
Snapshot of the present, glimpse into the future: impact of COVID-19 on higher education and adult training

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Abstract: With the physical closure of universities and educational institutions around the world, the COVID-19 global crisis has brought to the fore critical questions surrounding the future delivery of higher education and adult learning away from traditional classrooms. This paper reports the broad findings from a recent survey with adult educators ($n = 1553$) working in higher education (HE) and training and adult education (TAE) sectors in Singapore. It provides key insights into adult educators' perceptions about the rapid changes in teaching and learning due to the pandemic and identifies challenges and impacts of moving to online mediums. COVID-19 is viewed as an opportunity for paradigm-change which HE/TAE organisations and educators should grasp. Respondents' caution that those who fail to make the necessary digital leap will be in danger of being left behind. Implications for post-COVID HE/TAE practice and policy are discussed.

Keywords: impact of COVID-19; online learning; higher education; training and adult education; digitalisation.

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1 Introduction

The peak of the COVID-19 global crisis in 2020 affected all corners of society and education was no exception. The United Nations reported that 94% of the world’s learner population were affected by closures of learning institutes and spaces (United Nations, 2020). To accommodate the flurry of measures aiming to contain the sudden force of the pandemic, the major immediate impact on the Higher Education (HE) and Training and Adult Education (TAE) sectors was a compulsory and total shift to online learning (ILO-UNESCO-WBG, 2020; Marinoni et al., 2020; Quacquarelli Symonds, 2020), and the rapid uptake and adoption of digital technologies needed to support this shift (The HEAD Foundation, 2020). According to the OECD (2020), searches for terms such as online learning, e-learning and Massive Online Open Courses (MOOCs) increased up to fourfold in just a few weeks between March and early April 2020, as strict lockdown measures were implemented in most OECD countries and left learners no choice but to turn to remote ways of learning.

In Singapore, even before 2020, the government has been active in promoting online or blended learning in the HE and TAE sectors. For instance, the iN.LEARN 2020 initiative propagated in 2015 (Ministry of Trade and Industry, 2017a, 2017b) aimed to push the adoption of learning technologies in the TAE sector, and a TAE Skills Framework (SkillsFuture Singapore, n.d.) was developed to highlight important trends for the TAE sector to adopt blended learning. A nationwide survey conducted back in 2018 found that the majority of adult educators (77%) had reported using learning technology in their TAE-related work (Chen et al., 2020). While online learning is certainly not something new to Singaporeans, it had traditionally been used as a supplement or complement to more customary forms of synchronous and physical teaching and learning. Although many educational institutions implemented online learning systems and protocols in their curriculums after the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 (Chandran, 2011), full online learning was usually only periodically implemented (such as having an e-learning week), and not on such a large scale or for prolonged periods of time. Research suggests that there are a multitude of reasons why online learning was not taken more seriously, which include a lack of funding or investment in learning technologies as well as a lack of qualified and skilled adult educators to design and facilitate effective online learning (Chen et al., 2020).

Thus, while online learning was not totally unfamiliar to Singaporeans, it had never before been used as a complete replacement to learning, as was the experience during the two months of lockdown (i.e., Singapore Circuit Breaker from April to June 2020) and subsequent safety measures even after lockdown was lifted. While acknowledging that the COVID-19 pandemic has caused major disruptions in education systems, we also recognise this as an opportunity to rethink and reconsider how technology can better contribute to learning. Research recommends that student voices are essential in any educational reform (Mailizar et al., 2020), we believe it is equally important to understand teachers’ experiences and perceptions during this transition. Although many

recent studies have been conducted to understand how Covid-19 impact learning from the learners' perceptions (Bestiantono et al., 2020; Pearson, 2020; Sreehari, 2020) and efforts were also put into studying teachers in the schools and universities (see review of literature below), much fewer studies have been carried out for educators working in the training and adult education section. Among the few available ones, findings have shown that educational institutes and training providers have faced challenges in transitioning to an exclusively digital interface for their provision of teaching and learning during COVID-19 and that there are further regional differences in the extent of their challenges (European Centre for the Development of Vocational Training, 2020; ILO-UNESCO-WBG, 2020; OECD, 2020). However, little is known about how adult educators and their training organisations are coping with the new challenges in Singapore. For example, how are adult educators coping with this move to online learning, teaching and training? Does the cultural resistance among educators towards online learning (Kentnor, 2015) still persist in the new context and environment of COVID-19? What is the impact on HE and adult learning? What is the impact on TAE jobs and skills? It is therefore timely we attend to these questions and conduct this COVID-19 Educator Survey to understand adult educators' perspectives on the impact of online learning on adult educators and learners, the current and long-term impact on higher education and the adult training sector, and potential changes to the future of education in Singapore due to the COVID-19 pandemic. To the best of our knowledge, the COVID-19 Educator Survey is the first nationwide study on online learning during the COVID-19-caused lockdown from the educators' perspective in Singapore.

Singapore, like some other strong states in Asia, exerts extensive influence, regulation and planning over the economy and educational systems (Gopinathan, 2007; Lim, 2016). There are about 3000 training providers in Singapore. Under the global trends of marketisation and privatisation of higher education, these organisations provide a wide range of programmes, covering both private and public sector and stretch from pre-employment training to continuing education and professional learning to both local and overseas learners. They, together with the higher education institutions take on an important role in supporting the lifelong learning objectives and in delivering a diverse range of skills, competencies, and talents required by the Singaporean economy (Chen et al., 2020; Gleason, 2018). As Singapore continues to more closely align its education and lifelong learning systems with its economic needs, studying the impact of online migration during the COVID-19 pandemic, will provide a reference point for other countries utilising digital technologies not only for educational continuity but in better cohering their post-secondary education and training provision with labour market needs.

2 Literature review

2.1 The challenges and factors of online learning

The abrupt shift to online learning from face-to-face learning can be a difficult process – and sometimes even unrealistic, given that the transition often requires ‘careful planning, preparation, adaptation and appropriate learning space’ (ILO-UNESCO-WBG, 2020, p.21). According to numerous studies conducted in the past year (Adedoyin and Soykan, 2020; European Centre for the Development of Vocational Training, 2020; ILO-UNESCO-WBG, 2020; Kim et al., 2020; Marinoni et al., 2020; Morris et al., 2020; Mukhtar et al., 2020; OECD, 2020), some key challenges identified during the enforced

shift to online learning due to the COVID-19 pandemic included lack of accessibility to learning technologies, lack of digital competencies and pedagogical skills, increased workload for educators and decreased learner engagement in class.

The most basic concern expressed in some of these studies was related to the central component of online learning: access to the internet or digital technologies (ILO-UNESCO-WBG, 2020; Marinoni et al., 2020). Existing gaps between those who can and cannot afford basic tools, either due to personal financial situations or the inadequacy of national infrastructures for internet penetration, become more obvious in the shift to online learning (Pearson, 2020). Difficulties in obtaining these tools are further compounded with the financial impact of COVID-19 on individuals (Kim et al., 2020; Morris et al., 2020), where fewer people would be able to afford purchasing the latest learning technologies and fewer people would be able to afford their pursuit of higher education or go overseas for their studies as a result of Covid-19 pandemic (Pearson, 2020).

Following that requirement, logically, it is then essential that learners and educators possess the skills to effectively use those learning technologies and digital applications for online learning. However, it was largely found that learning institutions faced a big challenge with the lack of digital competences and the inappropriate pedagogical skills (European Centre for the Development of Vocational Training, 2020; ILO-UNESCO-WBG, 2020; Marinoni et al., 2020; Watermeyer et al., 2021). Educators ill-equipped with digital skills would face difficulties during online teaching such as the inability to effectively use digital platforms and tools for knowledge transfer or knowledge co-creation, and the struggle with creating digital teaching content (European Centre for the Development of Vocational Training, 2020). There was also a reported difference between the level of preparedness or readiness among educators (Marinoni et al., 2020), implying different starting points for different educators to reach the appropriate skillset. Several organisations mentioned that because they did not necessarily have a management structure to help them develop teaching competences and digital skills, they had resorted to ‘learning by doing’, or attempting a direct conversion and imitation of face-to-face teaching methods with the use of online technologies. The difference in starting points, and the experimental approaches taken to bridge the gaps in skillsets, will surely affect the way in which learning technologies are used as well as learner experiences and outcomes. Still, while conducting education through online means may not be of the same quality as face-to-face education in part due to the unpreparedness for the shift, it was reported to still be better than providing no education at all (ibid.).

Beyond the technical and technological aspects of online learning, where educators have to acquire and manoeuvre previously-unfamiliar software and hardware, many are also mentally reeling in the additional workload and stress precipitated by the scrambled move to online learning. Verma and Priyamnada (2020) found that 61% of their sampled educators reported being distressed from the increased workload. Another study jointly conducted by the International Labour Organisation (ILO), the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the World Bank Group (WBG), with respondents from all over the world, found that educators from Canada to Kyrgyzstan experienced a great deal of stress and anxiety from having to quickly re-orientate their training strategies and deal with increased messages and questions from students at all hours (ILO-UNESCO-WBG, 2020). During classes itself, maintaining student engagement was found to be a substantial challenge with remote delivery, adding to the pressures on the educator.

Actually, even before the enforced move to online learning, studies had found that online learning had a negative association with educator well-being. In a 2015 study, 67% of the sampled felt that the online environment had the greatest impact on their stress levels (Smith et al., 2015). More than half of the educators mentioned that their performance in the online environment was affected by their stress levels. Some of the symptoms that came as a by-product of stress are sleep disturbances, impatience, feeling overwhelmed and having reduced work quality (ibid.). In the case of the pandemic, one can only imagine how the combinations of all the different factors would affect the well-being of educators.

2.2 The opportunities of e-learning during COVID-19 pandemic

Of course, the impact is not all negative. As the COVID-19 pandemic forced many institutions to shift their operations to online learning, it provided an opportunity for learners and educators to change their views towards online learning. A report by education analytics firm Symonds (2020) investigated learners' levels of interest in participating in online degree programmes due to the COVID-19. In March 2020, 42% of them had indicated that they were not at all interested in studying their degree online, but the figure gradually decreased to 36% in August 2020, suggesting that learners are slowly becoming more accepting towards online learning. Additionally, 88% of respondents in a study by Pearson (2020) agreed that online learning would be integrated into the university experience in the future. Despite the challenges that have surfaced due to the unexpected shift to online learning during the COVID-19 pandemic, both learners and educators have recognised some of the opportunities of online learning, and many believe that online learning has the potential to expand access to education (ibid.).

Furthermore, experiences with online learning would differ from country to country and the impact of COVID-19 on learning and training at the regional level is unequal (Marinoni et al., 2020). This presents a need to capture the experiences of countries at different points of the online learning readiness spectrum. As previously mentioned, Singaporean educational institutes are not unfamiliar with online learning, and the country boasts a high internet penetration rate with good access to online learning. The challenges and experienced faced, then, may be different from what was captured in the literature. Additionally, in previous international surveys (e.g. Marinoni et al., 2020; Watermeyer et al., 2020), Europe is overrepresented among respondents of the survey, while the Americas and Asia-Pacific are underrepresented. This study thus fills in the gap, and is overall necessary towards understanding the Singapore context of the impact of COVID-19. Ultimately, how educators and their organisations are making sense of the change will impact the future development and direction of education.

3 Research questions

This paper reports key broad findings from the Covid-19 Educator Survey ($n= 1553$), specifically it aims to address the four questions:

- 1 What are the changes and trends in higher education and adult training?
- 2 What are the challenges that they face and the support needed? What professional development would they require to deal with the impacts of the pandemic?

- 3 What are the changes in Training Providers' businesses, and what are their plans to go digital?
- 4 What is the impact on learning and learner wellness socially, mentally, and physically?
- 5 What are the current and long-term impact on education organisations, higher education/TAE sector, and the potential changes to the future of education?

4 Methodology

4.1 Survey design and administration

The COVID-19 Educator Survey was designed based on a previous survey that examined the preparedness of academics in the UK's universities towards the rapid move to online training (Watermeyer et al., 2020). In line with the research objectives of the study, the scope was then expanded to include educators and trainers' perspectives on the impact of online learning in Singapore, as well as the current and long-term impact on post-secondary educational institutions, the higher education and adult training sector, and potential changes to the future of education in Singapore due to the COVID-19 pandemic.

The survey questionnaire went through several rounds of pre-testing and revisions before distribution to the full sample. It was first subject to five rounds of revisions based on comments and suggestions from colleagues. It was then piloted on a subsample of educators working in Training Providers (TPs) and Institutes of Higher Learning (IHLs), who commented on the clarity of the survey questions, provided the team with an estimation of the time needed to complete the survey, and offered other general suggestions or comments to improve the survey and its interface. Further revision and pre-tests of the survey questions ensued before it was finalised for the full target sample.

The final questionnaire included a maximum of 21 multiple-choice questions (the exact number of questions would vary according to the display logic triggered by respondents), 10 slider-scale questions from 0–100, and 8 open-ended questions. Multiple-choice questions were mostly utilised for demographic and profiling questions to situate the respondent within the HE/TAE sector; slide-scale questions were for perceptions and extent of agreement; open-ended questions were for experiences such as challenges, adjustments and support received, to ensure that respondents shared their most genuine and authentic experiences.

The survey was administered through the online tool Qualtrics during the lockdown period in Singapore from 28th May to 15th June 2020. Survey links were distributed across the largest database of educators in Singapore (the Adult Education Network), online communities of educators and training professionals, associate educator portals, government agency databases, professional networks and social media (Facebook and LinkedIn). Respondents were also recruited through convenience sampling, snowballing from contacts to which we had initially reached out. Upon accepting the survey invitation, participants were informed about the purpose of the survey and assured that participation was on a voluntary basis with their responses kept anonymous.

4.2 *Participants*

After removing partially completed or suspicious cases due to invariance in answers, the survey gathered a total of 1553 responses from adult educators working in Singapore, including:

- Academic, teaching and research staff, adjunct lecturers/educators in IHLs
- Adult educators working in training organisations, who perform the roles of Learning Facilitator, Assessor, Courseware Developer, Learning Technology Designer, Learning Consultant/Learning Solutionist, Curriculum Lead, etc.
- Freelance adult educators
- Training professionals working in enterprises with in-house training

3 out of 5 of the educator respondents were between the ages of 36–55 years old, with 1 out of 5 each for those 35 years old (19.6%) and those 56 years or older (20.4%). Close to two thirds (64.5%) were working in training organisations (TPs in short) while the rest one third (35.5%) were working in the IHLs. About half were permanently employed by the organisations (48.1%) – the rest were fixed-term contractors (21.2%), freelancers (22.7%), owners (4.8%), or unemployed but seeking HE/TAE-related work at the time when the survey was conducted (3.2%).

Respondents worked mainly in the following industries:

- Education – 47.2%
- Professional Services – 13.6%
- Healthcare – 12.7%
- Information and Communications Technology (ICT) – 11.5%
- Financial Services – 7.7%
- Retail – 7.1%
- Others – 0.2%

We compared the demographic details of this sample with the available information gleaned from the recent nationwide survey about the adult educators in Singapore (Chen et al., 2020). The comparison found a similar pattern in additional selected characteristics, such as the educational qualifications (80% of the educators have obtained degree or above qualifications) and experience (close to 60% have worked in HE/TAE for more than 5 years) of the educators.

4.3 *Data analysis*

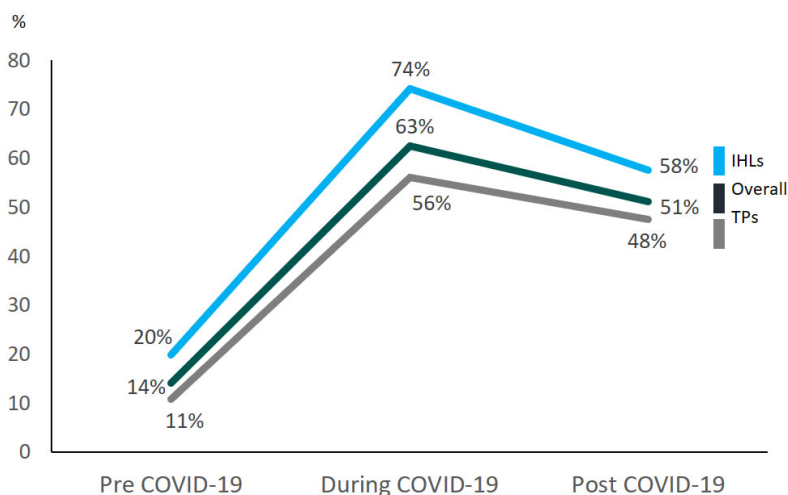
Analysis was performed on the quantitative survey data with the statistical analysis program STATA, using descriptive statistics to explore the snapshot of educator experiences. Qualitative data from the open-ended questions were identified and coded with the data analysis program NVivo.

5 Findings

5.1 Learning and teaching is going to be more digital

One of the most significant impacts on adult educators was in relation to the use of technological tools and devices, along with the digital skills required to manoeuvre the technology. The pattern of online learning in COVID-19, along with the overall sentiment regarding the future of online learning, may be inferred from the following overview of technology usage in teaching and learning by adult educators in Singapore. The survey asked respondents about their use of online platforms for online learning-related work before and during the lockdown period, as well as their planned usage post COVID-19 (see Figure 1).

Figure 1 The overview of technology usage for online learning before, during and post-COVID-19 lockdown



As expected, almost two-thirds of adult educators made the change to online learning at the peak of the pandemic, with the proportion of technological usage rising dramatically over the lockdown period (an increase of over fourfold). The factor of technology and technical skills was mentioned over and over by most respondents in all the qualitative questions regarding challenges, support and professional development. The role of mobile technologies cannot be downplayed during the lockdown, as social distancing measures necessitated a different way for classes to come together, and online meeting platforms such as Zoom and Kahoot went from being unused in most classes to virtually a given in the educational space. A number of respondents mentioned picking up or installation of new technologies specifically during this period:

‘Our company is in the midst of getting a vendor developing an in-house Training Management systems for online learning.’

‘Seeking out new software and hardware to complement teaching.’

‘Increased interest in new learning applications and tools. Using new learning applications to enhance learning effectiveness.’

When asked about post COVID-19, while planned usage was lower than their current practice, the overall rate reported was still substantially higher compared to pre COVID-19. This hints at a significant change in mindset among adult educators: as they grow more familiar with online platforms, and as digital tools become more ingrained into their daily work processes, they are unlikely to completely revert back to conventional methods of learning, teaching and assessment even when there will no longer be an enforced need to do so. One respondent explained about the eventual move to online learning post COVID-19:

‘More people will embrace online and digital platforms. We are all creature of habit... when online learning first started due to a need for social distancing many people were fearful and reluctant to adopt it but now I can see people all using it comfortably and it has become a new habit. So I feel that this is the new norm of education.’ Thus, respondents overall believed that online learning would continue to be the way of the future, and that going digital would be the new normal.

When asked about their extent of agreement to the statement ‘Delivering teaching, assessment and training related work online is the future of higher education, continuing education, and lifelong learning’, the majority of the respondents (71%) stated that they agreed. This was further supported by the qualitative finding that while some respondents were hesitant on the big transition, most were aware that difficulties mostly arose from the sudden nature of the change. With time, and investments in training and technology by educational providers and institutions, educators held the view that hesitation with online learning would drop substantially, especially in view of its benefits to educators and training organisations, such as greater cost efficiency, agility and flexibility and more seamless and innovative teaching.

The move to the ‘new normal’ would certainly benefit the learners as well. According to respondents, learning online would help their students develop digital skills, as well as equip them with the necessary knowledge and skills needed for employment. As the move to online learning would reflect the future digital economy, practicing digital skills and familiarity with online mediums would provide a more seamless transition to labour market participation in the context of a globalised, digitalised workforce. One respondent shared that online learning may even actually increase interest in adult education:

‘I think with Covid-19 and lessons moving towards online medium it will definitely see more take up rates for adult education. I can see more people willing to learn online as they will be able to better manage their time and not be bothered with travelling through and fro from their office to the learners centre and then back home again. They will still be able to upgrade themselves and not have to sacrifice time away from family and work.’

However, respondents also cautioned the negative impact of online learning. About half of the respondents (48%) felt that the transition would have a negative impact on assessment in particular. This percentage is higher among the IHL group (55%), ostensibly reflecting concerns prevalent within university communities, perhaps related to the credentialing and qualifying nature of degree programs. The finding was further supported by our qualitative data:

‘Establishing authenticity of learners doing the learning and then assessment is the biggest challenge that unfortunately has not been resolved with today’s technology.’

‘Increased possibility of cheating and fraud. Copying of assessments using Whatsapp to share answers, using frozen imaged screen technology as virtual background pretending to be in class.’

Many also suggested that keeping education exclusively online would be damaging to their learners’ well-being in terms of mental health (47%), physical health (47%) and social health (64%).

5.2 Perceived impact on well-being

The literature has suggested that the move to online learning would cause stress and pressure on educators juggling an increased workload in terms of content creation, student engagement, and student communication outside of work hours (see above discussions in the literature review section). While these factors indeed came out in the qualitative data answers, survey data showed that actually, a greater number of respondents felt positively rather than negatively about the impact of the move to online learning on their own mental well-being (48% vs. 37%).

The results were similar for educators from both IHLs and TPs but differed according to the employment status of the respondent: a higher proportion of respondents who were freelancers or contract staff felt negatively about the move to online LTA on their own mental health as compared to those who were permanent staff (41% vs. 34%). This implies that the shift to online learning impacted individuals differently according to the employees’ connection to the organisation. A possible explanation may be behind both the policies and practices within an institution – if mental well-being support mostly came from the distribution of benefits such as access to counselling centres, or access to closer relationships with management, this may point to the reasons behind different perceptions of impact based on employment type.

5.3 Perceived impact on jobs and skills

Most respondents (66%) felt secure about the likelihood of keeping their jobs in the next 12 months. However, approximately a third (34%) expressed concerns about the potential threat to losing their job in the next 12 months, and more than half (56%) expressed that it was very likely that they had to improve their knowledge and skills in online delivery to remain employable in higher learning and adult education.

When asked about their most needed areas for professional development, educators overwhelmingly mentioned use of learning technology, which was then followed by (in order of frequency of mention) online facilitation and management, learner engagement, course design and development and assessment and evaluation in online mediums.

5.4 Challenges and adjustments

As previously mentioned, the survey utilised open-ended questions when it came to exploring educators’ challenges and adjustments, to encourage genuine and authentic experiences.

Among an estimated 1800 quotes from the open-ended question related to challenges, over 400 respondents mentioned issues related to access, connectivity and reliability of technological devices and tools. Other commonly cited challenges included a lack of

digital skills for both learners and educators, loss of social interaction with their learners, colleagues and professional network, and difficulty in effectively engaging learners online.

In order to overcome these challenges, and to sustain and support learning during the pandemic, adult educators have been making adjustments to achieve desirable learning outcomes. To adjust to the different requirements of synchronous modes of teaching, respondents reported having to procure new or upgrade their existing equipment, both in terms of software (new applications, new licenses to platforms) and hardware (microphones, headsets, lights, speakers). Other efforts included spending extra hours on preparation for online content, researching the best ways to use engaging and interactive materials, appropriately changing assessment modes and providing additional support for learners.

6 Discussion and conclusions

While challenges and experiences during the transition to online learning reported by our adult educators are similar to what other studies have found, the general sentiment is different. Compared to an international sample with similar questions (Watermeyer et al., 2020), respondents from Singapore tended to be more positive when it came to rating the impact of the transition to online learning, teaching, and assessment due to COVID-19 on their work, progression of their learners, as well as learners' and their own health and well-being. The overall optimism bodes well for the HE/TAE sector in Singapore, where the wider acceptance of educators in re-orientating towards a digital future may support learners and workers to emerge stronger from the pandemic.

For many of our respondents, a digital revolution for education so long in the making and so long resisted has arrived, and with permanent effect. Online education and training is seen to provide enhanced accessibility for learners, freeing them from the temporal and physical binds of synchronous, in-person education and training. The advantages of digital education and training to 'open' learning is also registered on the terms of financial savings to the learner and educational providers (who no longer have to charge for rental and utility costs of huge spaces and campuses), and additional market opportunities for the latter with an anticipated proliferation of online universities and training organisations. The proliferation of online course offerings would – literally – open up a world of possibilities in education by connecting overseas learners with overseas educators, allowing institutes a wider reach globally.

For many of our respondents, transition to emergency remote learning caused by COVID-19 is viewed as a positive turning point for education. They describe the limitations of the pandemic as providing an opportunity for pedagogical experimentation and innovation, and professional growth among educators. Moreover, they suggest that educators have been proactive in adjusting to changing needs and have at the same time ensured no detriment to the learning experience:

'Due to the Covid-19 situation, we teachers have transformed our teaching methods without compromising on the quality and delivery of knowledge disseminated to our students. Online teaching has opened up new avenues to improvise our teaching and made it an exciting challenge that motivates us to re-invent ourselves for a better tomorrow.'

In such terms, a transition to online LTA is seen to support not only lifelong learning but also the educator workforce. An increased investment in digital capacity building among educator trainees is also linked to concerns that increased popularity for digital learning will stimulate numbers of online educators and therefore necessitate increased performance-based evaluation and regulatory mechanisms.

The future made present by COVID-19, respondents also caution that those who fail to make the necessary digital-leap will be those left behind. They discuss the need for change to teacher education, professional development and digital literacy as a core component for trainee educators, as a means of quality-assurance:

‘We need to relook at online options of training teachers. Digitalise training contents. Train teachers in using online tools and platforms for learning. Equip older workers with tech skills.’

‘Lecturers are not provided with tools and knowledge to teach online. Very little support is given as most lecturers are left to their own devices to learn to teach online and to find tools and platforms. This will be challenging to the older generation which is a pity [as] they are likely to content experts of their courses. If this problem is not addressed, then content will not be adequately passed to the students. Lecturers may get discouraged with IT and lose interest in teaching and move to other sectors leading to talent drain.’

Learner engagement and assessment are still significant issues faced in the online sphere. Adult educators may choose to reference learning design frameworks to guide the appropriate improvements, such as the Six Principles of Learning Design (Bound and Chia, 2020). For instance, to address issues with engagement, the framework proposes that embedding authenticity (which is also the most important principle) enables learning engagement – by encouraging real-world work practices and settings and embodying complexity of work through peer sharing, case studies, or conducting tasks and activities that mirror the way skills are performed in real settings, learners are actively engaged in higher cognitive level activities that integrate technical knowledge with soft skills. The principles of alignment and judgement may then address issues with assessment, in the reshaping or enhancing of assessment methods to meet changing workforce development needs. For instance, it guides educators on how to design and facilitate feedback in a way that best contributes to learners’ future-oriented capabilities, or allow learners the space and structure to self-assess their work before summative assessment and contribute to the development of self-directed learners. Additionally, other studies have also shown that mobile technologies, if used meaningfully, can promote learning engagement instead of compromising its quality. For instance, devices and smart learning environments can create a more immersive learning context for learners to take part in (Hwang and Fu, 2020). In this way, educators may make the most of what online and digital technologies can offer instead of merely finding ways to work around it.

While we encounter some inconsistencies in the views of our respondents, we find a general view of a permanent change. With confidence of limited pedagogical detriment (though some expressed concern regarding ‘lab-based’ teaching and training), we find our educators and trainers at a point of no return, with little current motivation to peddle back (Watermeyer et al., 2021). The language of our respondents throughout the survey is one of forced reckoning and the need for educators and trainers to step-up and confront the emerging reality of what one respondent called ‘a new educational paradigm’. COVID-19 is a catalyst to accelerate the change – as another respondent put it, what was ‘unshakeable for years has finally been overcome in mere months’. Overall, COVID-19

may be seen as representing an opportunity for paradigm-change which educational institutions and educators should grasp.

7 Implications and future research

The findings constructively carry certain implications for practice, policy, and future research. Firstly, what are the implications for practice? Strategically, to move forward into the online sphere and convert learning programmes online to ensure that business continues, educational institutes and training organisations need to develop both short-term and long-term action plans.

For the short-term, these may be the focus:

- Get the educators and learners ready – i.e. providing support to increase familiarity with online learning tools through step-by-step guides, pre-course technological workshops and technical advice
- Get the systems and processes ready – i.e. adapting Standard Operating Procedures (SOPs) in accordance to new requirements regarding data access, security and the like
- Protect the assessment – i.e. working through how assessments should be conducted securely and fairly online in accordance to audit requirements, addressing remote authentication
- Protect the learning experience – i.e. identifying and implementing suitable tools and resources to facilitate online lessons delivery such as video conferencing platforms and learning management systems, and adapting course content

In the long-term, moving past adaptation and into flourishing within ‘the new normal’, individual organisation in their differing contexts and situations will need to think carefully on the following questions:

- Reducing the digital divide: how do we increase technology affordances so that learners and adult educators ‘without’ are not disadvantaged?
- Note the trade-offs: how can we reconcile skills and performance-based learning with the online learning medium?
- Manage the psychology of online learning: how do we match the online learning rhythm with the natural pace by which our bodies and brains learn?
- Protect the social aspect of adult learning: how do we re-define and facilitate social learning, which the online space can now liberate and limit in equal measure?
- Measure by learning outcomes: in the chaotic online world, how can we refocus on what matters most – the quality and outcomes of learning?

Other implications to consider as we exit the pandemic would include increasing accessibility of courses to learners (diversifying range of course offerings to meet different learning needs and lowering barriers to learning), sustainability (transforming businesses models and looking into subscription models for MOOCs and other online course offerings), digital transformation (long-term investments in innovative teaching

and learning technologies and methods for better learner experience and learning outcomes), flexibility (harnessing Artificial Intelligence and real-time analytics capabilities to provide learning content or pace of learning that is catered to individual learning needs, integrating work and life to enable a lifelong engagement with learning) and scalability (extending course offerings to a global audience through the virtual classroom, whilst recreating the human interaction, engagement as well as sense of community of the physical classroom).

Undoubtedly, the shift into online learning also holds many implications for policy making. Decision-makers need to consider affordances and challenges for learners, educators, and education businesses. One major area to work on is in quality and credentialing. New modes of learning necessitate new quality assurance frameworks, that incorporates factors for high quality online learning practices, design, and delivery. This would require incorporating mechanisms that recognise quality and best practices in online learning. As credentialing on the other hand is linked directly with the job market, policymakers should look into bridging gaps between formal, non-formal and informal learning. Credentialing is more than recognition of prior learning but the key is to get employers recognise and accept the quality of such learning while considering the addition of micro-credentials across platforms into qualification and skills frameworks.

Our glimpse into the future also leads to additional questions as the permanent change foreseen for adult education and training in terms of delivery and policy would lead to both practical and theoretical considerations, affecting deeply ingrained principles and practices and even implicating larger systems in the sector. Within the classroom, how would the principles of learning that have guided pedagogy be re-evaluated, especially in terms of authenticity and engagement? What are the new considerations that must be taken into account for learners to thrive in online learning? We are not clear what the new educational paradigm articulated by many of our respondents actually consists of and how markedly different pedagogical approaches in a digitalised environment will be. It remains to be seen whether the impact of the pandemic on educational transformation in Singapore will be characterised, as Ng (2021, p.19) puts it, by ‘timely change’ or ‘timeless constants’ where in the latter the use of technology in HE and adult training contexts remains to be ‘sporadic, uneven, and often low-level’ (Selwyn, 2007).

Another significant consideration is the theory-practice divide, where the training of hands-on skills are perceived to be a struggle in an online environment. Will this type of training be on hold indefinitely as the pandemic rages on, or will new norms and technologies be required to bridge this gap? What kind of technologies work best in which contexts, and in which sectors? How would this affect the performance and productivity of the workforce when the skills are applied at work?

Additionally, beyond the training itself, how would permanent online learning affect the job scope of adult educators? What are the new capabilities required and how will this affect job prospects and existing formal certifications? Financially, what are the implications for adult educators if they are only engaged for short time spans? How would learners and training providers perceive the economic value of online learning as compared to face-to-face teaching, and how would this affect payment structures for adult educators? How would this then affect HR practices? Such questions will only be able to be answered by future research, as the world seeks to resettle itself into the new normal in the years to come. The current study captured a snapshot of attitudes and experiences of educators shifting to online modes. Drawing from the unique vantage point of strong states in Asia and Singapore in particular, this paper has provided an

alternative or potentially ‘Asia as method’ (Chen, 2010) account of the experiences of online transition during COVID-19. It is useful for post-COVID education policy (Watermeyer et al., 2021). As a world leader in the adoption of digital technologies in education, the Singaporean experience offers insight into the challenges specific to educators working with an established digital infrastructure, which provides a useful comparative view with countries operating at similar levels of educational digitalisation, such as for example, Sweden, Switzerland and the USA (IMD, 2020, 2017). The challenges and experiences gone through by adult educators in Singapore were also found in other parts of the world while converting to online learning during the pandemic (European Centre for the Development of Vocational Training, 2020; ILO-UNESCO-WBG, 2020; Marinoni et al., 2020), it is therefore hoped that the current study could provide useful references to a wider community in higher education and adult training beyond Singapore to move together into a stronger future.

References

- Adedoyin, O.B. and Soykan, E. (2020) ‘Covid-19 pandemic and online learning: the challenges and opportunities’, *Interactive Learning Environments*. Doi: 10.1080/10494820.2020.1813180.
- Bestiantono, D., Agustina, P. and Cheng, T-H. (2020) ‘How students’ perspectives about online learning amid the COVID-19 pandemic?’, *Studies in Learning and Teaching*, Vol. 1, pp.133–139. Doi: 10.46627/silet.v1i3.46.
- Bound, H. and Chia, A. (2020) *The Six Principles of Learning Design: Designing Learning for Performance – A Practice Note*, Institute for Adult Learning, Singapore.
- Chandran, R. (2011) *National University of Singapore’s Campus-Wide E-Learning Week*. Available online at: <https://cpb-us-w2.wpmucdn.com/blog.nus.edu.sg/dist/0/119/files/2011/03/national-university-of-singapores-campus-wide-elearning-week.pdf>
- Chen, K-H. (2010) *Asia as Method: Toward Deimperialization*, Duke University Press, Durham, NC. Doi: 10.2307/j.ctv11smwwj.
- Chen, Z., Ramos, C., Puah, L.D. and Cheng, S.C. (2020) *Training and Adult Education Landscape in Singapore: Characteristics, Challenges and Policies*, Singapore: Institute for Adult Learning, Singapore.
- European Centre for the Development of Vocational Training (2020) *Digital gap during COVID-19 for VET learners at risk in Europe*, CEDEFOP, Greece. https://www.oitcenterfor.org/sites/default/files/file_publicacion/digital_gap_during_covid-19.pdf
- Gleason, N.W. (2018) ‘Singapore’s higher education systems in the era of the fourth industrial revolution: preparing lifelong learners’, in: Gleason, N.W. (Ed.): *Higher Education in the Era of the Fourth Industrial Revolution*, Springer, Singapore, pp.145–169. Doi: 10.1007/978-981-13-0194-0_7.
- Gopinathan, S. (2007) ‘Globalisation, the Singapore developmental state and education policy: a thesis revisited’, *Globalisation, Societies and Education*, Vol. 5, pp.53–70. Doi: 10.1080/14767720601133405.
- Hwang, G-J. and Fu, Q-K. (2020) ‘Advancement and research trends of smart learning environments in the mobile era’, *International Journal of Mobile Learning and Organisation*, Vol. 14, No. 1, pp.114–129.
- ILO-UNESCO-WBG (2020) *Joint survey on technical and vocational education and training (TVET) and skills development during the time of COVID-19*. Available online at: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/genericdocument/wcms_741397.pdf

- IMD (2017) *Overview – World Competitiveness Center – IMD*, IMD Business School. Available online at: <https://www.imd.org/centers/world-competitiveness-center/>
- IMD (2020) *Rankings Published by the World Competitiveness Center – IMD*, IMD Business School. Available online at: <https://www.imd.org/centers/world-competitiveness-center/rankings>
- Kentnor, H.E. (2015) ‘Distance education and the evolution of online learning in the United States’, *Curriculum and Teaching Dialogue*, Vol. 17, Nos. 1/2, pp.S21–34.
- Kim, H., Krishnan, C., Law, J. and Rounsaville, T. (2020) *COVID-19 and US Higher Education Enrollment*, McKinsey & Company. Available online at: <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/COVID-19-and-us-higher-education-enrollment-preparing-leaders-for-fall>
- Lim, L. (2016) ‘Globalization, the strong state and education policy: the politics of policy in Asia’, *Journal of Education Policy*, Vol. 31, pp.711–726. Doi: 10.1080/02680939.2016.1181790.
- Mailizar, Almanthari, A., Maulina, S. and Bruce, S. (2020) ‘Secondary school mathematics teachers’ views on e-learning implementation barriers during the Covid-19 pandemic: the case of Indonesia’, *EURASIA Journal of Mathematics, Science and Technology Education*, Vol. 16. Doi: 10.29333/ejmste/8240.
- Marinoni, G., Van’t Land, H. and Jensen, T. (2020) *The Impact of COVID-19 on Higher Education Around the World*, International Association of Universities, Paris. Available online at: https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf
- Ministry of Trade and Industry (2017a) *Media factsheet on the education (training and adult education) industry transformation map*. Available online at: <https://www.mti.gov.sg/-/media/MTI/ITM/Essential-Domestic-Services/Education/Education-TAE-ITMfactsheet.pdf> (accessed on 18 January 2021).
- Ministry of Trade and Industry (2017b) *Media factsheet on industry transformation maps*. Available online at: <https://www.mti.gov.sg/-/media/MTI/ITM/General/Fact-sheet-on-Industry-Transformation-Maps---revised-as-of-31-Mar-17.pdf>
- Morris, A., Wilson, S., Ramia, G., Hastings, C., Mitchell, E. and Overgaard, C. (2020) *The Experience of International Students before and during COVID-19: Housing, Work, Study and Wellbeing*, University of Technology Sydney, Sydney.
- Mukhtar, K., Javed, K., Arooj, M. and Sethi, A. (2020) ‘Advantages, limitations and recommendations for online learning during COVID-19 pandemic era’, *Pakistan Journal of Medical Sciences Online*, Vol. 36, pp.S27–S31. Doi: 10.12669/pjms.36.COVID19-S4.2785.
- Ng, P.T. (2021) ‘Timely change and timeless constants: COVID-19 and educational change in Singapore’, *Educational Research for Policy and Practice*, Vol. 20, No. 1, pp.19–27. doi:10.1007/s10671-020-09285-3.
- OECD (2020) *The potential of online learning for adults: early lessons from the COVID-19 crisis*, OECD Publishing, Paris. Available online at: <https://www.oecd.org/coronavirus/policy-responses/the-potential-of-online-learning-for-adults-early-lessons-from-the-covid-19-crisis-ee040002/>
- Pearson (2020) *The global learner survey*. Available online at: <https://plc.pearson.com/en-US/future-learning/global-learner-survey>
- Selwyn, N. (2007) ‘The use of computer technology in university teaching and learning: a critical perspective’, *Journal of Computer Assisted Learning*, Vol. 23, pp.83–94. Doi: 10.1111/j.1365-2729.2006.00204.x.
- SkillsFuture Singapore (n.d.) *Skills framework for training and adult education*. Available online at: <https://www.skillsfuture.gov.sg/skills-framework/tae>
- Smith, G.S., Brashen, H.M., Minor, M.A. and Anthony, P.J. (2015) ‘Stress: the insidious leveler of good, unsuspecting, online instructors of higher education’, *Journal of Social Change*, Vol. 7, No. 1, pp.56–68. Doi: 10.5590/JOSC.2015.07.1.05.
- Sreehari, P. (2020) ‘Online learning during the Covid-19 lockdown: learners’ perceptions’, *Journal of Critical Reviews*, Vol. 7, pp.300–307.

- Symonds, Q. (2020) *How Universities are Addressing the Coronavirus Crisis and Moving Forward*, QS Report. Available online at: <https://www.qs.com/portfolio-items/how-universities-addressing-coronavirus-crisis-moving-forward-report/>
- The HEAD Foundation (2020) *How is COVID-19 impacting higher education?*, Higher Education in Southeast Asia and Beyond. Available online at: https://headfoundation.org/wp-content/uploads/2020/11/HESB-8-COVID19_2020.pdf
- United Nations (2020) *Policy brief: education during COVID-19 and beyond*. Available online at: https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf
- Verma, G. and Priyamvada (2020) 'COVID-19 and teaching: perception of school teachers on usage of online teaching tools', *Mukt Shabd Journal*, Vol. 9, pp.2492–2503. Available online at: https://www.researchgate.net/publication/342199970_COVID-19_and_Teaching_Perception_of_School_Teachers_on_Usage_of_Online_Teaching_Tools
- Watermeyer, R., Chen, Z. and Ang, B.J. (2021) 'Education without limits': the digital resettlement of post-secondary education and training in Singapore in the COVID-19 era', *Journal of Education Policy*, Advanced Online Publication. Doi: 10.1080/02680939.2021.1933198.
- Watermeyer, R., Crick, T., Knight, C. and Goodall, J. (2020) 'COVID-19 and digital disruption in UK universities: afflictions and affordances of emergency online migration', *High Education*, Vol. 81, pp.623–641. Doi: 10.1007/s10734-020-00561-y.