Find out what the market wants. Since when do we [the university] care what the market wants? Who is this market? The market is people in the private sector, and they will call all these private sector people. In the last meeting [of curriculum review], we have people from (name of company removed) [a trading conglomerate], the bank, different sectors. So I said, since when did university academics ever ask the market how to structure the curriculum? [The answer is], if you do not give the market what they want, those students cannot get employed. Then they tell me the parents look at the course [and said], this is what the market wants. So what this means is the meaning of the university is being questioned. The university and education should not be seen as something utilitarian, [where] you go and get an education so that you get a high-paying job in the private sector. That is not what the university is all about.*
> *Academic A02, Economics, Public University 01*

The many questions raised by Academic A02 are all geared towards asking who is the market that now has a central role in determining a university curriculum. The dominance of this so-called market is directly related to the influence of neoliberalism. Hence, a fundamental question underlying and precipitated by this change pertains to the role and purpose of university and university education. Clarifying this fundamental question is important before we re-examine the role and involvement of the industry and the market. Importantly, the concept of the industry and the market is also problematic, as articulated by a retired academic who has experience in leading the university as well as being a policymaker:

> *We produced 6,000 graduates every year. … Ask one company, how many will you take? 50. Another said 100. [But] you expect the university to meet the needs of everyone when [the university] have to produce 6,000. So tell me, if we are teaching the software [used currently], with disruptive technology, everything will change three years from now or even three months. So what can I teach [if we listen to the industry]?*
> *Academic F02, HE Agency 01*

The unclear characteristics of exactly who is the industry and the market reiterate the importance of understanding the role and purpose of university education. But importantly, the emphasis on responding to the industry and the market has been almost exclusively driven by the government, acting as a conduit to these forces (Pring et al., 2009). Regulatory agencies such as accreditation bodies have required and mandated universities to address the needs of the industry and the market as part of their curriculum design and review. However, such requirements and practices are problematic. As Academic F03, from their previous experience as a policymaker, rightly pointed that a broader overview and/or guidance for universities in producing graduates and developing the knowledge, skills, competencies and capabilities according to the needs of the economy, society, and the nation remains missing.

> *No entity in this country can say five years down the road, "We need this kind of qualification". That should be the job of the Economic Planning Unit or any related agencies, but where the country is actually heading [in terms of talent development], nobody can tell. And this is when we want to offer new programme [in the] university, we do market survey. This is all rubbish just to get the curriculum to approve, but the bigger picture is not there.*
> *Academic F03, Engineering, Public University (also HE Agency 02)*

Yet, similar to the problematic concepts of the industry and the market, who exactly is the government? While there is a ministry in charge of higher education and several related agencies, the issue of university education and curriculum has a wider reach even within a government. Hence, as Academic F02 suggested from narrating the complexity related to higher education policy and national development:

> *The total government approach is the only way to deliver. But now, every ministry is [trying to be a] superpower. When you speak to them, they will listen but then will stick to their own plans strategies and follow their own KPIs. Where is the grand master plan? This [post-COVID] is the time to converge all the masterplans, industry, STI (science, technology and innovation), biotech, higher education; because it is not [only] about higher education. It should be from the schools all the way to cater not only for the industry, [but] for humanity, for Malaysia in moving forward as a nation builder.*
> *Academic F02, HE Agency 01*

However, while more stakeholders seem to have a say on university education and curriculum, arguably the most important stakeholder has been neglected. Where are the voices of students who are going through the curriculum? The following excerpts from a student best captured this neglect to understand the difficulties and challenges students encountered in navigating a rigid curriculum structure:

> *Moving across the specialization to get some other skills that are available is a bit difficult. Because for each track or specialization, [we have to complete] at least nine elective courses. [Also] because we have limited time, three and half years, we cannot take courses, not in our track or specialization.*
> *Student C103, Economics, Public University 01*

The neglect of students in curriculum development was further reaffirmed and best summarized by the following excerpt:

> *I think our curriculum is still lecturers centred rather than students centred. And I think if we can apply what we called as personalised medicine, we should also apply personalised education.*
> *Academic F03, Engineering, Public University (also HE Agency 02)*

The Acute Disruption

Conceptual Discussion

Acute disruption to higher education comes in many forms. Wars and natural disasters are among the common forms of disruption that would close the campus and halt T&L activities. Other forms of acute disruption, such as the rapid expansion of online technology, can to some extent be considered as a disruption that changed how HLIs operate. Specifically, this paper focuses on the implication to T&L due to the acute disruptions that took place in 2020 due to the sudden emergence of a widespread pandemic.

Although infectious disease and public health experts have long warned of a disease X that would threaten human survival (Heymann & Rodier, 2004), few foresaw the speed, severity, and level of disruption the COVID-19 pandemic has brought to society at large (Hu et al., 2021), and to higher education in particular.

According to the global survey by the International Association of Universities, T&L was significantly impacted by the pandemic, with two-thirds of responding HLIs reporting that traditional delivery has been replaced by remote T&L (Marinoni, van't Land & Jensen, 2020). While this sudden

shift posed challenges related to technical infrastructure, competencies, pedagogies and specific fields of study, many HLIs reported that COVID-19 has increased uptake of collaborative online learning. Regardless, planned semesters suffered heterogeneous disruptions, particularly concerning final examinations. Some HLIs forged through while others significantly modified timelines and assessment designs. Within all this, maintaining current and clear communication and coordination across the university administration and teaching staff and students while responding to rapid changes from the epidemic and government policies became glaring determinants of how adverse these disruptions were to an HLI. Albeit a large survey suggested that students were mostly satisfied with the support provided by teaching staff and their universities' public relations early in the pandemic (Aristovnik, 2020), this remains to be seen as the world progresses into subsequent years of living with COVID-19. Critically, while the transition to online learning appeared to have 'saved' the curriculum and academic calendars for many HLIs, the rapid, forced, and total technological reliance for T&L has undeniably widened existing digital gaps across university communities (Garcia-Penalvo, 2021).

In addition to the COVID-19 pandemic, for Malaysia, disruptions of the pandemic were superimposed on a political crisis arising from the defection of several key members of parliaments and the resignation of the sitting Prime Minister (dubbed the "Sheraton Move"), resulting in the collapse of the ruling coalition and a new government sworn in on 1 March 2020 (Saravanamuttu, 2021). The change of government almost immediately affected the system governance of higher education in Malaysia, whereby HLIs migrated from being under the purview of the Ministry of Education (which was otherwise more focused on primary and secondary education) to the re-established Ministry of Higher Education. Consequently, the appointment of a new Minister of Higher Education re-focused attention on higher education and given that higher education in Malaysia is heavily centralized with the minister and ministry overseeing this portfolio having a strong and direct influence on HLIs, a small change in the government indubitably had a direct and significant effect on institutions (Morshidi, Abdul Razak & Azman, 2012). Hence, in such a top-down, centralised system as Malaysia, higher education in the year 2020 suffered overlapping acute disruptions in the form of a change of government amidst uncertainties of a rapidly evolving pandemic. We attempted to capture the effect of these disruptions on the curriculum and T&L from the perspective of programmes, academics and students faced with these unprecedented circumstances.

Insights from the Ground

In Malaysia, all T&L and research activities (and other non-essential services) were initially halted during lockdown starting 18 March 2020 in response to a rapid rise in COVID-19 cases (Kamaluddin et al., 2020). Before lockdown, many HLIs have incorporated 'blended' learning, combining in-person and online T&L over the last decade or so (Nuruzzaman, 2016; Torrisi-Steele and Drew, 2013). However, these uptakes remained low even though globalized online learning is one of the nine shifts outlined in the MEBHE (Morshidi & Wan, forthcoming).

Thus, as the COVID-19 pandemic precipitated face-to-face learning risks within a few days and weeks (varying by specific HLIs), academics and students were expected to migrate all T&L activities and communication into remote online learning platforms and mediums. These included official university platforms – Google Meet, Webex, Zoom, and communication via social media applications such as Whatsapps and Telegram. Important to note all these took place in an emergency response manner (Hodges et al., 2020).

With teaching staff and students no longer present in the campus environment, and instead were off-campus in their homes or other locations they were bound to during lockdown, multiple aspects of T&L activities were affected. The acute disruptions are discussed in terms of (i) their implications to T&L activities on the practical dimensions and (ii) the changing dynamics to T&L due to remote learning arrangements.

Implications on Practical Dimensions

While many respondents observed that most courses were adaptable to emergency remote learning (ERL) (barring variation in technical challenges associated with class size and internet access), the most significant implication to T&L activities under the remote learning arrangement is achieving the programme/course outcome on practical components. For example, psychomotor skills and industrial placement are critical elements in science and engineering programs (Hofstein & Mamlok-Naaman, 2007; Shana & Abulibdeh, 2020). However, in general, most if not all lecturers interviewed lamented the difficulty if not downright impossibility of developing psychomotor skills, for instance, laboratory-based skills, using online methods.

> *[No matter] how many YouTube videos or demonstration videos you watch, you simply cannot achieve that same level of outcome or learning outcome at the end of a practical [session]…. We had to start looking into apps that helped with practical [aspect], [but] I do not think the apps really help. It is still virtual, and you know, it has not been as advanced as all those virtual reality things for you to put on goggles, [like you are] holding a pipette. It is not that advanced yet. I think the best strategy is still to get the students back [on campus, but] in smaller batches.*
> *Academic A01, Biotechnology, Private University 02*

In addition to this, the requirements for industrial placements were also severely disrupted depending on the industry related to the field of study. Students placed within essential work were still able to proceed as planned. Still, others who were set for placements in organizations or companies deemed non-essential work had to complete their internships remotely.

Finally, for programmes that required completion of a final year project (FYP) that typically involved laboratory-based or field-based research, this component has been particularly affected by the lockdown and social distancing restrictions. Many respondents were forced to change FYP topics into reviews, data mining or dry-laboratory research since they could not return to campus to access laboratories or travel to field sites for sampling and data collection. The responses from Academic A01 and Student C802 aptly summarized the sentiments of both lecturers and students:

> *Their final year project was another nightmare for us… A lot of them are used to laboratory projects, and we had to convert a significant amount of those projects into dry lab projects, but the students were not too happy about that.*
> *Academic A01, Biotechnology, Private University 02*

> *The biggest impact is you are not able to have your FYP. You cannot enter the lab and do a hands-on experiment. That is a very big impact.*
> *Student C802, Biotechnology, Private University 02*

Thus, even with adaptive strategies to ensure graduation requirements are met, the longer-term impact on psychomotor training, experience and technical skills for the graduating cohorts affected by these disruptions remains to be seen.

Changing Dynamics of T&L

There were significant implications associated with the altered dynamics of remote T&L and assessments compared with in-person arrangements on the campus. Consequently, the change in the T&L modality led to new forms of challenges and disparities among the students. Removed from the security of campus-wide internet connection, the most common issue faced was the disparity in internet access. Students and lecturers in rural areas lacked stable internet connections and often had to bear the increased cost of participating in T&L activities that consumed high amounts of data. Consequently, lecturers were faced with the dilemma of providing less data-consuming teaching

materials and activities versus conducting more stimulating online activities such as synchronous lectures using video conferencing, which despite providing more opportunity for live interaction, would also incur significant costs for students relying on mobile data.

> *Internet connectivity is a problem for the students. Some of them do not have access in rural areas, and some do not have access to fibre broadband. Second thing, even if you have 3G connectivity, it is not that sufficient, and to stream a 2-hour lecture, it is very expensive for them to stream and access. … I can see in the YouTube analytics, I can see how many students [have] viewed my lectures, and not many stayed and watch until the end.*
> *Academic B01, Biotechnology, Public University 07*

Unlike during in-person lectures, lecturers struggled to gauge student understanding even for live lectures online. Often, videos were turned off to conserve data or privacy issues. However, even when cameras were turned on, lecturers faced difficulty assessing body language and stimulating student responsiveness, which are otherwise important elements of the learning experience (Zeki, 2009).

> *[In online lectures], we have to consider [usage of data to access] internet. We do not want a one hour class that [would] cost too much to students [in terms of paying for mobile data]. So we have to consider that. But I think when we do the short class, I mean, just 15 minutes, it is not enough for students. I just wonder [whether they will] understand that or not. … So in every class, after I finished my lesson, I do a quiz, so I can understand whether students understand and do not understand which part of my lesson [since] you cannot [see the] face of your student directly. So, there is a [lot of] challenges with online teaching.*
> *Academic B02, Biotechnology, Public University 07*

Conversely, some lecturers reported more engagement through chat platforms available during ERL than in-person lectures. Students appeared more comfortable posing questions without needing to speak up. Both lecturers and students also noted that the increased adoption of online platforms such as Google Jamboard to increase T&L interaction, use of online resources such as YouTube videos, and recorded lectures were helpful for continuous revision and would be beneficial even in a post-pandemic environment.

> *This online arrangement helped students to feel much closer with their lectures because they can ask you anything at any time as well as any kind of questions. I do not know about others, but before this, at best only one or two students will come and meet me to ask questions.*
> *Academic B04, Biotechnology, Public University 07*

Students' receptiveness to chatting and texting online may also reflect generational differences and the influence of and their comfort in social media use (Seemiller & Grace, 2018). With the switch of T&L to the online mode, many lecturers found their students to be more vocal in expressing their thoughts through texts and chats, and shy students tend to be more expressive online. Importantly, some students and lecturers also noted the benefits of more creative assignments that moved beyond rote memorisation, as Student C801 shared:

> *The one positive aspect that I like is that can be kept in an interesting way to carry out the final assessment [examination]. It is no longer just memorizing everything and going into a 'verbal diarrhoea'. I really find the online assessments are more relevant to [future] work [settings] because it is based on a case study. We are required to do a bit more analysis a little research here and there. I actually like [online assessments] as compared to [written examination where we] sit down, 'eat the book' and 'throw into the paper straight away'.*
> *Student C801, Biotechnology, Private University 02*

Across different universities, there was also different levels of comfort and support in using online T&L platforms for teaching staff. For example, one academic from a university noted that the transition to online as seamless as most of them had already been trained as part of a teaching diploma which included an introduction to online tools. Another academic from a different university noted that, in general, junior academic staff were more equipped for the transition than more senior staff. This is due to the incorporation of various levels of training for blended learning in recent years, albeit general practice across the board was low until the pandemic unfurled.

> *In our university, all lecturers must attend a postgraduate diploma for teaching at the tertiary level. This course covered how to design curriculum, how to do flipped classrooms, teaching with technology. So, it is easier for us [in this institution] to be more aligned to the technology and teaching online. … Within a day after our campus is closed, we managed to switch everything online. What we have learned from the course has prepared us.*
> *Academic B04, Biotechnology, Private University 02*

Regardless of technological proficiency, a key challenge as part of the transition to online learning is reducing or replacing the final examination component with various forms of continuous assessment. Such assessment is often in the form of assignments and/or open-book tests, which has several implications on workload and quality of assessments. The need to replace higher weightage final examination with multiple smaller weightage assignments and tests (including conducting quizzes after every lecture to monitor online 'attendance') resulted in a significant amount of workload for lecturers and students, for preparing T&L materials, conducting, and grading assignments and completing these, respectively. This workload included informal time commitments that arose from the increased contact between lecturers and students beyond the traditional hour-two hours of lecture—as questions were able to be posted on forums by more students or even directly by messaging on social media platforms (Alawamleh et al., 2020). The limitless online communication has the double-edged sword of increasing engagement at the cost of intrusion of both the lecturer and student personal time. Indeed, the impact of the sudden transition from traditional delivery to emergency online delivery in terms of teaching load and student learning time associated with the standard calculation of credit hours is only being appreciated in retrospect.

> *There is another problem when all the lecturers give their online assessments at the same time. So, for example, four subjects released the assignment [details] on Monday, and then all assignments have to be submitted on Wednesday. So, [such uncoordinated assignments], it is very taxing on us because you have to face the laptop for like so many hours to finish all assignments at the same time.*
> *Student C805, Biotechnology, Private University 02*

The increased quantity of work faced during ERL was also complicated by questions raised regarding assessment quality under such circumstances. In addition to questions about ethical adherence, which was challenging to ensure besides the use of plagiarism software, all lecturers interviewed reported a trend of grade inflation and higher passing rates when the weightage for continuous assessments was increased up to 80-100% of course marks and/or without timed invigilated final examination. Ironically, despite getting higher marks, without the final examinations, students remarked less confidence in their understanding of the course.

In summary, many negative sentiments surrounding COVID-19 as an acute disruption highlight the fact that while Malaysian HLIs had some practical ability to quickly respond to circumstantial interruptions via utilising existing technologies and expanding on pedagogical approaches such as blended learning, the speedy shift neglected to effectively incorporate the underlying purpose and nature of different T&L activities. This may relate to the fact that while pandemic restrictions had overwhelmed university norms, structures and frameworks that have been set in place, such as

OBE requirements, were not re-interpreted cohesively. Instead, the onus was placed on individual courses instructors to find alternative methods to meet existing requirements. While this seemingly was a reasonable option early in the pandemic, moving two to three years into living with COVID-19 shows that Malaysian HLI may have severely underestimated the long-term effects of this acute disruption. The price of the failure to recognise early on the more permanent impact of the pandemic and ERL on curriculum, and an attitude of 'how do we return to business-as-previous?' rather than hard questions of 'how do we move forward?' remains to be seen. Nevertheless, it is encouraging that the need to adapt to pandemic norms has finally provoked a long-needed wave of change and re-thinking what and how the university curriculum can remain relevant in modern times.

While the change of government in March 2020 would have been an acute disruption, however, partly due to the severity of the disruption from the pandemic that took place simultaneously, the effect has been relatively small. Additionally, the study was framed in the curriculum context for which discussion of political and governance changes (unlike the shift to online learning due to pandemic restrictions) would have been out of scope. Yet, we touch on the impact of nationwide campus closure, which came from a ministry directive. Therefore, the challenges and mishaps in policy and communication from the campus closure to some extent illuminated the turbulence in the government at that time.

Discussion and Conclusion

While disruptions are inevitable, identifying different types of disruption and how they impact and change the curriculum and educational processes in higher education are crucial lessons to be learned. This paper has illustrated two major forms of disruptions in higher education.

On the one hand, chronic disruptions, which are more gradual and subtle, significantly change the purpose, rationale and ways in which higher education operate, especially on T&L. New components, new stakeholders and new ideas, for instance, can alter the discourse about the purpose of university education. Furthermore, the concepts of graduate employability, employment outcome, and the idea of students as consumers are examples of how a utilitarian mindset chronically disrupts and shapes the idea of university education.

On the other hand, acute disruptions, which came more abruptly and forcefully, also catalysed changes in university education, curriculum, educational processes. Specific to the case of Malaysia, two inter-related acute disruptions – the COVID-19 pandemic and change of government that took place within days of each other – have further raised many more pertinent questions for us to reconsider regarding the purpose and manifestations of university education, the curriculum and educational processes.

To recognize these disruptions is important for us to understand the development of university education that led us to the present situation. Importantly, this understanding is expected to guide future development, especially for higher education to adapt and progress into the future. We shall conclude by raising five questions for different actors and stakeholders to ponder concerning these disruptions.

First, to the university as an institution that owns academic programmes, to what extent have these programmes been resilient and steadfast in adhering to the educational purpose and objective while concurrently adapting to both acute and chronic disruptions? This question requires institution and academic programmes to have a clear purpose and objective, not merely meeting regulatory requirements. Given this, even when confronted with disruptions and initiating measures to adapt to the disruptions, the purpose and objective will remain while balancing the different elements that have become a part of university education.

Second, to the academics who are instrumental in ensuring that educational processes achieve their purpose, how have these disruptions changed their approach, and in what ways have they been able to withstand changes? This question is directly related to academics' autonomy and pedagogical

competency (Nasrallah, 2014), especially on T&L, as well as the support and 'space' for them to navigate the different kinds of disruption in the process of educating their students.

Third, to the students who are primary beneficiaries and recipients of the educational experience, are the changes in line with their aspirations, and how have they coped with these disruptions? Have their voices been heard and taken into account? The neglect to listen and pay attention to the voices and needs of students can be detrimental because students should rightfully be the most important actor in the educational processes, not as a customer but as a learner (Nordqvist & Aronsson, 2019).

Fourth, to the other stakeholders, including policymakers and regulators acting as a conduit of employers and parents, have the changes brought the intended outcome and what would have been the alternative opportunity cost to pursue the changes intended? Finally, the abrupt shocks of acute disruptions have further exposed the many fundamental issues and structural misalignment that have subtly permeated due to the chronic disruptions on university education's purpose, structure, and idea.

Fifth, the real challenge to the future of higher education will come after the disruptions have subsided. What is left behind, and what are the non-negotiable essential elements that define university education? Is conforming to a factory-like production model by time and cohort, such as graduate-on-time, still relevant? Is the over-zealous structure of defining outcomes without considering the processes still appropriate when met with these disruptions? Is the ecosystem of higher education supportive and adaptive to the disruptions and resilient to the needs of the students for the future?

By critically examining and recognising disruptions to the curriculum questions that are pertinent to guide the way forward in developing university curriculum have surfaced. Importantly, the quest for these answers will also require engagement and collaboration of stakeholders towards steering university education to become more relevant, impactful and meaningful for all.

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References

Alawamleh, M., Al-Twait, L.M. & Al-Saht, G.R. (2020) The effect of online learning on communication between instructors and students during Covid-19 pandemic. *Asian Education and Development Studies*. https://doi.org/10.1108/AEDS-06-2020-0131

Anderson, L.W., Krathwohl, D.R. & Bloom, B.S. (2001). *A Taxonomy for Learning, Teaching and Assessing: A revision of Bloom's taxonomy of educational objectives.* New York: Longman.

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N. & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability*, *12*(20). https://doi.org/10.3390/su12208438

Avis, J. (2000) Policing the subject: Learning outcomes, managerialism and research in PCET. *British Journal of Educational Studies*, *48* (1), pp. 38-57. https://doi.org/10.1111/1467-8527.00132

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H. & Krathwohl, D.R. (1956) *Taxonomy of Educational Objectives: The classification of educational goals.* New York: David McKay.

Blyth, M. (2015). *Austerity: The history of a dangerous idea.* Oxford: Oxford University Press.

Brown, W. (2015). *Undoing the Demos: Neoliberalism's stealth revolution*. New York: Zone Books. https://doi.org/10.2307/j.ctt17kk9p8

Cooper, M.M., Caballero, M.D., Ebert-May, D., Fata-Hartley, C.L., Jardeleza, S.E., Krajcik, J.S., Laverty, J.T., Matz, R.L., Posey, L.A. & Underwood, S.M. (2015) Challenge faculty to transform STEM learning. *Science*, *350*(6258), pp. 281-282. https://doi.org/10.1126/science.aab0933

Corbin, J. & Strauss A. (2008). *Basics of Qualitative Research*. 3rd ed. London: Sage.

De Vaus, D. (2001). *Research Design in Social Research*. London: Sage. https://doi.org/10.4135/9781446263495

Dewey, J. (1938). *Experience and Education*. New York: Touchstone.

Eraut, M. (2009). *Transfer of Knowledge between Education and Workplace Settings.* Available at: https://www.researchgate.net/publication/237539394_Transfer_of_Knowledge_Between_Education_and_Workplace_Settings (Accessed 25 February 2022).

García-Peñalvo, F.J. (2021) Transformación digital en las universidades: Implicaciones de la pandemia de la COVID-19. *Education in the Knowledge Society* 22, e25465. https://doi.org/10.14201/eks.25465

Harvey, D. (2005). *A Brief History of Neoliberalism*. Oxford: Oxford University Press. https://doi.org/10.1093/oso/9780199283262.001.0001

Heynmann, D.L. & Rodier, G. (2004). SARS: Lessons from a new Disease. In S. Knobler, A. Mahmoud, S. Lemon, A. Mack, L. Sivitz & K. Oberholtzer (Eds.) *Learning from SARS: Preparing for the next disease outbreak*. Washington DC: The National Academies Press, pp. 234-245.

Hicks, O. (2018) Curriculum in higher education: Confusion, complexity and currency. *HERDSA Review of Higher Education* 5, pp. 5-30.

Hodges, C.B., Moore, S.L., Lockee, B., Trust, T. & Bond, M.A. (2020). *The Difference Between Emergency Remote Teaching and Online Learning*. Available at: at https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning (Accessed 26 October 2021).

Hofstein, A., & Mamlok-Naaman, R. (2007). The laboratory in science education: the state of the art. *Chemistry Education Research and Practice, 8(*2), pp. 105-107. https://doi.org/10.1039/B7RP90003A

Hu, B., Guo, H., Zhou, P. & Shi, Z-L. (2021) Characteristics of SARS-CoV-2 and COVID-19. *Nature Reviews in Microbiology 19*(3), pp. 141-154. https://doi.org/10.1038/s41579-020-00459-7

Jackson, N. (2000) Programme specification and its role in promoting an outcomes model of learning. *Active Learning in Higher Education*, *1*(2), pp. 132-151. https://doi.org/10.1177/1469787400001002004

Jacoby, J. (2014). The disruptive potential of the Massive Open Online Course: A literature review. *Journal of Open, Flexible, and Distance Learning*, *18* (1), pp. 73-85.

Kamaluddin K, Chinna K, Sundarasen S, Khoshaim HB, Nurunnabi M, Baloch GM, Sukayt A,. & Hossain SFA (2020). Coping with COVID-19 and movement control order (MCO): experiences of university students in Malaysia. *Heliyon, 6*(11):e05339. https://doi.org/10.1016/j.heliyon.2020.e05339

Marinoni, G., van't Land, H. & Jensen, T. (2020) *The Impact of COVID-19 on Higher Education Around the World: IAU global survey report.* Paris: International Association of Universities.

Mohayidin, M. G., Suandi, T., Ghazali, M., Konting, M., Norfaryanti, K., Man, N., Azura, A., & Abdullah, S. (2008). Implementation of outcome-based education in Universiti Putra Malaysia: A Focus on students' learning outcomes. *International Education Studies, 1*(4), pp. 147-160. https://doi.org/10.5539/ies.v1n4p147

Mohd Saruan, N., Sagran, A., Fadzil, K. S., Razali, Z., Ow Phui San, R., & Somasundram, C. (2015). Connecting learners: The role of biotechnology programme in preparing students for the industry. *Biochemistry and Molecular Biology Education, 43*(6), pp. 460-467. https://doi.org/10.1002/bmb.20892

Ministry of Education (MOE) (2015). *Malaysia Education Blueprint (Higher Education) 2015-2025*. Putrajaya: Ministry of Education Malaysia.

Ministry of Higher Education (MOHE) (2020). *Higher Education Statistics 2019*. Putrajaya: Ministry of Higher Education Malaysia.

Morshidi, S. & Wan, C.D. (forthcoming) Higher education in Malaysia. In L.P. Symaco & M. Hayden (Eds.) *International Handbook on Education in South East Asia.* Singapore: Springer Nature. https://doi.org/10.1007/978-981-16-8136-3

Morshidi, S., Abdul Razak, A. & Azman, N. (2012). University leadership in crisis: The need for effective leadership positioning in Malaysia. *Higher Education Policy*, *25*, pp. 511-529. https://doi.org/10.1057/hep.2012.10

Nasrallah, R. (2014). Learning outcomes' role in higher education teaching. *Education, Business and Society: Contemporary Middle Eastern Issues, 7*(4), pp.257-276 https://doi.org/10.1108/EBS-03-2014-0016

Nordqvist, O. & Aronsson, H. (2019). It Is time for a new direction in biotechnology education research. *Biochemistry and Molecular Biology Education, 47*(2), pp. 189-200. https://doi.org/10.1002/bmb.21214

Nuruzzaman, A. (2016) The pedagogy of blended learning: A brief review. *IRA International Journal of Education and Multidisciplinary Studies, 4*(1), pp. 125-134. https://doi.org/10.21013/jems.v4.n1.p14

Panther, L., Allee-Herndon, K.A., Perrotta, K. & Cannon, S. (2021) I can tell you stories: Teacher education during educational disruption. *The Teacher Educator, 56* (3), pp. 327-345. https://doi.org/10.1080/08878730.2021.1918302

Pring, R., Hayward, G., Hodgson, A., Johnson, J., Keep, E., Oancea, A., Rees, G., Spours, K. & Wilde, S. (2009). *Education for All: The Future of education and training for 14-19 Year Olds*. London: Routledge.

Print, M. (1987). *Curriculum Development and Design*. Sydney: Allen & Unwin.

Robison, R. (2004). Neoliberalism and the future world: Markets and the end of politics. *Critical Asian Studies*, *36* (3), pp. 405-423. https://doi.org/10.1080/1467271042000241603

Saravanamuttu, J. (2021). Malaysia in 2020: Political fragmentation, power plays and shifting coalitions. In D. Singh &M Cook (Eds) *Southeast Asian Affairs 2021*. Singapore: ISEAS – Yusof Ishak Institute pp. 169-184. https://doi.org/10.1355/aa21-1j

Seemiller, C. & Grace, M. (2018). *Generation Z: A century in the making*. London: Routledge. https://doi.org/10.4324/9780429442476

Shana, Z., & Abulibdeh, E.S. (2020) Science practical work and its impact on students' science achievement. *Journal of Technology and Science Education*. *10*, pp.199-215. https://doi.org/10.3926/jotse.888

Springer, S. (2009). Renewed authoritarianism in Southeast Asia: Undermining democracy through neoliberal reform. *Asia Pacific Viewpoint*, *50* (3), pp. 271-276. https://doi.org/10.1111/j.1467-8373.2009.01400.x

Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development.* London: Heineman.

Torrisi-Steele, G. & Drew, S. (2013) The literature landscape of blended learning in higher education: the need for better understanding of academic blended practice. *International Journal of Academic Development 18*, pp.371–383. https://doi.org/10.1080/1360144X.2013.786720

Vereijken, M.W.C. & van der Rijst, R.M. (2021) Subject matter pedagogy in university teaching: How lecturers use relations between theory and practice. *Teaching in Higher Education*. https://doi.org/10.1080/13562517.2020.1863352

Wan, C.D. (2021). Quality, Excellence and Impact: Can we really measure them? *IPPTN Issues Paper*, No.5/2021.

Wolf, A. (1995). *Competence-based Assessment*. Buckingham: Open University Press.

Zeki, C.P. (2009). The importance of non-verbal communication in classroom management. *Procedia - Social and Behavioral Sciences 1*(1), pp.1443-1449. https://doi.org/10.1016/j.sbspro.2009.01.254