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ETHOS

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Foreword»

by **Ong Toon Hui**

Dean and CEO, Civil Service College

This year, the Civil Service College marks its 20th year since becoming a statutory board in 2001.

In demographic terms, being 20 years old means we are coming of age as part of 'Generation Z': born in the age of the Internet and accustomed to an environment marked by rapid technological advancements and other disruptive changes, such as the current pandemic.

Certainly, transformative change has been part and parcel of our journey so far. As a College, we have been continually reinventing ourselves to keep pace with the changing needs of the Public Service. To do so, we set up new departments and business units. We have expanded the number and range of our programmes, initiatives and other offerings exponentially, reaching out to public officers at all levels and in every sphere. Apart from our evolving slate of leadership milestone programmes, we now have dedicated programmes for functional leaders in HR, Finance, Procurement, Public Communications and Service Management, as well as for sectoral leaders in the economy-building, security and social sectors. We are paying ever greater attention to helping participants become better leaders in their own areas of work, and delivering more customised offerings to support intact teams and organisational transformation.

As befits the digitally native Gen Z spirit, the College has been finding innovative ways to embrace new modalities of

learning. We started up our digital learning business, introduced virtual classrooms, and developed the LEARN app to let every officer learn at their own pace and in their own time, 24/7. We took new approaches to content design and delivery. Recognising data is the new currency, we have invested in new ways to manage and apply learning data, and we now have dedicated teams exploring how we can harness artificial intelligence to improve learning and development.

In an age of disruption, the most enduring competence is the ability to stay agile and keep learning. This ethos of continual discovery has fuelled our drive to innovate and experiment in order to do better. A tangible instance of this is our satellite campus INN x CSC, which we set up as a sandbox to explore multisensory and flexible learning experiences.

As our environment changes from day to day, the Public Service must stay deeply curious about the world around us—to make sense of what is happening, figure out how it impacts Singapore and hence our work, and then pick up the skills needed to adapt to and thrive in new circumstances.

Towards this end, the College has embarked on a transformation effort to make the learning experience we offer to public officers more *innovative, inspiring, and impactful*. We call this movement: **Learning Redefined**. To do this, the College must itself be transformed at the core: to become more *anticipatory, connected, and agile*.

The insights in this commemorative issue of ETHOS—which explores the future of learning as it applies to our Public Service—contribute to this ongoing conversation and learning journey. Our vision is to become the future-ready centre of learning for a forward-looking Singapore Public Service, so we can better serve the thriving Singapore of tomorrow, for generations to come.

At the Civil Service College, we look forward to working with you on this ongoing quest. ■

Editorial

by **Dr Alvin Pang**
Editor-in-Chief, ETHOS

Learning, education, adaptation and application have been key drivers of progress in Singapore's journey from independence to a modern city-state. In supporting and furthering Singapore's success, the Public Service has strived to become ever more attuned, aligned and able in meeting the needs of a rapidly developing nation. Over the decades, the Civil Service College (CSC) and its predecessors have prepared generations of civil servants to serve with excellence, integrity and a strong ethos for the public good, even as the demands of nation-building grow ever more sophisticated and complex. In the process, our agencies of learning have become agencies for change: tasked not only with keeping our public officers abreast of the latest technologies and techniques of sound public administration, but also shifting deep-seated mindsets—towards more citizen-centred, whole-of-government thinking, for instance. In the two decades since its formation as a statutory board, CSC has been an important platform for advancing the Public Service: beyond doing good work today, to making the work of tomorrow possible (*p. 6*).

But what should we learn to be ready for the future? As the COVID-19 crisis has taught us, an interconnected world is also one increasingly beset by rapid and often bewildering change, in which there is far less certainty about what is to be done. While a firm foundation of core technical competencies will always be needed, we must also

master meta-skills that will stand us in good stead in fluid circumstances. We must learn how to learn, relearn, and unlearn as the situation requires (*p. 16*); get comfortable with ambiguity and differences; find strength in partnering with colleagues, partners, and fellow Singaporeans. The future of learning lies not in knowing more, but in seeking to know. This calls for fundamentally different ways of looking at learning, and at ourselves (*p. 28*).

Profound changes in the socio-economic landscape—including disruptive technologies and work-life patterns (as we have seen in the pandemic), as well as in the way we relate to one another both within and outside work—are prompting a rethink of what, how and when we learn, and even *who* the learner is (*p. 38*). Now that we are passing the culture shock of going digital, the practical experience gained in working with these new approaches should deepen and inform our learning strategies (*p. 48*). These and other forthcoming technologies will bring new opportunities to enhance capabilities, enrich learning and empower our people (*p. 62; p. 70*). The success of future leadership could depend on the degree to which leaders can catalyse effective learning in their teams and organisations, by providing the conditions and impetus for it to take place, even during—or better yet, ahead of—unsettling times (*p. 82*).

There is growing awareness that learning does not happen in silos—that it is a social, embodied and holistic process rather than an individual and purely cognitive procedure. This has led to renewed interest in designing environments and experiences better suited to learning (*p. 98*). An important aspect of this appreciation for how and where learning occurs is the movement towards workplace learning (*p. 106*), by which theoretical knowledge and applied wisdom can co-develop, iterate, and lead to practical benefits and new insights, for learners as well as their organisations (*p. 118*). It is in engaging with the complexities of real-world needs and challenges (*p. 132*) that learning finds its purpose and hones its meaning—when we approach the process with curiosity, discipline, openness, and an instinct for the greater good.

May you find inspiration, and something to learn, in this issue of ETHOS! ∎

CIVIL SERVICE COLLEGE:

PREPARING THE PUBLIC SERVICE FOR THE FUTURE

by **Lim Siong Guan, Peter Ho, Peter Ong, and Leo Yip**

Four top public service leaders, including the current Head, Civil Service, reflect on the role of the Civil Service College in nurturing a robust, cogent and future-ready public sector in Singapore.

Lim Siong Guan is a Professor in the Lee Kuan Yew School of Public Policy, and Senior Fellow in the Civil Service College. He served as Head, Civil Service from 1999 to 2005.

Peter Ho is Chairman of the Urban Redevelopment Authority, Singapore. He is Senior Advisor to the Centre for Strategic Futures, a Senior Fellow in the Civil Service College, and a Visiting Fellow at the Lee Kuan Yew School of Public Policy. He served as Head, Civil Service from 2005 to 2010.

Peter Ong is Chairman of Enterprise Singapore. He served as Head, Civil Service from 2010 to 2017.

Leo Yip is currently Head, Civil Service and Permanent Secretary (Prime Minister's Office, PMO (Strategy Group), and National Security and Intelligence Coordination).

WHAT, IN YOUR VIEW, IS THE PLACE OF THE CIVIL SERVICE COLLEGE (CSC) IN SINGAPORE'S PUBLIC SECTOR—AND HOW HAS THAT CHANGED OVER TIME?

LIM SIONG GUAN: I have always considered CSC a critical institution for the transformation and forward positioning of the Public Service. Its mission is to help the public sector "be in time for the future". This requires thinking about what Singapore can be in the years to come, and figuring out what the public sector needs to be to help Singapore get there.

While CSC, being a service provider, needs always to be responsive to the needs and concerns of its clients, it is not good enough to just respond to the needs and desires expressed by the clients, but to actively advocate to the clients what would be useful for them to "be the best they can be".

PETER HO: It is important to remember that systematic training for civil servants began 50 years ago with the launch of the Staff Training Institute in 1971, which later became the Civil Service Staff Development Institute (CSSDI). As a young officer, I attended a couple of courses at CSSDI, which was then congenially located at Heng Mui Keng Terrace. In 1979, CSSDI was renamed the Civil Service Institute (CSI). Separately, a Civil Service College (CSC) was established in 1993 to train senior civil servants. In 1996, the inevitable happened, and CSI and CSC merged. The new entity, which was also named the Civil Service College, became a statutory board in 2001.

A major consideration of this move was to make CSC self-funding. Ministries and agencies would henceforth have to pay for CSC courses. That meant that CSC would have to compete with private sector vendors to train civil servants, including for many courses that it used to have a monopoly over. This forced CSC to raise its game.

Over the years, CSC has moved away from being just a training establishment offering both general and specialised courses. Of course, these remain central to the mission of CSC, and the College must deliver them well. But CSC has also moved in new directions that have enhanced its capabilities and increased its strategic contributions to the Singapore Public Service and to government. For

> " IT IS NOT GOOD ENOUGH TO JUST RESPOND TO THE NEEDS AND DESIRES EXPRESSED BY THE CLIENTS, BUT TO ACTIVELY ADVOCATE TO THE CLIENTS WHAT WOULD BE USEFUL FOR THEM TO "BE THE BEST THEY CAN BE". "

instance, CSC has pursued an active publishing programme, including books on advanced concepts in government, such as behavioural economics.

When CSC was set up, one of its divisions was the Institute of Policy Development, which was supposed to take on the functions of a think tank, with a view to developing public sector leadership and policymaking competencies. CSC also set up an international arm, CSC International, to offer training programmes to foreign governments. When I was HCS, I encouraged this aspect of CSC's activities. It supported the logic of Singapore's efforts to connect to the region and the world.

One major outcome was the Leaders in Governance Programme, a programme tailored for top government officials both Singaporean and foreign, to learn from each other's practice of governance. The LGP will run its 13th edition later this year. Its longevity is a real tribute to CSC's efforts to sustain the relevance of this senior-level international programme to all its participants, from Singapore and beyond.

PETER ONG: CSC was first formed, in the 1990s, at a time when it was felt that the development of esprit de corps among leaders from different parts of the Public Service, and the idea of continuous learning among them, had to be strengthened. Several milestone leadership programmes—Foundation Course, Senior Management Programme and Leaders in Administration Programme—were developed as a first priority. Participants were given the opportunity to hone their strategic policy instincts across various domains and to work on difficult policy challenges with others from diverse experiences and backgrounds.

In a report I wrote in 1992, before CSC's formation, I was asked by the late Dr Goh Keng Swee: "What does an Air Force pilot have in common with a PUB engineer?", in reference to the proposal to develop strong esprit de corps within the leadership ranks. On the surface, the obvious answer is that they don't have much in common. Yet, if the two were to rise to assume jobs at the level of strategic leadership, their different skills, knowledge bases and experiences in technology and engineering could help resolve some challenging issues, if they were to work together after having attended the same course at CSC.
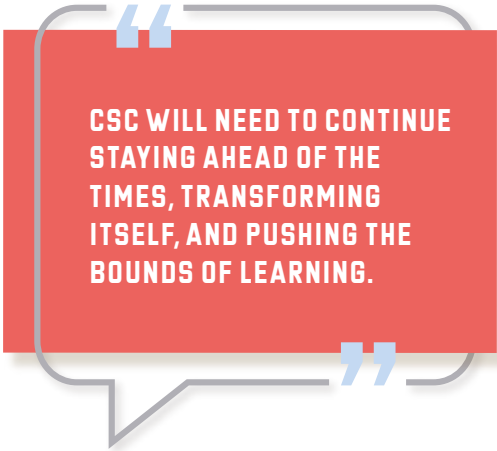
> **THIS ABILITY TO CONVENE LEADERS FROM DIVERSE PARTS OF THE SERVICE TO COME TOGETHER TO REFLECT ON, AND AGONISE OVER, CROSS-CUTTING INTRACTABLE POLICY ISSUES IS A PREDOMINANT REASON FOR CSC COMING INTO BEING.**

This ability to convene leaders from diverse parts of the Service to come together to reflect on, and agonise over, cross-cutting intractable policy issues is a predominant reason for CSC coming into being. The strategic leadership needed to resolve many of these issues demands intense interactions across different parts of the Service: different roles of policy formulation versus policy implementation, external perspectives versus domestic concerns, different domains of economic, geopolitical, social, technological, and different orientations of generalists versus specialists. While other mechanisms like the PMO Strategy Group and numerous committees have since been formed to help deal with such needs, CSC is uniquely placed to gather such minds outside of their organisational setting and perhaps without the pressure of their home agency.

This raison d'etre for CSC's role—to develop strong esprit de corps within the Service—is enduring. This is because the policy issues confronting Singapore in the future will be more daunting and complex, not less. In addition, the forces that compel leaders to work together may be lessened, as single-issue imperatives and sectarian interests and voices grow more intense, given growing plurality in society and greater fragmentation mediated through technology.

LEO YIP: CSC is the spearhead for learning in our Public Service. It spurs the Public Service to answer the following questions on an ongoing basis: *What* to Learn; *When* to Learn; and *How* to Learn. The answers to these questions

evolve over time, as the demands on the Public Service, as well as the available technological tools, change. As an example, today we can learn remotely and at our own time, compared to the classroom approach where everyone learnt together when CSC was first set up. To respond to these trends, CSC pivoted to digital learning methods by developing and launching the beta version of the LEARN app in November 2018. This is now a convenient platform for public officers to choose the courses and skills they wish to learn, and to do so online in their own time and at their own pace. This is a good reflection of CSC's ability to adapt and change over time. CSC will need to continue staying ahead of the times, transforming itself, and pushing the bounds of learning.

> " CSC WILL NEED TO CONTINUE STAYING AHEAD OF THE TIMES, TRANSFORMING ITSELF, AND PUSHING THE BOUNDS OF LEARNING. "

WHAT STRIKES YOU AS MOST SIGNIFICANT IN THE WAY LEARNING HAS EVOLVED IN THE PUBLIC SERVICE? HOW HAS CSC RESPONDED TO THESE AND OTHER STRATEGIC SHIFTS?

PETER HO: One way in which CSC first upped its game was to look beyond the Singapore Public Service. This shift resulted in more imaginative programmes such as the Cross Sector Leaders Programme (CSLP), which brought together participants from within and outside the public sector, with the aim of building common outlooks and providing insights into how and why government policies are formulated.

It remains a reality that most of our day-to-day work is confined within the silos of government ministries and agencies. But it is important to enlarge this narrow view, because it will improve the chances that we will see connections, challenges and opportunities of the complex world that we operate in. In this regard, we need an environment that encourages the horizontal flow of information, knowledge and best practices. When CSC organises talks, workshops, roundtables, and conferences, it is promoting this horizontal flow, and enlarging our views beyond the narrow perspectives of our organisations. This is essential to Whole-of-Government thinking.

One of the underpinnings of good governance in our VUCA world is an understanding of complexity. CSC recognised this and set up a Complexity Interest Group to discuss complexity

> **PROMOTING THE HORIZONTAL FLOW OF INFORMATION, KNOWLEDGE AND BEST PRACTICES, AND ENLARGING OUR VIEWS BEYOND THE NARROW PERSPECTIVES OF OUR ORGANISATIONS ARE ESSENTIAL TO WHOLE-OF-GOVERNMENT THINKING.**

and its impact on governance. It even published a primer *Navigating a Complex World: A Simple Guide for Public Officers.*

This sort of forward-thinking positions CSC as a part of the Singapore Government operating at the leading edge of governance. Through such activities, CSC is moving information and knowledge out of organisational silos and achieving wider accessibility. This enlarges the worldview of our civil servants, keeps officers abreast of the latest ideas and trends in the world, and reinforces the foundational ideas of World•Singapore, which arose after a discussion among public sector leaders organised by CSC's then Institute of Policy Development during my time as HCS.

An initiative like World•Singapore should be seen as a mechanism to involve people from different parts of the system to create a new common language and recodify information into common insights and a shared sense of common purpose. It challenged public sector leaders to shift from only doing things that we were certain would work, to embracing an exploratory and entrepreneurial approach, which acknowledged that some things worked, and others did not. While there was risk, we managed it rather than avoided it. In this way, we are better at coping with uncertainty and operating in the complex interconnected world.

Because governments operate in a complex environment, rather than a predictable one, many decisions must be made under conditions of incomplete information and uncertain outcomes. Conventional classroom methods are not very useful in teaching civil servants to cope with the complexities inherent in their operating environment. The military employs war games to help teach its people to cope with the complexity and chaos of the battlefield. But this pedagogical approach is largely underutilised and often overlooked in the training of civil servants. As HCS, I felt that the Civil Service should deploy simulations, exercises and games systematically, using the shorthand of calling them collectively "policy games". In response, CSC established a group called CAST, or CSC Applied Simulation Training. CAST built up capabilities in policy gaming. It rolled out policy games for CSC's training and milestone programmes, and promoted policy gaming in the broader Singapore Public Service.

A willingness to explore new pedagogical methods will help make CSC a forward-looking and future-ready organisation. If it was policy games yesterday, today it is remote learning, brought about by the imperative of the COVID-19 pandemic. Tomorrow, CSC must be willing to explore and embrace even newer pedagogy.

PETER ONG: Much has been transformed in the world of learning. This revolution of learning and education has been fuelled by digitalisation, the gig economy, the shortening shelf life of knowledge, pervasive travel (pre-COVID) and modularisation. In turn, learners now adopt a more hybrid and modular approach: consuming insights and knowledge sharpened by practice, in bite-size, often accreditable modules both online and

> **MUCH HAS BEEN TRANSFORMED IN THE WORLD OF LEARNING…THE CHALLENGE WILL BE FOR CSC TO KEEP LEARNING ALONG THE WAY AND ADAPTING WITH NEW INNOVATION.**

on-site, flowing seamlessly between work and learning time.

Such micro-learning opportunities can be always on. In such a world, institutions like CSC will have to curate the journey not only for groups but also for individuals. It then pushes online content and learning experiences to the learner and schedules on-site course time to fit into the curated journey.

CSC is already on this journey, but it will be a journey with no destination. The challenge will be for CSC to keep learning along the way and adapting with new innovation.

LEO YIP: There are two significant ways in which learning has evolved in the Public Service. First, we have come to place greater emphasis on the learner playing a much more active role in learning. When I attended leadership milestone programmes more than a decade and a half ago, there was a much stronger emphasis on one-way classroom downloads on subject content. That is contrasted with the much more diverse pedagogy and programme design of today that involves the learner more directly, such as through experiential learning, self-discovery exercises, and active group discussions.

Second, the Public Service is encouraging individual public officers to play a more active role in managing their own growth and development. In this, CSC's launch of the LEARN app in 2018 was a key milestone. It brought learning content in bite-size modules directly to public officers, who can now select

> **CSC MUST BUILD ITS CAPABILITY TO DISCERN THE SKILLS OF THE FUTURE AND TRANSLATE THAT IN A TIMELY MANNER INTO LEARNING CONTENT AND PROGRAMMES.**

the content that interests them or the skills they wish to hone, and to learn in a manner suited to their needs. This has greatly extended the reach and effectiveness of learning.

Looking ahead, we will need to continue to build our Workforce of the Future with the skills, mindsets and aptitude to do the Work of the Future. CSC must build its capability to discern the skills of the future and translate that in a timely manner into learning content and programmes. In this regard, CSC should see itself as the key learning institution driving SkillsFuture @ Public Service. This must include making continual skills upgrading a way of life across our Public Service.

WHAT SHOULD CSC LEARN, RELEARN OR UNLEARN TO BETTER SERVE THE PUBLIC SERVICE AND SINGAPORE IN THE DECADE AHEAD—AND WHAT SHOULD WE NEVER FORGET?

LIM SIONG GUAN: I would say CSC has to be very alert to not end up instructing the Public Service on how to be more and more efficient and effective in the things of the past. It must not lose its focus on the future—which could be a future which many of CSC's clients have not thought about or are able to imagine as desirable, urgent and critical.

Thus, the span of CSC should cover the values and virtues which form the foundation of a Public Service highly responsive to the expectations of the public and businesses served by the government, the capacities and competencies the public sector needs to have not just for the present but for a future which extends 5, 10, 20 and even 30 years into the future, and the attitudes and approaches necessary to create a future which makes Singapore the best place in the world for Singaporeans to grow up in and make of themselves the best they can be according to their talents and abilities.

PETER HO: For CSC to remain relevant in our VUCA world, it will have to evolve continuously. It cannot stand still and rest on its laurels. It will have to anticipate and adapt to rapid changes and uncertainties in our operating environment. CSC must be prepared to set aside practices that may have worked well in the past, and instead adopt new ideas and concepts that may show little immediate evidence of success. This means sustaining the expeditionary thinking and experimentation that served it well in its first 20 years.

To succeed in the next 20 years, CSC must continue to act, first, as a coordinator of programmes that promote the professional competence and values of the Singapore Public Service, and that embed Whole-of-Government thinking; second, as a convenor of activities that extend the reach of knowledge and information across organisational stovepipes within and beyond government; and third, as a catalyst for advanced thinking and ideas for pedagogy and for good governance, playing the role of a think tank for government.

PETER ONG: CSC has a pan-Public Service mandate like few other agencies. It is an excellent communications channel to promote diffusion of the values and attitudes that we will need to thrive in future, such as operating as One Public Service, maintaining high public trust, and Citizen-Centricity. While these imperatives were stated in 2012 as part of the Public Sector Transformation (PST) movement, our journey is not done until the furthest reaches of the Service have imbibed them. Their underlying values have to be well promulgated and form part of every public officer's lived experience.

This begins with the leadership, and here is where CSC's work in leadership development programmes can make

a difference. Leaders learn best from leaders, watching them incorporate these values and imperatives in all they do. CSC can bring change agents together to provide insights into new areas that the Service has to traverse in order to embrace the PST tenets fully. We will not have all the answers upfront. The agencies are often busy with day-to-day challenges. CSC can pick areas to delve deeper into Oneness, Trust and Citizen-Centricity to provide ideas for agencies to explore further.

And learning should take place in a less work-oriented setting like CSC. Such communications need not be always top-down, from leaders and mandated committees to the rest of the system. Communities of practice and interest groups within the Service should be offered the forum to share their ideas and aspirations to a wider audience.

LEO YIP: As the learning institution of the Public Service, CSC must be au fait with the business of our Public Service, which comprises policy development, implementation, service delivery, engagement and many other facets. New areas are also introduced and grow over time. For example, the Public Service is increasingly playing a more active role in public engagement and partnerships. CSC must ensure it is up-to-date with evolving business needs, so that it can translate these into learning content and programmes in a timely manner. Beyond that, CSC must also ensure that the learning-business loop is closed in that learning has actually enhanced business effectiveness.

> **CSC MUST ALSO ENSURE THAT THE LEARNING-BUSINESS LOOP IS CLOSED IN THAT LEARNING HAS ACTUALLY ENHANCED BUSINESS EFFECTIVENESS.**

Looking ahead, CSC, like the rest of the Public Service, must also maintain a duality of focus. It must both focus on generating programmes to meet today's needs of the Public Service, but also determine the learning required to help the Public Service be even more effective into the future. This will require an understanding of the priorities of the Public Service in building the future.

We have succeeded and continued to thrive as a nation partly because we have learnt well. We have learnt from others, from our own experiences, and also from making sense of what lies ahead and how we need to respond. We place high priority and investment on learning and skills upgrading. Our education and now skills-upgrading system reflect these hallmarks. The Public Service must continue to be an effective learning organisation, and at the heart of this must be a premier learning institution, which CSC must strive to continue to be. ■

Being prepared for a volatile and uncertain world may involve not just learning about what faces us ahead, but also relearning—or unlearning—lessons of old.

Angel Chew is Lead Foresight Analyst at the Centre for Strategic Futures.

LEARNING FOR THE
FUTURE

by **Angel Chew**

At the turn of the century, physicist Stephen Hawking said in an interview that the 21st century would be the "century of complexity".[1] Thus far, the shifting global balance of power, climate change and energy transitions, firms in flux and labour interrupted, and an increasingly tribal world, are but some of the significant trends identified by the Centre for Strategic Futures (CSF) as part of our research on forces shaping Singapore's future. We not only have to contend with understanding these forces, but must also grapple with how they could interact with one another to shape our reality.

The CSF has identified five themes emerging from the intersection of these forces which will be relevant to Singapore: the changing nature of power and influence, the pervasive impact of interdependence and interconnectedness, a (sometimes violent) renegotiation of values and belief systems, the importance of climate change and its effects, and the blurring of boundaries between the physical world and its digital counterpart. To top things off, all of these changes are happening at an accelerating pace. Increasingly, the world faces problems that are constantly evolving and thus difficult to understand or define, are highly interrelated, and have potential solutions or approaches that appear to be incomplete, or internally inconsistent.

The challenge of managing complexity will only continue to plague us in the future. Naturally, this will leave many of us with a deep sense of uncertainty and anxiety. Our instinct is to collect more data, acquire new skills, form new connections: essentially learning more to fear less. But apart from rushing ahead to learn more about cutting-edge developments, we should also stop to consider what has not changed and what we can learn from these.

A look back at past editions of the National Scenarios produced by the CSF reveals that despite evolving contexts and new trends, some issues such as identity and resilience remain evergreen. Our familiarity with these issues does not diminish their significance; on the contrary, the sheer fact that concerns persist throws into question how well we understand these 'familiar' issues. We might also be overlooking the value of forgotten skills, sometimes misapplying past lessons, and building on false assumptions. There is great value in learning, but also in *relearning*, *not overlearning*, and *unlearning* for an increasingly complex and uncertain future.

> **Apart from rushing ahead to learn more about cutting-edge developments, we should also stop to consider what has not changed and what we can learn from these.**

"All that is gold does not glitter." — J. R. R. Tolkien

Pausing to examine the things that have not changed (at least not in the last millennia) can reveal useful, enduring frameworks for understanding our world. For instance, evolutionary psychology—the study of human behaviour and internal psychological mechanisms from a modern evolutionary perspective—sheds some light on consistent ways in which human beings think and feel, and why we behave the way we do. Evolutionary psychologists argue that although the world has changed dramatically, the traits that helped modern *Homo sapiens* survive some 200,000 years ago continue to govern most human behaviour today. Hardwired into human beings are traits, such as putting emotions before reason or an aversion to loss, that have kept *Homo sapiens* alive when faced with harsh environments or wild beasts. Recognising that these traits are hardwired can help organisations understand why supervisors find giving feedback very difficult, or why encouraging a risk-taking culture is incredibly tough. Instead of going against the grain of our hardwiring, organisations could design better systems that work *with* these ingrained tendencies.[2]

In the face of climate change and emerging resource constraints, nature could also offer innovative solutions that have emerged from 3.8 billion years of evolution and adaptation to changes in the environment. In her book, *Biomimicry: Innovation Inspired by Nature*, biologist and author Janine Benyus explores how scientists, engineers, and designers are adapting nature's best ideas to solve 21st century problems.[3] One of the best-known examples of biomimicry is the sharp-nosed design of the Japanese Shinkansen train, inspired by the beak of a kingfisher. This design not only reduces tunnel sonic booms, but also makes the bullet trains faster while

Valuable lessons can also be learnt from the mundane and unchanging, not just from what is glittering and new.

consuming less electricity. What is not as well known is that the Shinkansen's design was also inspired by the owl and the Adélie Penguin—to minimise vibrations and noise, and to lower wind resistance respectively.[4] Another example is the Eastgate Centre in Harare, Zimbabwe, which features a self-regulating ventilation system inspired by termite mounds in deserts. By incorporating numerous openings throughout the building to promote airflow, the US$35 million building saved 10% on costs upfront by not purchasing an air-conditioning system.[5] What these examples demonstrate is that valuable lessons can also be learnt from the mundane and unchanging, not just from what is glittering and new.

It's like learning to ride a bicycle, again

When we learn something, nerve cells in our brains make new connections with each other. Interestingly, scientists at the Max Planck Institute of Neurobiology have shown that these connections remain intact even when they are no longer needed.[6] The reactivation of these connections is what makes relearning—the regaining of a skill or an ability that has been partially or entirely 'lost'—faster and easier. In a complex environment where we have to probe for patterns to make sense of our surroundings, relearning in response to familiar patterns speeds up our response time, since we do not have to start from scratch and can draw on past knowledge and experience.

One area that could use some relearning is education. Unlike in previous decades, it is quite unclear what content or skills

schools today have to teach in order to prepare learners for the future.

First, shifts in technology, society and geopolitics are driving changes in the infrastructure of knowledge—in *how* knowledge is generated and used, *what* knowledge is generated and used, and *who* generates and uses knowledge. Where do educators even begin if the frameworks for understanding and engaging the world are in dispute?

Second, the job landscape is increasingly volatile thanks to technological developments. According to UK-based research firm Oxford Economics, some 1.7 million manufacturing jobs have already been lost to robots since 2000. A study by the firm also showed that robots have been replacing humans at a steadily increasing rate, and estimated that up to 20 million manufacturing jobs will be lost globally to robots by 2030.[7] As automation outperforms humans at routine tasks, employees are left to handle the non-routine and unanticipated. This trend towards more complex, multi-skilled jobs is speeding up. Analytics software company Burning Glass Technologies reports that hybrid jobs are projected to grow by 21% over the next decade.[8]

Amid such uncertainty, some countries have begun to invest heavily in STEM (science, technology, engineering and mathematics) subjects to better prepare students for the digital economy, while others try to spot the 'right' skills needed for future jobs. Yet, as IBM's Vice President of Talent Joanna Daly puts it, "the half-life of skills is getting shorter".[9] Trying to identify the 'right' subjects or 'future-ready' skills may be futile when

the job landscape keeps changing, and the paths to success are increasingly unclear. In this environment, relearning how to learn might prove more prudent because it means having an ability to keep picking up new skills, and to adapt. But how does one relearn how to learn? Are there certain traits and mindsets that facilitate relearning or that stand in the way of doing so?

When the US Navy pushed ahead with the concept of minimal manning—the replacement of specialised workers with problem-solving generalists—for its high-tech warships, it commissioned a series of studies on how to select a suitable crew. Zachary Hambrick, a psychology professor at Michigan State University, was brought in to identify characteristics of people who could multitask in a complex and fast-changing environment. One of the tests was designed to simulate a fluid-task environment where sailors had to perform four different tasks, all of which contributed equally to their total score. Midway through the test, the scoring rules changed so that one task now accounted for a greater percentage of the total score. Some sailors spotted the change and focused their attention on that one task; others noticed the change but continued to devote equal

attention to all tasks. Hambrick noticed that conscientiousness, a trait typically correlated with positive job performance, was instead "correlate[d] with *poor* performance" in this context. A similar observation had been made by Jeffrey LePine, an Arizona State management professor, when he was doing Navy-funded research on decision-making close to a decade before Hambrick. LePine also observed that the ones who performed well on such tests were instead individuals who tended to score high on "openness to new experience".[10]

If taking on multiple roles onboard a minimally manned warship is analogous to surviving an ever-changing future job landscape, a devotion to rules and sticking to the task may be crippling. Instead, traits such as being open to new experiences, accepting failure, comfort with ambiguity and a willingness to return to square one could help us relearn how to flexibly respond to complex environments.

"Never get involved in a land war in Asia." — *The Princess Bride*

Nevertheless, not every situation will benefit from tapping on existing neural

connections or past experiences. We need to resist seeing patterns when there are none, to avoid forcing unsuitable responses on a different context. We need to not overlearn from the past.

History is littered with examples of earnest efforts to apply yesterday's lessons to new contexts, which have only resulted in more problems. In their book *Thinking in Time*, authors Richard E. Neustadt and Ernest R. May warn of past American leaders who have turned to history to inform their decision-making, yet learnt the wrong lessons and misapplied these to terrible ends. One of the more infamous examples is how US President Lyndon Johnson had 'learnt' from UK Prime Minister Neville Chamberlain's mistake of appeasing the Nazis rather than confronting them. Johnson had 'learnt' this lesson so thoroughly that when it came to the growing Communist movement in Vietnam, there was no other option in his mind other than to escalate American involvement and confront the Communists. His decisions had disastrous consequences, both for the thousands of Vietnamese civilians killed by the aerial bombings, as well as the thousands of American soldiers who died fighting a war far from home. Neustadt and May argue that because of this fallout, most American politicians 'learnt' to avoid involvement in Asian-

jungle guerrilla wars.[11] This unfortunate example demonstrates the dangers of overlearning from past lessons; of seeing likenesses while ignoring the differences.

In Singapore's case, scarred by memories of the 1964 and 1969 racial violence, the lesson we might have inadvertently overlearnt is that there is no space to air racial and religious differences in public. The headline of a *Channel NewsAsia* article sums it up—"High time to talk about racism, but Singapore society ill-equipped after decades of treating it as taboo".[12] Legislative safeguards such as the Maintenance of Religious Harmony Act and the Sedition Act empower authorities to act in response to incidents that could potentially threaten our religious harmony; however, these safeguards may also have discouraged Singaporeans from engaging in open conversations about race and religion. According to Dr Mathew Mathews, Principal Research Fellow at the Institute of Policy Studies (IPS), Singaporeans have accepted "a certain level of discomfort and manage[d] it quietly for the greater need to preserve harmonious relations". He adds that in this context, "minorities who call out racism are sometimes viewed as oversensitive and ultimately creating rifts between ethnic communities". Singaporeans

> **We need to resist seeing patterns when there are none, to avoid forcing unsuitable responses on a different context.**

"The map is not the territory." — Alfred Korzybski

also seem to have internalised that the appropriate response to incidents of racism is to turn to the law, as evidenced by a 2013 IPS survey on race, religion and language. About 65% of a nationally representative sample of 4,000 Singaporeans believed that making a police report when they encountered racism was what a responsible citizen should do.[13] With that as our first reaction, no wonder it is hard to imagine us having a civilised discussion about race and religion in public.

But things today are different than they were before. Yes, Singapore's population, like that of many other countries, is becoming increasingly diverse with a growing proportion of inter-ethnic and transnational marriages. Yes, clashes in ideologies are increasing in frequency and growing in diversity too. But we are also living in an age of social media, where almost everyone has access to tools and platforms to help articulate and share their perspectives. Significantly, it seems like more Singaporeans are learning to forget this 'lesson' and to speak up and call out acts of racism.[14] In addition, Prime Minister Lee Hsien Loong's recent announcement in his 2021 National Day Rally speech that the Maintenance of Racial Harmony Act will also incorporate "some softer, gentler" touches to "heal hurt" is also a much welcomed move.

Some lessons should be entirely forgotten, given that fundamental transformations of our contextual, lived and institutional realities are afoot. For instance, changes in climate and weather patterns are reshaping where and how communities live, work, and play; alternative sources of information are further fragmenting our shared reality and influencing how and with whom we form kinship bonds; changes in international institutions such as the international financial system and the global trading system are posing new governance challenges. As the pace of change accelerates, there is a need to question and challenge assumptions, to experiment and adapt.

But in order for us to embrace new ideas or acquire new skills, we have to first unlearn the old. For example, in learning to read, the brain's visual system has to undergo great changes, including unlearning the ability to recognise an object and its mirror image as identical.[15] Similarly, we have to let go of skills and ideas that are no longer fit-for-purpose, and which may compete with newer ideas and values.

The US military currently faces this challenge of having to unlearn parts of its culture which are at odds with innovation and causing it to lose its technological edge. Setting aside exceptions like the Special Operations Forces, the military services tend to incentivise risk-aversion, focus on established practices, and encourage consensus. These behaviours run counter to creativity and innovation. Yet, these values and habits are further reinforced by how members are trained, equipped and promoted. Former Assistant Secretary of the Army Paul R. Ignatius summed up the military services as "conservative organizations, slow to change and reluctant to give up traditional ways and weapons":

> When Japan was defeated in the Pacific, the signalmen on our carrier were told to resume signalling with flags even though radio had been employed through the war. The Army took generations to give up the mule for the truck.[16]

As these values and habits are inherited and in fact rewarded, it may be hard for the US military to unlearn and shed these rigidities.

Unlearning can also be observed in how governments have slowly moved from directing citizens to partnering them. All over the world, as citizens become more educated, and populations grow more politically mature and diverse, citizens increasingly want to be more directly involved in shaping the future of their country. Governments no longer have a monopoly on the best ideas or thinkers. At the same time, the world is facing problems that are increasingly complex in nature. This requires governments to tap on the wits and will of all its people, to explain complex issues and involve citizens in the development and implementation of solutions. What is needed is a shift from top-down approaches to empowering citizens and working together, from seeing citizens as consumers to seeing them as partners.

Singapore, and Singaporeans, are no exception. Over the years, Singapore has moved in the right direction, starting with the formation of the Feedback Unit (later renamed REACH), and then moving to national public consultation exercises such as The Next Lap, Singapore 21 and Our Singapore Conversation. Singapore's citizen engagement journey continues with the more recent Singapore Together movement—where the Government works with Singaporeans, and Singaporeans with each other, to build a future Singapore together. Other recent efforts at partnering citizens include the Citizens' Jury for the War on Diabetes (2017), the Recycle Right Citizens' Workgroup (2019),[17] and the Citizens' Panel on Work-Life Harmony (2019). This positive shift would not have been possible if government had persisted in treating citizens as customers and in 'controlling' the conversation; it had to unlearn these habits in order to adopt new models of citizen engagement.

Unlearning old approaches also makes room for us to learn from others who have more or different experiences. One interesting example comes from Peñalolén, a Chilean commune in the province of Santiago with a history of participatory budgeting. In 2019, it launched a participatory budget under the slogan *¡En mi Barrio, Yo decido!* (In my neighbourhood, I decide!), giving citizens a say in which urban planning projects would be funded and implemented. From start to end, citizens were front and centre of the process. While the local government of Peñalolén did establish that the ideas had to be related to improving infrastructure and public spaces, it was the citizens who proposed the ideas, gathered support from the community and decided which ideas would receive funding. Unlike most governments' approach to citizen participation which is limited to consultation, involvement or collaboration, Peñalolén's participatory budgeting was an empowering exercise

that placed final decision-making in the hands of the citizens.[18]

As the pace of change continues to accelerate, the need to unlearn outdated assumptions underpinning our mental maps grows ever more important.

Look no further than the future

When the coronavirus pandemic struck the world in early 2020, many referred to it as a "black swan"—an unpredictable, rare and catastrophic event. This label seemed to fit, given how most governments and health organisations were caught off-guard by COVID-19's explosive speed of transmission, and were uncertain about what the future might look like. However, global health agencies have spent the last 25 years helping countries to prepare for such pandemics (1970–2020 dengue, 2004–2014 chikungunya, 2007–2016 Zika virus and 2009 H1N1 influenza).[19] In addition, if we look into the not-so-distant past, we will find useful parallels or signals of possible futures. The cholera pandemic of 1832 aggravated social and economic inequalities, brought busy cities and ports to a standstill, and

wreaked havoc on the economy;[20] and the Spanish flu pandemic of 1918 saw doctors prescribing toxic levels of aspirin to alleviate flu symptoms, and fines for citizens caught in public without masks.[21] Knowing that similar pandemics had happened before means we should not have been surprised, but humans have short memories and even "analogies [can] create blind spots", as noted by historian on science, technology and medicine Robert Peckham.

It is thus vital to bear in mind differences in context: be it political, economic, social or infrastructural. To prepare for this century of complexity, we should learn to take the long view and to be discerning. By having a better sense of where we are and what may be awaiting us, we can better decide what to relearn, not overlearn and unlearn.

> "We are not only living in a world of accelerating changes but also of changes which are global in scope and which permeate almost all aspects of human activity...only a future-oriented society can cope with the problems of the 21st century."
>
> — *Mr S. Rajaratnam in 1979, then-Foreign Minister of Singapore.*[22] ◼

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Metaphors & Mental Models:

Updating Our Language for Public Sector Learning

by **Aaron Maniam**

We need to rethink what it means to learn and be learners, in a complex, dynamic and fluid world where many answers are not predetermined, but must be cultivated and co-evolved.

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In some recent talks I have given, I've begun by asking the audience what the following sentences have in common:

- "I will defeat that argument."

- "Children blossom into adults."

- "I don't have room for this in my life!"

- "Life has cheated me."

- "Scarcity has given birth to a generation of paranoid teenagers."
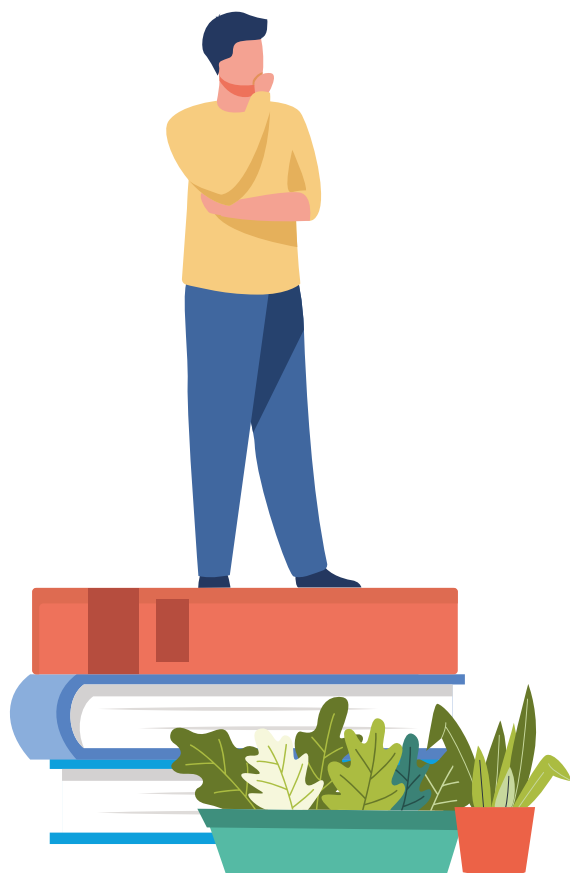
After a few attempts at finding thematic unity in these very diverse sentences, someone in the audience usually figures out that none of them is a literal description: each employs a *metaphor* of some kind—a comparison of one thing to another—to highlight particular characteristics. Children are likened to flowers, arguments to battles, life to a physical space or game. The concept of scarcity is anthropomorphised: treated as human, e.g., in its ability to 'give birth'.

Metaphors matter. While they are usually taken to be the exclusive tools of writers and poets, we all use metaphors more often than we might be aware, and they shape how we perceive the world and think about issues. Our choice of metaphor can subtly affect not just what we think, but also what we do. For instance, imagine how saying "I will engage that argument" instead of "I will defeat…" might change the tone and tenor of our interaction with the source of that argument.

As thinkers and practitioners have long pointed out (see box story *Metaphors in Organisational Life*), metaphors profoundly shape the way we conceive of and carry out life in any institution, and how we view ourselves and one another in relation to our organisations.

Our current ideas about learners, learning and work have been marked by pervasive metaphors, which in a world of increasing complexity and interdependence may prove increasingly deficient. What might more appropriate new metaphors be, and how might these change the way we think and practise learning in the public sector?

Metaphors in Organisational Life

George Lakoff and Mark Johnson recognise the centrality (and what they call the "systematicity") of metaphors, devoting a whole book to *Metaphors We Live By.*[1] Not everyone uses their exact terminology, but there is a consistent body of scholarly work on this issue.

Peter Senge's work on systems thinking and learning organisations centres on what he calls "mental models", defined as "deeply ingrained assumptions, generalisations, or even pictures and images that influence how we understand the world and how we take action". Senge's 'pictures and images' are essentially metaphors.[2]

Similarly, sociologist Erving Goffman proposes the notion of mental frames (essentially metaphors) that shape our perceptions of the world and the information we process in his seminal work, *Frame Analysis.*[3]

Lee Bolman and Terrence Deal discuss metaphors and frames for leadership; their *Reframing Organizations: Artistry, Choice, and Leadership* observes that leaders' priorities and decisions differ according to whether they see leadership as a process that fundamentally involves structure and analysis; human resources; symbols and culture; or navigation of political power relationships.[4]

Gareth Morgan's *Images of Organization* examines metaphors for composite entities like companies, government agencies and teams, noting that different images (machines, families, cultures, and others) each highlight, but also elide, different aspects of what it means to be an organisation.[5]

Futurist Sohail Inayatullah cites "myth and metaphor" as the foundational layer of "causal layered analysis" (a framework for having generative conversations about possible futures), from which other aspects like "structures, discourse and worldviews", "social causes" and "litanies" emerge.[6]

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Learners as Receptacles: The Metaphor and Its Limitations

Arguably the most well-used metaphor for learning is to see learners as receptacles, with learning as a process that fills them with useful content: information, knowledge, experience or skills. This thinking has permeated even our daily idioms: we learn from an early age that 'empty vessels make the most noise', unless their emptiness is rectified by the process of being filled with new knowledge. Brazilian philosopher Paolo Freire's "banking concept of education"[1] is similarly underpinned by the idea that students simply store information relayed to them by teachers.

The receptacle metaphor is seductive in its simplicity, but makes at least eight problematic learning assumptions:

1 Assumption of Instrumentality: Learning must lead to some organisational or individual benefit, often measured in terms of outcomes. Learning must make the vessel less empty, or else it cannot claim the name 'learning'.

2 Assumption of Concrete Rationality: Learning, whether for individuals or a whole organisation, must involve some analytical rigour to have value. The empty vessel must be filled by something of literal substance—with mass, weight, density—rather than something more intangible or indefinite.

3 Assumption of Certainty: We need to know, before embarking on a learning endeavour, that the filling of the empty vessel will happen; that the learning will involve some content that imparts clear-cut wisdom to the learner.

4 Assumption of Additivity: Learning is good, so more learning is better; the more the empty vessel is filled, the more positive the outcomes.

5 Assumption of Fixed Capacity: Each vessel, by nature, has a limited volume, beyond which it cannot be filled further.

6 Assumption of Linearity: Learning can be measured in terms of units, as the empty vessel is filled. Each additional unit of learning adds as much as the previous one, consistently over time.

7 Assumption of Passive Receptivity: The empty container is filled by beneficial knowledge without much action of its own. Both the words 'receive' and 'receptacle' share common etymological roots in the Latin 'receptare', to 'receive back'.

8 Assumption of Individuality: The empty vessel stands alone as it is filled; one person's learning is carried out, and has its effects felt, in a mostly isolated or atomised manner. Little interaction happens with other vessels in the process.

When squared off against a world characterised by more complex issues, with interdependent actors, these assumptions start to show their limitations.

For instance, the Assumption of Instrumentality is limiting when we

realise that some learning can have intrinsic rather than purely instrumental worth. The gains from learning need not be functional, in terms of better skills, productivity or output, but could instead help inculcate in learners a deeper sense of meaning and purpose, autonomy, or even the satisfaction of mastery over challenging subject matter. Such benefits are inadequately reflected in the receptacle metaphor, which reflects consequentialist modes of thinking that emphasise productive outcomes and the optimisation of resources. It ignores the possibility that valuable organisational outcomes can emerge from something other than filling or being filled: such as when employees make higher quality contributions because they feel more deeply engaged after a learning experience.

Similarly, the Assumption of Concrete Rationality does little justice to learning that is non-cognitive. Some issues require approaches that are not just analytical but also linked to emotions, resilience, and being psychologically informed. These call for learning that supports understanding the vagaries of one's feelings, recognising that some skills (like mindfulness) are physically embodied.

Some issues require approaches that are not just analytical but also linked to emotions, resilience, and being psychologically informed.

This is partly why so many programmes for professionals, whether at schools of business or government, or entities like Singapore's Civil Service College (CSC), are devoting increasing amounts of time to dimensions such as self-care, as well as dealing with crises and other adversities that involve responses with cognitive, emotional, and embodied dimensions. CSC's Applied Simulation Training Laboratory has contributed significantly in this domain, developing immersive, experiential learning platforms like serious games and policy simulations.

Beyond the Assumption of Certainty, learning needs to incorporate approaches that afford greater space for *un*certainty—accounting for issues with no clear-cut outcomes at the start, and which could benefit from iterative and experimental approaches. Such learning does not involve simply absorbing what John Maynard Keynes termed a "body of settled conclusions",[2] but involves the learner sitting amid, and making sense of, surrounding turbulence and flux. A significant amount of 'on-the-job training' can take this form: especially pertaining to roles that transcend simple templates and checklists that may involve tasks that are indistinct, slippery, and unclear. Learning, in such instances, happens by doing, and not just by being filled with pre-determined information, knowledge or expertise.

The Assumption of Additivity fails to account for situations where 'less' is sometimes 'more', when the tempo of learning needs to be varied for maximum effect. For instance, in CSC's leadership programmes, 'white space' is often deliberately set aside for learners to reflect on and consolidate previously conveyed

> **Learning involves the learner sitting amid, and making sense of, surrounding turbulence and flux.**

content, rather than assuming that more content is always better. Taking this idea further, there are instances where what was learnt earlier might need to be shed, as learners take on new roles. Marshall Goldsmith epitomises this idea in his book—aphoristically titled *What Got You Here Won't Get You There*[3]—because sometimes we need to change our approaches, and not simply learn more of what we already know and are comfortable with. Rather than learners as receptacles, one might think of learners as sculptors, chiselling away and removing, rather than adding, until they arrive at what Michelangelo memorably named "the angel in the marble".

The Assumption of Fixed Capacity is flawed because, as psychologist Carol Dweck has pointed out in her concept of the 'Growth Mindset', learners can evolve, progress and acquire new scope for ever greater learning as they mature, given the right guidance and feedback.[4] Learners can even be changed by the content and process of learning. In contrast, the 'Fixed Mindset', like the receptacle metaphor, assumes that learners remain static over time.

The Assumption of Linearity is challenged by insights from complexity science. In interdependent systems where cause and effect relationships are not obvious *ex ante*, outcomes do not always emanate from input in the neat, linear relationships that characterise mechanistic, Cartesian situations. Instead, complex systems involve 'phase transitions', more popularly known as 'tipping points', where unexpected outcomes can emerge either very swiftly or only after extended periods of time. The study of complex systems often reminds me how some of the content I learnt as a new public officer, at a CSC programme called the Foundation Course, only matured into fulsome insights many years later. Broad concepts like 'Whole-of-Government' thinking or 'Whole-of-Nation' approaches only came to life as I experienced a range of jobs, each highlighting different operational aspects that could not have been fully explored in a single programme. In some circumstances, a new Assumption of Non-Linearity might do better justice: since the deepest learning may only occur long after the original teachable moment is over.

The Assumption of Passive Receptivity is reductive because learners ought to be active shapers of their own learning—a point emphasised by proponents of constructionist learning approaches. For them, learners are far from mere receivers, devoid of agency and with deficits to fill with knowledge. Instead, learners have gifts and assets in their own right, which they can exercise and use to enhance their learning processes. I have often found this to be true when coaching public officers transitioning into new jobs: while they certainly have new skills to acquire, they often also bring valuable insights and

experiences from their previous jobs, which can help them acclimatise to their new roles. These construction processes need not be limited to the individual, but can indeed be processes of *social* construction, at the level of teams or some larger aggregation of individuals.

This is why the Assumption of Individuality needs to be refined along with the Assumption of Passive Receptivity: complexity and interdependence often call for learning at the team or collective level. The transformative power of socially constructed learning is abundantly demonstrated in the case of Austin's Butterfly,[5] in which a class of first-grade students at ANSER Charter School in Boise, Idaho helped their classmate Austin take a scientific illustration of a butterfly through multiple drafts, starting with a rudimentary sketch but culminating in a high-quality final product. Far from being a lonely or atomised process, learning in this case is shown to be richest when it is collective, with critique and descriptive feedback leading to exponential improvements. The social nature of the process happens through mechanisms like conversation, feedback and coaching, and deliberative discussions. A favourite part of this story is when an American first-grader points out that the feedback from Austin's peers worked best when

Complexity and interdependence often call for learning at the team or collective level.

it was "more specific, but they weren't mean about it".[6]

Better Metaphors for Learning
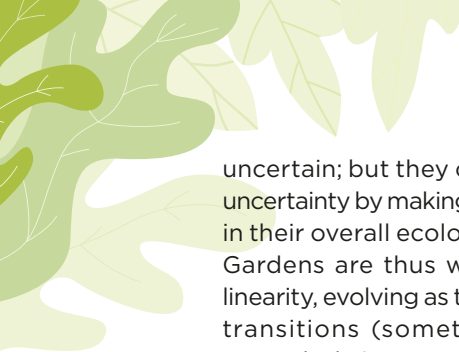
Given the problematic assumptions of the receptacle metaphor for learning, can we do better? Is there a metaphor that can adequately reflect the importance of intrinsic motivation, emotion and embodiment, uncertainty, subtraction and pauses, non-linearity, learner agency, as well as socially constituted learning?

One possibility is the idea of learning as a garden: a thriving and complex ecosystem in which different flora and fauna (even weeds!) have a part to play. Each learner could be a different inhabitant organism, whose role may not be obvious in a direct, instrumental sense, but nevertheless bringing a significant contribution to the garden ecology. Some learners could even be gardeners, shaping and sustaining the entire ecosystem. Without any one component, the delicate ecological balance of the garden will be destabilised. Gardening is an even better metaphor than sculpture, since it deals with 'angels' that are living and dynamically evolving, not trapped, immutable, in a piece of stone. Even stones in gardens are alive and evolving: subject to erosion, weathering, the ravages of nature and time. They also interact with other elements and organisms in a garden, all of which co-inhabit common spaces and co-influence one another, just as learning can be communal.

Since gardens consist of unpredictable living beings, they are intrinsically

uncertain; but they can accommodate uncertainty by making micro adjustments in their overall ecological composition. Gardens are thus well suited to non-linearity, evolving as they undergo phase transitions (sometimes over highly extended time periods), rather than hewing rigidly to pre-set outcomes. Each organism in a garden, animal or plant or mineral, has scope to shape its own role and destiny, similar to agency-driven learning, and these organisms interact socially, so that the whole becomes greater than the sum of the parts. The Singapore Army captured these aspects in the idea of a 'Learning Army, Thinking Soldier', part of the broader transformation to a third-generation Singapore Armed Forces. Building on the foundation of rigorous training and doctrine, thinking soldiers exhibit the living qualities of a garden: situational awareness, adaptation and agility.

Gardens are not wild, untamed jungles. They benefit from pruning—some plants only bloom after, not before, pruning!—and are hence attuned to the gains from subtraction rather than uncritical accumulation. So long as they are given space to grow and are not overly manicured, gardens can be lush and vibrant. Not every contribution in a garden needs to be rational or analytically substantiated; some parts could be important as spaces for emotions to play out, or for embodied activities like exercise or quiet walks to take place.

Similarly, the learning process has its untidy and unpredictable aspects but it is not a totally whimsical free-for-all. The garden metaphor captures how learning also needs regular tending—without such deliberate attention and effort, both learning and gardens will atrophy and eventually wither from neglect.

Unsurprisingly, the garden metaphor is already part of our vocabulary for learning—kindergartens are literally 'gardens for children'!—and it is not a stretch to see its renewed relevance to continual adult learning today.

Cultivating Learning Values

What sort of values might support the view of learning as a garden? In Singapore, the Public Service values of Integrity, Service and Excellence should continue to apply at the global level, across all agencies and functions of the Government. But some additional learning-specific values would also be instructive. These *Learning Values* could be derived from the Assumptions that the garden metaphor helps to refine:

1. Learning has intrinsic worth

2. Learning involves the entire body: not just the head, but also the heart and hands

3. Learning is iterative

4. Less learning can be more

5. Learning capacity can grow over time

6. Celebrate complexity in learning

7. Learners have agency to construct their own learning

8 We construct learning together as well as alone

These values seem important for *all* levels of public sector learners, from the most junior to the most senior. Since leadership can be particularly pivotal in articulating, shaping and sustaining organisational learning cultures, a set of complementary *Leadership Learning Values* could be developed:

- Leaders should take into account both intrinsic and instrumental measures of value

- Leaders should celebrate whole-person capabilities, not just analytical skills

- Leaders should encourage iterative processes, not just concrete outcomes

- Leaders should know when to slow down to celebrate pauses and deliberate reductions; leaders should model 'less is more'

- Leaders should find ways for their teams to grow, and not assume their capacities are fixed

- Leaders should recognise interdependence and adaptivity

- Leaders should exercise agency and encourage others to do so—thereby sharing and shaping the construction of learning

- Leaders should set aside space and time for collective learning conversations—both conversations about learning, and conversations where learning takes place[7]

No metaphor is perfect or complete; any metaphor will invariably highlight some aspects of a phenomenon, at the expense of others. But seeing learning as a garden, inhabited and shaped by learners, can be a first step in updating our approaches: enriching our language, and eventually improving our actions and decisions as genuinely learning organisations. ∎

Notes

1. P. Freire, *Pedagogy of the Oppressed* (London: Penguin Books Ltd, 1968).

2. J. M. Keynes, *The General Theory of Income, Interest and Money* (Hinsdale: Dryden Press, 2016).

3. M. Goldsmith, *What Got You Here Won't Get You There* (London: Profile Books Ltd, 2012).

4. C. Dweck, *Mindset: Changing the Way You Think to Fulfil Your Potential (updated edition)* (London: Little Brown Book Group, 2017).

5. Video available at https://eleducation. org/resources/austins-butterfly, accessed September 25, 2021.

6. Ibid.

7. Such approaches might draw from Daniel Kim's Core Theory of Success, which sees a dynamic and mutually reinforcing relationship between the quality of relationships, collective thinking, actions and results in an organisation. Details at: D. H. Kim, *Introduction to Systems Thinking* (Massachusetts: Pegasus Communications, 1999).

THE FUTURE OF LEARNING AND DEVELOPMENT IN THE SINGAPORE PUBLIC SERVICE

by **Iva Aminuddin, Wan Chng, and Vera Lim**

By deepening their ability to identify relevant trends and anticipate emerging needs, learning and development practitioners can help shape the future of their organisations.

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Technological advances and other societal trends often impact how employees work and learn, and the COVID-19 pandemic has both amplified and hastened these effects for the near- to medium-term future. In the field of learning and development (L&D), insights drawn from the literature, as well as from leaders and practitioners in the Singapore Public Service, suggest that four such trends will have a significant impact on the culture and landscape of work, and in turn on L&D practice, for some time to come. While these trends may not be new, the pandemic has changed their trajectory in ways that warrant consideration and action today.

Four Trends Impacting the Learning and Development Landscape

The first trend is that innovative and disruptive business models will be a common and pervasive part of the general economic landscape. Organisations are looking outside of themselves and even outside of their industry to support their business. By maintaining critical functions 'buy(ing)' or 'build(ing)', they can then 'borrow' or 'bot'[1] other capabilities so that their core remains lean, and the organisation stays agile. Examples of this trend include ridesharing/hailing apps like Grab/Uber: these platform-driven companies tap on gig workers as their main employee base. Another example is Airbnb: a networked, community-based organisation that helps its participating members organise its saleable resources.

The pandemic has further accelerated this shift as organisations look to "[using] fresh strategic framing and [creating] organisational structures that promote agility", and "collaborating with…start-ups and…expertise around the world" to survive and thrive in its aftermath.[2] Identifying and developing the critical capabilities for a transformed organisation requires strategic capabilities, and we propose that L&D teams need to support their executive management beyond the typical purview of L&D work in the past.

The second trend is that the nature of work is changing dramatically in a very short time. Technology is driving labour markets towards greater levels of informality, where gig workers often have fewer protections, and where there is increasing demand for non-routine cognitive and interpersonal skills.[3] One source suggests that two-thirds of employees in high-performing firms will shift "from static roles and processes to dynamic, multidisciplinary, outcome-focused reconfigurable teams" by 2024.[4] COVID-19 seems to have further exacerbated and accelerated these trends. A McKinsey report suggests that the pandemic has required some 12% to 25% *more* workers to switch occupations due to these role shifts. The greatest impact appears to be in advanced economies in which workers face greater gaps in

THE WORKFORCE ITSELF WILL BE MORE FRAGMENTED THAN EVER BEFORE.

skill requirements as high-wage jobs grow at the expense of middle- and low-wage jobs.[5] It is tempting for L&D teams to focus upon the near-term needs of their organisations. However, given these trends, developing and readying employees for an exit could mean the difference between an efficient, effective organisation with a good brand reputation and a dysfunctional one.

An important implication of these first two trends is that the workforce itself will be more fragmented than ever before: in addition to purely demographic (e.g., age) differences, the proportion of traditional full-time employees is likely to be reduced. Instead, interns, trainees/apprentices, part-time workers, employees on flexible schedules, short-term or project-based contract staff, and even community members, are all likely to become significant components of our workforce. The Public Service will not be immune to these shifts. Such changes impose the challenge of supporting a diverse range of workers in their L&D needs and in developing and maintaining a workforce that functions coherently as one organisation.

BLURRING LINES BETWEEN PERSONAL AND PROFESSIONAL LIFE

A Gartner study shows that "three-quarters of employees expect their employer to take a stance on current societal or cultural issues, even if those issues have nothing to do with their employer",[1] and that "68% of employees would consider quitting their current job and working with an organisation with a stronger viewpoint on the social issues that matter most to them".[2]

An IDC report also predicts that "35% of knowledge and frontline workers will consider social, environmental, and humanitarian actions as key criteria to employment decisions"[3] by next year.

Notes

1. Jack Kelly, "Survey Shows People Want to Discuss Social, Political Issues at Work and Call for Companies to Support Their Views", *Forbes*, March 9, 2021, accessed August 31, 2021, https://www.forbes.com/sites/jackkelly/2021/03/09/survey-shows-people-want-to-discuss-social-political-issues-at-work-and-call-for-companies-to-support-their-views/.

2. "Gartner HR Research Finds 68% of Employees Would Consider Leaving Their Employer for an Organization That Takes a Stronger Stance on Societal and Cultural Issues", *Gartner*, March 3, 2021, accessed August 31, 2021, https://www.gartner.com/en/newsroom/press-releases/2021-03-04-gartner-hr-research-finds-sixty-eight-percent-of-employees-would-consider-leaving-their-employer-for-an-organization-that-takes-a-stronger-stance-on-societal-and-cultural-issues.

3. Holly Muscolino et al., "IDC FutureScape: Worldwide Future of Work 2020 Predictions", International Data Corporation, October, 2019.

THERE ARE INTERNAL AND EXTERNAL EXPECTATIONS FOR ORGANISATIONS TO TAKE A STANCE ON SOCIO-POLITICAL ISSUES AS WELL AS EXPECTATIONS ON SENIOR LEADERS TO KNOW HOW TO NAVIGATE AND GUIDE STAFF ON WHAT THE ORGANISATION VALUES.

Third, researchers and experts see a blurring of lines between the personal and professional spheres. Many individuals within organisations are now unafraid of voicing differing views and opinions about what they value and stand for. There are also internal and external expectations for organisations to take a stance on socio-political issues as well as expectations on senior leaders to know how to navigate and guide staff on what the organisation values (e.g., how the organisation views gender representation, data transparency, or climate change and environmental issues). Research also shows that an organisation's support for certain social movements, which is often associated with their staff or leaders' support for specific causes, can enhance their public image and that of their products and services.[6] L&D has a role in helping workers at every level pick up the competencies

needed to negotiate this new, complex, and potentially fraught landscape.

A fourth trend is that learning is becoming a central piece of career and organisational development, moved by the same technological forces that shape how business is being conducted.[7] With online platforms, deeper personalisation and better user experience becoming commonplace in daily life, it is unsurprising that learners expect the same conveniences from their learning experiences as well. Private sector learning providers are increasingly streamlining their platforms and offerings, while data-driven machine learning and artificial intelligence (AI) are offering new opportunities to identify, predict and support the needs of learners. Learning and development in the public sector must keep up with these technological advances.

LEARNING IS BECOMING A CENTRAL PIECE OF CAREER AND ORGANISATIONAL DEVELOPMENT, MOVED BY THE SAME TECHNOLOGICAL FORCES THAT SHAPE HOW BUSINESS IS BEING CONDUCTED.

Most L&D teams are only beginning to reap the benefits of these new opportunities. Here, the pandemic has been an accelerator, prompting a rapid rise in digital adoption rates along with increased leadership focus on capability development to help staff manage disruption and adapt to new organisational needs.[8, 9]

But the playing field is not level, even in the public sector: resource-rich agencies with enough critical mass can invest heavily in these areas, while smaller agencies that run on leaner budgets are forced to make tough trade-offs between keeping operations afloat and supporting L&D efforts. Because these efforts are increasingly recognised as being crucial for the sustainability and longevity of organisations, L&D teams are pressed to seek out solutions for their organisations. These solutions are likely to differ greatly between organisations, but because of this pressure, L&D teams are at risk of being trapped in a 'firefighting' stance of reacting to ever-changing organisational learning and development demands, instead of approaching their agency's needs in a strategic and forward-looking manner.

Given these intersecting trends, it is critical for L&D leaders, practitioners and teams within public sector agencies to take stock of and define the role that they can play in shaping the future of their organisations. L&D teams could look first to their own development, experimenting on and among themselves with the approaches they hope to apply more broadly in their organisations, tapping on the wider L&D community for support, and striving to be on the leading edge of strategic decision-

making in their own organisations. Organisational leaders must also complete the equation by supporting and allying with their L&D teams so that their agencies can be well-prepared in light of emerging shifts.

Shaping the Future: Four Key Steps

With these four trends and their challenges in mind, a community of L&D leaders and practitioners in Singapore[10] have discussed and proposed several ways in which L&D teams in the Public Service should respond, broadly focusing on four key steps:

STEP 1
Establish a Strategic Voice in the Organisation

STEP 2
Champion the Human: People and Talent

STEP 3
Nurture a Healthy Organisational L&D Culture

STEP 4
Redefine What Learning Looks Like in Organisations

Establish a Strategic Voice in the Organisation

The L&D community was united in its assessment that L&D teams need to exercise a strategic 'voice' to influence organisational strategy. To wield this voice with authority, L&D teams must be familiar with and well-informed about the organisation's existing workforce capacity. They must be able to distinguish potential bright spots ripe for capacity building from those where 'borrowing or botting' strategies are more fitting. They must keep abreast of advances and trends in learning that might accelerate capacity

L&D TEAMS NEED TO EXERCISE A STRATEGIC 'VOICE' TO INFLUENCE ORGANISATIONAL STRATEGY...THROUGH THE LENS OF CURRENT AND POTENTIAL CAPABILITIES.

development in their organisation. With a well-honed understanding of current and emerging organisational challenges and opportunities, L&D teams will be better able to offer a view of organisational strategy through the lens of current and potential capabilities.

As with almost every facet of a contemporary organisation, the ability to influence organisational strategy, especially when there are competing demands and considerations, will depend substantially on the quality of data and data analysis that is at hand. Data about current workforce profile and capacity, potential returns on capacity development investment, and an understanding of organisational needs are all examples of factors that could determine organisational strategy and direction if properly considered by L&D teams. However, this means that L&D teams must grow their current data collection, management and analytics abilities, and perhaps even do so ahead of the rest of their organisation.

Champion the Human: People and Talent

While talent development has always been a key driver of organisational strategy, the fact is that the worker-employer relationship has changed, as the key trends above indicate. L&D teams must champion the human in the system: continually remind their organisations that employees should be valued and invested in, beyond

their immediate utility to the organisation.

The concept of 'stewardship of the whole person' resonates strongly with the L&D community. This is the idea that L&D teams are bestowed the privilege of supporting the development of employees beyond the needs of their

current vocation, and should equip them with the necessary competencies to navigate the future successfully and be resilient in the face of change. It is recognising that employees have the potential to contribute their talents to benefit the wider community and economy, and organisations should develop their human resources with this in mind, regardless of their current or potential tenure with their current organisation. Organisations that fail to see themselves as corporate citizens of the society they operate in and structure themselves in a way that allows for skilled workers to permeate in

and out easily, run the risk of devaluing their brand and being seen as a less desirable employer.

EMPLOYEES HAVE THE POTENTIAL TO CONTRIBUTE THEIR TALENTS TO BENEFIT THE WIDER COMMUNITY AND ECONOMY.

Nurture a Healthy Organisational L&D Culture

Leaders at every level play a significant role in setting the organisational context and culture of learning.[11] L&D teams must continually draw their top leadership's attention to L&D priorities, and gain their active support for a visible and well-articulated organisational L&D culture. L&D teams should also work with line leaders

across the organisation to secure their buy-in and commitment, as these are hugely influential in communicating and implementing organisational L&D policies and programmes on the ground.

The L&D community in particular felt that there should be a review of the metrics currently used to measure learning activities and their influence in shaping L&D culture. There should be a shift from simplistic, less pertinent metrics—such as training satisfaction or training hours—towards more strategically meaningful measures, such as whether workers have received training in areas that did not exist a given number of years before. Furthermore, performance indicators meant to track learning should not inadvertently discourage favourable behaviours such as experimentation and learning from failure.

THERE SHOULD BE A SHIFT FROM SIMPLISTIC, LESS PERTINENT METRICS TOWARDS MORE STRATEGICALLY MEANINGFUL MEASURES.

Redefine What Learning Looks Like in Organisations

For organisations to benefit from the advancements and developments in the L&D field, L&D teams must continuously challenge existing practices and introduce new learning ideas and practices. Most fundamental of all is the question of what learning is or should be.

The L&D community identified three ways in which the concept of 'learning' needed to be expanded upon:

a Beyond the traditional understanding of 'learning' as what is gained through formal training, organisations need to understand that the more significant part of learning actually takes place in the flow of work. Furthermore, because of the diversity of work that employees need to take on, centrally planned cohort-based learning may become increasingly unwieldy; self-directed individually-customised learning could prove the better approach. We must also acknowledge that there are social aspects that help individuals learn and retain knowledge and skills. Creating a learning environment is therefore not only about access to training, but also about cultivating healthy learning behaviours and habits, and providing encouragement and support to apply learning.

b Beyond the traditional understanding that learning is an individual endeavour to develop individual capacity, organisations should recognise that team learning to develop team and/or organisational capacity is equally, if not more, important. As organisations increasingly rely on teams to carry out strategies and operational tasks, team learning is a "key mechanism by which learning organisations can become strategically and operationally adaptive and responsive".[12]

c Beyond the traditional understanding that each organisation is responsible for identifying and attending to its own learning needs and is reliant on itself to do so, organisations should also look to identify collective learning needs of the wider industry or ecosystem and develop their employees to meet those needs. Despite the risks and difficulties of doing so, expanding learning beyond the confines of the organisation is one of the few ways in which an organisation can keep abreast of future-oriented and far-reaching trends. This is especially true in the Public Service, where the nature of challenges is such that they cut across organisational boundaries. Partnerships among L&D teams within a shared ecosystem will be essential in creating and sustaining inter-organisational learning that can take the form, as discussed above, not just of training programmes but of collaborative projects, work exchanges, and other formats.

EXPANDING LEARNING BEYOND THE CONFINES OF THE ORGANISATION IS ONE OF THE FEW WAYS IN WHICH AN ORGANISATION CAN KEEP ABREAST OF FUTURE-ORIENTED AND FAR-REACHING TRENDS.

Conclusion

The ideas presented here imply significant shifts in how L&D is perceived and structured in public sector organisations today. Whereas L&D teams have tended to be very lean and operational in most agencies, this article suggests that the L&D function of the future would be most effective when integrated well with what are typically considered human resources (e.g., recruitment and deployment) and organisation development functions. With L&D becoming a central pillar for the sustainability and growth of an organisation, a well-supported and strategic L&D team will be instrumental in helping to shepherd organisations through a complex and fast-changing future. ■

Notes

1. 'Build, buy, borrow, and bot' is a phrase that has become popular in the HR field within the last 3 years. One example of its usage and meaning can be found here: https://www.howardgray.net/2018/12/21/build-buy-borrow-or/.

2. Ong Pang Thye and Yap Kwong Weng, "Reimagining a Post-COVID World with Agility and Resilience", *KPMG Insights* 19, May 2020, accessed August 31, 2021, https://home.kpmg/sg/en/home/insights/2020/05/thriving-in-a-post-covid-19-world.html.

3. World Bank Group, "The Changing Nature of Work", 2019, accessed August 31, 2021, https://documents1.worldbank.org/curated/en/816281518818814423/pdf/2019-WDR-Report.pdf.

4. Holly Muscolino et al., "IDC FutureScape: Worldwide Future of Work 2020 Predictions", International Data Corporation, October, 2019.

5. Susan Lund et al., "The Future of Work after COVID-19", *McKinsey Global Institute*, February 2021, accessed August 31, 2021, https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19.

6. Gia Nardini et al., "Together We Rise: How Social Movements Succeed", *Journal of Consumer Psychology* 31, no. 1 (2021): 112–145, accessed August 31, 2021, https://doi.org/10.1002/jcpy.1201.

7. One report suggests that by 2022, a third of major companies will offer agile, dynamic, and AI-driven learning pathways as primary approaches to career development and succession planning. See Note 4.

8. Lizzie Crowley, "What's Happened to L&D during the COVID-19 Pandemic and What Does It Mean for the Future? Share Your Views", *CIPD Community*, January 15, 2021, accessed August 31, 2021, https://www.cipd.co.uk/Community/blogs/b/policy_at_work/posts/what-s-happened-to-l-d-during-the-covid-19-pandemic-and-what-does-it-mean-for-the-future-share-your-views#gref.

9. Elizabeth Howlett, "Has Covid-19 Sparked an L&D Revolution?" *People Management*, June 4, 2020, accessed August 31, 2021, https://www.peoplemanagement.co.uk/long-reads/articles/covid-19-caused-learning-development-revolution#gref.

10. The authors engaged with 20 expert practitioners and authorities in the L&D field identified as forward-thinking and open-minded. These ranged from Directors to CEOs from the Public Service, private sector, NGOs, institutes of higher learning, and forums. Subsequently, the authors engaged another group of 16 Public Service L&D practitioners in positions of leadership and influence over both senior management and the working level to discuss and validate the insights and conclusions drawn from the first engagement. These ranged from Directors to Senior Directors across different sectors.

11. Matthew Smith, "Building a Learning Culture That Drives Business Forward", *The McKinsey Podcast*, April 16, 2021, accessed August 31, 2021, https://www.mckinsey.com/business-functions/mckinsey-accelerate/our-insights/building-a-learning-culture-that-drives-business-forward.

12. Amy C. Edmondson et al., "Three Perspectives on Team Learning: Outcome Improvement, Task Mastery, and Group Process", *Harvard Business School Working Knowledge*, December 11, 2006, accessed August 31, 2021, https://hbswk.hbs.edu/item/three-perspectives-on-team-learning-outcome-improvement-task-mastery-and-group-process.

by **Charmaine Lim, Mervin Loi, and Do Hoang Van Khanh**

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BREAKING DOWN BARRIERS IN BLENDED LEARNING

Nudges and other behaviourally compatible strategies could help address the challenges of learning modes that blend face-to-face and online learning.

BLENDED LEARNING—A BEHAVIOURAL CHALLENGE?

While online modes of learning have become much more prevalent in the field of corporate training, most businesses and training institutions have not abandoned traditional face-to-face modes in favour of online learning. Instead, *blended learning*—bringing the best of both online and in-person modes of learning together—has emerged as a popular approach. However, implementing blended learning for adult learners is not straightforward. Even though it enables learning to take place outside the walls of training rooms and grants learners autonomy and flexibility to learn at their own pace and time, blended learning comes with its own challenges.

The Civil Service College (CSC) in Singapore has shifted towards more blended learning in recent years, as part of its efforts to redefine learning. The flipped classroom model is a common blended learning approach used at CSC. This model 'flips' the traditional learning experience by first introducing pre-course learning materials (e.g., videos, articles) for learners to engage with in their own time, before they attend in-class sessions to discuss and apply this learning.

Similar to working adults who enrol in corporate training, CSC participants sign up for these courses on their own or are nominated by their supervisors to attend. The challenges arising from blended learning are typically associated with pre-course learning. Compared with in-class sessions, pre-course learning demands more from adult learners, because it requires them to:

- be able to learn independently without much guidance from the trainer; and

- be motivated to learn independently, and to set aside time to complete their pre-course learning.

Blended learning also assumes that all learners will easily adapt to this way of learning and that they have the opportunity (time) to complete their pre-course learning while managing work and personal commitments.

From our observations, CSC course participants have been struggling to complete their pre-course learning, with completion rates as low as 11% in some cases. This is an important issue to address, given that pre-course learning can affect learning effectiveness during in-class sessions.

A Behavioural Insights (BI) approach offers a useful lens through which to understand learners' behaviours and why they sometimes fall short of completing their pre-course learning. A team of officers from CSC's Institute of

> **COMPARED WITH IN-CLASS SESSIONS, PRE-COURSE LEARNING DEMANDS MORE FROM ADULT LEARNERS.**

Governance and Policy (IGP) and Learning Futures Group (LFG) conducted a study in 2021 to identify behavioural barriers and enablers affecting pre-course learning. Their findings suggest ways to design interventions to nudge[1] more learners to complete their pre-course learning.

UNCOVERING DIFFERENT PRE-COURSE LEARNING BEHAVIOURS

A total of 291 participants[2] from CSC's programmes responded to a poll from 17 May 2021 to 16 July 2021, which asked about their ability, motivation and opportunity to complete pre-course learning.[3]

Respondents indicated "agree", "disagree", "pass" or "undecided" on 27 statements (e.g., "I usually complete my pre-course learning"). Respondents could also contribute their own statements for others to vote on.

Using the COM-B model for behavioural change, each poll statement was designed to uncover one of the three factors (Capability, Opportunity and Motivation) of Behavioural change (see Figure 1):[4, 5]

CAPABILITY
Individual's capability in performing a behaviour (e.g., knowledge, skills).

OPPORTUNITY
External factors (e.g., physical and social environment) beyond the individual that affect their behaviour.

MOTIVATION
Internal cognitive processes (e.g., evaluating when making plans, emotions, impulse) that affect their behaviour.
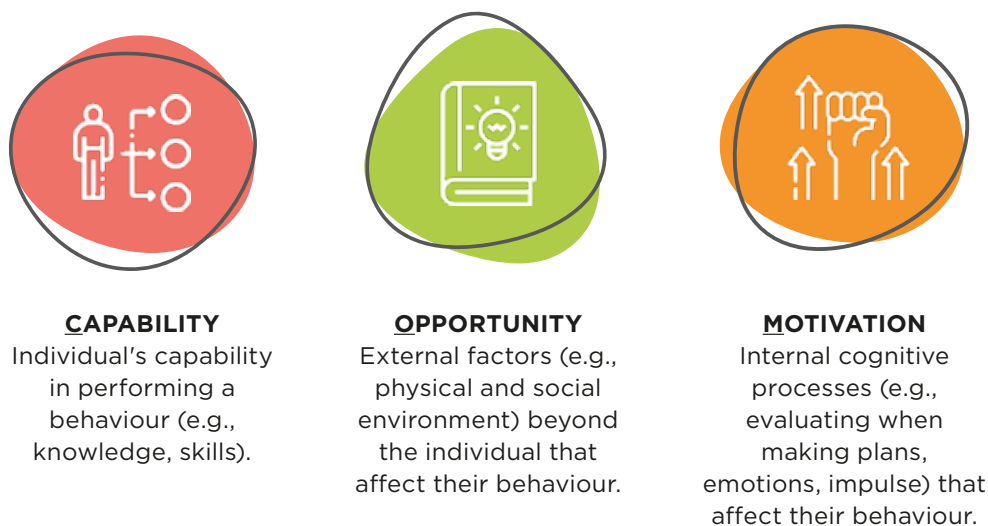
Figure 1. Overview of the COM-B Model for Understanding Behaviour

Source: Figure adapted from S. Michie, M. M. van Stralen, and R. West[6]

The study identified three main opinion groups based on how likely they were to complete their pre-course learning. The *Most Likely Group* was the largest (51% of all respondents), followed by the *Moderately Likely Group* (29%) and lastly, the *Least Likely Group* (19%) (see Figure 2). Unsurprisingly, the *Least Likely Group* struggled with the most barriers from all three components of behavioural change. In contrast, the *Moderately Likely Group* faced Motivation and Opportunity barriers while the *Most Likely Group* only faced Opportunity barriers.

29%
Moderately
Likely
Group

19%
Least Likely
Group

1%
Others

51%
Most Likely
Group
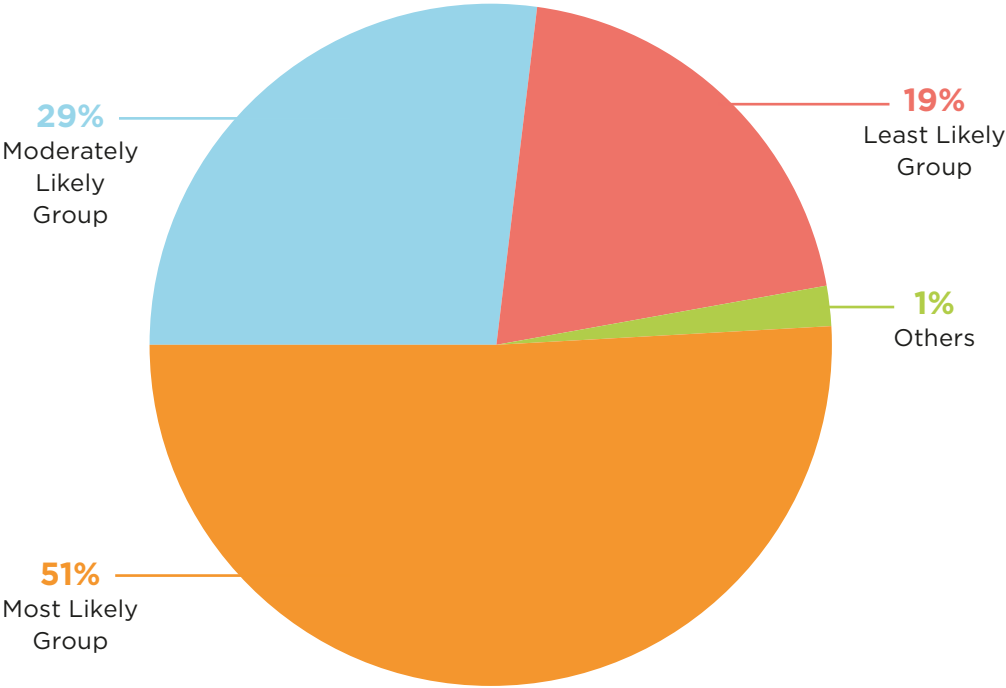
Figure 2. Opinion Groups Based on Respondents' Likelihood of Completing their Pre-Course Learning

WHAT'S STOPPING LEARNERS FROM COMPLETING THEIR PRE-COURSE LEARNING?

CAPABILITY BARRIER

1

Least Likely Group faced difficulty in learning independently.

Around half of the _Least Likely Group_ agreed that they had difficulty in learning independently, whereas majority of the _Most Likely Group_ and _Moderately Likely Group_ disagreed with that statement. It is thus important to identify learners who need greater support for pre-course learning.

OPPORTUNITY BARRIERS

2

Busyness at work, and intention-action gap are key barriers for many learners.

59% of all respondents, including most of the _Least Likely Group_ and _Moderately Likely Group_, agreed that they were too busy at work to complete their pre-course learning. This problem could be further compounded if adult learners think pre-course learning should be completed during work.

Nearly half of all respondents—including 80% of the _Least Likely Group_—forgot to start their pre-course learning despite intending to complete it. This finding suggests learners need help to narrow their intention-action gap.

3

Least Likely Group thought not completing pre-course learning was a norm.

69% of the _Least Likely Group_ agreed that there was no point in finishing their pre-course learning because many participants would not finish it. This perceived social norm could be damaging if trainers forgo discussion time to go through the pre-course learning again during in-class sessions.

MOTIVATION BARRIERS

4

Least Likely Group believed there were no consequences of not completing their pre-course learning.

71% of the _Least Likely Group_ indicated that it did not matter if they complete their pre-course learning because they believed the trainer would go through the same content during the in-class session. This perpetuates the notion that pre-course learning doesn't matter.

5 *Least Likely Group* and *Moderately Likely Group* perceived the benefits of pre-course learning to be low and the cost of completing pre-course learning to be high.

Only a minority of the *Least Likely Group* and *Moderately Likely Group* felt that they could remember what they had learnt through their pre-course learning at CSC. This perceived lack of benefit could reinforce negative perceptions of pre-course learning and lower learners' motivations.

While 70% of all respondents reported doing their pre-course learning outside working hours, a majority of the *Least Likely Group* and *Moderately Likely Group* felt that they should not do so. These findings suggest a gap between organisational expectations, which assumes learners are willing to learn in their private time, and learner's expectations, in which such learning is regarded as a personal cost.

Overall, most learners faced some forms of barriers even for the *Most Likely Group* (see Figure 1). Unsurprisingly, the *Least Likely Group* struggled with the most barriers and it was the only group with the Capability barrier.

COM-B MODEL FOR BEHAVIOURAL CHANGE

OPINION GROUPS	Capability Barrier	Opportunity Barriers	Motivation Barriers
Least Likely Group	✓	✓	✓
Moderately Likely Group		✓	✓
Most Likely Group		✓	

Figure 1. Overview of Barriers to Completing Pre-Course Learning by Each Group[1]

Source: C. Lim, M. Loi, and C. Wan

Note

1. C. Lim, M. Loi, and C. Wan, "Pre-Course Learning Study: Findings on Barriers and Enablers" (Institute of Governance and Policy and Learning Futures Group, Civil Service College, 2021).

CLOSING THE INTENTION-ACTION GAP

The CSC study found that closing the intention-action gap was a common challenge for many learners: nearly half of all respondents said that they forgot to complete their pre-course learning despite having intentions to do so. This was further compounded by busyness at work and reluctance of both the *Least Likely Group* and *Moderately Likely Group* to spend their personal time on pre-course learning.

What can be done to address these barriers to learning? The following interventions include a combination of what different teams in CSC have tried and possible nudges to change behaviour.

1 **Set deadlines for the same week to nudge learners to act "now" instead of "later"**

Tu and Soman have found that people tend to think about time in categories (e.g., week, month, year) instead of thinking about it continuously.[7] As a result, people are more likely to complete a task with a deadline set in the same week as compared to a deadline set next week, despite having a shorter time to complete it. A CSC study in 2020 found that setting the pre-course learning deadline on the Friday of the same week as the notification email was sent out contributed to increasing the completion rate of pre-course learning.

> *PEOPLE ARE MORE LIKELY TO COMPLETE A TASK WITH A DEADLINE SET IN THE SAME WEEK AS COMPARED TO A DEADLINE SET NEXT WEEK, EVEN IF THEY HAVE A SHORTER TIME TO COMPLETE IT.*

NUDGE TO LEARN:[1] AN EMAIL EXPERIMENT TO IMPROVE ONLINE LEARNING COMPLETION RATE FOR BLENDED WORKSHOPS[2]

Researchers at CSC conducted an email experiment in 2019 to study if behavioural nudges could lower participants' barriers to completing their online pre-course learning component. The experiment was carried out for participants of two different courses. They divided participants into two groups, with one (Control) group receiving a notification email with instructions for the online learning component. The other (Treatment) group received a modified notification email that included the following nudges aimed at increasing the likelihood of them completing the task:

- A "[For Your Action]" call to action was inserted in the email subject line to increase saliency that participants act after reading the email. This was especially tailored to public officers who are familiar with calls to action in email subject lines.

- The deadline was set on the Friday of the same week as when the participant received the notification email.[3] In contrast, the Control group's deadline was set to the next week, giving them more time (i.e., around two weeks) to complete their online learning.

- Only the duration for **each** online module was indicated, without showing the total amount of time needed to complete all modules. This was to lower the perceived time cost of completing the task.

Subject: [For Your Action] A Public Officer's Toolkit for Designing & Evaluating Policies and Programmes (PDE10)

1 Call to Action

PDE10 WORKSHOP 12 – 15 October 2019

Come prepared for the course by completing the following online modules by **this Friday**

2 Deadline set on same week that email was sent

1. The Policy Development & Evaluation Cycle — 15 mins
2. Problem Definition — 15 mins
3. Design Thinking — 15 mins

3 No mention of total duration of learning

Figure 1. Example of Email Sent Out to Treatment Group[4]

The experiment found that around 23% more participants in the Treatment group completed their online learning before the given deadline compared to the Control group (44% versus 21%). Furthermore, 25% more participants in the Treatment group than Control group participants completed the online learning before the workshop (88% versus 63%).

Notes

1. LEARN is the Civil Service College's digital learning app for public officers in Singapore.
2. C. Lim, M. Loi, and H. V. K. Do, "Nudging a Higher Completion of Pre-Course Online Assignments for Blended Learning" (Institute of Governance and Policy, Civil Service College, 2020).
3. To minimise possible negative sentiments from participants, we sent them an email one week before the treatment email to only inform that they will receive an email the following week with pre-course learning instructions.
4. See Note 2.

2 **Send email reminders but keep them as simple as possible**

It was evident from the 2021 CSC study that learners needed help to narrow their intention-action gap. Furthermore, 59% of all respondents indicated that they needed regular reminders to complete their pre-course learning. Sending simple regular email reminders could help participants narrow this intention-action gap.

SIMPLE EMAIL REMINDERS WORK BEST

An experiment conducted by Iryna Nikolayeva et al. in a blended university course setting tested the effectiveness of sending weekly email reminders to help students overcome procrastination and complete their quizzes. Students were randomly assigned to the control condition (no email) or one of the treatment conditions, with different email content (such as the level of personalisation).

The study found simple non-personalised email reminders ("*Hello, as a reminder, the next deadline for quizzes is on the DD/MM/YY! You can view them here <Link>. All the best for future work!*") to be effective in helping students complete more quizzes throughout the course.

Furthermore, the simple non-personalised reminders were more effective than complex personalised reminders (which included the student's name, reminder, a summary of the student's recent results, advice to seek support from peers and teachers, and a reflection exercise). The researchers hypothesised that providing students with too much information demotivates them from taking action.[1]

Note

1. I. Nikolayeva, A. Yessad, B. Laforge, and V. Luengo, "Does an E-mail Reminder Intervention with Learning Analytics Reduce Procrastination in a Blended University Course?" *Addressing Global Challenges and Quality Education. EC-TEL 2020. Lecture Notes in Computer Science* 12315 (2020): 60–73, https://doi.org/10.1007/978-3-030-57717-9_5.

3 **Set aside time during the workshop for pre-course learning**

Not every learner has the privilege to learn in their own time even if they want to. Trainers could set aside protected time for adult learners to complete their pre-course learning during working hours, especially if the learning is primarily for work purposes. Learners would still have some autonomy to learn at their desired pace within the time provided during the workshop, without using their personal time to do so. In the 2021 CSC study, 73% of all respondents agreed that there should be protected time for pre-course learning.

When several CSC programmes incorporated this approach, participants were observed to put in more effort in completing their pre-course learning compared to having them finish the pre-course learning in their own time.

HELPING *LEAST LIKELY GROUP* COMPLETE THEIR PRE-COURSE LEARNING

Unlike the other groups of learners, the *Least Likely Group* faced additional barriers. A number of behavioural interventions offer possible ways to address these.

1 Use social norms

Social norm nudges could be used to encourage the *Least Likely Group* to complete their pre-course learning, since they tend to be influenced by how they think others behave.

SOCIAL NORMS ARE MORE EFFECTIVE THAN SIMPLE CALL-TO-ACTION MESSAGES

A published 2021 study on a leading Massive Online Open Courses (MOOCs) platform in China sought to determine the effectiveness of call-to-action messages on MOOCs users' completion of course assignments before the due date. Four types of call-to-action messages were tested:

1. **Simple reminder.** Students were notified about the start of their assignment and encouraged to submit their assignment as soon as possible.

2. **Deadline reminder.** On top of the simple reminder, students were also informed of the assignment's due date.

3. **Social norm.** On top of the simple reminder, the message also mentioned the proportion of the student's peers who had completed the assignment thus far.

4. **Financial incentive.** On top of the simple reminder, students were notified that they would be entered into a lottery to stand a chance of winning an unspecified monetary gift if they complete the assignment on time.

The social norm nudge significantly increased the probability of participants completing the assignments before the deadline compared to the simple reminder.[1]

Note

1. N. Huang, J. Zhang, G. Burtch, X. Li, and P. Y. Chen, "Combating Procrastination on MOOCs via Optimal Calls-to-Action", *Information Systems Research* 32, no. 2 (2021): 301–317, https://doi.org/10.1287/isre.2020.0974.

2 Highlight the consequences of not completing pre-course learning

A majority of the *Least Likely Group* indicated that they did not remember much of what they learnt through CSC's pre-course learning and believed there were no consequences for not completing it. More learners may complete their pre-course learning if we highlight the consequences of not doing so (e.g., "without finishing your pre-course learning, you will find it difficult to understand what is taught in the course") instead of the gains (e.g.,"completing the pre-course learning will help you understand what is taught in the course").

Research in other educational settings has shown that highlighting losses (consequences) is effective in improving learning outcomes. This is due to a behavioural bias called loss aversion, which refers to a tendency for people to react more strongly to losses over gains of the same amount.[8]

LOSS AVERSION INCREASES THE PERFORMANCE OF UNIVERSITY STUDENTS

Between 2015 and 2016, Associate Professor Ben Smith and his colleagues conducted an experiment in a US university involving 217 students to determine if loss aversion can be used to improve students' performance.

Students in the control group began the term with 0 points and were awarded points after completing assignments or exams. Students assigned to the treatment group began the term with the maximum possible points, with points deducted for each error.

After accounting for factors such as their gender, age, and overall Grade Point Average, students in the treatment group saw significant improvement in their final score compared to control group peers.[1]

Note

1. B. O. Smith, R. Shrader, D. R. White, J. Wooten, J. Dogbey, S. Nath, M. O'Hara, N. Xu, and R. Rosenman, "Improving Student Performance through Loss Aversion", *Scholarship of Teaching and Learning in Psychology* 5, no. 4 (2019): 278–288, https://doi.org/10.1037/stl0000149.

3 Improve self-regulation

Research has shown that learners with higher levels of self-regulation (e.g., recognising that learning is their personal responsibility) learn more effectively in a flipped classroom.[9, 10]

Of all the barriers faced by the *Least Likely Group*, their challenge of learning independently is most worrying. They may find it difficult to self-regulate and make adjustments to their learning process to achieve learning goals.[11] Not all learners are homogeneous; we need a better understanding of this group's challenges to implement pre-course learning better.

SELF-EFFICACY AND HELP-SEEKING STRATEGIES AFFECT SELF-REGULATION

A study published in 2018 by Sun et al. sought to determine the self-regulatory factors affecting learning achievement in a flipped undergraduate Mathematics course of a US university.

Students with stronger belief in their ability (self-efficacy) in mathematics had better metacognitive (strategies to process information during learning) and environmental strategies (strategies to learn in a conducive environment). Highly self-efficacious students were also more likely to obtain higher achievements in their pre-class and in-class learning.

The study also found that help-seeking strategies had a positive effect: students who sought more help from others obtained higher grades for their pre-class learning. For better learning outcomes, the researchers suggested providing a platform for students to seek help from peers and trainers, and encouraging a culture where students were more comfortable seeking help from each other.

Building a student's confidence in the subject area, as well as providing positive feedback on their progress and letting students observe how others solve the problems, were suggested as ways to increase student self-efficacy.[1]

Note

1. Z. Sun, K. Xie, and L. H. Anderman, "The Role of Self-Regulated Learning in Students' Success in Flipped Undergraduate Math Courses", *The Internet and Higher Education* 36 (2018): 41–53, https://doi.org/10.1016/j.iheduc.2017.09.003.

CONCLUSION

Strategies to improve blended learning have been traditionally focused on designing the learning experience, curating the content of pre-course learning and paying attention to how it complements in-class sessions for blended learning. What actually goes into the implementation of pre-course learning has been given less attention. This is sometimes due to our assumptions of what pre-course learning should be (e.g., participants learning flexibly in their own time) and assumptions we have about adult learners (e.g., they can adapt easily to be independent learners).

The 2021 CSC study prompts us to rethink these assumptions and question if current approaches of blended learning are set up for the best outcomes, given the expectation of learning outside of work and the difficulties of balancing work and personal commitments. We should be aware that some adult learners need more help to learn independently: solving this problem is not only about their motivation but their capability as well. Even those with high motivation need help to follow through with their intentions.

For better outcomes, pre-course learning needs to be implemented in a behaviourally compatible way. It is only when we break down the behavioural barriers to pre-course learning and find ways to improve the implementation, that working adult learners can fully benefit from the blended learning model. In this regard, behavioural interventions could make a difference. ◼

Notes

1. Nudges are ways to design the context or choice environment to influence people's behaviours in a predictable way, while preserving their freedom of choice.

2. 95% of the respondents were Singapore public officers and 5% were overseas participants.

3. This poll was set up on OPPi, a platform that uses Artificial Intelligence to analyse the results. OPPi uses machine learning and advanced statistical techniques to identify and cluster opinion groups based on how similar or different respondents vote. More information on their methodology can be found on their website: https://www.oppi.live/faq.

4. S. Michie, M. M. van Stralen, and R. West, "The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions", *Implementation Science* 6, no. 42 (2011), https://doi.org/10.1186/1748-5908-6-42

5. The Behavioural Insights Team, "Barrier Identification Tool", https://www.bitbarriertool.com, n.d., accessed August 4, 2021.

6. See Note 4.

7. Y. Tu, and D. Soman, "The Categorization of Time and Its Impact on Task Initiation", *Journal of Consumer Research* 41, no. 3 (2014): 810–822, https://doi.org/10.1086/677840.

8. Aurora Harley, "Prospect Theory and Loss Aversion: How Users Make Decisions", *Nielsen Norman Group*, June 19, 2016, accessed September 21, 2021, https://www.nngroup.com/articles/prospect-theory/.

9. C. L. Lai and G. J. Hwang, "A Self-Regulated Flipped Classroom Approach to Improving Students' Learning Performance in a Mathematics Course", *Computers and Education* 100 (2016): 126–140, https://doi.org/10.1016/j.compedu.2016.05.006.

10. G. S. Mason, T. R. Shuman, and K. E. Cook, "Comparing the Effectiveness of an Inverted Classroom to a Traditional Classroom in an Upper-Division Engineering Course", *IEEE Transactions on Education* 56, no. 4 (2013): 430–435, https://doi.org/10.1109/TE.2013.2249066.

11. P. R. Pintrich, "The Role of Goal Orientation in Self-Regulated Learning", in *Handbook of Self-Regulation*, eds. M. Boekaerts, P. R. Pintrich, and M. Zeidner (Academic Press, 2000), 451–502, https://doi.org/10.1016/B978-012109890-2/50043-3.

LEAD BY LEARNING IN A DIGITAL WORLD
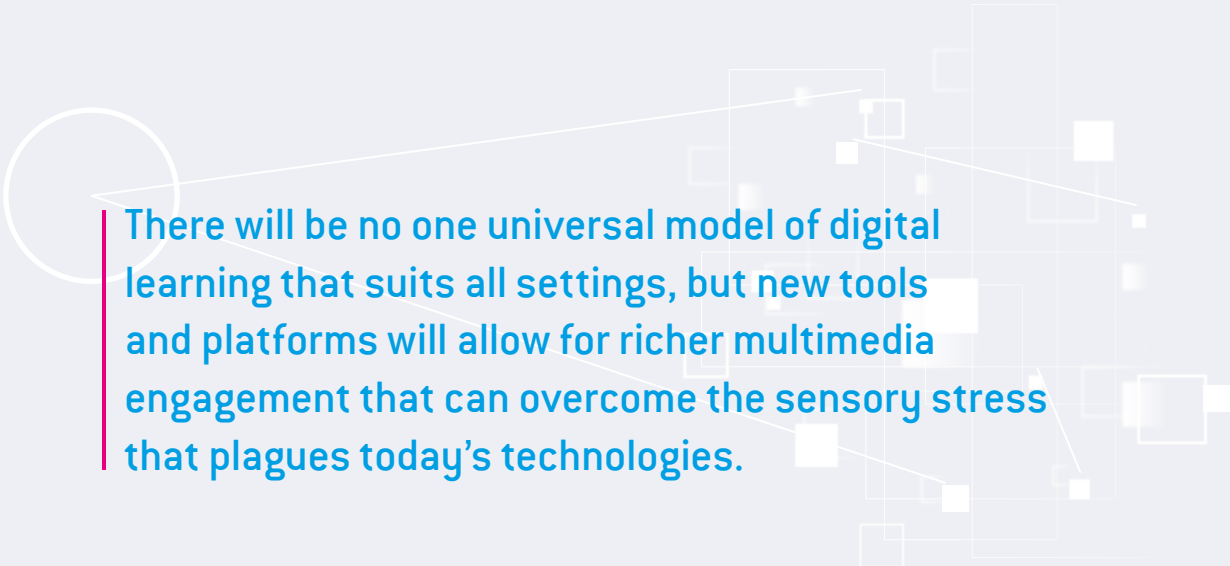
by **N. Venkat Venkatraman**

In a future shaped by transformative digital advances, leadership calls for curiosity and the discipline to learn about and through rapid change.

N. Venkat Venkatraman is the David J. McGrath Jr. Professor of Management at Boston University Questrom School of Business and the author of *The Digital Matrix: New Rules for Business Transformation through Technology.* He is a widely cited author for his research at the intersection of strategy and digital technologies. He has previously taught at MIT Sloan School of Management and London Business School.

> There will be no one universal model of digital learning that suits all settings, but new tools and platforms will allow for richer multimedia engagement that can overcome the sensory stress that plagues today's technologies.

It's a truism that the pandemic has upended many facets of how we live, work, play, interact, learn, innovate, transact, and govern. As we define the new rules of engagement for the post-pandemic world, one thing is clear: digital technologies will play a significant part in defining the 'next normal'. In this article, I focus on how digital is likely to impact learning and leadership, thereby highlighting a new view of 'leading by learning'.

Let me pose three interconnected questions: (1) How can digital influence the future of learning?; (2) How can digital change leadership and what leaders do?; and (3) How will learning change leadership?

DIGITAL AND THE FUTURE OF LEARNING

Learning—characterised by high-touch, in-person, face-to-face synchronous engagement—has gone mostly untouched by digital technologies for several centuries.

The availability of computers and the global deployment of the Internet have since provided some useful tools. But over the last 18 months, in particular, we have witnessed massive, large-scale experiments of different kinds that have tested the role and efficacy of virtual instruction and remote learning with synchronous video meetings and asynchronous study materials.

While the jury is still out on the efficacy of remote learning for kindergarten to high school education—which still rely on personalised coaching—there are encouraging signs that the collegiate and higher levels of education could pivot to a hybrid model of learning that can take advantage of digital technologies. When we finally capture the lessons and experiences from the many different hybrid modes, we will start to develop new principles of learning enabled by digital functionality. There will be no one universal model of digital learning that suits all settings, but new tools and platforms will allow for richer multimedia engagement that can overcome the Zoom fatigue and

sensory stress that plague today's technologies. Just imagine how we could have managed learning if this pandemic occurred in 2001 or 2011—the state of digital technologies back then could not have allowed us to do a fraction of what we have done so far. Looking ahead to 2030, we can start to see how new technologies—such as augmented reality, virtual reality, artificial intelligence, machine learning combined with powerful computers and personal devices, fast broadband and 5G/6G cellular connectivity, and cloud functionality—could create new modes of learning.

Digital learning innovations are becoming mainstream, with enterprises such as Coursera, Udacity and 2U (with edX) in the US, Yuanfudao in China, Byju's in India, and others introducing compelling value propositions that compete with and complement traditional academic models and institutions. What's clear is that learning will no longer be confined to the hallowed halls of university campuses with instructions delivered by 'sages on stages'. Learning will be unbundled, with more options for

personalisation than ever before. It will be defined by not only degree certificates from accredited global universities, but also certificates and badges from a broad range of entities such as Amazon, Microsoft, McKinsey, and LinkedIn. Building on Google's mission "to organise the world's information and make it universally accessible and useful", new companies such as Coursera have sprung up with a mission to "provide universal access to world-class learning so that anyone, anywhere has the power to transform their life through learning".[1]

The future of learning will be paved by digital foundations enabling personalised options for exploring a multitude of ways to acquire skills and knowledge.

DIGITAL AND THE ROLE OF LEADERSHIP

Even before the current pandemic, digital technologies had started to influence how leaders lead. In my research, I have found that the single

Digital transformation is not incremental changes to using technology to improve products, processes, and services: it calls for leaders to shift resources away from what made them successful in the past towards what's likely to make them successful in the future.

biggest challenge faced by companies and institutions is how to transform their organisations to survive and thrive in a post-industrial world. This calls for leaders to recognise the limitations of the processes and practices perfected in the industrial world, and to develop new rules and routines with dig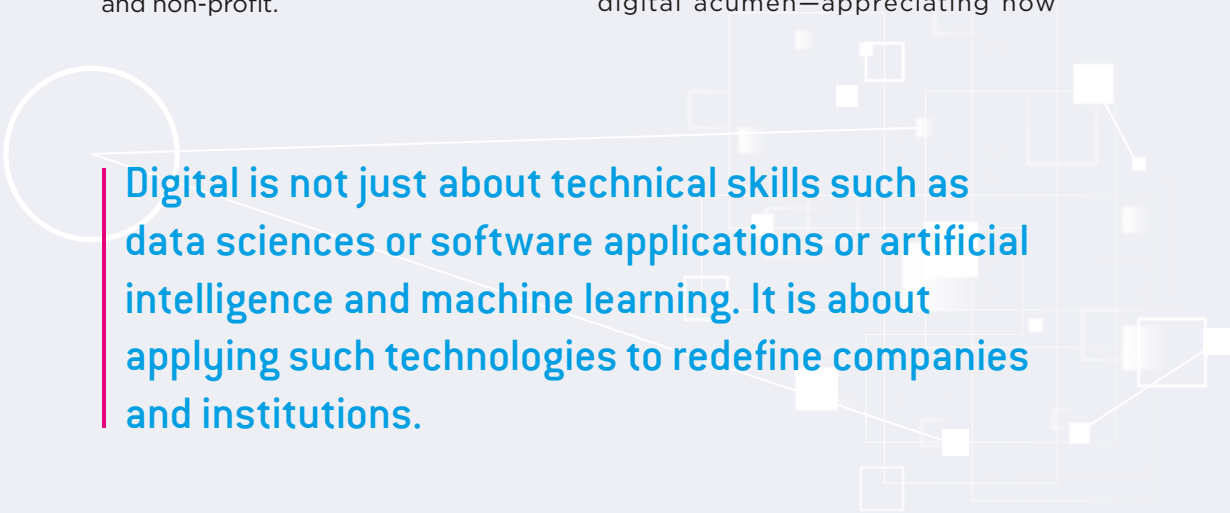ital at the core. Digital transformation is not incremental changes to using technology to improve products, processes, and services: it calls for leadership to deal with ambiguity and uncertainty on an unprecedented scale; it calls for leaders to shift resources away from what made them successful in the past and reallocate towards what's likely to make them successful in the future. Leaders that succeeded during an era of relatively predictable shifts find themselves at a loss dealing with situations where the future is clearly not to be extrapolated from past patterns.

Astute leaders recognise that digital is not just about technical skills such as data sciences or software applications or artificial intelligence and machine learning. They understand that digital transformation is about applying such technologies to redefine their companies and institutions—private and public, profit and non-profit.
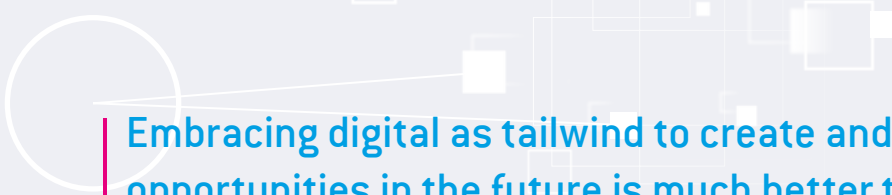
I have observed many leaders that have preferred to delegate responsibilities for digitalisation to the different functions—marketing for customer engagement, operations for product design and supply chain, information technology function for designing the end-to-end processes and so on. In nearly all cases, such companies then found themselves at a disadvantage because their deployment of digital technologies became fragmented and uncoordinated.

In this decade, leaders must first and foremost recognise that digital is the lingua franca of business and society. We cannot lead without understanding how digital impacts and influences how individuals behave (as employees, customers, and citizens), how individuals interact, collaborate, and co-create with others (in teams and in society) and how organisations and institutions function to deliver distinct value with utmost efficiency to individuals and society. Digital is pervasive today and will be more so in the future.

Leaders at all levels should develop digital acumen—appreciating how

Digital is not just about technical skills such as data sciences or software applications or artificial intelligence and machine learning. It is about applying such technologies to redefine companies and institutions.

> **Embracing digital as tailwind to create and capture opportunities in the future is much better than treating it as headwind and suboptimising to maintain status quo.**

technology is likely to disrupt and create new ways to deliver value that would have been unthinkable and unimaginable one or two decades ago. This also demands that leaders develop a more holistic understanding of the risks and rewards that digital poses—including privacy, security, job displacement through automation and AI, and others—and identify ways to minimise and mitigate potential risks. Embracing digital as tailwind to create and capture opportunities in the future is much better than treating it as headwind and suboptimising to maintain status quo.

LEARNING AND LEADERSHIP

US President John F. Kennedy, in his prepared remarks for the undelivered speech on the day he died, noted that "leadership and learning are indispensable to each other".[2] Today, digital is the catalyst that drives both learning and leadership. In my interactions with students and executives over the last decade, I have found that young aspiring executives are drawn to be led by those with a passion to learn; to work for those with a profound curiosity to know why (not just facts

but the underlying rationale); to be guided by those that are prepared to pose profound questions rather than half-truths and myths that are more readily discredited by data and analytics.

Digital now allows leaders to know deeper than just the facts; it offers opportunities for leaders to run disciplined, data-based experiments rather than rely on pat answers or rules derived by benchmarking imperfect comparisons. Professor Richard Feynman is widely attributed to have said: "I would rather have questions that can't be answered than answers that can't be questioned".[3] Adapting his thinking, I have often highlighted and emphasised to the managers that I work with to "judge a leader by the questions that drive them rather than the answers they preach". The reason is simple—under fast-changing conditions, yesterday's successful answers may not be the right ones for tomorrow. But more important is that, in not taking the time to frame the right question under transformative conditions (fuelled by digital technologies), leaders are more apt to be following the wrong answers to the wrong questions.

Leaders that are disciplined by learning are not limited by their current knowledge but are drawn to know more—they are

In not taking the time to frame the right question under transformative conditions (fuelled by digital technologies), leaders are more apt to be following the wrong answers to the wrong questions.

profoundly curious and are dissatisfied with the status quo. They become adept at connecting the dots—often across different disciplinary boundaries. They constantly ask—for example: how could XYZ be enhanced by digital technologies? What further developments in digital technologies could make ABC economically viable? What are the second-order consequences of latest developments in artificial intelligence and robotics? Since answers to such questions are typically unknown (but not unknowable), they are prepared to run disciplined experiments to learn deeper and faster than their competitors. Such leaders are more likely to be persuaded by data and analytics than by data-free assertions of charismatic colleagues. Such leaders embrace learning as a routine and are not content to just work with the 'known knowns'—things we are aware of and understand, but are excited to explore the frontiers of 'known unknowns'—things we are aware of but don't understand, and 'unknown knowns'—things we aren't aware of, but understand.[4] Leaders with a learning mindset continuously seek knowledge about occurrences and impacts of

key events so that they can be better prepared.

We are at an interesting inflection point: old models of management and organisations are showing their age, yet new models haven't been well defined and articulated. Leaders recognise the limitations of relying on an old playbook perfected during the apex of the industrial age, yet the new playbook for the digital age hasn't yet been written. The only way to lead during this transition phase is through learning. The good news is that learning is not restricted to certain years of one's life but is now lifelong, provided there is appetite and curiosity. The good news is also that the pandemic has shown the importance of digital tools and platforms to make learning personalised and contextual. The real challenge is to create the right conditions where every human develops the discipline and routines to constantly learn new skills and knowledge to solve the many profound challenges in the world. In this environment, leaders are not defined by status or stature, but by how they inspire others to learn and better themselves. ■

> **The real challenge is to create the right conditions where every human develops the discipline and routines to constantly learn new skills and knowledge.**

Notes

1. See https://www.google.com/search/howsearchworks/mission/.

2. John F. Kennedy Presidential Library and Museum, "Remarks Prepared for Delivery at the Trade Mart in Dallas, TX, November 22, 1963 [undelivered]", accessed September 26, 2021, https://www.jfklibrary.org/archives/other-resources/john-f-kennedy-speeches/dallas-tx-trade-mart-undelivered-19631122.

3. Wikiquote, "Talk: Richard Feynman", accessed September 26, 2021, https://en.wikiquote.org/wiki/Talk:Richard_Feynman.

4. For those interested in knowing more about this idea that Donald Rumsfeld popularised during the Gulf War, please refer to https://medium.com/@andreamantovani/known-knowns-known-unknowns-unknown-unknowns-leadership-367f346b0953.

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THROUGH THE LOOKING-GLASS:

THREE WAYS ADVANCEMENTS IN ARTIFICIAL INTELLIGENCE WILL CHANGE LEARNING & DEVELOPMENT

by **Michael Chew, Hoe Wee Meng, and Kelvin Tan**

Artificial intelligence could soon transform learning by augmenting human empathy and judgement with rich, context-sensitive information.

BACKGROUND: AI IS CHANGING EVERY ASPECT IN PUBLIC SERVICE

Singapore's Digital Government Blueprint,[1] recently revised in 2020, has set out a strategic plan to use data, connectivity, and computing to improve how every agency operates, delivers services, and engages stakeholders. Artificial Intelligence (AI) plays a big role in this plan, holding the promise of making public services seamless and integrated for our citizens.

AI also has the potential to transform Learning and Development (L&D), the field for which the Civil Service College (CSC) is the lead public sector agency, by offering new affordances brought about through advances in AI, Machine Learning and Deep Learning. Singapore's general- and higher-education sectors have outlined plans to personalise learning as part of the national push to use AI in the National AI Strategy, launched in 2019.[2] While the education sector is on track to meet their goals, L&D functions in government—and adult learning in general—could benefit from AI-related concepts such as adaptive learning. With the COVID-19 pandemic accelerating the pivot to digital means for work and learning, it is timely to reimagine how learning could be in the Public Service.

We believe AI-driven shifts in learning can happen in three ways, following three commonly known conceptual models of AI in education: *from Creating to Curating* in the **Domain** model, *from Seeing to Knowing* in the **Learner** model, and *from Prescribing to Recommending* in the **Pedagogical** model.

FROM CREATING TO CURATING—AI AND THE DOMAIN MODEL

AI can be used to describe particular fields of knowledge in the form of a domain model, which typically consists of a web of 'knowledge points' that are related to each other in some way. Domain models might use mathematical concepts like combinatorics and stochastic processes to define and track these 'knowledge points', which are the smallest possible conceptual blocks of values, skills or knowledge. Traditionally, these are defined by experts and

> While there is great potential in using AI to codify well-defined knowledge, it is best used for less complex skills.

WHAT WE MEAN BY AI
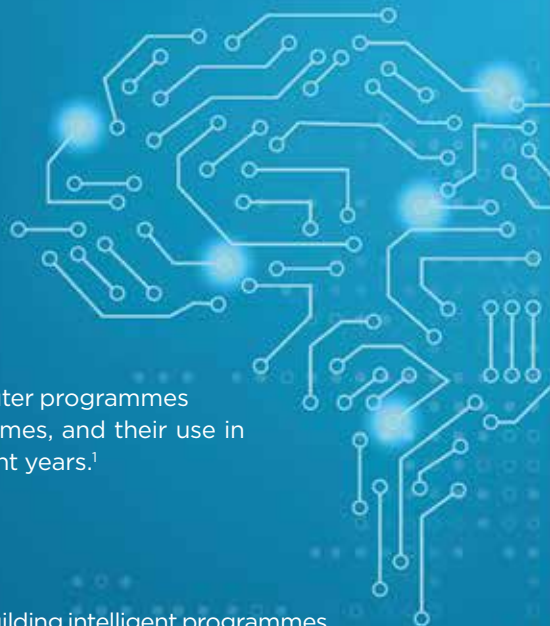
What is AI?

AI, or Artificial Intelligence, is a general term for computer programmes that can sense, reason, adapt and act. Such programmes, and their use in real-world applications, have advanced rapidly in recent years.[1]

What made it popular in the recent decade?

AI has been researched since the 1950s as a science of building intelligent programmes to solve problems (think autopilot on planes). Work on Machine Learning (ML) began in the 1980s, when statistical 'learning' algorithms started improving machine performance without being explicitly programmed (think recommended titles in Netflix). To the layperson, AI remained largely a sci-fi topic until the 2010s, when faster and cheaper computing power and an exponential increase in data availability made Deep Learning (DL) possible. Inspired by workings of the human brain, DL uses algorithms to identify and classify patterns in large amounts of data. From such analysis, programmes can then draw conclusions or take relevant actions (such as in self-driving cars).

What AI can't (and shouldn't) do...for now

Prominent researcher Yoshua Bengio has said that AI still needs to be extended "to do things like reasoning, learning causality, and exploring the world in order to learn and acquire information".[2] Largely founded on mathematical concepts like linear regression, statistics and game theory, AI is likely very good at doing specific repetitive tasks such as moving goods in a warehouse, as well as augmenting humans in more complex tasks such as detecting and treating cancer. However, it lacks empathy and other affective aspects of being human. Hence, the FATE aspects (Fairness, Accountability, Transparency, Ethics) should be addressed when planning and implementing AI, whatever the use case.

Notes

1. To better grasp the power and speed at which AI has developed, watch this recent May 2021 conversation about a learning interaction between a child and a Google dialogue model called LaMDA. Notice how human-like the programme is in the way it handles open-ended dialogue content. See https://youtu.be/aUSSfo5nCdM?t=40.

2. W. Knight, "One of the Fathers of AI Is Worried about Its Future", *MIT Technology Review*, November 17, 2018, https://www.technologyreview.com/2018/11/17/66372/one-of-the-fathers-of-ai-is-worried-about-its-future/.
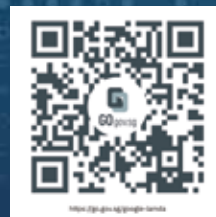
skilled domain professionals, but a recent 2020 Institute for Adult Learning report suggests that machine learning techniques can collate the appropriate materials and refine the relationships between knowledge points, based on how cohorts of learners perform on assessments.[3] This means L&D experts in future could define the curriculum for a field in the form of knowledge points, and let AI determine the strength of relationships between each of its concepts. They can also let AI pick out the materials from a library of resources that will articulate each concept. The new role for human experts could then be to monitor the domain model and curate new concepts to be added.

In L&D, the work of establishing the structure of a curriculum usually entails

selecting an appropriate curriculum model, determining appropriate standards for pre- or post-requisites, and developing the content. Most currently available adaptive learning management systems do a good job at teaching learners to acquire well-defined theoretical knowledge and concepts, but are less effective with practical curriculum tasks, such as honing the ability to reason logically or master a skill. So, while there is great potential in using AI to codify well-defined knowledge, it is best used for less complex skills on the lower end of Bloom's taxonomy (a ranking of task complexity, commonly used in education). A good example of an AI-calibrated domain model might be a job role in procurement contract management, where in-class MCQ quizzes can accurately measure a learner's competence in identifying supplier risk management strategies.

AI techniques can help curriculum designers intimately understand the relationships between skills in a competency map, thereby helping them evaluate and review the curriculum better.
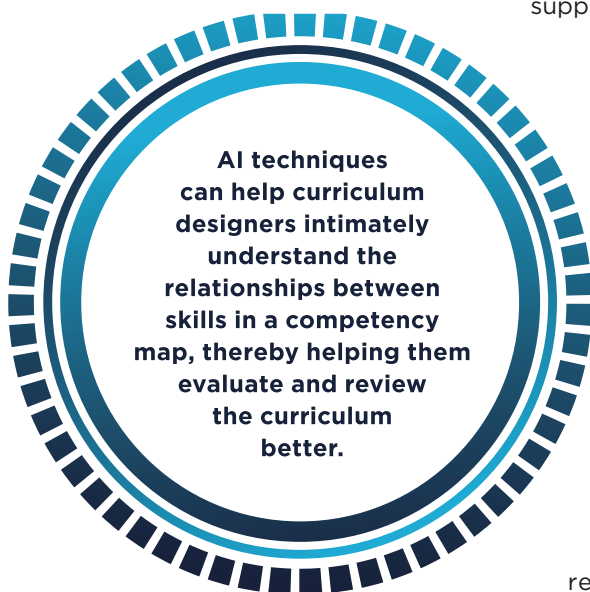
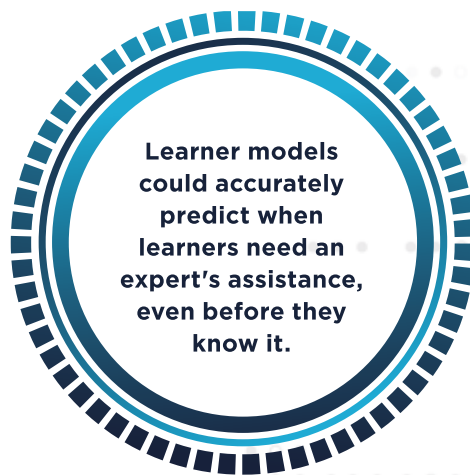How might AI refine a domain model? The model must first contain a set of matrices that map varying difficulty of assessment items to behavioural indicators. These matrices, called Q-matrices, can then be easily refined by using a combination of refinement methods. In curriculum areas where reasoning is important, especially causality, recent developments in AI show some promise in using qualitative reasoning techniques to refine

domain models where usually ill-defined logical reasoning skills are important. Put simply, AI techniques can help curriculum designers intimately understand the relationships between skills in a competency map, thereby helping them evaluate and review the curriculum better.

Of late, the lowest-hanging fruit seems to be in using AI to populate a map with content and resources. Advances in natural language understanding have given rise to a number of employee engagement platforms such as Microsoft Viva Topics (see box story on *Through the Looking-Glass*), which have enabled organisations to fuse a repository full of documents into a map of word topics, without the need for any human analyst. This helps people look for pieces of information and understand how they are related. Given a schema of competency frameworks, such systems will be able to automate the tagging of not just articles and learning objects but also existing organisational knowledge to the competency framework.

FROM SEEING TO KNOWING—AI AND THE LEARNER MODEL

AI has proven able in carrying out specific 'sensing' tasks, like identifying a person's facial expression, tone in

Learner models could accurately predict when learners need an expert's assistance, even before they know it.

text messages, pose, and even speech. However, these perceived emotions may not be entirely true. There is no convincing evidence that facial expressions reveal a person's feelings, and in fact, a *Nature* article in 2020 argues that there is "little to no evidence that people can reliably infer someone else's emotional state from a set of facial movements".[4] Nevertheless, instructors and trainers can use these and a range of other signals to better understand learners' reactions or feelings accurately in a lesson. What is so unique about this human ability that enables instructors and trainers to 'read' their learners? Is there a more objective way to do this than just gut sense?

Will we get to a point where technology can know the learner well, cognitively and socio-emotionally? Currently, the

and other telematics of their driving performance.[6] This data is used to incentivise good driver habits and for training purposes.

At present, the use cases of AI in L&D stop at diagnosis: AI neither predicts how trainers, instructors, or learners will act, nor prescribes how they should modify their actions. This might be about to change. Further into the future, DL techniques used in gait and pose estimation, for example, could enhance the accuracy of sensor systems. Along with an expert-informed tagging of already-collected multimodal data in more aspects other than those mentioned, we could see a day when learner models can accurately predict when learners need an expert's assistance, even before they know it, and even inform them with a high degree of certainty there is some likely error that they will make. In other words, tools used by instructors, trainers, or learners could become highly certain of a learner's knowledge state.

An AI-enabled system can intervene in a timely, contextual manner relevant to each learner.

answer is no. But when augmented with a skilled trainer, computer vision technology is surprisingly good at assessing and identifying performance issues in training simulations and situational tests. For instance, in MINDEF's Murai Urban Training Facility,[5] training areas are extensively outfitted with cameras and sensors to collect implicit learner-produced data, enabling high-fidelity after-action review sessions to accurately identify soldiers' performance gaps, and refine team strategy and tradecraft. In bus driver training, the Land Transport Authority has employed the use of Advanced Driver Assistance Systems to detect fatigue and attention of drivers by tracking eye movements

FROM PRESCRIBING TO RECOMMENDING— AI AND THE PEDAGOGICAL MODEL

AI is unlikely to ever fully replace the instructor, trainer, or coach. With the ever-expanding collection of data

in the domain model (containing values, skills, knowledge, and how they relate to each other) and the learner model (containing cognitive and socio-emotional states), an AI-enabled system can intervene in a timely, contextual manner relevant to each learner. While this would be difficult for a trainer or coach to perform for every learner all the time, they are still needed to perform tasks that humans are better at. They can read the affective cues of each learner and tailor the experience to their needs with empathy. For example, a PSD career coach could use personal interest, prior work experience and knowledge data in the LEARN app to provide tailored advice and ask more pointed questions to help the officer come to their own conclusions about their skillsets and options, coherently weaving these, along with appropriate encouragement and tact, into a meaningful career trajectory and narrative.

One of the most promising areas in AI in L&D is the personalisation of individual learning paths using a highly informed and adaptive learning management system. Adaptivity can be thought of in two ways: first, macro-adaptivity, where learners are presented with what activities, knowledge or even groups of peers they are predicted to be able to learn or learn with; and second, micro-adaptivity, where adaptive systems can intervene when necessary—if learners show signs that they might not be able to perform a required competency or skill—by providing short guidance on how to proceed. With a constant check on their prior knowledge and confidence in using the knowledge, adaptive systems could keep learners on the most efficient path to full mastery of content matter.

This idea has in fact been used successfully in general and higher education around the world,[7] but it often takes the form of adaptive *testing* rather than adaptive *learning* systems. Micro-adaptive systems are also known as Intelligent Tutoring Systems in the L&D literature.[8] They are becoming more widespread as domain models in some content areas become much better codified (for example, in many primary and secondary school mathematics syllabuses, content and assessments have been made adaptive).

Further in the future, learning companions or assistants could provide accurate answers and direct a learner to relevant resources, in their moment of learning need. Such companions could offer work-relevant links to bridge theory and practice, be personable, and create conversations where a trainer or expert cannot. An early example of such companions is Clippit, the paperclip-shaped office assistant that first appeared in Microsoft Office 97 to help users use Office features more effectively. Since then, chatbots like the one seen in Google's LaMDA (see box story on *What We Mean by AI*) have become much more capable.

THROUGH THE LOOKING-GLASS: HOW A PUBLIC OFFICER MIGHT USE THE LEARN APP IN 2025

Alice's boss asks her to relook at and streamline the current procurement processes in her agency. On a Saturday afternoon, she happens to read an article in *The New York Times* on how robotic process automation (RPA) is making finance operations more efficient.

As she reads and highlights key parts of the article, the LEARN app plug-in in her browser prompts her: "This can already be done in your agency. Click to find out how to get started or read these other related articles."

She proceeds to save these articles in her reading list in the LEARN app, where she can choose to make it 'visible to others' or 'private'. Behind the interface, the app curates a short selection of:

1. Short Coursera content on getting started with RPA (seeing that it is a new area for her, but she does know what it does and has some prior knowledge about it).

2. Other *Harvard Business Review* articles on the web and on the LEARN app that other public officers have read on this topic (seeing that she is reading an article assessed to be of advanced difficulty).

3. Short reflections/questions posted on Workplace that highlight the realities and difficulties of working with RPA bots (posts made by officers of similar seniority are selected).

4. Using the Microsoft Viva Topics service hosted on the Government Commercial Cloud (GCC), a list of recent documents on her department's Microsoft SharePoint that are related to RPA (prioritising those in the finance domain).

5. A mood meter on the current sentiments on RPA derived from Twitter and other Social Media of the day (seeing that the topic has reached substantial media saturation).

6. Other officers across the Public Service who have worked on a project that made use of RPA (prioritising those in the finance domain).

Alice gets excited and makes a post on SG-Teams to her teammates on Outlook, starting with: "Hey guys, I think I know how to reduce the procurement process by using RPA to scrape GeBIZ..." The LEARN app plug-in on M365 suggests quotes from articles she has read that she could append to her email.

Another team in Agency X then uses Miro to generate a timeline for a similar project and starts writing a task to 'explore the use of RPA' which is tagged as a to-do item. The LEARN app plug-in in Miro starts prompting the team with a note: "Alice from Agency Y has recently implemented an RPA project in a similar situation. Would you like to connect with her?"

An L&D specialist in CSC is alerted that many officers of a certain Ministry family are regularly researching and trying out RPA techniques. He writes an email to a group of officers, inviting them to informally share how they are using these tools in their work with other identified officers who are currently exploring its use. When the group comes together, the L&D specialist facilitates the conversation, knowing the materials the participants have read and drawing on their past experiences to make the discussion rich and highly relatable.

- **Can you identify the domain, learner and pedagogical models at work at the different touchpoints?**

- **What do you notice about the role of technology in each of these typical moments of work?**

- **What assumptions does this illustration make and what needs to happen for this to be a reality?**

EPILOGUE: SOME REALITIES

Much of the vision outlined above relies heavily on large swathes of data, which takes time to amass and prepare for use by ML/DL algorithms. There is also an assumption that systems are developed in line with adequate risk assessment such that they can address the ethical, FATE aspects of AI, although most risks can be mitigated by following the guidelines in the Model AI Governance Framework set out by IMDA governing AI-augmented decision-making.[9]

CSC has started work on integrating and cleaning existing data so that it can be ready to build a recommender engine. While the first iteration may be just a simple non-personalised filter of sorts for course recommendation, to be deployed on CSC's public-officer-facing learning programme portal, future iterations may use user-item interaction data to build a range of functionalities. These include Content-based filtering as data becomes cleaner and more standardised, Model/Memory-based Collaborative filtering as more users use the recommendations, or Deep Learning-based models that make the recommendations personalised as more types of data about the public officer becomes available. With a robust recommendation algorithm, informed by other data models (viz. learner and domain models) being built in the future, a truly personalised experience can be delivered to every public officer.

With time, we will get there, either sooner (with responsible and trusted access to user data and efficient AI techniques like transfer learning could shorten the time-to-market), or later (e.g., if the user privacy movement pushback is significant or learner data requires great effort to clean up for use). Even though there is generally high trust in government services, recently reported surveys have concluded, for instance, that senior citizens remain less receptive to having AI interpret medical results.[10]

It is a leap to say that public officers will react similarly to learning with and from an AI-enabled tool, but for now, the challenge remains to overcome these adjustment hurdles. In order to use such smart systems effectively, change management and professional development for L&D practitioners, learners and other stakeholders, will need to be worked through. ∎

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NURTURING
FUTURE LEADERS:

Adapting Leadership Development Approaches to a Changing Context

by **Khoo Ee Wan,
Aurora de Souza Watters,
and Suniartie Sudyono**
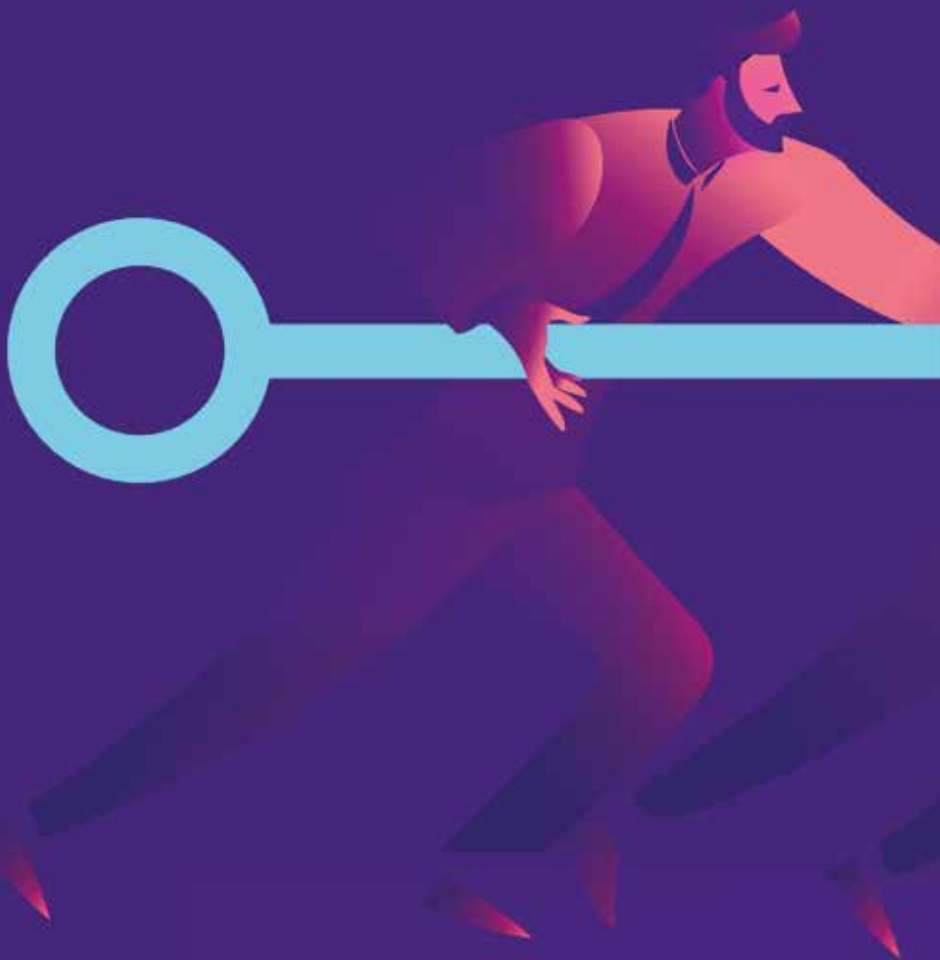
To be successful, positional leaders must learn to move from being 'hero' to 'host', providing the conditions, processes and resources for others to step up and contribute at every level.

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If leaders are judged by how they lead in context, then the business of developing public sector leaders must account for the operational and organisational environment into which they will transfer their learning. With the increasing complexity of today's challenges, however, we see a shift in the role of *positional leaders* (defined here as those formally appointed to positions of authority by the organisation), with a growing emphasis on achieving results through supporting and developing officers, and adapting the organisation to context.

Leadership development approaches will likewise have to go beyond building up the individual leader's capacity, towards nurturing the capacities of their teams and organisations. There will also need to be a focus on building new capacities that enable leaders to foster leadership and innovation in others at work.

RETHINKING THE ROLE OF POSITIONAL LEADERS

The changing context in which leaders now operate demands that organisations redefine how they think

THE CHANGING CONTEXT FOR LEADERSHIP

GREATER COMPLEXITY AND ACCELERATED CHANGE

Societies around the world are beset with an operating environment of increasing complexity, interdependence, volatility, accelerated change, and 'wicked' problems that cut across conventional boundaries.[1, 2, 3, 4] A prime example is the ongoing COVID-19 pandemic. Future challenges, such as that of climate change, will call for similar collaboration, with leaders who are able to work across disciplinary and administrative lines, with incomplete information in a dynamic situation.

KNOWLEDGE WORK IN THE INFORMATION AGE

In the Information Age, knowledge workers, including many public officers, 'think for a living'[5] and are engaged in 'non-routine' work that calls for problem-solving skills, and critical and creative thinking.[6] A different type of leadership is needed to harness the wealth of expertise in and across organisations. While leaders define the aims to be achieved, it is up to skilled officers to detail the steps needed to realise timely solutions.

about positional leaders. Our traditional conception of the '**leader-as-hero**'[1]—positional leaders as charismatic heroes who are fully in control and who provide all the plans and insightful answers—may no longer serve us well. Instead, we need to think of positional leaders as *hosts*—people who provide the conditions, processes and resources for others to come together for a common purpose in addressing a complex problem at hand. This '**leader-as-host**' perspective acknowledges that a leader does not have all the answers, but instead finds ways to access and unleash the collective intelligence and energies that reside in their teams and networks.[2]

> *We need to think of positional leaders as* **hosts**—*people who provide the conditions, processes and resources for others to come together for a common purpose.*

TECHNOLOGY-DRIVEN PARADIGM SHIFTS
Digitalisation and technological advancements have disrupted established business models, but have also surfaced new opportunities for improving public service. Leaders need the discernment and foresight to prepare their organisations to adapt and leverage these developments to enhance their operations and further the public good.

GENERATIONAL DIFFERENCES IN VALUES
A digitally native new cohort has grown up with worldviews, aspirations and motivations that differ from those of previous generations.[7] They will expect different qualities from their own leaders and are likely to enact different forms of leadership once they assume these roles.

LEADERSHIP AT ALL LEVELS
While leadership has traditionally been expected from people in appointed positions of authority, we now see it being enacted by those not in formal leadership positions but who nevertheless provide influence and direction. With ongoing transformational efforts affecting hierarchical structures and more team-based operations, leadership capability and practice now reside at every level of an organisation.

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In order to play this role well, positional leaders need to (i) sense-make and sense-give in order to provide clarity and direction, (ii) create the conditions that enable innovative and adaptive responses to emerge throughout the organisation, and (iii) work well with other leaders towards collective goals.

I SENSE-MAKING AND SENSE-GIVING

In times of complexity, leaders need to engage in sense-making to interpret and explain unpredictable or ambiguous events in their world.[3] Furthermore, they need to shape others' sense-making processes and outcomes by sense-giving: articulating a coherent, understandable and tolerable narrative of this complex reality.[4] But while leaders should provide a clear narrative in their sense-giving, it is not helpful for them to stick to a single, rigid narrative. Instead, they need to flex the narrative in order

> **While leaders should provide a clear narrative in their sense-giving, it is not helpful for them to stick to a single, rigid narrative. They need to flex the narrative in order to address the divergent concerns and priorities of those involved.**

to address the divergent concerns and priorities of those involved.[5] Successful sense-giving can rally everyone around a core purpose.

II ENABLING INNOVATION

To tap on the collective competence of their team, or of the organisation as a whole, positional leaders must create conditions that enable innovation. Positional leaders, by virtue of the formal power they hold, are well-placed to establish organisational culture, systems and processes. Taken together, leadership actions such as championing the need for change,[6, 7, 8] strengthening connections among people and organisational units for generative conversations, building a culture of psychological safety and learning,[9] and empowering staff to initiate ideas, can enable innovative responses to emerge throughout the organisation.[10, 11] In addition, positional leaders need to define the boundaries of innovation—by being clear on what the vision of the organisation is and what values should guide everyone's behaviours.

III COLLECTIVE LEADERSHIP

It is becoming increasingly clear that leaders do not work in silos. As issues become more cross-cutting and complex, leaders need to collaborate with other leaders. Senior leadership is increasingly recognised as 'collective work',[12] with the apex executive team in organisations forming an important collective entity. Thus, leaders also need to know how to work together with other leaders for the greater good.

WHAT SHOULD LEADERSHIP DEVELOPMENT FOCUS ON?

Leadership Context

As the role of positional leaders changes, leadership development approaches need to shift in tandem. We believe that leadership development should focus firstly on the **intrapersonal competencies** that enable an individual to lead himself or herself, then nurture **interpersonal competencies** that enable the individual to lead others, and hence **lead organisations**, taking into consideration the broader **leadership context**.

Figure 1. Focus of Leadership Development Competencies

LEADING SELF

In the new leadership context, positional leaders must re-examine and reconstruct their **leader identity**, i.e., what an individual defines leadership to be, and the extent to which they consider such a leader role to be an important aspect of who they are.[13] Being a leader-as-host with a more collective orientation may run counter to their implicit theory of good leadership and the individualistic leader-as-hero behaviours they are more accustomed to seeing in other leaders, and that they themselves are more comfortable displaying. Shifting this mindset is challenging as it requires leaders to reflect and introspect, and then embrace a new identity. It entails being vulnerable and being comfortable sharing power and control with others, instead of being the one with all the answers and who makes all the decisions. This can be particularly difficult if social and organisational norms continue to expect and reward those who are leaders-as-heroes. Nonetheless, as we behave in ways that are aligned with our self-identity, a mindset shift is the prerequisite for motivating positional leaders to develop new behaviours.

A core set of evergreen competencies are **meta-skills** that enable leaders to be more effective. In particular, these include having a learning orientation and being willing and able to learn from experiences. Experience is at the heart of leadership development, yet people may go through an experience without learning anything from it,[14,15] or learning the wrong lessons.[16,17]

Another focal area for positional leaders is **vertical cognitive development**— helping leaders expand their thinking and develop a more sophisticated mode of thinking that can help them grapple with the uncertainties and diversities they will face in their new role. As studies show,[18] early in our cognitive development as adults, we are inclined to see things in black and white terms, to conform to authority

and the status quo, and to seek to be aligned with others. Later on, we become more holistic and flexible in our thinking, until we advance to become independent thinkers who can see broader systems, patterns and connections. We then become more comfortable with ambiguity and better able to shift flexibly across multiple perspectives, and to adjust our opinions to account for new information. Such expanded cognitive structures contribute to the leader-as-host role, by helping leaders better harness divergent views in their team while holding a 'big picture' systems view.

Given the changing context of positional leadership, some intrapersonal competencies that have long been core to leadership development should continue to be emphasised. These include **values** that ensure the practice of leadership is underpinned by a strong moral compass and are aligned with the organisation's ethos.[19] For Singapore's Public Service leaders, this means being grounded in the principles of integrity, service and excellence. Public Service leaders need to have a stewardship mindset, so that they use their positional power to make decisions that are for the long-term collective good of the nation.[20] **Emotional competencies** that enable leaders to be aware of their own strengths and weaknesses, to be mindful of and to manage their behaviours and impact on others, will be vital to the facilitative role of leader-as-host.[21]

The many demands and stresses on leaders have never been greater, and leaders need to develop personal **resilience** to sustain their effectiveness in the longer term. This involves being able to handle pressure, to recognise and reduce the impact that stress has on oneself, and to adapt and bounce back in the face of challenging circumstances, while taking steps to maintain a stable mental wellbeing. Those able to do so will be more productive, make better decisions, have more positive energy, and have a more positive impact on the people they work with.[22] In modelling healthy resilience in the face of vulnerability and stress, leaders can also inspire their teams and organisations to do the same.

LEADING OTHERS

Leadership development will need to focus on building competence in leading others in a more distributed and facilitative manner. A **shared leadership** approach to team processes can enable a more agile and successful response to complex challenges. Leadership has shifted away from the traditional practice where control or authority resides in a single individual; it has become a dynamic social process in which influence is distributed within a team,[23] geared towards shared goals. Such a process often involves "peer, or lateral, influence and at other times involves upward or downward hierarchical influence".[24] Positional leaders must be willing to empower others to lead, and receive guidance and direction from peers and subordinates where relevant.[25] To allow this to occur, leaders must *develop leadership capabilities in their team members and create the conditions for team members to step up to the responsibility of leadership.*

To allow for the emergence of collective leadership, leaders must also work to develop **psychological safety** within their team environment. Research has shown that individuals perform more interpersonally risky behaviours (such

as asking for help, admitting mistakes or ignorance, suggesting improvements or taking initiative) when they are confident these will be taken in the right spirit and not harm their self-image, status or career.[26, 27, 28, 29, 30, 31] Furthermore, psychological safety has been positively associated with learning behaviours,[32] which is in turn conducive to **continuous learning** in an ever-changing and uncertain environment.[33]

While leaders have perhaps the most significant impact in establishing psychological safety,[34] it is not an easy task: leaders must also **hold the tension between creating safety while upholding performance**. Nevertheless, how leaders support and encourage their teams in the face of failure sets a salient example. If a leader adopts a defensive or punitive stance, team members are less likely to feel that it is safe or worthwhile to speak up, compared to a leader who welcomes questions, suggestions or challenges.[35] Leaders need to demonstrate that they are accessible to their followers, model openness and vulnerability, and in the face of failure will displace blame with curiosity, solicit input, and reward innovative thinking and ideas.[36]

LEADING ORGANISATIONS

In an increasingly complex and dynamic environment, successful organisational transformations are not the result of positional leaders dictating and pushing through their own agenda, but the outcome of leaders-as-hosts creating conditions that encourage and energise people to contribute to and grow from the transformation process. In other words, it is about "doing change with people rather than doing change *to* them".[37] Successful organisational leadership

> **Successful organisational transformations are the outcome of leaders-as-hosts creating conditions that encourage and energise people to contribute to and grow from the transformation process.**

is about knowing how to co-create a vision with others, build emotional alignment between people and the organisational agenda, establish co-ownership of organisational strategies, shape organisational culture and shared values, and provide motivation and inspiration to the entire organisation.[38]

The increasing complexity and interconnectedness of challenges will demand collaboration across organisational and sectoral boundaries. Leaders need to work collaboratively across boundaries, with a whole-of-government mindset that focuses on collective stewardship of Singapore's interests, even if they supersede organisational or personal goals. This calls for a willingness to lead or follow, to best ensure national objectives are reached. Not only must leaders internalise this identity of **collective leadership**, but they must *also role model it and promote it in their organisations, create alignment with broader mission, vision and values,* while sharing the bigger picture with their people and clarifying their place within it.

FROM DEVELOPING POSITIONAL LEADERS TO BUILDING LEADERSHIP CAPABILITIES THROUGHOUT THE ORGANISATION: RECENT APPROACHES

To promote leadership behaviours throughout an organisation beyond those in positional authority, the scope of leadership development must broaden. Leadership development interventions have traditionally focused on equipping high potential officers and existing leaders for leadership positions. Given the increasingly complex and novel nature of leadership challenges, harnessing collective talent across teams and organisations requires all staff to step up as leaders when needed, based on their unique competencies. Hence, the intrapersonal and interpersonal competencies that apply to positional leaders could also be relevant to others in the organisation, while positional leaders have the additional role of nurturing their people and creating the conditions for leadership to emerge in others.

This perspective highlights the significance of three broad trends in leadership development that have gained momentum in recent years:

1 Integrating different avenues for developing leadership, leveraging data and technology

The 70:20:10 model has been widely used to guide leadership development, with 70% of development occurring through on-the-job assignments, 20% through working with and learning from other people, and 10% through formal programmes. The ratios may vary from person to person, depending on their specific developmental needs and career stage.[39] Nonetheless, the 70:20:10 model offers a convenient

> *Positional leaders have the additional role of nurturing their people and creating the conditions for leadership to emerge in others.*

> *Leadership development can be maximised when different types of developmental experiences are integrated in a thoughtful manner, rather than pursued in isolation.*

shorthand for thinking about the different avenues for developing the leadership competencies described above.

Leadership development can be maximised when different types of developmental experiences are integrated in a thoughtful manner, rather than pursued in isolation. Challenging job assignments can trigger learning as they require individuals to build up competencies to meet the demands of a new role. Particularly during the first 6 to 12 months, when new leaders are more aware of their developmental needs and more eager to develop themselves, attending relevant formal programmes can help close competency gaps; and practising these competencies on a day-to-day basis will further build expertise.[40, 41, 42] Colleagues and peers can further catalyse learning by providing guidance, advice and feedback. They may also serve as social support to help leaders to benefit from challenging assignments without feeling overwhelmed.[43] Thus, a leadership development approach integrating learning from on-the-job assignments, formal programmes,

and other people, can increase the developmental value that a leader extracts from a job assignment, because of the complementary and mutually reinforcing effects of learning from these different avenues.

Leveraging data and technology could make the integration of learning from these different avenues even more efficient and impactful. For instance, data on the experience, strengths and developmental needs of an individual could be used to determine the job assignment that would be most beneficial at a particular stage in that leader's career. Developmental programmes could be conducted virtually and interspersed with on-the-job experiences; digital learning resources could be accessible anytime and anywhere on a just-in-time basis; algorithms could be used to recommend learning resources that are most relevant; and virtual support networks could be readily formed with relevant others regardless of their geographical locations. As technology advances, there will be other ways to better integrate learning from different avenues in future.

LEADERSHIP TRANSFORMATION IN THE SINGAPORE PUBLIC SERVICE

The Singapore Public Service is driving leadership transformation and development across different career stages, as well as in leadership teams within and across agencies. This involves supporting leaders to 'Know, Grow and Contribute', by raising leaders' self-awareness, implementing competency-based development and deploying leaders for optimal impact.

Public officers in middle-manager and higher positions complete a 360-exercise based on the Leadership Competency Framework (LCF) for the Singapore Public Service, to derive a better understanding of their leadership at work from feedback. This is followed by individual or team-based coaching. The LCF identifies specific intrapersonal and interpersonal competencies, as well as contextual understanding, required of Singapore's Public Service leaders.

The Civil Service College (CSC) offers leadership milestone programmes catering to the public sector leadership life cycle, as officers develop from individual contributors and middle managers to senior leaders (up to Chief Executive/ Deputy Secretary levels). Participation is timed to match each officer's transition to leadership roles. Each programme's curriculum is being mapped to the LCF to ensure that leadership development efforts target the competencies most important for the Singapore Public Service.

CSC has also started experimenting with restructuring some leadership programmes to better incorporate learning experiences from work (the 70%) into formal programme sessions (the 10%) and vice versa. For support networks, coaching and peer learning groups (the 20%) are offered as part of the milestone programmes.

A dedicated mobile learning app lets participants access curated, bite-size learning modules for just-in-time learning. Examples of these include the Directors' Developmental Experience and the Leading Transformation in a Disruptive World programme, which aim to support leaders in leadership transition and team-based work respectively.

2 Encouraging individuals to be active designers of their own development

Traditionally, individuals have been relatively passive consumers of leadership development interventions. They attend leadership development programmes where the curriculum has been curated for them, networks of peers are created to support them, and developmental experiences assigned to them.

Although the organisation can and should do its part to support leadership development, individuals can be more proactive in managing their own development and building up habits of learning from their own experience, so that the learning is much more suited to their unique needs. Adults learn best when the learning is perceived to be relevant and practical in helping with real-life situations.[44, 45]

Individuals can be active designers of their own development in different ways. For example, they could co-create their leadership development curriculum, be more proactive in identifying suitable developmental avenues, or take the initiative to build their own support network—and some of these experiences and resources could be from outside the work context as well, offering a broader perspective.

SELF-DIRECTED AND EXPERIENTIAL LEARNING IN THE LEADERSHIP MILESTONE PROGRAMMES

CSC's leadership milestone programmes include *protected time* to pursue self-directed learning, and *white spaces* in which participants decide on the scope, format, and speakers by tapping on collective wisdom or connections for their learning as a cohort. There are also *pick-and-mix* segments where participants decide what content would be most relevant to them (as guided by data from their 360-exercises). Finally, participants choose the scopes of their *capstone projects* for meaningful experiential learning.

In the senior-level milestone programmes (i.e., the Senior Management Programme and the Leaders in Administration Programme), participants experiment with and act on initiatives that may be useful and impactful to the Public Service as a system. At the junior level (i.e., the Foundation Course), the project initiates participants' experience of navigating the system to bring forward and materialise an idea, with a greater focus on learning through the process instead of achieving results.

3 · Leaders playing a more active role in developing other leaders

An important source of learning for many leaders is their own **supervisor**, and organisations could do more to encourage their leaders to grow other leaders.[46] Within their team, leaders can catalyse and support their team members' development by assigning and designing challenging work experiences; helping them to identify learning opportunities and set personal learning goals for work assignments; encouraging them to develop new competencies that would enable them to better contribute to the organisation; helping them to identify situations where they can apply their new competencies; teaching them important lessons; providing trust and autonomy and support; offering timely feedback on their behaviours; and providing affirmation when the new competencies are displayed effectively.[47]

In addition, leaders can serve as **coaches or mentors** to the next generation of leaders in the organisation. This builds greater leadership capability throughout the organisation, in terms of not only leadership competencies but also leadership ethos. This can also build the leaders' own leadership effectiveness by prompting reflections of what leadership means to them, consolidating what they have learnt from their own leadership experience, and honing their skills in communicating with others. Thus, leaders

LEADERS BUILDING LEADERS IN THE SINGAPORE PUBLIC SERVICE

building leaders could raise the level of leadership in the entire organisation.

CONCLUSION

The Singapore Public Service must remain responsive and adaptive to the ever-changing context that it operates in, which in turn means that our approach to leadership and leadership development must be equally adaptive. How organisations view leadership has evolved with changing expectations on positional leaders, with leaders expected to develop new competencies and display new behaviours.

As a result, we have placed greater focus on leadership development that engages with a larger talent base in the Public Service, and that integrates different avenues of leadership development, leveraging technology and data, self-directed learning, and leaders developing other leaders. Leaders themselves must manage the tension of performing and learning in the flow of work and when to play the role of 'hero' or 'host', depending on circumstances.

This shift will not happen overnight. Just like the leaders we hope to develop, we will have to learn from experience, adapt and be agile in our innovations, and harness collective efforts towards the common cause of developing future-ready leaders in the Singapore Public Service. ∎

Since leadership is learnt largely by learning from others, there has been a renewed emphasis on the role leaders play in shaping other leaders.

In the Singapore Public Service, supervisors are expected to care for, develop and inspire staff. This includes regularly providing staff with constructive and timely feedback on learning/performance and guidance for longer-term career development. Within CSC's leadership milestone programmes, senior public sector leaders serve as Programme Mentors. Acting as leadership role models, they guide younger leaders, and share their knowledge and experiences at briefings and dialogues.

CSC also offers coaching and mentoring workshops, as well as the 'Leaders Building Leaders' (LBL) onboarding workshops, to help foster a Public Service-wide culture of leaders growing other leaders in a more agile and sustainable way. The LBL approach identifies, develops and deploys experienced middle managers, known as 'Learning Guides', to develop first-time managers within their organisations through small group blended learning. Plans to pilot this approach with more senior levels of leadership (e.g., Heads of Functions) are in progress.

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ENGAGING HEARTS AND MINDS:

A Conversation about Learning Experience Design

by **Martin Hang, Daisy Koh, Lau Teh Wei, and Lim Ee-Lon**

Four seasoned practitioners share their perspectives on crafting immersive, learner-centred approaches that may lead to more enduring outcomes in and beyond the workplace.

Martin Hang is Principal L&D Specialist at the Institute of Public Administration & Management, Civil Service College.

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What is Learning Experience Design (LXD)? What does it mean to you?

HANG: Design is an enabler of the learning experience. It is the ability to create an environment for learning which is impactful, both from a cognitive and an affective standpoint. When we are in a learning situation, the most powerful learning experience happens when our emotions are engaged. And we often do not forget the moment when that learning takes place.

I remember attending a certification programme in the UK where the facilitator took us out in the open in a labyrinth in rural England and encouraged us to walk around it to reflect on our role as an instrument of change in the facilitation process. To this day, I have not forgotten the experience because it was something that engaged all my senses: just traversing the labyrinth and getting lost was a learning experience, with some 'aha' moments I derived when walking by myself.

Of course, LXD has to have an end objective, which is for the learning to impact one's viewpoint, one's mindset, and also one's skillset.

KOH: If you look at the term itself in the most literal sense, you have 'learning', 'experience' and 'design'. So, there must be some form of *learning* to be achieved. *Experience* refers to the whole learning process. And *design* is how you shape that experience to achieve the learning. From my perspective, this means it has to be a lot more learner-centred.

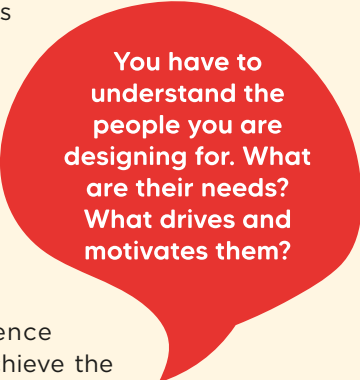The more traditional approach is that you look at the learning outcomes to

be met, the content and resources you have, and then you design the learning experience from there. But when you shift the whole focus to the learners' experience, you come to include learners in the whole design process. You empower them with choice and control.

At INN x CSC—an innovation sandbox created by Civil Service College—we have experimented with a few things, including the physical setting.[1] For a few programmes, we even let the participants set up their own learning space. We also explored different approaches such as breakout groups or the world café where participants can go and choose what sort of topics they want to discuss.

Another thing we have tried is creative presentation beyond just PowerPoints and flipcharts because these objects are reminders of work. Instead, we offer learners craft materials, LEGO bricks or a video green screen: we give them choices on how to present their ideas, so even as they are learning, they are having fun. And that makes them feel more engaged and present.

At the end of the day, it is not just about meeting the learning outcomes of the programme, but participants' own learning needs as well.

LAU: For me, it is about designing an experience to help the learner achieve the desired learning outcomes. The experience has to be one that is relevant, meaningful, and also engaging and enjoyable for the learner. The

> You have to understand the people you are designing for. What are their needs? What drives and motivates them?

emphasis is on human-centredness and on learning goals: so you have to understand the people you are designing for. What are their needs? What drives and motivates them? That's the basis of LXD.

In addition, there's also the dimension of user experience design, where we take into account everything that our target audience sees and interacts with. This means we need to look holistically at the end-to-end experience: not just what happens to the learners in class or during learning. We need to pay attention to the realities of what the learners experience, from the moment they start searching for a course to when they are attending a course, and after the class.

So in the CSC context, the pre-learning experience might actually begin from the moment they receive communications from us, or when they arrive at College for a class. If it's a virtual class, you have the user interface experience of the learning platform. And post-class, it's thinking about what kinds of interventions we design to strengthen their learning and its application to the workplace, or even to engage them so they come back for further learning.

LIM: In essence, LXD goes beyond just designing and delivering a piece of learning content.

In a learning institution like Ngee Ann Polytechnic, end-of-semester module and learning experience surveys are typically administered, spanning the areas of curriculum, learning resources, learning environments, student support services,

and technical support, among others. So, learning experience in our context would be an amalgamation of all these various elements from pedagogy to content to activities and interactions that take place during the process of learning.

As a learning designer, to help adjust my focus away from a content-based idea of learning towards attempts to create learning experiences, I prompt myself with questions such as: "Would the learning make my learners feel engaged? Would it be fun? Would it be inspiring? Would it elicit 'aha' moments?" So, the field of LXD is also about considering and embracing the 'touchy-feely', affective aspects of the learning experience.

So LXD is about engaging the learner's whole person, including cognitively and emotionally. In what ways might LXD enhance learning?

HANG: When I taught in a polytechnic business school 15 years ago, this idea about engaging both hearts and minds was really quite out of place. My colleagues thought I was mad, throwing balls and playing *Who Wants to be a Millionaire* in the lecture theatre. But in the end, I was invited to share what I did to create those experiences in class just before I left the polytechnic. The idea wasn't to do it just for fun, but to help review learning and illustrate important points.

Another example of engaging the affective domain was when I used it for National Education, which students felt was just brainwashing. I completely revised the curriculum from a lecture-based approach to something more project-

> We need to look holistically at the end-to-end experience: not just what happens to the learners in class or during learning.

based and personal to draw out aspects of Singapore's identity, culture, and constraints: for example, interviewing a classmate's grandmother who lived through the Japanese occupation, or learning from someone's aunt about Peranakan cooking. In the end, my approach consistently yielded much better feedback scores and results than the previous one.

KOH: I feel that the emotional aspect is a hook to get the cognitive aspect to work. You have to hook the heart first, get their attention and energy, before you present the content to the learners.

> The emotional aspect is a hook to get the cognitive aspect to work.

We know that some of the more engaging sessions at CSC that work well include leadership dialogues with senior government figures, who often share behind-the-scenes or personal stories. These conversations help future leaders to better understand and relate to the tensions they are facing, and the difficult decisions they have had to make.

LAU: In our leadership programmes, we have been seeing more and more affective elements coming in, and we have been designing to engage with these more effectively. We see these as important because it helps our leaders to open and reframe their mindsets before we go into the cognitive stuff.

Sometimes, technology can help to engage learners both cognitively and affectively, hand in hand. For example, we used virtual reality (VR) in a CSC programme for enforcement officers,

putting them in an immersive, real-life scenario where they had to practise risk assessment. They were making ground assessments on the spot and, at the same time, picking up on things they needed to do or take note of in a high-tension or emotional situation.

LIM: In the past, we used to think that content equates to learning. These days, we generally recognise that learning increasingly involves a blend of content, activities, and interactions. Where knowledge and skillsets are increasingly dynamic, as LX designers, we are not only designing content for our learners to consume, but also designing and facilitating activities and interactions that engage learners, in aspects such as research and discovery, co-creation, participation, and collaboration. So the process of LXD involves fusing many of these different pieces into a purposeful mix. Invariably, this also leads to learning that is slightly messier and often non-linear, in contrast to content-focused learning with structured learning pathways.

> In the past, we used to think that content equates to learning. These days, learning increasingly involves a blend of content, activities, and interactions.

Additionally, as part of stepping up engagement and interactivity of online learning, areas that we have been exploring and designing for are gamified, immersive learning experiences, where learners are offered greater interactivity and choice in making decisions through interactive narratives that unfold in non-linear ways in virtual environments.

On the flip side, with such high levels of interactivity in learner agency and

freedom of decisions, we as learning designers will not have full control over what the end user experience is going to be like, say in terms of where learners navigate to, what they interact with, or the choices they make.

So, this is one of the inherent challenges we face in designing for more open-ended, non-linear, highly interactive forms of learning experiences whilst ensuring that objectives are met—compared to producing the more conventional, structured, linear learning content forms such as explainer videos, presentations and quizzes.

How can LXD contribute to better outcomes in the workplace, and how might we evaluate its impact?

KOH: Right now, organisations still focus a lot on outcomes-based learning; on measuring results and deciding where to apply training. But a more progressive sense of LXD is when learners themselves have control over how they experience the learning and what they take away from it. This is agency we have to give them. Whether they apply or retain the knowledge learnt depends on the individual learner, and is not something we have a lot of control over.

Some things that we do constantly think about include: how do we measure things like engagement in class? How do we measure the depth of thinking or the quality of conversations; mindset change as compared to behavioural change?

Some of what we look at includes things like knowledge application

on the job, which I personally feel is quite difficult. We could say that we have the intent to apply what we've learnt; we can have the intent to do so further down the road. But most of the knowledge we apply relates to things that come to us *just in time*: if you get promoted to a new position, you might immediately go for a relevant course and apply it right away. Otherwise, you may need to find the right situation in which to apply what you have learnt.

So the challenge is how to make learning easier for people to remember, how to create a cognitive and emotional hook, and then give people the agency and autonomy to apply their learning, *where* and *when* it is most relevant to them.

LIM: So, in the experience economy as we know it, the priority for businesses and organisations is to create value for their customers to succeed, which leads to better business outcomes. Where the field of LXD can impact business outcomes is through engaging users with a broader surrounding suite of more engaging, dynamic interactions and resonant experiences.

In addition to providing information resources, LXD can offer opportunities for engaging with experts and resources from third-party sources: blogs, videos, e-books, open resources, learning communities and forums, etc. Thus, the value that LXD brings is a more dynamic, personalised, contextual learning and performance support experience across a range of modalities, which would then positively impact workplace outcomes.

> Give people the agency and autonomy to apply their learning, *where* and *when* it is most relevant to them.

LAU: In LXD, we look quite closely at giving learners what they need at the different moments of learning need. The key is whether—when they face a problem at work—they can find a solution for themselves. So when it comes to workplace learning (WpL), it's looking at whether we could design better interventions based on the critical tasks that the learner is performing back at work, so that the learning happens naturally in the flow of work.

If you get more engaged learners, more meaningful learning experiences, we hope that it will translate into impact in terms of, for example, greater confidence to perform; hopefully better actual performance on the job; better attitudes and behaviour, and thus business outcomes. In this way, we are creating greater value for both the learner and the learner's organisation.

And that is where we need to engage supervisors and other colleagues so that their performance and the learning impact can be observed in the actual workplace.

HANG: I think adult learners are becoming increasingly sophisticated. Getting them to acquire a skillset is not an issue. It's getting them to apply that skillset that is the real challenge.

The end goal of learning is often change. If we want to trigger the change, we need to engage their mindsets. Hence, the focus of learning these days is not so much the skillset as it is the mindset. In the past, we thought that people look at the data, they analyse, and then based on that, they make a decision to change. Now we know that mindsets

> **The end goal of learning is often change.**

are only shifted if people experience something that is, for lack of a better word, life-changing. They are confronted with certain things they have taken for granted and have the desire to change.

I feel that LXD plays an increasingly important role in this regard. We are not taking away content. Instead, we are presenting content in such a way that people are engaged at the right points: the head, the heart, the mind.

That said, I think mindset change can only be noticed through a person's behaviour. And that also depends on their peers and bosses. We need to better understand the role of supervisors, who themselves need to think about the role they play in enabling the application of learning and resultant behavioural change in their officers.

Where do you think LXD is going next? And what should we always bear in mind when designing the future of learning?

KOH: I think we will be focusing less on the instructional design aspect (i.e., what sort of content to put into an experience) and more on learners' needs.

I always believe that a good LXD design is something that is simple. If you want people to absorb content, complete a learning task or even use a particular technology, keep it simple so people understand how they can consume and participate in the experience.

LIM: In LXD, the focus shifts beyond the production and delivery of content

materials, to actively engaging our students in sharing, discovering, engaging, connecting, collaborating and so forth. Learning experiences will therefore be increasingly non-linear, iterative, and messy, oftentimes extending beyond the initial designs of the subject matter experts or content providers. Some would argue that LXD is not merely the design of artefacts or experiences, but rather, a broader shift in belief systems and mindsets in how we approach learning design.

As we venture into exploring new experience designs, technologies, and mediums, I reckon it's always important to begin with needs assessment as a tool (and an instructional design first principle). This means reframing the training request or development request from a 'content focus' to a 'results and outcome focus'. We should approach the field of LXD not from the narrow standpoint of designing a piece of learning content, or even an experience, but ultimately as addressing and solving a broader learning and performance challenge.

LAU: For me, the fundamentals don't change: it's about learner-centricity and learner outcomes. Moving forward, it is a question of how we weave in the elements: including user experiences, design, analytics, learning platforms and so on, to enable us to focus more on these goals. We will need to be curious about new methodologies out there, whether they are for WpL, social collaborative learning and so on.

At the same time, we also need to pay attention to our trainers' needs, as well as to the needs of our content creators, subject matter experts and other stakeholders, including peers and supervisors, so that when we roll out a learning experience, they are actually all part of—and contributors to—the journey.

> We also need to pay attention to our trainers' needs, as well as to the needs of our content creators, subject matter experts and other stakeholders.

HANG: I think LXD is going to be increasingly embedded into the way we think about learning. It will increase in sophistication, with digital approaches adding a further dimension. But one thing we need to always remember is not to neglect the learner in the process. Don't get caught up with the latest technology or methodology fad. At the end of the day, these tools have to serve the learner, not the other way around.

We should never stop being curious about what excites our learners, what causes them to be moved. Every learner is different: some are more engaged cognitively, others affectively. Let's not do one at the expense of the other. ■

> Tools have to serve the learner, not the other way around.

Note

1. INN x CSC is an innovation and experimental sandbox, located at Jurong Town Hall, where we create the space for officers to try new ideas and learning experiences in CSC. INN adopts a "Dream big, test early and fail fast" approach to create timely and improved solutions. See: https://www.csc.gov.sg/innxcsc.

EMPLOYABILITY, GROWTH AND RESILIENCE THROUGH WORKPLACE LEARNING

by **Phua Chee Teck**
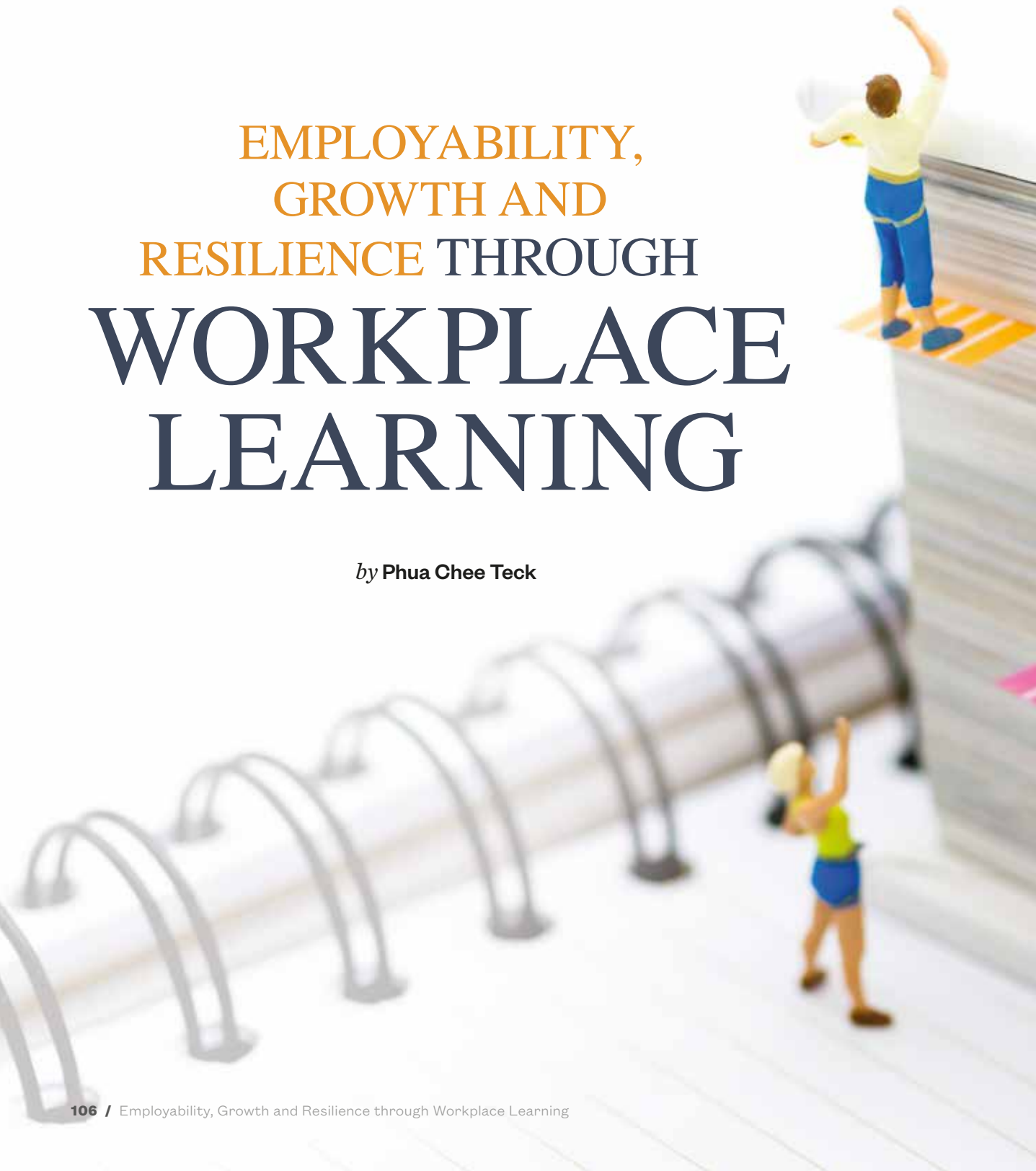
Across industries, jobs and workplaces are changing to adapt to a new normal of disrupted paradigms and ever-changing needs. Workplace Learning (WpL) helps employees and employers establish a common purpose and acquire relevant skills, in order to stay competitive and employable.

Dr Phua Chee Teck is Director of the National Centre of Excellence for Workplace Learning (NACE). He and the NACE team drive the Workplace Learning (WpL) ecosystem in Singapore. Their work includes developing the National Workplace Learning Framework and harmonising the On-the-Job Training (OJT) Blueprint for Work-Study Programmes offered by polytechnics and the Institute of Technical Education. To date, NACE and NACE Centres have collectively helped more than 1,000 local organisations embark on their WpL implementation journey to retain talent and grow competencies.

Dr Phua is a believer and practitioner of lifelong learning, and regularly shares his insights with organisation leaders. He earned his PhD from the University of Paris-Est through a work-study research programme.

A Key Paradigm Shift

The term Workplace Learning has become a buzzword in recent times, but it is actually part of a fundamental paradigm shift for the nation that has been carefully considered and planned. In 2013, the Ministry of Manpower established the Singapore Workforce Development Agency (WDA) to address the employment challenges of mismatched skills vis-à-vis job opportunities in Singapore. WDA invested in training programmes to support workforce employability and build professional expertise in curriculum development for adult learning and skills certification.

In 2017, the Committee on the Future Economy highlighted that our workers need to continuously deepen and refresh skills,[1] given the growing prevalence of automation and transformation. Instead of relying solely on knowledge gained through the formal education system, the Committee recognised that each individual would have to reinvent themselves and learn anew throughout their lives. This was a powerful mindset shift: it also meant that employers would need to actively invest in and help their employees gain relevant skills on an ongoing basis, with the workplace becoming a legitimate classroom where one learns.

As part of this national thrust towards lifelong learning, the Ministry of Trade and Industry led the rollout of what are called *Industry Transformation Maps* (ITMs) for 23 industries—charting the long-term vision and direction in the years ahead for these sectors. SkillsFuture Singapore (SSG)—a statutory board under the Ministry of Education that drives and coordinates the implementation of the national SkillsFuture movement—complemented this with the *Skills Framework*, for which various lead agencies, employers, industry associations and unions furnish information on sector, career pathways, job roles, skills and training programmes. These two elements have become roadmaps for organisations and employees to chart a course in cultivating the most relevant competencies for their upgrading and mastery.

WpL is a structured and professional system to help employees gain Knowledge, Skills and Attitudes effectively, and to support employers in retaining knowledge within the organisation.

▲

NACE, led by NYP, draws on the expertise of international institutions to adapt Best-In-Class (BIC) models for organisations in Singapore. NACE was officially launched by Minister Ong Ye Kung, together with SSG, Swiss and German Ambassadors, on 30 July 2018.

Putting Workplace Learning (WpL) into Industrial Practice

In 2018, the National Centre of Excellence for Workplace Learning (NACE) was formed to help companies understand the ITM roadmaps and install purposeful WpL systems. Nanyang Polytechnic (NYP), with its long history of working with industry, was appointed to set up the Centre. Supported by SSG, NYP drew on its networks with acknowledged world leaders in WpL, the Germans and the Swiss,[1] to find a system and contextualise it for Singapore's needs.

Today, there is a network of NACEs in different educational institutions such as the Singapore Institute of Technology, the Institute for Adult Learning, Ngee Ann Polytechnic, Republic Polytechnic, Singapore Polytechnic, and Temasek Polytechnic to efficiently propagate the WpL message throughout Singapore. More than 1,000 organisations have benefitted from the efforts of NACE and NACE Centres to date.

Note

1. Swiss Federal University for Vocational Education and Training (SFUVET), German Chamber of Industry & Commerce (IHK Akademie), IHK Exportakademie GmbH, and Singaporean-German Chamber of Industry and Commerce (SGC).

Workplace Learning (WpL) Defined

The International Labour Organization defines Workplace Learning as "the acquisition of knowledge or skills by formal or informal means that occurs in the workplace". This is in contrast with knowledge or skills acquisition outside the workplace, such as in classrooms. WpL includes both formal on-the-job training and informal learning at work.[2]

In essence: WpL is a structured and professional system to help employees gain—in the parlance—Knowledge, Skills and Attitudes (KSA) effectively, and to support employers in retaining knowledge within the organisation.

All too often, in our experience working with organisations, we see firms struggle because employees are training in competencies that are irrelevant to current needs. Sometimes, even if the training is appropriate and for relevant skills, it can be a challenge to get employees to put it into practice at work. Furthermore, without the proper documentation of how the job is done, the loss of a key colleague can mean a loss of institutional knowledge and key skills. To restart the building of these skills can require significant time and resources—a cost most organisations can ill afford.

WpL is both an administrative structure, where there are specific documents charting the expected competencies of each employee and their training development pathways, as well as a system of formal and informal training methods such as the following:

On-the-Job Training (OJT) is a form of learning in the work environment during the employment period. It is usually carried out in a structured manner with the support of subject matter experts (also known as coaches). OJT is probably the most common WpL practice in Singapore, but organisations often implement it in an ad hoc manner. In 2019, NACE harmonised the OJT Blueprint template with assessment rubrics used in Work-Study Programmes (WSPs) offered by local polytechnics and the Institute of Technical Education (ITE). The OJT Blueprint is a document that codifies the tacit knowledge and tasks for a job role, with required KSA and relevant guidelines for learning at the workplace. As a result, other polytechnics and ITE have since adopted NYP's OJT Blueprint and assessment rubrics.

Apprenticeships are competency-based learning stints with companies, usually at the company's premises. Apprentices are employed full-time to acquire the competencies to perform at a higher level or with an expanded job scope. It is more prevalent in European Union countries, where WpL culture is deeply rooted in the workforce, and usually leads to formal or professional qualifications. In Singapore, we have WSPs offered by Institutes of Higher Learning using OJT blueprints as part of the structured WpL mechanism to promote a culture of learning.

Internships/Traineeships are short-term WpL arrangements where interns or trainees learn on the job, both formally and informally.

Typically, each learner receives an allowance during their internship, and learning is structured at the workplace.

> *Firms struggle because employees are training in competencies that are irrelevant to current needs… even if the training is appropriate and for relevant skills, it can be a challenge to get employees to put it into practice at work.*

▶ An MOU to harmonise OJT practices across Institutes of Higher Learning was signed on 12 July 2019 by representatives of the five polytechnics and ITE.

A Positive Sea Change

Hearteningly, data suggests that workers in Singapore have embraced the idea of lifelong learning.

A *Straits Time*s article in 2019 highlights how receiving sufficient training to perform their jobs effectively is a key factor towards enhanced job satisfaction, an increased desire to go to work, and

higher staff retention rates for the Singapore workforce.[3]

Several other key polls and reports also echo this. For example, according to a poll by hiring consultancy Randstad in 2020, 86% of respondents in Singapore are motivated to upskill and reskill, to prepare for industrial changes resulting from automation and digitalisation.[4] Another report by Ernst & Young, based on a survey of over 4,000 employers and employees in June and July 2020, indicates that 84% of employees identify the adoption of digital tools as critical for the future of work.[5] The same report shows that employees rank virtual learning, alongside health and safety in the workplace, as their top development focus.

Staff want organisations to invest in their development and provide a safe and nurturing environment for them to succeed and thrive—especially at a time of uncertainty and rapid change.

As job responsibilities enlarge and shift, the need to bridge the gap between learning new skills and applying knowledge at the workplace becomes more critical than before. WpL empowers workers because it allows employees to identify their weaknesses, gaps, inconsistencies, and dissatisfaction both within their current job scope and in relation to future demands.

Staff who seek to grow with an organisation should expect well-structured and transparent WpL systems that allow contextualisation, flexibility, and authentic learning to enable optimal performance.

I recently spoke to a Mr Tan, an employee whose company has worked with NACE to implement the WpL system referencing the National Workplace Learning Framework. It was a short conversation on the sidelines of a discussion—but you could see how he was encouraged by the fact that his organisation had chosen to invest in its workers. He knew that the work was meaningful and felt that it would make employees, like himself, feel confident of a caring and progressive organisation.

Employers are certainly getting the memo about skills being the currency of the future: PricewaterhouseCoopers' 24th Annual Global CEO Survey[6] has found that while most leaders believe the need for new skills is their biggest challenge in a rapidly changing workplace environment, however, the crucial next step is for employers to take great ownership of WpL.

Receiving sufficient training to perform their jobs effectively is a key factor towards enhanced job satisfaction, an increased desire to go to work, and higher staff retention rates.

Staff want organisations to invest in their development and provide a safe and nurturing environment for them to succeed and thrive—especially at a time of uncertainty and rapid change.

The Role of Leaders in the Next Mile

In a 2020 symposium on shaping the future of education, then-Minister for Education Lawrence Wong called on employers to re-examine how they use workplaces for learning.

He explained how, while many learn by doing—through the "process of trial and error", "feedback and tips from colleagues, or just by watching how other people do it"—such learning was often ad hoc.[7] Mr Wong called for organisations to create a systematic, structured and deliberately well-thought-out process for their workers' learning to be effective.[8]

Indeed, some leaders have cottoned on to how the strategic effort to provide their employees with the time and space for WpL will go a long way in cementing their employees' motivation, professional growth, and loyalty, and in readying their organisations for the future.

Despite the successes of firms who have adopted WpL, many other business leaders remain concerned with the here-and-now. Some of their reservations stem from their beliefs about the time, commitment and resources needed for WpL, while balancing existing business operations. Some are concerned about a lack of coaches/mentors to support WpL implementation. Hence, they continue to expend their resources on coping with immediate uncertainties. But this approach does not bring long-term strength, stability, or growth.

There are ways to ease the transition into WpL adoption. Funding and bespoke consultancy support are available to kick-start the WpL process. And firms can take incremental steps. A start is better than no start, and there are tangible benefits to be had. For organisations ready to deep dive into WpL, certification allows validation of processes and affirmation of successes.

Amid volatility and uncertainty, the role of a leader in building an equitable and innovative workplace becomes more critical than ever. Leaders need to re-examine their leadership strategies and consider how they can create a continuous learning culture. This includes engaging with the ground, being inclusive, and kindling the dynamism that grows the confidence and capabilities of their people.

Although the journey might seem daunting, the experience and outcome will be rewarding. NACE will also walk the journey with employers to help them gain strategic competitive advantage through WpL.

Nurturing Our Catalysts: A National Workplace Learning Framework

To the end of creating more catalysts for change, NACE has collaborated with strategic partners from the Trade Associations & Chambers and unions such as Singapore National Employers Federation, Specialists Trade Alliance of Singapore, National Trades Union Congress (NTUC), and NTUC LearningHub to propagate the value and benefits of WpL to employers and employees. They are the critical enablers to contextualising and growing WpL in various domains.

To further support local organisations of private and public sectors in implementing a robust WpL culture, NACE (led by NYP) developed a National Workplace Learning Framework, which has since been adopted by SSG in January 2020.[1]

The Framework marks a strategic movement to provide organisations with a holistic guide to transition to WpL. It is a step-by-step map that organisations can use to plan, execute, customise, and track their incremental milestones in WpL, and see that it is achievable. It also establishes a common language across sectors to build a WpL ecosystem.

Organisations that want to embark on this transformation can use the six components of the Framework to benchmark their WpL readiness.

We have empowered all NACE Centres to adopt this methodology and collectively help organisations implement WpL.

Today, there is also a national-level certification that recognises organisations which have developed a sustainable learning culture.[2] This initiative aims to forge a community of WpL adopters for collective learning and enablers to create multiplier effects for shaping a WpL culture and mindset in Singapore.

That said, the Framework and the certification are guides, developed to help organisations visualise the WpL journey. At the end of the day, these tools are meant to help bridge the distance between organisations and their employees.

Notes

1. The NWpL Framework provides a common language and guidelines for all sectors (private and public) in building the WpL ecosystem. On the same note, public sector can benchmark their WpL level/readiness using the same Framework. See https://www.nace.edu.sg/framework/national-workplace-learning-framework/.

2. Kok Yufeng, "New National Certification Scheme to Help Local Firms Close Workplace Learning Gaps", *The Straits Times*, May 6, 2021, accessed July 16, 2021, https://www.straitstimes.com/singapore/new-national-certification-scheme-to-help-local-firms-close-workplace-learning-gaps.

Figure 1. The National Workplace Learning Framework Retention of Talents, Growth of Company and Staff Competencies

Source: Adapted from the New Quality of Work Initiative (INQA), Germany

One of the critical advantages of WpL is that it captures tacit knowledge within the organisation: valuable knowledge, skills and attitudes that might otherwise be lost.

Boosting Organisational Performance through WpL

Novotel Singapore on Stevens and Gardenia have seen significant improvements in their operations, staff development and morale after adopting WpL efforts. Novotel Singapore on Stevens collaborated with NACE to develop clear career progression pathways and structured OJT blueprints for talents across all levels, through redesigning work processes to improve productivity. As a result, the organisation attracted and retained good talent and was awarded the SkillsFuture Employer Awards 2020. For Gardenia, staff training significantly reduced lead time by 30% through structured WpL processes.

In the security sector, Metropolis Security Systems Pte Ltd, a local small and medium-sized enterprise (SME), increased their profits by achieving a 100% success rate in their bidding projects, compared to 11% previously. There was also a reduction in staff turnover rate from 40% to 12%.

WpL has also helped Grand Venture Technology, a manufacturing solutions company that embarked on transformation through WpL in 2019, develop a sense of shared purpose that runs through the firm. The CEO, Mr Julian Ng, noted that one of the critical advantages of WpL is that it captures tacit knowledge within the organisation: valuable knowledge, skills and attitudes that might otherwise be lost.

The WpL Journey Continues

The journey of WpL is organic and collaborative. Employers play a pivotal role in taking stock of skills predisposition, humanising workflow, and reimagining WpL as a process of continuous learning. When they find value in each person in their workforce, and re-design jobs to be better adapted to the vagaries of our modern world, they can unlock tacit knowledge and benefit from a motivated workforce who can excel and bring growth.

In return, employees will also benefit from seeing what their learning maps to, understanding the context of changes and most importantly finding trust in organisations which are investing in their futures.

It is a mutually reinforcing virtuous cycle, to which everyone contributes, for the gain of all. ◼

Notes

1. Ministry of Trade and Industry, *Report of the Committee on the Future Economy: Pioneers of the Next Generation*, February 2017, accessed July 16, 2021, https://www.mti.gov.sg/-/media/MTI/Resources/Publications/Report-of-the-Committee-on-the-Future-Economy/CFE_Full-Report.pdf.

2. International Labour Organization, "Structured Workplace Learning: An Introduction" (draft, 2009), https://apskills.ilo.org/resources/intro-to-workplace-learning-david-lancaster-draft.

3. Goh Yan Han, "Salary Not Main Driver of Job Satisfaction for Singapore Workers", *The Straits Times*, January 17, 2019, accessed July 10, 2021, https://www.straitstimes.com/singapore/salary-not-main-driver-of-job-satisfaction-for-spore-workers-report/.

4. Randstad Singapore, "The 2020 COVID-19 Labour Pulse Survey", August 12, 2020, accessed July 10, 2021, https://www.randstad.com.sg/hr-trends/talent-management/86-per-cent-motivated-to-upskill-and-re-skill-in-12-months/.

5. Liz Fealy, "How Employers and Employees are Envisioning the Reimaged Workplace", *EY*, April 22, 2021, accessed July 10, 2021, https://www.ey.com/en_sg/workforce/how-employers-and-employees-are-envisioning-the-reimagined-workplace.

6. PwC, *PricewaterhouseCoopers (PwC) 24th Annual Global CEO Survey*, accessed July 10, 2021, https://www.pwc.com/cl/es/publicaciones/pwc-24th-global-ceo-survey.pdf.

7. Ministry of Education, "Speech by Mr Lawrence Wong, Minister for Education, at the Nus115 Distinguished Speaker Series—Shaping the Future of Education", December 3, 2020, accessed July 16, 2021, https://www.moe.gov.sg/news/speeches/20201203-speech-by-mr-lawrence-wong-minister-for-education-at-the-nus115-distinguished-speaker-series-shaping-the-future-of-education.

8. "Employers Must Take Ownership of Skills Utilisation: Singapore Education Minister Lawrence Wong", *LEARNTech* Asia, December 14, 2020, accessed July 10, 2021, https://learntechasia.com/employers-ownership-skills-singapore-education-wong/.

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Thinking
Differently about
WORKPLACE LEARNING

by **Helen Bound**

Instead of topping up on-job skills with training, the focus should be on understanding, framing and improving the relations between people, assets and structures in an organisation.

WHAT IS WORKPLACE LEARNING?

Understandings about workplace learning (WpL) vary. In addressing some basic but critically important questions about WpL—what is it, what does it 'look' like, how do we know learning is taking place—we need to examine commonly held assumptions about WpL.

Some 11 years ago, when I first started asking policymakers, industry people and adult educators in Singapore what they understood WpL to be, a common response was that it is mainly on-the-job training. While the general understanding of WpL has become much more sophisticated since then, it is still quite common to hear many say WpL is about training in the workplace. However, training is but one small aspect

of WpL: there can be a great deal of WpL taking place with no trainer or training in sight.

Human resource (HR) development perspectives on WpL tend to focus on outcomes for the individual, their career development, and outcomes for the organisation. Matthews, for example, captures this in the following definition:

> [WpL] involves the process of reasoned learning towards desirable outcomes for the individual and the organisation. These outcomes should foster the sustained development of both the individual and the organisation, within the present and future context of organisational goals and individual career development.[1]

This definition seems entirely reasonable, but it has its limitations. Outcomes to what end is a question that needs asking. "Desirable" for who, and for what? Matthews' definition suggests that employees are puppets, to be moulded and manipulated according to the ethics and value propositions of the organisation.

A more holistic approach is taken by Billett, who notes that "as we think and act, we learn"; learning is inevitable, as we work.[2] Sandberg also positions WpL holistically, emphasising the need for the development of collective competence in the workplace, suggesting that "without a shared understanding of their work, no cooperative interaction will emerge, and by then, no collective competence will appear in the work performance".[3] Collective competence, he postulates, is cultural; members are enculturated

TRAINING IS BUT ONE SMALL ASPECT OF WPL: THERE CAN BE A GREAT DEAL OF WPL TAKING PLACE WITH NO TRAINER OR TRAINING IN SIGHT.

into the work and workplace. Sandberg uses the term "competence", not as in competency-based training where skills and knowledge are broken into small tasks and separated, but as holistic performance within the relevant context.

Another way to understand WpL is to break it down into the three key words: work, place and learning. This helps make explicit some of the assumptions inherent in a holistic understanding of WpL.

Work: the activities of the work being done. This could refer to where in the production or service chain an individual, team or division's work falls, the purpose of the work, the *design* of the work, and the relations between different activities of the work. Understanding the nature of the 'work' is important, as how particular kinds of work are valued and rewarded impact the need and motivation of individuals, teams and divisions to learn. If an individual has little discretionary power and the job is quickly learnt, there is no need to keep learning.

Place: the sites or spaces of work. Notions of space evoke not only physical space and arrangements, but also cultural norms, the tools and knowledge workers use and have access to (or not), and the problems they need to identify, frame and solve. Physical arrangements can encourage or discourage dialogue and sharing, an important basis of WpL. Cultural norms such as the extent to which a workplace is supportive and accepting, for example of risk-taking or trial and error (or not), set up or deny affordances for learning.

Learning: definitions of WpL that are outcomes-based often regard learning as achieving desired behaviours. When learning is considered as training, there is usually a focus on individual cognition,

LEARNING REQUIRES RELATIONS WITH PEOPLE AND OBJECTS IN CONTEXT. LEARNING IS A HIGHLY SOCIAL ACTIVITY.

HOW DAVID REFRAMED A WPL ISSUE

In a workplace involving heavy machinery, there are workers from many nationalities and cultures, where Singaporeans work closely with other migrant workers from the neighbouring countries: India, mainland China and Malaysia. The local on-site supervisors would often be frustrated with foreign team members for not wearing steel-capped boots, helmets and other personal protective equipment, and with those who speed across workspaces when operating forklifts.

To address these concerns, David, a member of the human resource team, focused on addressing the performance gaps in the competencies foreign equipment operators appeared to be lacking in. However, with the help of some reading and peers, David realised that the deficit approach of assuming that the foreign operators lacked skills had to be challenged. He commented in an assignment[1] that:

> I was...influenced by preconceived stereotypical ideas of the foreign operators' work practice. These had blindsided me from their strengths and competence, which were equally important, as these are personal factors that would also influence and shape their learning interventions. I realised that the stereotypical perception that they were novices had to be challenged, as their behaviours were not due to their lack of skills, but due to the culture and the work environment they had back home. This subsequently led me to reframe my perspective and improve the roadmap [the learning intervention to establish a culture of safe practices] by looking at strategies that capitalise on the strengths of the learners and supervisors who are their mentors.[2]

Even though the operators might have years of experience in their home country, David realised that there was a lack of understanding of each nationality's working culture, and a lack of trust in the competence of the group of foreign operators by the local supervisors and operators. He noted that it did not help that there were limited face-to-face interactions between the different groups, and limited time for coaching and reflection sessions with mentors and supervisors.
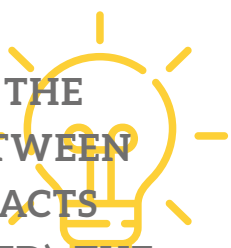

Notes

1. Data from an Institute for Adult Learning and CRADLE, Nanyang Technological University project on Dialogical Teaching by Bound et al., 2019.

2. Permission to use this material was sought and gained from "David" (a pseudonym). See Bound et al., 2019 for details of this project.

with the assumption being that learning takes place inside an individual's brain. This ignores the reality that learning is embodied: we sense, we feel, we respond emotionally. It also ignores that learning requires relations with people and objects in context. Learning is a highly social activity. When WpL is considered as training, both cognitive and behaviourist ideas of learning predominate.[4] These approaches do little to help individuals and teams to apply their learning, or what Evans, Guile and Harris call putting knowledge to work.[5] Developing understanding and making meaning begins with the active use of the relevant language. Social relations and exchange are necessary for individuals and teams to reconstruct their thinking through a process of higher levels of cognition, through doing the work. The extent to which this is possible is deeply influenced by the nature of the 'place' of the workplace, as discussed above. We also need to keep in mind that expertise is not stable: it is an "ongoing collaborative and discursive [dialogic] construction of tasks, solutions, visions, breakdowns and innovations".[6]

'Work', 'place' and 'learning', and how each is understood, come together to create or limit possibilities for WpL. We can support learning by broadening understandings of learning beyond cognition, memorising and behavioural outcomes. WpL is about the relations between people, artefacts (e.g., tools used), the language used, the environment, being valued, or not, and much more. Ways of thinking about WpL will determine how WpL is used and enacted in workplace(s).

This brings us to considering the framing of issues to which WpL may be a, or a partial, solution. Rarely is WpL a total solution; for example, job redesign, hierarchical structures, reward systems and so on may also need attention.

WPL IS ABOUT THE RELATIONS BETWEEN PEOPLE, ARTEFACTS (E.G., TOOLS USED), THE LANGUAGE USED, THE ENVIRONMENT, BEING VALUED, OR NOT, AND MUCH MORE.

WPL FOR WHAT PURPOSE?

The resolution of problems lies not within an individual, but is embedded in ways of thinking, artefacts, relations, power dynamics and so on. Outcomes-based HR approaches may use frames of thinking such as the one David (see box story) initially began with, in which he regarded the foreign workers as being deficient, having gaps in their knowledge and skills. However, if *training* the workers in wearing personal protective equipment (PPE) and to drive safely was seen to be the solution, then the underlying problems of understanding

the cultural, institutional requirements of safe working practices, and the lack of trust and communication between the different groups of workers would not only remain unaddressed, but keep surfacing in various ways, over time.

So, what changed David's perspective? Instead of considering the individual workers as having gaps in knowledge and skills and their behaviours needing to be changed to achieve safe workplace practices as an outcome, he looked at the issue from different angles, seeking to understand the connectedness, the relations between them. He considered the individual, the culture of the workplace, the systems, and objects in the workplace, and came to see, for example, that the culture and systems in place were not supportive of safe working practices.

In this example, I focused on the cultural issues which were present at two levels: 1) the workplace norms, the lack of trust between supervisors and foreign workers, and between Singaporeans and foreign workers, and 2) national cultural understandings of safe working practices. Institutional practices differ across countries. Workers who come from a country where it is accepted on many sites to wear flipflop sandals when working with heavy machinery may give less thought to wearing PPE, for instance. David's eventual solution was to set up sessions with different groups coming together to share stories of their working cultures. This enculturated trust and support between the groups, and at the same time enculturated workers into different practices appropriate to their worksite. In an environment where there is trust, questions and feedback

become a norm (keeping in mind that norms constantly change as incidents and people change).

Present in David's story is an understanding of WpL shifting from an outcomes-based behaviourist, cognitive approach to learning, to a holistic enactment of WpL. Specifically, David considered relations between many aspects: individuals, the unit/department, cultural norms in the workplace, institutional and national understandings of safe working practices. To develop safe working practices, David implicitly understood that "cognitive action" involves using and interacting with artefacts (e.g., PPE, yellow lines marking out different uses of space, etc.), as well as of language and its situational meanings.[7] David was using a relational understanding of WpL, putting together the different aspects of work, place and learning. David's practice changed from seeing a problem as a set of gaps in learner's competence (and organising training

> HOW A PROBLEM IS FRAMED, HOW IT IS NAMED, DETERMINES THE SHAPE OF THE SOLUTION(S). GETTING THIS RIGHT IS CRITICAL IN DESIGNING WPL.

to address these), to digging deeper to understand what was going on. He asked questions of different groups of workers, to make decisions based on data. In using the data, he was able to deliberately put behind him the usual stereotypes and ways of thinking, and come up with different understandings of the problem and novel learning solutions.

How a problem is framed, how it is named, determines the shape of the solution(s). Getting this right is critical in designing WpL.

IS YOUR WORKPLACE SUPPORTING POSSIBILITIES FOR WPL?

Possibilities for WpL are embedded in the work, although the learning may turn out to be negative (e.g., I am not trusted, so why bother) or positive (e.g., leading to wanting to contribute more).

The importance of support, openness, trust and strong communication channels are nothing new to readers: they are basic foundations for WpL. Often classified as being part of culture, they are more than engineered conditions and a set of attitudes embodied by workers.[8] Cultures are dynamic, they constitute an organisation's structures, day-to-day practices of sayings, doings and ways of relating.[9] Therefore, it is necessary to constantly work at adjusting structures, means of recognition, opportunities for workers to share and work together, and much more.

HOW SU CHIN DEVELOPED A SUPPORTIVE WPL CULTURE

Su Chin, a new team head within a service organisation, quickly realised her team was demoralised. There was high attrition, practices were inconsistent, workloads were uneven, and other teams in the organisation that her team serviced were frustrated at not getting what they needed.

Determined to address these issues, Su Chin began with gathering data: she designed a set of questions, talked with team members and other teams, and found out what support was available within the organisation.

On analysing this data, she was pleasantly surprised to realise that her team members had developed resilience through self-learning to address the constant

changes the team experienced as a part of their work. Despite high attrition rates, she discovered two experts within the team with domain and know-how knowledge on procedures, processes and networks. New members were very willing to help, with some offering to participate in new projects, and finally, she found that feedback and knowledge exchange with the team's organisational stakeholders was strong.

Against this positive context were a number of constraints: the team experts felt unrecognised and undervalued; team members were protective of their domain knowledge, contributing to limited trust and issues with coverage during absences; internal stakeholders complained their requests were not handled on time and the quality of the work was poor; there were no regular feedback channels in place and no guides on how to undertake standard tasks.

Armed with this knowledge, Su Chin began gaining her team's trust by finding out, one-on-one, each team member's learning needs and reasons for their low morale. Using this knowledge, she organised training on common learning needs.

But first, she shared (generically) her findings from her one-on-one sessions with the message, "I hear you and these are the next steps". She introduced a buddy system to ensure coverage and support for each member, clearly laying out responsibilities, such as reviewing each other's work and covering each other's absences. She officially appointed the two experts as mentors to guide and support newer team members, giving them recognition and showing she valued their contributions.

Su Chin then established a number of project teams to develop frameworks for the writing of Standard Operating Procedures (SOPs) and process guides, and to actually write these. This process started off in small achievable steps with a pilot, with team members providing feedback and support, prior to widening this work. Su Chin also established a structured Community of Practice,[1, 2] as a space to provide feedback and support and identify improvement. All of this work was based on modelling and expecting open, honest, constructive feedback among team members.

Notes

1. J. Lave and E. Wenger, *Situated Learning: Legitimate Peripheral Participation* (Cambridge: Cambridge University Press, 1991).

2. H. Hodkinson and P. Hodkinson, "Rethinking the Concept of Community of Practice in Relation to Schoolteachers' Workplace Learning", *International Journal of Training and Development* 8, no. 1 (2004): 21–31.

IT IS NECESSARY TO PROVIDE OPPORTUNITIES FOR DIALOGUE, TO LEARN THE LANGUAGE WITH WHICH TO IMPROVE THINKING ABOUT THE WORK, AND OPPORTUNITIES TO PUT IDEAS TO WORK.

responsibility; and gradually building this trait in other team members. She also opened up communication channels, constantly building on the dynamic possibilities, nurturing a sense of pride and accomplishment.

The focus should always be on the relations between people, things and structures. Learning can be highly effective when learning through doing the work. The point is that it is necessary to provide opportunities for dialogue, to learn the language with which to improve thinking about the work, and opportunities to put ideas to work. All of which needs to be underpinned by a belief in your people.

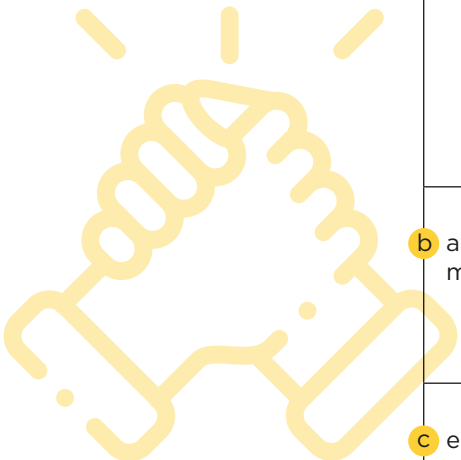## REALISTIC AND MEANINGFUL EVALUATION OF WPL

Evaluating WpL is not about assessing the knowledge and skills of individuals and teams. Rather, like any project such as David's and Su Chin's, the evaluation of WpL is anchored on how the problem is named and framed, the objectives set, and the processes and tools used. WpL is relational, complex and dynamic; using a simple metrics approach cannot capture the nature of WpL or its multi-faceted outcomes. The evaluation of WpL must appraise the impact of activity.

Su Chin (see box story) paid attention to this need, by providing not just a trustworthy ear but also tangible strategies to address her team's low morale and poor quality of work. Importantly, she did not assume she knew what the issues were; like David, she sought to find out, from the ground. She *talked with* people, holding an open mind and open heart. Rather than judging team members as inept, she began from a position that they had strengths and sought to uncover and grow these strengths. She used a combination of approaches: ongoing dialogue; clearly conveying her strategy and plans; listening to suggestions for improving on her ideas; bringing in external trainers; recognising expertise; giving those who sought it,
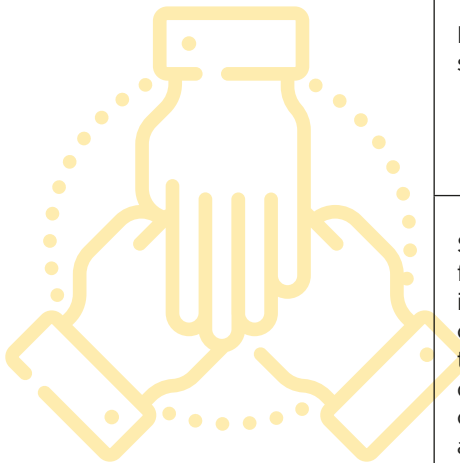
Project approaches to WpL can be a useful approach to evaluating WpL. Table 1 provides a simple, specific example of what this might look like, using Su Chin's example.

Table 1. Structuring Evaluation of WpL

AIM: To address xx team's low morale and improve quality of the work

Objective	Evaluation criteria	Evidence	Impact on stakeholders/ organisation
Team management to support team members' learning	1.1 Learning needs analysis using interviews	Notes from one-to-one sessions, brief report on analysis & recommendations	Team members feel they are being heard
	Shared learning needs to be addressed through:		
	a training	External trainer/coach appointed	Increased competence (through aligning the training with work and 1:1 support on the job, one session each)
	b appointing mentors	Knowledgeable experts officially appointed	Individuals recognised and contributing
	c establishing a Community of Practice (CoP)	Regular meetings and meeting notes (a shared responsibility)	Sharing and exchange of information

The team will consistently achieve quality work, and be able to judge and give constructive feedback	2.1 Team members are able to provide constructive feedback to improve processes and user experience	Information is freely exchanged, there is a sense of trust, and members continue to develop the language of constructive feedback	Information flow across the organisation is consistent, smooth and accessible
	SOPs (internal to the team) and Guides (for use by external stakeholders) that contribute to consistent performance	Improved scores of employee engagement survey Qs. x, y, z SOPs are used and accessible	Employees contribute above and beyond their job description
	Establish a structured CoP	Feedback from stakeholders that the Guides are helpful	Problems are quickly identified and solved meaningfully
	Sharing and feedback in the CoP contributes to ongoing development of expertise and problems solving	CoP meets regularly As for 2.1, the team develops pride in its work and achievements	

Table 1 provides a range of types of evidence. Much of it is qualitative, but nevertheless tangible. Implicit in this evidence is the development of a team identity that members are proud to belong to. Also inherent in this approach is that decision-making for identifying, framing and solutioning of problems is delegated to those doing the work. The relationship between job-design and WpL is important to keep in mind. In work settings, learning is richest when workers are identifying, framing, and meeting challenges.

WPL IS NOT ABOUT TEACHING, NOR IS IT ABOUT JUST ONE WAY OF DOING AND THINKING ABOUT A TASK.

IN WORK SETTINGS, LEARNING IS RICHEST WHEN WORKERS ARE IDENTIFYING, FRAMING, AND MEETING CHALLENGES.

SOME FINAL THOUGHTS

WpL is not about teaching, nor is it about just one way of doing and thinking about a task. There is considerable research to show that the natural sensemaking ability of humans means that workers come up with a myriad of ways to achieve

needed outcomes (be it consistent, high-speed accuracy or highly complex solutions). This appears to be, in part, a means to minimise mental and/or physical effort, leaving more energy for other contributions.[10]

As a study of learning and innovation in Singapore small and medium-sized enterprises (SMEs) indicates, WpL is part of the identity of an organisation, of the way it is, and constantly evolves:

> Work complexity and variety are shaped not only by roles and expectations, but also by the perceptions of staff and their managers. Crucially, how managers and leaders perceive their staff and their work significantly influences an individual's self-perception and inclination towards learning and innovation. As such, an organisation's leadership is closely related to the learning opportunities provided for the worker.[11] ■

Notes

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11. See Note 8, 40.

HORSEMEN AND SUPER-POWERS:

LEARNING TO DESIGN IN GOVERNMENT

by **Agnes Kwek**

A decade of design thinking experiments has taught one former policy designer what kills innovation, and what helps it thrive.

Agnes Kwek is the Founder and CEO of MindTheSystem, which offers consultancy and training in approaches to complex problem-solving. Its approach is based on 20 years of government experience in complex environments, and combines futures foresight, systems thinking, human-centred design, and psychological approaches to change management. Agnes served in the Singapore Administrative Service across varied portfolios including defence, labour, community and social welfare, public service transformation, land transport, and design industry development. Her niche is in transforming organisations through design. She was trained in design thinking at IDEO, and headed the DesignSingapore Council in 2016–2018. She lives in Paris, France, and works virtually with her clients. She can be contacted at agnes_kwek@mindthesystem. com and LinkedIn.

DESIGN'S TRANSFORMATIONAL SUPER-POWER

The Singapore Public Service has had a longstanding reputation of efficiency and customer service. We have been at the forefront of e-government services, referenced heavily from private sector management frameworks and principles, and have undergone decades of process improvement methods such as Six Sigma and Kaizen.

By the time I was tasked to develop public sector innovation and service approaches in the Prime Minister's Office in 2009, there were very little efficiency gains left to be squeezed out of the system.

We were also experiencing the tensions and limitations of frameworks and principles adopted from the private sector around customer service. The fact is that, as government, we don't choose our customers. The act of governing is about seeking the best compromise: you cannot make everyone happy.

The 'aha' moment came when I visited a Ministry's new service centre, co-designed with IDEO. While others on the same tour probably saw a very lovely space, I saw something completely different: I saw transformed civil servants.

These were former colleagues, with whom I had once written rules which were sometimes kept deliberately opaque to prevent people from 'gaming the system'. Implementation of these rules required convoluted processes. And as 'typical civil servants', we had been afraid of getting 'feedback' from the public, because they invariably were complaints.

Except now during that particular visit, these same ex-colleagues were saying things like: "we want to be transparent about our processes", and "we want people to feel guided in meeting their goals", and "we need to trust our customers if we want them to trust us", or "we need to talk to the public to understand their experience from their eyes". I asked myself: *what happened to them?*

Design happened to them.

THE POWER OF DESIGN

The sheer breadth of what is considered design and how it affects our lives is mind-boggling—everything from how we use everyday products like a hair dryer, how we access key services like healthcare and education, how we buy things online, how spaces make us feel, and how we express ourselves through what we wear. Design is simply everywhere.

> **They learnt to listen to people's stories and search for meaning behind those experiences. They came to view their customers as partners in achieving the same goals, not as adversaries. Most of all,** *they learnt to let go of fear.*

This Ministry had used the design thinking process to conceptualise the service centre, thinking from people's needs first and space second. They learnt to listen to people's stories and search for meaning behind those experiences. They came to view their customers as partners in achieving the same goals, not as adversaries. Most of all, *they learnt to let go of fear*: the same fear I see holding back so many well-intentioned attempts at change and innovation.

Right then and there, I realised that in order to transform public sector outcomes, we needed to first transform our public officers. Design is not just about the outcomes, although they are important. Design is a mindset; a way of thinking and behaving around problems that puts people first.

I was convinced that we needed to implement design thinking in the public sector. My team and I tried many things: we commissioned a series of experiments using design thinking in four policy areas—to very limited or even no success (more on that later). We wrote a manifesto which was shared with public sector leadership about how to become a citizen-centred public sector. We visited

MindLab in Denmark and NESTA in the UK. In 2011, we set up the Singapore public sector's first in-house design lab, and hired designers into the Public Service. Back then, very few people had heard of design thinking. We had to do a lot of education and awareness-raising.

It felt fantastic, it felt revolutionary. We felt like a small ragtag group of people trying to change the world through design. But we fell short of the impact we had thought we would achieve.

Why?

LESSONS LEARNT: THE FOUR HORSEMEN OF DESIGN DEATH IN GOVERNMENT

The problem is that 'improved user experience', the Super-Power of design thinking, is insufficient *on its own* to overcome many of the wicked and complex problems that governments face.

> **The problem is that 'improved user experience', the Super-Power of design thinking, is insufficient on** *its own* **to overcome many of the wicked and complex problems that governments face.**

In business, if you can improve your customers' experience over your competitor, identify and serve previously unmet needs, or refine existing offers for new markets with new behaviours, the market will reward you. Improving user experience is a strong premise for innovation. This premise further rests on three grounds on which businesses function: one, as long as the new idea has commercial value, you go for it. Two, having proven your business case, you can assemble teams, make new hires, invest in technology and start development. Three, the moment the idea stops making money, you can discontinue it. In other words, design thinking in the private sector depends on an unambiguous goal (profit), a *tabula rasa* for implementation, and a clear exit strategy.

But governments deal in a very different space. After a decade of observing countless design projects in government, I have discerned a clear pattern for why design thinking does not work the same way for governments as it does for businesses. I call this the Four Horsemen of Design Death: *Trade-offs*, *Disruption*, *Committees*, and *Grandfathering* (not what you think it means).

First, on goals. Governments deal in the space of multiple and sometimes conflicting policy objectives. Would climate-friendly policies increase business costs and reduce competitiveness? Would stronger social safety networks reduce motivation to work? Is levelling the playing field the right approach towards improving social mobility? A business can hone in on a target market and decide whose experience they want to improve. But for governments who must rightfully
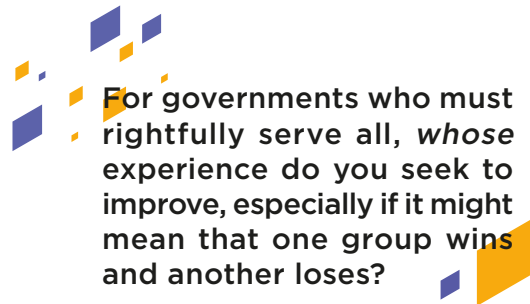
> **For governments who must rightfully serve all, *whose* experience do you seek to improve, especially if it might mean that one group wins and another loses?**

serve all, *whose* experience do you seek to improve, especially if it might mean that one group wins and another loses? The first Horseman of Design Death is **Trade-offs**, the key reason why our policy experiments using design thinking did not quite pan out. After all, policy is the art of navigating trade-offs.

Then let's look at implementation. Governments operate with legacy systems in policies, technology, HR, finance and procurement. A new idea, or even worse, a *disruptive* idea, does not carry the same connotation as in the business world. There is nothing cool about disruption in government. You are not disrupting the competition, you are only disrupting yourself, as well as the key essential services that millions of people have come to depend on. You do not want to be known as the government who said, "We are disrupting schools tomorrow!" Stability is prized above all else. **Disruption** is the second Horseman of Design Death.

Implementation also depends on other stakeholders willing to change how they do things. These could be other departments, other agencies, non-governmental players, or simply the public. The project team does not have direct control of the stakeholders, but can only seek to influence and persuade, usually through

Implementation depends on other stakeholders willing to change how they do things.

Committees: the third Horseman of Design Death. They suck up time and energy, are usually outside the core work of the secretariat, and sprout like mushrooms but are notoriously hard to close down, even long after their reason for being has lapsed.

Finally, let's look at exit. Businesses can pull products, services or teams out of market. But a government can't simply shut down an aid programme, an IT system, or an agency overnight because 'it didn't quite work out'. I have been involved in closing off government programmes before, and it actually takes longer than setting new ones up. Meet the final Horseman of Design Death: **Grandfathering**. It means to transition a set of people under old rules and processes while implementing a new system with new rules. The greatest fear of civil servants in implementing a policy change is the nightmare of managing a spaghetti tangle of rules, processes and systems for different sets of people. You'd be surprised at how many seemingly minor exceptions have to be managed through manual processes. Grandfathering means that even as a civil servant is considering a new programme, he is already thinking about how he would have to carry the can long after it fails.

Hence, the clarion call of Design, of the 'improved user experience', simply does not carry the same pull in government. And this is not because we don't care

about people's experiences, but because there are other important things at stake. Valiant teams have tried design thinking but stumbled over the implementation of ideas. One of the key refrains is: "The idea is great, but we just can't implement it". At other times, design doesn't even get its foot through the front door. With all the risks associated with change and unclear benefits, the desire to improve user experience just doesn't make the priority list.

DESIGN ALONE IS NOT ENOUGH

I still believe in the transformational power of design: that it can create impactful outcomes for citizens, and that it can help the Public Service become more responsive and resilient. I've also learnt that the Four Horsemen can be overcome—provided certain other conditions are in place.

First, there has to be a really clear, rational and justifiable case for why a government prioritises the needs or experiences of some users, especially if it involves a trade-off against another. The most compelling cases I've seen are those that say: **improving the experience for this group now will help us hedge against some problematic but undeniable long-term trends.** Demographic shifts, climate change, technology breakthroughs, and social attitudes are all examples of forces affecting the government's operating environment, which are difficult to influence or reverse. Businesses call these market studies; in government we call it

futures thinking: the research and study of long-term drivers and forces, critical uncertainties, and potential scenarios.

When I directed the Land Transport Authority's transformation efforts, the CEO at that time explained that design was critical because Singapore was short on land and we could not continue building roads for cars. Public transport simply could not compete against the sex appeal and status of cars and hence needed to be *loveable*, not just cheap and accessible. In another example, the Defence Science and Technology Agency[1] invested heavily in design innovation capabilities for its engineers because Singapore's declining citizen population meant that there will be fewer national servicemen in the future, and hence any technology has to be intuitive to use. GovTech's LifeSG was conceived to address Singapore's declining population, aiming to support young adults' coming of age and navigating parenthood.[2] When design supports long-term thinking, it has the greatest chance of disarming the Horseman of Trade-Offs. It may even make Grandfathering bearable, and Disruption worth considering.

Second, designers in government must see their job not as designing one single beautiful solution, but a *set of solutions* across different parts of the system.

Designers in government must see their job not as designing one single beautiful solution, but a *set of solutions* across different parts of the system.

This inevitably involves compromises to the original design ideas. While each individual solution might not be as sexy or revolutionary as desired, they may together form a coherent set of interventions to tip the system towards a new state. In other words, design thinking meets systems thinking. IDEO.org's Theory of Change model is very relevant for this.[3]

A good designer in government is a systems designer. He or she must understand the critical stakeholders in the delivery system, which piece of the puzzle they each hold, their inherent motivations, and what will spur collective action. **The job of designer in government is as much about the quality of conversations as the quality of solutions.** The key tools of a designer here are reflecting aspirations (*why is this important to the collective us?*), finding common ground amid different perspectives, searching for exceptions (people who are already managing the problem in new effective ways), and helping stakeholders navigate one another. This holds true whether we are talking about balancing trade-offs or coordinating implementation across agencies.

As challenges get more complex, the alliance-building aspect of a designer will only get more important, and this is not just restricted to government. The recent Emerging Stronger Taskforce Alliances for Action are perfect examples of alliance-building conversations at industry or even cross-sectoral scale.[4] The topics covered by the Alliances on the future of robotics, smart commerce, ed-tech, and sustainability (to name a

> **As challenges get more complex, the alliance-building aspect of a designer will only get more important.**

few) were the perfect foil for design, and indeed designers were involved in some of the innovation sprints. However, the designer is not only designing just a solution or service to grow new markets, but also a business case that represents a new form of organising relationships or supply chains. If designers lack the systems mindset, even the most exciting commercial ideas could not be implemented in this alliance context.

ADDRESSING COMPLEX CHALLENGES WITH DESIGN

There are many instances where design thinking delivers an important impact to public sector outcomes. I find that design works best when it is applied to a contained moment of interaction between the government and the public. There are many great examples in Singapore of this: the HDB Service Centre at Toa Payoh, Ministry of Manpower's Employment Pass Service Centre, Khoo Teck Puat Hospital, and even the Family Courts have all used design thinking to create a supportive environment for users. The most important outcome from design is relational; we are not just making essential services more efficient, but also providing assurance and improving trust between government and citizens along

the way. This trust credit is what gives strength to our social fabric. It allows us as a nation to rally together during tough times like the COVID crisis. This alone makes design extremely important for governments.

But in order for design to have a true impact on the wicked, complex problems that governments have to solve—climate change, helping small businesses stay competitive, improving social services, preserving arts and heritage, transforming industries, reinvigorating communities—design has to be used in tandem with Futures Thinking and Systems Thinking. While we can pursue each domain as a separate line of enquiry, eventually we have to bring the answers together to gain clarity about the complex problem at hand.

In addition, we should use the tools of design—deep human understanding, storytelling, ideation—to support Futures and Systems. Good conversations are the channels through which we build collective intelligence and drive collective action. This is a fundamentally different dynamic from that of Committees, which tends to be: "I want to achieve this goal so please change what you are doing." Instead, the Design dynamic is: "What do we understand about this challenge? What are we trying to achieve together?" This is essential for managing complexity.

In short, the key to learning how to design the future involves:

1 Knowing what questions design can and cannot answer; and

2 Using tools of design for conversations.

Designing the Future

What challenges or opportunities might the future bring,
and what does success look like?

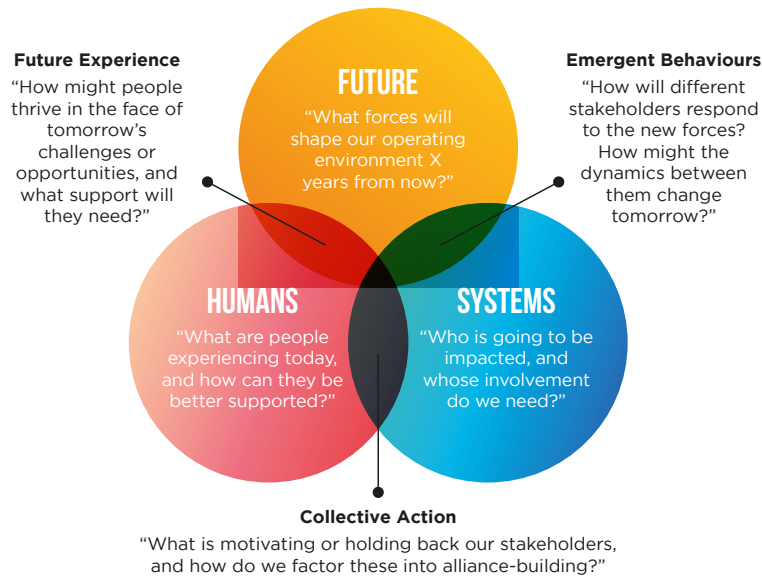Who do we need to design solutions for, and who holds the keys to those?

Future Experience
"How might people thrive in the face of tomorrow's challenges or opportunities, and what support will they need?"

FUTURE
"What forces will shape our operating environment X years from now?"

Emergent Behaviours
"How will different stakeholders respond to the new forces? How might the dynamics between them change tomorrow?"

HUMANS
"What are people experiencing today, and how can they be better supported?"

SYSTEMS
"Who is going to be impacted, and whose involvement do we need?"

Collective Action
"What is motivating or holding back our stakeholders, and how do we factor these into alliance-building?"

Figure 1. Design for Complex Challenges

BALANCING FUTURE, SYSTEMS AND HUMANS IN TAX COLLECTION

The Inland Revenue Authority of Singapore (IRAS) is a prime example of hitting the bull's-eye between Future, Systems and Humans. What initiated IRAS's digital push for e-filing way back in the 1990s was actually a very central realisation of Humans—that the vast majority of people actually wanted to pay taxes and not run afoul of the tax authority. Hence, IRAS set out to make it as easy as humanly possible to pay taxes. This involved key stakeholders like employers submitting income information back-end to IRAS so that taxpayers did not have to even declare their income statements (Systems). Why? As Singapore is a small country, fiscal discipline will always be an important factor for our survival (Future).

IRAS may not have thought of what they were doing back in the 1990s as design, but it is essentially a very human-centred mindset, coupled with a clear eye on the future and a rigorous systems approach. When civil servants take on complex challenges, whether through approaches called design thinking, digital transformation, or community engagement, they must make sure they are always addressing the *whys* and *hows* of Future, Systems and Humans.
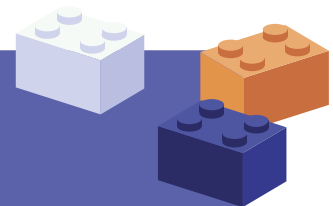
EPILOGUE: LEARNING FROM THE FRONT ROW

In my career in the Public Service, I have enjoyed a front row seat to the evolution of design thinking in the Singapore Government for over a decade. Today, I estimate that there might be thirty-plus in-house design capabilities spread across the Singapore Government. They call themselves different names like Customer Experience or Digital Transformation, but the design thinking mindset is core to their way of working. Some have even hired professional designers. Public Service leaders are also much more exposed to and supportive of design thinking.

In speaking with many of my public sector colleagues, I know they still need support to overcome the Four Horsemen. I suspect that they are going through the same emotional journey as I went through years ago: starting off

The most important outcome from design is relational; we are not just making essential services more efficient, but also providing assurance and improving trust between government and citizens along the way.

fully inspired by the power of design, and then becoming deflated bit by bit along the way when the impact did not live up to the potential. We need to help them and others overcome the learning curve of how to use design to its fullest impact in government. Frameworks and tools are just the surface. Design is not something that you do; it is the way that you think and behave.[5]

My aspiration is to help build design muscle memory for approaching complex problems. ■

Notes

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