



A strong focus on upskilling

Dr Michael Choy, director at e-learning design company Dioworks Learning examines the state of adult education in Singapore and looks to a future dominated by machines

The adult education sector in Singapore is somewhat of an enigma – the workforce is highly trained and yet when asked about learning, most Singaporeans don't think too much of upskilling. It seems like it's somebody else's problem, not theirs. However, the reality is that there is significant transformation in the economic landscape.

New sectors such as artificial intelligence and automation are mushrooming and there are insufficient skilled workers in those industries. On the other hand, sectors such as retail are facing competition from online stores and are slowly reducing headcount. In future, whether there's a need to shift the workforce from high touch, low tech to low touch, high tech is still unclear, but what is clear is that the government is not taking any chances. Massive upgrading efforts by SkillsFuture Singapore, a statutory board at the Ministry of Education to transform the workforce has existed for the past three years. Its focus has been to imbue adults with a lifelong learning mentality.

While pre-employment training (PET) in Singapore has evolved over the decades, with somewhat distinct phases due to the onset of national policies, continuing education and training (CET) is more of a slow cook. The impetus to upskill for most Singaporeans comes only when someone loses his or her job or wants to move into a new role. In Singapore, due to tight manpower regulation, the jobs and skill base balance is relatively well maintained and monitored. This also means that, at the individual level, adult learners may not see the need to upgrade. There is the expectation of jobs waiting for workers, as long as one is not fussy. However, this is changing quite rapidly, especially in the past few years. Some PMEs (professional, managerial and executives) cannot seem to find jobs for more than six months, even though they are highly skilled. Essentially, their specialised skills have become obsolete. Hence, reskilling workers to take on new jobs has become urgent, in the light of artificial intelligence and automation.

Transforming CET

Besides technology-driven changes leading to specialised

jobs that are knowledge-intensive, the rollout of the national SkillsFuture programme which comes with strong government machinery has been instrumental in driving Singaporeans to consider learning again in Singapore.

One of the key government interventions include the shift from classroom training to encompass more online and workplace learning. This diversification of learning approaches provides adult learners with alternative sources of content such as Udemy and Coursera. Deloitte reported that massive open online course (MOOC) platforms such as Udemy provided expert practitioners the opportunity to offer their content online “so the MOOC market, which originally started in higher education, is rapidly expanding into corporate and personal learning as well”.

To develop the individual adult learner, it may be necessary to consider a blended approach where classroom training and work-based learning will be needed to inculcate values and ethical considerations for a particular job role. The role of e-learning could be to infuse media-rich cognitive stimulus to broaden the contexts of learning and application for that same job role and beyond.

Even back in 2014, the then senior minister of state for manpower, Dr Amy Khor, said in Parliament: “Many SMEs also gave feedback that the tight labour market made it difficult to send workers for training. The Workforce Development Agency will thus enhance the Enterprise Training Scheme to support e-learning and mobile learning ... This will provide more flexible training options for workers and ... reflect learning in a digital age.”

Funding was provided to encourage training institutions to convert their training programmes into online courses, leading to blended curricula, which give flexibility to busy Singaporeans to participate in upgrading. E-learning companies such as Dioworks Learning and Kydon Technologies came to the fore in driving the e-development agenda for the CET sector.

Linked to workplace learning is the expansion of associated learning initiatives, such as the ‘Earn and Learn’ programme and internship opportunities for students in IHLs – Institutes



of Higher Learning (for example, institutes of technical education, polytechnics and universities). Enterprises are funded to take on these learners' undertaking job training. This also led to the growth of workplace learning consulting companies, such as Surge Consulting and Eon Consulting to support these enterprises.

SkillsFuture Credit

Further to having a more diversified suite of learning opportunities, an important initiative was launched in January 2016. Funded to the tune of SGD1 billion (£549 million), deputy prime minister Tharman Shanmugaratnam rolled out SkillsFuture Credit, which essentially grants SGD500 to all Singaporeans aged 25 years and above to purchase training courses. The credit cannot be used for anything else and does not expire. The government also promised to top-up the credit regularly. Essentially, the intention of the scheme was to give a good push to get adult learners to take responsibility for their own learning. There are signs the scheme is gaining traction, as more Singaporeans speak of upgrading to prepare themselves for future jobs.

Finally, it's not enough to talk about Singapore CET without mentioning the subsidies provided by the government to reduce training cost for Singaporeans and Singapore permanent residents. Ranging from a 70% to 95% subsidy, eligible

participants foot a small percentage of the actual training cost. This results in very affordable courses when subsidised. Unsubsidised courses, on the other hand, have little traction unless they are niche areas or target resource-rich individuals. On this note, only approved training organisations and IHLs enjoy the high level of funding subsidy.

The road ahead

In my opinion, there are a number of key developments which will impact CET in a significant manner in the near future.

A) Digital natives expecting online engagement

Given that many of the digital natives are now in their twenties and thirties, there is a critical mass of learners who are not just ready to embrace, but expect technology-assisted learning as part of their upskilling process.

To meet their expectations, it is now incumbent on training providers and educational institutions to offer some rich media-infused learning when working with adult learners. We foresee the transition to blended or online learning will continue at a faster pace. The nature of the online learning will evolve, to include more online courses underpinned by artificial intelligence. For example, there are more AI companies developing powerful analytical tools to mine learning data. Companies such as Smartease and ►



- Dioworks have started offering AI-driven learning solutions to automate and personalise learning in a media-rich manner. At the same time, micro-learning platforms such as Acuzen, CoursePad and Gnowbe are also beginning to gain traction with adult learners and training institutions.

B) Intelligent systems to recommend jobs and courses

Workforce Singapore rolled out an intelligent job portal to service Singaporeans last month. Powered by data with a dynamic recommender system, the job portal is able to provide a better fit when matching jobs with job seekers' profiles and requirements. Facilitated by the underpinning AI algorithm, the experience of finding jobs is likely to be more pleasant in the months to come.

C) Integration of PET with CET

Often the issue of finding jobs occurs at the point when students need to select their specialist field of study. There is significant resource wastage when students abandon their field of study to take on jobs unrelated to their specialisation. It's not uncommon to find social science graduates working as financial advisors, or engineers becoming primary school teachers. While a certain level of misalignment is expected and potentially healthy, it's not something that is lightly tolerated. Going forward, the education space will see a tighter integration of PET with CET so that students will experience work in various fields at a younger age, to help them make informed choices when selecting their specialisation at IHLs. By shifting CET to under the umbrella of the Ministry of Education, the integration of PET and CET seems imminent.

D) The three great shifts at work

Three great shifts at work will impact the way work is carried out, and by inference, how CET needs to be conducted:

Competency to expertise

Competency at performing a task is insufficient in future, for the simple reason that competency as defined by measurable behavioural outcomes will probably be taken over by intelligent machines. Humans will need to be experts in order to work and the nature of work will centre on what experts do currently, which includes innovative solutioning to resolve issues, pre-empting problems and providing advisory. Being competent will not be good enough, unfortunately. The emphasis will be on gaining expertise.

Hence, adults will need more years of training and experience to reach expertise. The current national credentialing system, which emphasises competency-based training and assessment, will have to be reviewed to layer on other pedagogies for the development of expertise. For example, I utilise DELETE as an error-based learning methodology to develop experts. The response to DELETE has been positive, simply because experts can be groomed, not just via trial and error, but through an intentional and well-designed programme leveraging on errors to drive deep learning. Part of our work at Dioworks includes using innovative pedagogies such as emotives (like Korean drama),

CASE IN POINT

Aaron, a hardcore Udemy learner, has bought more than 20 online courses for his learning and professional development over the past two years and he's not the only one. It's not uncommon to see serial learners buy five to 10 online courses at a go. They accumulate the courses for their future learning. More importantly, they find the courses useful to improve their work performance.

learner's voices, deep reflection and gamification tools involving augmented reality and mixed reality to deepen and broaden learning. There could be other technologies and programmes that develop expertise and these will be emphasised in the future.

Intelligence quotient to learning quotient

LQ stands for learning quotient. As the half-life of content becomes shorter, the ability to learn fast and fail fast will be valued, possibly as much as IQ. Experimenting will become the new normal for learning and LQ the new buzzword for capability.

Emotional quotient to robotic quotient

It's likely that you haven't heard of RQ. I coined it during a recent presentation at the Asian Development Bank Forum. I mentioned that robotic quotient – knowing how to work with robots and intelligent machines – together with emotional quotient will be critical for our next generation of workers. Being able to work with intelligent, decision-making robots, some as our colleagues, subordinates or possibly as our bosses, will be needed in the workplace of the future. Just to paint the picture, how would you feel if your robot boss or colleague chided you for poor performance? Not a pretty picture I am sure.

These three shifts may not portend much at this point in time, but if we can extrapolate to understand the needs of the workforce in the next five to 10 years, it's clear our future generation is not yet equipped to deal with the workplaces of the future. What should we do about it?

Conclusion

This article highlights specific developments in CET which impact educational services and products. While it's still early days for intelligent machines, there's no doubt its impact will be keenly felt in the years to come. How will the workforce make way for these machines? What will humans do as part of work? Can our educational institutions step up to the plate to equip our workforce for the age of artificial intelligence?

There are no easy answers, but it's clear there's a lot of hard work needed to prepare our workforce for tomorrow and it starts today. ■

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