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# Post-COVID-19 strategies for higher education institutions in dealing with unknown and uncertainties

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The COVID-19 global pandemic outbreak has presented higher education institutions with the impediment of transforming to a new curriculum, pedagogy, and educational management. Inevitable transformation in higher education triggered by COVID-19 is still ongoing, albeit most countries are now at the endemic stage. However, transformation should not just be about simply changing instructional delivery. The COVID-19 pandemic is a unique opportunity for educators and policymakers to rethink education systems and reimagine what is important, necessary, and desirable for future generations. Hence, this study focuses on identifying strategies for higher education institutions to deal with unknown uncertainties during and after the pandemic. Expert Opinion Method was conducted involving five professors who are senior management in their respective universities and have been directly involved in formulating strategies and policies during the pandemic. Four major dimensions were developed from the findings: (1) Resilience and Change Management, (2) Digital Transformation and Online Learning, (3) Curriculum Change, and (4) Sustainability. Flexibility is also the most common issue discussed by experts. Based on thematic analysis, post COVID-19 strategic framework for higher education institution sustainability is proposed. In addition, this study can be a roadmap for educators, policymakers, and all relevant stakeholders to prepare for future disruptions in the education sector.

## KEYWORDS

resilience, digital transformation, curriculum change, sustainability, COVID-19 pandemic, higher education institutions

## Introduction

Internationalization for the higher education industry may no longer be what we used to imagine before the COVID-19 pandemic. While many higher education institutions strategize for Education 4.0, the pandemic has unexpectedly disrupted everything. For example, changes have been observed in teaching (Drijvers et al., 2021;

Arday, 2022), learning and assessment experiences (García-Alberti et al., 2021; St-Onge et al., 2022), mobility (Yildirim et al., 2021), mental wellbeing (Gurvich et al., 2021), graduate employment (Gill, 2020), and even the meaning of education (Cairney and Kippin, 2022). Online education is not just an additional activity to the learning process. It has become the mainstream in education now (Haryati et al., 2021). When COVID-19 struck, the immediate change that happened almost overnight was only to address the urgent need to continue to conduct classes for students during that time. However, the transformation should not simply change the instructional delivery. The COVID-19 pandemic presents a unique opportunity for educators and policymakers to rethink the education systems and reimagine what is important, necessary, and desirable for future generations. The disruptive nature of COVID-19 calls for a radical restructuring of education (Castiglioni and Gaj, 2020). In this study, an Expert Opinion Method was conducted on 31 March 2022, involving five professors from universities in Malaysia, Netherlands, India, and Bangladesh. The selection criteria were that they are academic administrators holding senior management positions (minimum faculty dean) in renowned higher education institutions. In addition, they must have been directly involved in formulating strategies and policies at their respective higher education institutions during the COVID-19 pandemic. The authors believe that the aforementioned criteria will be helpful for them to cope with the disruptive nature of the COVID-19 pandemic.

The unexpected global pandemic outbreak led almost overnight. Many higher education institutions adopted learning *via* a virtual platform and continuously adapted to new and innovative educational management, curriculum, and pedagogy during this 2-year pandemic. Hence, the five professors who hold senior management positions at renowned higher education institutions worldwide are the best candidates to reflect on their experiences and tactical approaches to deal with common impediments to successful transformation in higher education institutions. This study aims to identify major themes and dimensions through the Expert Opinion Method to increase the understanding of issues, opportunities, or solutions, or to create projections (Skulmoski et al., 2007) related to unknown and uncertainties brought by COVID-19. The unavailability of direct empirical evidence (Herman and Raybould, 2014), as in the case of this study, makes the Expert Opinion Method applicable to identify strategies for higher education institutions to maneuver during the disruption.

## Literature review

The pandemic has affected the world, including the higher education sector, in the months since the confirmation of the first case, and the impact is expected to last for years. The

most significant long-term effect of the pandemic is uncertainty, which is accompanied by new realities, not only in higher education but also in society as a whole as nobody can predict how long the impact of COVID-19 will last, where it will next be felt, or how deep it will ultimately be (Jung et al., 2021). As such, the outcomes of the pandemic are unknown. The unknown possible outcomes brought by the COVID-19 global pandemic posed such a rapid challenge that higher education leaders had little time to assess, evaluate, and make informed decisions. The dynamics of the situation presented greater complexities than had previously been encountered (McCormack et al., 2021).

As such, the uncertainty and unknown environment brought by the COVID-19 pandemic presented new challenges, particularly in terms of teaching practices and stakeholder engagement. Some academics are still adjusting, while others have accepted the new academic environment. Some have also faced unexpected challenges in which the boundaries between work and family life have become increasingly blurred and inconsistent, rather than synergistic (Rashmi et al., 2021). In universities, the concept of space has shifted from one that is physically open to society and students to one that is controlled, closed, and empty, with little intellectual engagement (Jung et al., 2021).

The most obvious change in higher education institutions is the realization of digital transformation and online curriculum delivery. Digital transformation is defined as the organizational change in processes or business models by using technological innovations or disruptive digital concepts for key improvements with the aim of meeting the current needs of stakeholders and enhancing all aspects of their life (Reis et al., 2018). Now, human development is in the Fourth Industrial Revolution, in which the digital revolution is unavoidable, and the COVID-19 pandemic speeds up digital transformation (Abdulrahim and Mabrouk, 2020). There are some prior studies have explored issues about digital transformation resulting from the COVID-19 pandemic: Abdulrahim and Mabrouk (2020), Bhagat and Kim (2020), Marks et al. (2020), García-Morales et al. (2021), Hai et al. (2021), Kutnjak (2021), Mahmud et al. (2022), and Nurhas et al. (2021) have highlighted the challenges of rapid digital transformation in higher education institutions during the global pandemic. Mahmud et al. (2021) and Mhlanga et al. (2022) have concluded key digital transformation lessons learned during the pandemic. However, the diffusion of digitalization that happened during the COVID-19 outbreak has also brought new opportunities to higher education institutions. For instance, Adedoyin and Soykan (2020) have emphasized on adapting digital transformation to produce a new roadmap for online modes of teaching and learning. Besides, prior scholars have suggested the utilization of social media (Alismaiel et al., 2022) and mobile learning (Alturki and Aldraiweesh, 2022) for efficient and collaborative online learning during the pandemic. Moreover, Sá and Serpa (2020) have highlighted digital transformation allows the co-creation of knowledge in

academic communities of practice and improves sustainable digital development in higher education. Besides, during the COVID-19 pandemic, digital transformation encourages new learning approaches, such as distance learning and blended learning, to create sustainable values and resilience in education (Appolloni et al., 2021). Nurhas et al. (2021) have also identified digital readiness and willingness of individuals to adopt digital transformation can create a sustainable and resilient work ecosystem in higher education.

Resilience is the ability to adapt to sudden change and stress, while digital resilience is about tech-savviness and readiness to adapt to the digital environment in response to drastic transitions during the COVID-19 pandemic (Eri et al., 2021). There are some prior scholars have studied factors associated with resilience context in higher education institutions in times of COVID-19, for instance, psychological wellbeing to enhance the resilience of students (Sood and Sharma, 2020; Versteeg and Kappe, 2021), all-inclusive organizational resilience model for stakeholders in the higher education sector (Nandy et al., 2020; Chiramba and Maringe, 2022; Shaya et al., 2022), adaptation in the teaching process to build the resilience of faculty members (Baumber et al., 2021; Bento et al., 2021), digital transformation, such as the development of digital resources, technological innovations, and online curriculum delivery as resilience approaches (Appolloni et al., 2021; Sánchez Ruiz et al., 2021).

Before the year 2020, many higher education institutions started to involve efforts in sustainable activities to incorporate the UN's Sustainable Development Goals (SDGs). However, the COVID-19 global pandemic reshapes the priorities of the higher education sector to achieve sustainability through digitalization (Crawford and Cifuentes-Faura, 2022). Though, Goal 4 of the UN's SDGs, which is about ensuring inclusive and equitable quality education, has a high possibility to be impractical as inequities happened in global higher education during the COVID-19 outbreak (Hadjeris, 2021; Purcell and Lumbreras, 2021; Faura-Martínez et al., 2022; Trotter et al., 2022). Moreover, it is challenging for higher education institutions to have a smooth continuation of curriculum delivery, ensure quality education (Almazova et al., 2020; Neuwirth et al., 2021; Wang et al., 2022) and create pedagogies to build students' sustainability consciousness (Nousheen and Kalsoom, 2022) during the COVID-19 outbreak. Besides, Crawford and Cifuentes-Faura (2022) have concluded that it is important to further explore the impact of the COVID-19 pandemic on the sustainability of curriculum, teaching and learning process, and business models in the higher education sector.

Before the emergence of COVID-19, the education industry was known as a global service delivered by quasi-companies in an increasingly complex and competitive knowledge marketplace. These challenges necessitated numerous calls for strategy research in higher education institutions

(Pucciarelli and Kaplan, 2016). Following the pandemic, the entire education sector underwent a radical transformation, necessitating new strategies in higher education institutions to adapt, accommodate, and address revolutionary changes (Lemoine and Richardson, 2020; Piotrowski and King, 2020). COVID-19 is the new unknown that has caused so many uncertainties to the education sector, it was a pandemic with no precedent in a modern economy.

Interestingly, there are many references on how best higher education institutions can maneuver during a disruptive period. However, they are mainly perceptions based on students (Plakhotnik et al., 2021) and lecturers (Feldhammer-Kahr et al., 2021). As such, the authors decided to embark on an Expert Opinion Method to get firsthand views based on the experience of experts as the voices of the experts are the ones that are missing from the literature. The decision was to complete the Expert Opinion Method first and then identify literature that supports the findings later. This was also done to avoid the potentially damaging effects of preconceptions (Tufford and Newman, 2012) that may taint the Expert Opinion Method which may go beyond the first round, i.e., the authors sought to 'bracket' off the potential influence of prior literature as per the recommendation of Drew (2004).

## Methodology

The design used in this study was the Expert Opinion Method, which is qualitative research within the interpretivism paradigm. According to the terminology, the Expert Opinion Method as a research method is founded on, first and foremost, the expertise and experience of experts. Littig (2011) believes that an expert possesses professional activity competence, special expertise, knowledge, and experience concerned with a specific subject field, including knowledge about decision-making regularities, action routines, interpretation of social models, and collective orientation, as well as flexibility in thinking and action, intuition, and creativity. Furthermore, according to Meuser and Nagel (2009), an expert is a broad-minded individual with special knowledge and high qualifications in the subject field who has a higher level of competencies than the average respondent. In this study, the experts are professors who deal with student mobility and are involved in developing strategies to counter the adverse impact of COVID-19 on their respective institutions. Expert Opinion is a relatively informal technique that can be utilized to serve a variety of purposes, such as problem-solving, clarifying issues relevant to a specific topic, and in this study, identifying strategies in dealing with the unknown and uncertainties considering the COVID-19 pandemic. In other literature, the Expert Opinion Method is like the Delphi technique. It structures a group communication process by

bringing together a panel of experts to create a prediction or set of priorities (Dalkey, 1969; Irete and Katane, 2018). The Expert Opinion Method is preferred for a focus group, which is a facilitated group discussion, that is “focused” on a specific subject (Millward, 2000) or an interview that prevents interaction among experts (Knapik, 2006).

## Preparation stage of expert opinion method

In contrast to large-scale surveys, where respondents are largely anonymous, the identity of respondents in expert surveys is known. During routine expertise, a typical researcher has the opportunity to discover the most critical aspects of the problem under investigation, increase the reliability and validity of information, conclusions, recommendations, and acquire unique and profound knowledge and experience throughout the expert’s life. Preceding demonstrates that an expert is a specialist who is not only a practitioner but also a well-prepared theorist capable of analyzing, evaluating, and forecasting scenarios related to issues discussed.

The most critical step is to agree on participants and create a checklist of things to do before the meeting, including all practical arrangements. Although it may seem trivial, it should be emphasized that the success of any expert opinion session is partly dependent on participants’ understanding of what is expected of them and how much of their time and effort the study will require. This means that it is critical to clearly explain the objectives of the investigation and what the experts will be required to do.

The purposive sampling technique (Friedman, 2012) was used to identify five experts for this study. The authors feel that five would be sufficient as we expect saturation of opinions if we have a bigger number. They were chosen because they are academic administrators in senior management positions (minimum faculty dean) at renowned higher education institutions. In addition, the experts must be involved in formulating strategies and policies at their respective higher education institutions. The experts’ demographic background is presented in [Supplementary Table 1](#). Their diverse background is expected to create a dynamic Expert Opinion Method session. Upon scrutiny of [Supplementary Table 1](#), it is worth noting that both Prof. Dr. H and Prof. Dr. R are working at Malaysian public research universities. Malaysian universities rank very well globally when compared to the universities from Bangladesh, India, and Netherlands. Malaysian universities, on the other hand, lack global and industrial collaboration, and the researchers believe that this factor will present varying perspectives during the Expert Opinion Method.

The Expert Opinion Method used semi-structured questions to have an in-depth understanding of the

phenomenon being studied (Mete and Acuner, 2014; Bayona-Ore et al., 2018; Golembaska, 2019). In this study, experts were given a scenario of the impact of COVID-19 on higher education and asked to present how their universities strategized in dealing with unknowns and uncertainties from their institutional, theoretical, and global perspectives for 10 min each (refer to Appendix 1). Subsequently, they were asked questions by the session moderator, who is one of the authors of this article. Some probing questions were also posed on themes identified during the session to obtain clarification and elicit further input from the experts’ opinions. The process flow is presented in [Supplementary Figure 1](#).

Seven experts were identified in early March 2022 through a careful selection process. The researchers discussed issues on Education 4.0, the impact of the COVID-19 pandemic from both local and global perspectives, as well as education reforms and technology mobilization strategies to ensure that the experts could contribute positively to the Expert Opinion Method. Finally, only five experts participated in the 2-h online Expert Opinion Method session on 21 March 2022.

## Findings and discussion

Based on data analysis, four major themes were uncovered from the Expert Opinion Method: resilience and change management, digital transformation, online learning, curriculum change, and sustainability. The key comments of the experts are presented in the following sub-sections.

### From resilience to change management

Higher education institutions are working hard to develop a resilient recovery model to improve their ability to adapt to threats posed by the pandemic. Furthermore, the adaptable nature of resilience will enable them to survive, cope, and thrive in the future. A resilience model facilitates interactions with individuals, families, and the environment, elucidates the underlying stressful experience of students, faculty, researchers, and other stakeholders, and can assist higher education institutions in rebuilding their system during the COVID-19 recovery period (Nandy et al., 2020). During the pandemic, students’ resilience and readiness to adapt to the change in the learning process have a substantial impact on their interest and performance in e-learning (Nurtjahjanti et al., 2021). Individuals with high resilience levels can change their depressed condition during the pandemic, adapt to negative feelings, and motivate themselves to achieve their goals. One of the experts discussed the importance of being resilient considering the COVID-19 pandemic:



## Excerpt #1

“A resilient education system can adapt and transform itself in the face of adversity while seeking ways to improve the quality and accessibility of education through investments in technological infrastructure and innovation. Digitalization is the way forward” (Prof. Dr. A).

E-learning infrastructure and cognitive competence of individuals in using technology in the online learning process are important (Garad et al., 2021). Educators and students must be self-trained, effective, and committed to using technological applications and devices. Gast (2022) believes that universities must combine the usage of technology, optimize human interactions, and personalize instruction to future-proof themselves to stay relevant and provide the education needed in the century ahead. While technologies have been deployed more for learning, Martin (2020) predicts that advanced technology can replace much of the monotony of administration, it can energize staff and free them up to spend more time with students and colleagues, and it can make our jobs more proactive and effective through big data, artificial intelligence (AI) statistical analysis, and trend forecasting, all of which will revolutionize the way we keep our universities at the forefront of knowledge. The same sentiment was raised by another expert:

## Excerpt #2

“Universities must be not only resilient but also future-proof because the global environment for higher education will only become more complex, interconnected, and challenging than it has been in the past. We have been hit by pandemics before and should be able to overcome any more destructive changes in the future” (Prof. Dr. L).

## Excerpt #3

“I believe that other universities should replicate our plans for the future to be more flexible and provide more choices for our students. We are now incorporating the online components in the curriculum, collaborating more with international partners, and providing more options and modes in program selections. In addition, we are planning to make the entry-exit and switch-over options available for our students” (Prof. Dr. S).

Most studies investigated paradigm shifts from the perspectives of digital and operational transformation, which calls for the need to rethink learning (Spencer, 2020), policy changes (Birkland, 2006), and political will (Boin et al., 2008). One of the experts raised the importance of making adjustments due to educational paradigm shifts from pre-pandemic to post-pandemic.

## Excerpt #4

“Universities need also be able to make adjustments to any paradigm shifts to sustain their operation and still be relevant to the stakeholders” (Prof. Dr. S).

The post-pandemic leads to a new normal and will impact the operation of universities. According to the World Health Organization, governments should exploit this opportunity to invest in health systems that can benefit all populations beyond COVID-19 and prepare for future public health emergencies, given that the virus will be with us for a long time (World Health Organization, 2020).

## Excerpt #5

“Universities must identify their capacity to change to adapt to the new normal without disrupting their core activities when navigating the COVID-19 pandemic” (Prof. Dr. R).

One of the experts, who is also the Head of the Dietetic Program at his university, discussed how best universities can organize laboratory-based experiments and research for life sciences and engineering students.

## Excerpt #6

“Our university has developed simulation tools to help explain laboratory-based research projects. At the same time, we are seeking industrial partners to help so that the practicality element of the project can be further illustrated” (Prof. Dr. S).

The COVID-19 pandemic has constrained the accessibility and feasibility for lecturers to execute physical laboratory sessions. As a result, a virtual laboratory has been proposed as a remedy to compensate for the absence of conventional physical laboratory sessions (Vasiliadou, 2020). Simulation software is an instant solution for replacing traditional laboratory sessions among the virtual laboratories available on the market. However, the authors feel that simulation software, on the other hand, is designed to create outcomes based on a specific design, making it unsuitable for constructing hands-on and practical learning experiences. Based on our observation, the authors believe that future laboratories will have Augmented Reality (AR) and Virtual Reality (VR) capabilities to complement face-to-face interaction between the students and the lecturers. Before the COVID-19 pandemic, AR and VR were widely employed in practical training for high-end technology and hazardous environments, such as military applications (Lele, 2011), astronaut training (Bruguera et al., 2019), and nuclear power plant operation training (Popov et al., 2021). Even though the AR and VR implementation cost and technology maturity are resisting the popularization of AR and VR in the education industry, they are still the best option to enrich

the students' hands-on experience in the axis of cyber-physical extent (Ardiny and Khanmirza, 2018).

## Digital transformation and online learning

During the COVID-19 pandemic, higher education institutions are undertaking radical transformations because of the need to digitize education and training processes in record time while working with academics who lack innate technological capabilities for online teaching. The pandemic has drastically altered the educational system, with online distance learning and emergency remote teaching becoming the norm and physical in-class teaching and learning becoming the exception (Raghunathan et al., 2022). In a world of digital transformation, disruptive technological innovations, and accelerated change, the university system must strive to overcome the situation to remain competitive and provide high-quality education (García-Morales et al., 2021).

Li and Lalani (2020) suggest that online learning has been revealed to boost the retention of information and take less time. It implies that the changes coronavirus has caused might be here to stay. The current COVID-19 pandemic will change not only the utilization of technology in education but also the pedagogy strategies in the future.

With regards to the Expert Opinion Method, one of the experts concurs with Prof. Dr. A's views on the importance of digital transformation based on her experience in her university:

Excerpt #7

"We have developed a collaborative online international learning initiative that was able to increase our university's education excellence by exposing students to virtual mobility experiences that are embedded into the formal curriculum. Students are provided with the opportunity to interact with peers from international universities in developing intercultural competencies and digital skills while working together on subject-specific learning activities" (Prof. Dr. H).

When asked to elaborate, the expert indicated the elements of the collaborative online international learning initiative as follows:

Excerpt #8

"It is executed as a cross-border collaboration with international partners from different backgrounds and cultures. Students from our university and international universities must co-learn and engage online for 3–6 weeks. It must be guided by a set of learning outcomes aimed at enhancing students' global perspectives and/or intercultural

competencies (i.e., embedded in the current learning outcomes)" (Prof. Dr. H).

According to Liu and Shirley (2021), in recent years, collaborative online international learning has been adopted as an innovative and cost-effective pedagogical approach to provide students with global learning opportunities "at home." Collaborative learning can motivate students to work harder, enhance collaboration, and achieve a shared objective in the learning process (Harianto et al., 2020).

The same expert further explained the added values of the collaborative online international learning initiative as per the studies by Laal and Ghodsi (2012), Esche (2018), and Appiah-Kubi and Annan (2020).

Excerpt #9

"Internationalization through our flexible online teaching delivery approaches encourages diversity and global learning where the lecturers and students from diverse cultures, languages, and geographical locations can benefit from online learning pedagogies. We empower diversity and global learning among partners for co-learning through inbound and outbound virtual mobility and student exchange. This will encourage talent development and global citizenship competency, besides personal and soft skills especially in communication and problem solving" (Prof. Dr. H).

Another expert interjected and presented his views on being prepared with options to overcome the challenges and minimize the damages caused by the pandemic with innovative and cooperative solutions in such difficult circumstances.

Excerpt #10

"Overall, the pandemic has increased and hastened the implementation of online, blended, and hybrid courses in tertiary education. We need to implement flexible education and be more creative, innovative, and prepared with alternatives" (Prof. Dr. R).

## Curriculum change

As discussed earlier, the impact of COVID-19 on campus and the need to ensure the safety and health of teachers and students are causing most countries to shift their teaching methods from face-to-face to online. Kim et al. (2020) surveyed the effectiveness of curriculum change in medical schools while the COVID-19 outbreak started in South Korea. Lecture classes were delivered primarily using pre-recorded lecture video clips or live online lectures. Laboratory classes were reorganized to online simulation or small groups' physical

learning. Regular live online discussion sessions were arranged to guide the students in self-directed learning. The “new normal” of online and blended learning approaches promote learner-oriented and self-directed learning. More importantly, it is as effective as conventional classroom learning. Students’ academic performance did not vary significantly in most courses compared to the results before the curriculum change due to COVID-19.

The COVID-19 outbreak has facilitated a unique opportunity for curriculum change in higher education as most of us were never fully realized before the pandemic. Curriculum change during a pandemic is not just about simply changing the instructional delivery. Instead, it should be more learner-centric and determined by what is needed to be learned by students. Traditionally valued knowledge and skills become less important. For instance, repetition and memorization of knowledge or skills relevant to gathering, storing, and retrieving information are no longer critical. To respond to today’s dynamic world, the change in the curriculum should focus on skills connected to critical thinking, creativity, curiosity, collaboration, entrepreneurship, growth mindset, and global competence (Zhao and Watterston, 2021). Besides, the new curriculum can be designed more flexibly to encourage students to develop their own learning paths.

Outcome-based education (OBE) is an educational system that focuses on course outcomes, program outcomes, and program educational objectives that have been widely used in universities to prepare graduates following the Industrial 4.0 era (Premalatha, 2019; Prihantoro, 2020). This system ensures that all graduates are equipped with the skills, qualities, knowledge, and competence needed in the current society when they leave higher education institutions. One of the experts in the expert Opinion emphasized the importance of OBE, which is more learner-centric, to improve competency in knowledge acquisition. The expert believes that this is most relevant during the COVID-19 pandemic.

Excerpt #11

“... through a continual update of curriculum and focusing on OBE while research and publication should be focused on real-world impact. In addition, industry and academy linkages need to be strengthened so that university graduates can be employed productively” (Prof. Dr. A).

The same sentiment was echoed by another expert.

Excerpt #12

“In our university, we value adding our curriculum by emphasizing outcome-based learning to improve employability and skills development” (Prof Dr. S).

Outcome-based education focuses on measuring students’ performance empirically. On the other hand, project-based

education (PBE) can be useful in certain fields of education, such as engineering education, to ensure the effective delivery of necessary skills, knowledge, and attitudes to students (Dargham and Chin, 2015). Students can learn better by applying classroom-gathered knowledge to solve real-world problems. Moreover, projects can urge sustained collaboration, communication, and engagement where students are involved (Prasanna Kumar et al., 2016). When probed about the shift from OBE to PBE where there is real-life application as per the trends in the USA, the following response was noted from the same expert:

Excerpt #13

“In our university, we also used PBE for our medical programs” (Prof Dr. S).

Some other opinions on curriculum were raised by another expert.

Excerpt #14

“With the pandemic, we have to customize education by providing precision learning that will enhance student engagement which is an important component of course function” (Prof Dr. R).

The precision learning in the curriculum was proposed by Zhao and Watterston (2021) as part of the three major changes that education should implement following COVID, i.e., curriculum that is developmental, personalized, and evolving; pedagogy that is student-centered, inquiry-based, authentic, and purposeful; and instruction delivery that capitalizes on the strengths of both synchronous and asynchronous learning. Another expert proposed idea for future-proofing education in the hospitality business.

Excerpt #15

“Our university is embarking on personalized education by creating minor and specialization programs for our students to support the hospitality education” (Prof Dr. L).

When asked about initiatives that promote personalized education at his university, the expert proposed entrepreneurship to be embedded in the curriculum of his university as follows:

Excerpt #16

“We create business incubators and encourage our students to become part of the start-up community. We connect the start-ups (students and alumni) with coaches (faculty members) and mentors (alumni and industry) to create better university-industry linkages and improve the wellbeing of all the players concerned” (Prof Dr. L).

Vistari et al. (2021) advocated for the development of students as prospective entrepreneurs by integrating curriculum and learning in business theory and practice, as well as instilling values such as independence, discipline, innovation, responsibility, hard work, and the bravery to take risks. Some private universities and colleges in Jakarta, Tangerang, and Bekasi, Indonesia, have made changes to the curriculum and established business incubators to encourage entrepreneurship among their students during the COVID-19 pandemic. The results have been very encouraging.

## Sustainability

Sustainability is always the endgame or strategic mission of any higher education institution. The impact of the global pandemic has changed our world and perhaps will never be the same again. Policymakers and educators need to consider the most urgent role of sustainability education for now and in the near future. The core idea of sustainability education should be about transformative learning, more specifically, to promote attitude, behavioral, and societal change (Wolff, 2020). The aim of education for sustainable development is necessary for today's era. Long-term educational sustainability includes environmental and international networking, as raised by one of the experts.

### Excerpt #17

"I believe that universities need to integrate sustainable development in higher education institutions by incorporating the issue of sustainable development in the curriculum, encourage research on sustainable development, green campuses, and support local sustainability efforts and engage and share information with international networks" (Prof. Dr. A).

Involvement in sustainable development can reduce future shocks in economic and social systems (Gavriliuță et al., 2022). This issue was further elaborated on by the same expert.

### Excerpt #18

"To show a sustainable way forward, we need active engagement from university leadership and strong partnerships to achieve the 17 SDGs of 2030" (Prof. Dr. A).

The authors compiled all the key 18 excerpts from the experts and performed a thematic analysis. Five dimensions were identified, and we propose to integrate all the dimensions into a framework (refer to [Supplementary Figure 2](#)). First, the authors believe that flexibility and agility best function as overriding contextual factors that influence the other dimensions uncovered from the thematic analysis. Contextual

factors reflect a particular context and characteristics unique to a particular group, community, society, or individual and influence decisions, plans, and implementation of one's goal (Lent and Brown, 2013). Based on our experience, flexibility and agility have been observed to have varying impacts on the themes, i.e., low impact on the enablers and high impact on the long-term target.

The next two dimensions are as the following: (1) educational reform, which will influence how best higher education should innovate and implement an alternative educational system and assessment strategies and concerns for plagiarism (Khan and Jawaid, 2020; Pokhrel and Chhetri, 2021); (2) digital transformation strategies which are operational, customer-centric (Solis, 2021), and talent-driven (Frankiewicz and Chamorro-Premuzic, 2020) that can create and capture value within higher education institutions to ensure growth. These two dimensions are grouped and classified as Enablers, which the authors believe will assist future-proof higher education institutions from future pandemics and disruptions in the long run.

Finally, the long-term target for higher education institutions is to ensure the sustainability of operation and performance (Owens, 2017; McCowan, 2019). The authors believe that universities need to understand the impact of current global economic, social, and environmental demands and learn how to bridge the sustainability gap through rewiring the economy and good leadership to achieve positive change. At the same time, universities need to develop action plans for integrating sustainability across their value chain to ensure long-term value creation as well as skills and knowledge to apply design, innovation, and leadership competencies within the university ecosystem.

## Conclusion

Flexibility is the most common keyword discussed by experts. Flexibility in the higher education setting goes beyond learning, including fee payment, restart, entry, and place of study. Flexible learning (and its approaches) have also been identified in the literature as flexible teaching, flexible delivery, distributed learning, networked learning, open learning, online learning, and e-learning. Blended learning is an example of flexible learning for students as it can provide additional learning time and positively impact their self-efficacy and better academic performance. Moreover, students will be more autonomous in developing their creative thinking and innovation skills in their learning process.

The authors believe other strategies dealing with the unknown and uncertainties should also look beyond digital transformation. There are many opportunities for educational reformation as we have long been confined to tradition, process,



and procedures. Based on the outcome of the Expert Opinion Method, there is a need to explore how to be flexible in developing personalized and alternative learning (such as a flip classroom), future assessment modes (including authentic assessment), and teaching practices that foster uncertainty tolerance to create a more holistic education system for the future. The pandemic has presented us with many opportunities to proactively implement changes to create inclusivity for the betterment of the education industry. This will strengthen institutional resilience in the long run.

Inter-university global collaboration is a definite positive outcome of the COVID-19 pandemic. If inter-university activities focused on the franchising and joint degree program models in the past, COVID-19 has resulted in a more personalized form of collaboration from joint teaching to joint research involving various universities globally. In all actuality, there are many benefits from the pandemic as we move from homogeneity to heterogeneity to create value-based co-creation activities for all the stakeholders concerned.

There are many study implications of this research. From the practical implications, university management can focus on resilience and change management, digital transformation, online learning, curriculum change, and sustainability. Furthermore, the authors believe that Schumpeter's creative destruction theory could be applied as COVID-19 caused a crisis with far-reaching negative consequences. In addition, there are limitations as only five experts from four countries were involved in this study for a two-and-a-half-hour session. To conclude, the authors recommend other researchers to conduct studies in other universities in other countries using the current instruments used to compare with the findings of this study. Furthermore, the authors anticipate that future researchers will be able to create survey questionnaires that measure the themes uncovered in the Expert Opinion Method and perform subsequent quantitative analysis. Additionally, a strategic framework can be developed for higher education institution sustainability as a roadmap for educators, policymakers, and all relevant stakeholders to prepare for the future. Finally, the data used and analyzed were cross-sectional, implying that the Expert Opinion Method provided a snapshot of what was discussed by five experts for two and a half hours only. The authors strongly recommend that future studies use both qualitative and quantitative data, i.e., mixed methods research, to gain a more comprehensive understanding of issues related to the unknown and uncertainties brought by COVID-19.

## Data availability statement

The original contributions presented in this study are included in the article/**Supplementary material**, further inquiries can be directed to the corresponding author.

## Ethics statement

Ethical review and approval was not required for the study involving human participants in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants in accordance with the national legislation and the institutional requirements.

## Author contributions

AR conceived the presented idea and planned the research methodology. AR and YL planned for data collection. AR, MT, YL, ZT, and ES contributed to write the manuscript. All authors provided feedback and contributed to the final version of the manuscript.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2022.992063/full#supplementary-material>

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