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EDUCATING THE WORKFORCE OF THE FUTURE

WITH technology advancing at an unprecedented pace coupled with the continuous rise of globalisation, there is concern among Malaysians that our education system is at risk of producing a generation that is unable to meet the demands of the future workforce?

The evolution of how our children are educated has been a favourite dinner table topic of discussion. From reminiscing about the heydays of Universiti Malaya being one of the best higher education institutions in the Asia Pacific region, to debating about the appropriate medium of instruction for Mathematics and Science subjects, what we can all agree upon is that Malaysia needs to remain competitive to not be left behind.

SHORTCOMINGS OF CURRENT EDUCATION SYSTEM

Can rote memorisation and regurgitation be categorically defined as learning? To some extent, it can be. However, questions should be raised if the knowledge obtained is hardly retained post written examination, as is commonly heard from our public-school alumni.

Dr Abdul Wahed Jalal of the Institute of Strategic and International Studies makes the following observation: "Like most countries in the Asia-Pacific region, Malaysia regards public examination results as important determinants of a student's progress to higher education, as well as occupational opportunities."

It therefore follows that if performing well in examinations requires such skills, the teaching and learning process will be directed in that direction.

Notwithstanding an exam centric society, literacy in English, Mathematics and Reading among secondary students is poor on a global scale. In a 2013 study done by the World Bank, it was noted that despite spending adequately on education (per World Bank standard) and outspending some ASEAN countries on basic education, Malaysia's 15-year-old students could only outperform their Indonesian peers, lagging lower income countries like Vietnam quite substantially in the 2012 Programme for International Student Assessment (PISA) testing.

The World Bank surmises that the way forward for Malaysia is a revamp of its institutions, particularly, its highly centralised education system, which has resulted in a lack of autonomy in decision-making, causing schools to struggle to meet local needs.

SKILLS FOR THE FUTURE WORKFORCE

"To be successful, individual and interpersonal development is critical in the advancement of one's career. Skills such as leadership and resilience equip individuals with the ability to thrive with their responsibilities, while values and morals guide decision making," explains Datuk Dr Mohd Daud Bakar, Chairman and Founder of Expert Analytics Centre (EAC), Malaysia's dedicated centre for Artificial Intelligence (AI) research and development.

"With an ever-changing business environment fuelled by, among other drivers, global connectivity, smart machines and greater longevity, it is futile to attempt to accurately predict specific labour requirements. Should our enquiry therefore be directed towards identifying certain skills, which if possessed, better equip our youths?"

The Ministry of Education recognises that our system needs to be constantly evolving to stay abreast with disruptive technologies which are expected to dramatically reshape the present-day business and social landscape.

To overcome this the MoE aspires to produce "holistic, entrepreneurial and balanced graduates". To achieve this, the education system will be revamped over 11 years, in three separate waves.

According to Daud, "Malaysia's far sighted education system is aware that there are limits to systemic success, and so it rightly aspires to not only equip today's youth with transferrable skills and sound ethical foundations, but also imbue the persistence and enterprising spirit necessary to forge new opportunities."

"Success will be achieved if, per the MoE's goal of producing "holistic, entrepreneurial and balanced graduates", every graduate has the relevant disciplinary knowledge and skills (ilmu), ethics and morality (akhlak), as well as the appropriate behaviours, mindsets, cultural, and civilisational literacy (beradab) to advance them to a high level of personal well-being."

EDUCATING WITH TECHNOLOGICAL INNOVATIONS

"Although significant system improvements are needed, we must not forget that we are living in the most exciting of times where technological innovations boldly disrupt traditional institutions of all industries and challenge conventional ways of operating. It would therefore be foolish not to consider whether education technology (EdTech) innovations can play a part in accelerating the realisation of such changes," explains Dr Daud.

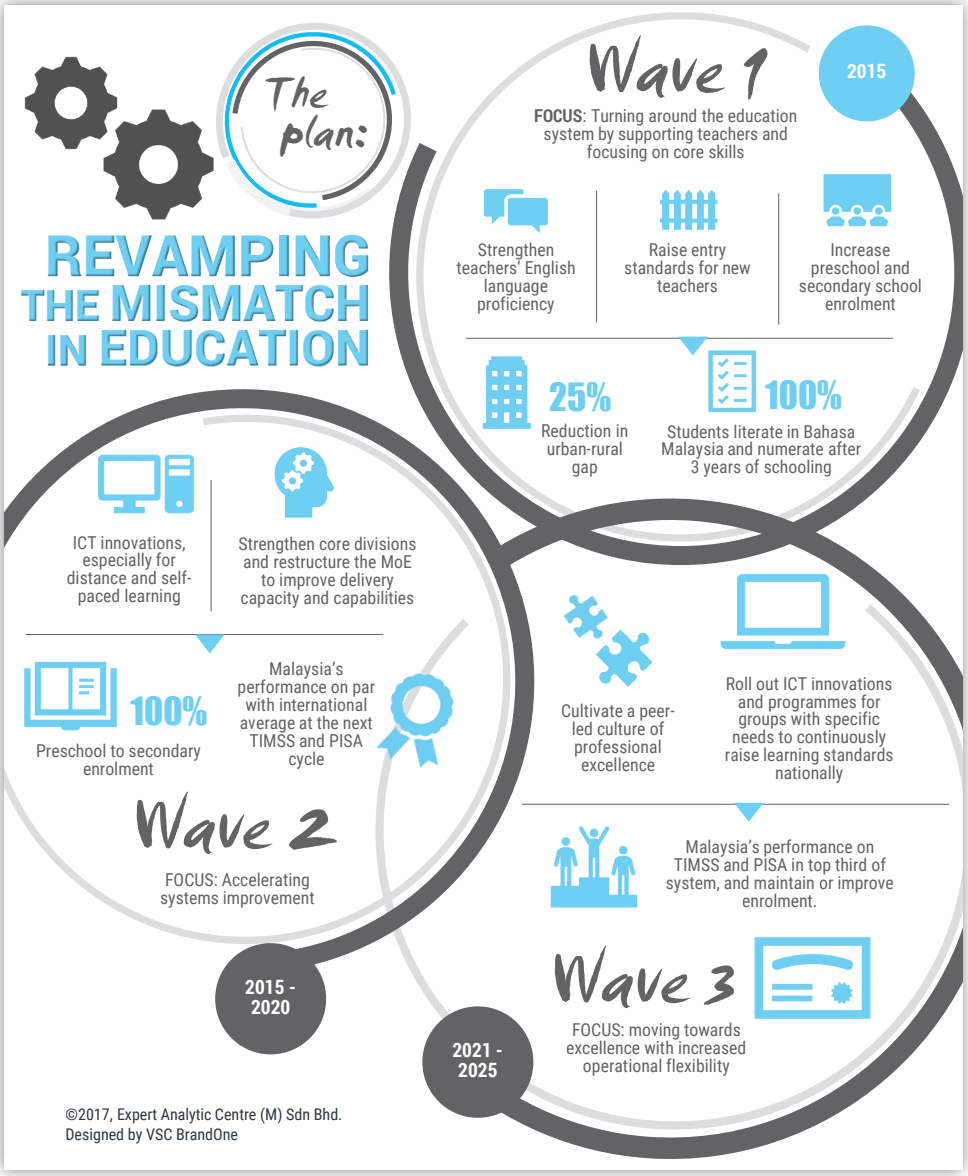
"For example, massive open online courses (MOOCs) and personalised learning will dramatically alter the way in which education is delivered. MOOCs will allow students to learn at their own pace and bypass financial and geographical constrains to access high quality information. On the other hand,

personalised learning, will empower students to drive their own interest-based learning, with complete control of how, when, and where they learn."

While we will see changes in the way education is delivered to students of all education levels, will we be able to leverage on such innovations to better prepare our youths for the new economy? Thankfully, leading the charge in preparing students is Artificial intelligence (AI) powered education analytics.

Schools have long amassed data: tracking grades, attendance, enrolment, retention, and other demographics. But, little has actually been done with this information — whether due to privacy issues or technical capabilities — to enhance the learning experience of students.

"The logic of employing education analytics is that it allows for an unprecedented capability for decision making based on large volumes of transaction data as well as other forms of data that may be untapped by conventional business intelligence (BI) programs. Rather than evaluate a learner the traditional way by examining his/her grasp of narrowly defined subject areas, education analytics evaluates the complete profile of an individual," explains Nazri Muhammad, EAC CEO and Global Head of its Data Science and Analytics unit.

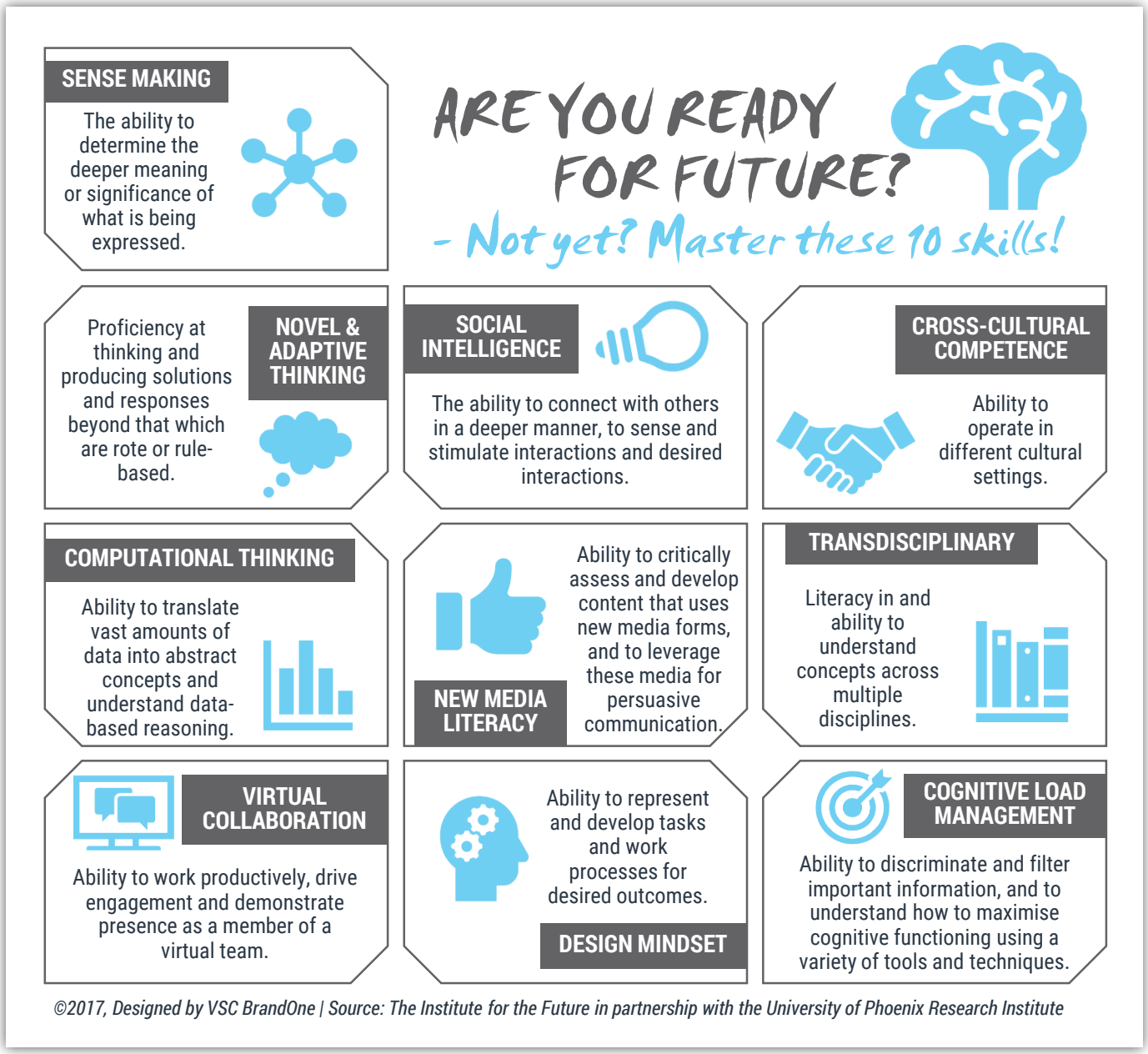


NO	DOMAIN	DESCRIPTION
1.	Self-management	Ability to control impulses and manage stress, be self-motivated and disciplined, capable of goal-setting and having organisational skills.
2.	**Social awareness**	**Possess values and ability to be perspective taking, empathetic, appreciates diversity, and capable of respecting others.**
3.	Relationship management	Ability to communicate, be socially engaged, build relationships, work cooperatively, negotiate, manage rejection and conflict, and seek and provide help.
4.	**Self-awareness**	**Ability to identify and recognise emotions, is self-perceptive, is aware of strengths, needs and values, has sense of self-efficacy and is spiritual.**
5.	Responsible decision-making	Ability to identify the problem and conduct situation analysis, solve problems, be evaluative and reflective, and possesses personal, moral and ethical responsibility.

Source: Singapore Ministry of Education

Through identifying an individual's strengths and weaknesses, difference in behaviour (if any) at school and at home, response to environmental stimuli etc, educators gain insight on how to effectively cater to the needs of each individual.

EAC hopes to play a role in addressing the skills gap. EAC recently partnered with a Malaysian public university to conduct a study on 100 of their students, which involved assessing to what extent is a student ready to be a job creator by measuring his/her competency across the 5 "Job Creation readiness" domains, through our Job Creator Profiling Scorecard (JCP).



The students involved were given a numerical rating (of between 1.0 to 5.0, with 1.0 being "Poor" and 5.0 being "Excellent") for each of the five domains. Importantly, the purpose of the results generated is not to examine how each student performed relative to each other, but rather to inform every student of their respective strengths or inclinations and to suggest areas of improvement.

The five domains measured by JCP reflect three of the "student aspirations" identified in the Malaysia Education Blueprint 2015-2025 (Higher Education) MEB (HE), namely ethics and spirituality, leadership skills, and thinking skills.

For example, a student who scored 4.2 (Good) on "Social awareness" is likely to possess strong leadership skills, which per the MEB (HE), includes being an effective communicator, emotionally intelligent, socially responsible etc. Similarly, a student who scored 2.5 ("Poor") on "Responsible decision-making" needs to improve on both his/her thinking skills, which per the MEB (HE), includes having problem-solving initiative, being able to think critically, be innovative etc.

The following two tables illustrate the cumulative results of the assessment. A cursory observation of the results show that most students possess average to good "Job Creation readiness", with the minority being rated as "poor" or "excellent". It is interesting to note that more than half of the sample group possess good "social awareness" and "responsible decision-making" abilities, perhaps indicative of maturing adults who are conscious of human social dynamics and able to assess the consequences of their actions/inactions.

While having a descriptive "Job Creation readiness" profile of each student is informative, the real value of each report lies in the person-specific action steps that if taken seriously, will result in a tangible upturn of results. The minority groups of students who were rated "poor" for "relationship

Cumulative/Overall

DOMAINS	RATING
Self-management	3.66 (Average)
Social awareness	4.25 (Good)
Relationship management	3.75 (Average)
Self-awareness	3.84 (Average)
Responsible decision-making	4.01 (Average)

Individual breakdown

	POOR	AVERAGE	GOOD	EXCELLENT
Self-management	4 (4.17%)	51 (53.13%)	29 (30.208%)	12 (12.5%)
Social awareness	3 (3.125%)	14 (14.583%)	62 (64.583%)	17 (17.708%)
Relationship management	4 (4.167%)	49 (51.042%)	37 (38.542%)	6 (6.25%)
Self-awareness	4 (4.167%)	44 (45.833%)	39 (40.625%)	9 (9.375%)
Responsible decision-making	3 (3.125%)	21 (21.875%)	57 (59.375%)	15 (15.625%)

management" will be relied on as an example here.

The four students who scored poorly on "relationship management" were generally found to lack confidence in communicating with others, citing a poor command of languages, which has caused them to be anxious in social situations. To overcome their anxiety, the responding actions steps include having patience, and trusting that with practice and an openness to making mistakes, their ability to communicate will improve. Importantly, the students were reminded that their struggles in verbal communication is not a personality flaw.

Nazri is confident that such insight will give a deeper picture of the readiness of young Malaysians to be job creators in the coming years. "While the sample size of 100 students is relatively small, there is further scope to expand its coverage when more education institutions come forward to participate."

"We envisage that EAC can effectively nurture students in the field of big data and analytics – and help them become entrepreneurs through our Management Associate Programme (MAP). At MAP, we expose them to various functions of business management in a start-up setting, which develop practical, lifelong skills that can prepare them to handle the intricacies of running their own businesses in the future."

THE APPROPRIATE RESPONSE FROM STAKEHOLDERS

The data gathered through education analytics will only come alive through the execution of various stakeholders, who must not only do their part but also work together in revamping Malaysia's education system.

The MoE should press on with its plans to upgrade the ICT knowledge and skills in both students and teachers. The MoE must also continue to develop language proficiency and general literacy. Perhaps it is also time for Malaysia to remain firm in requiring English as one of the main languages of instruction.

If employers desire to recruit more able employees, it must play a more active role by partnering with schools. Schools can revamp their career preparation efforts by incorporating career readiness indicators into accountability systems and incentivize students to earn industry certification credentials in high-skill, high-demand fields. Employers can then offer valuable work experience and mentoring to students.

Nazri believes that teachers must embrace the reality that rote memorization will no longer be viable in the classroom of the future. "Instead, teach students how to locate relevant information, think critically to overcome inherent biases and assess the current or potential uses of new information. The Socratic method of teaching will be extinct and be replaced by interactive discussions that encourage curiosity."

"Parents must also play an active goal in helping their child succeed. At home, parents can mould positive attributes such as confidence and persistence, while strong family values will provide the stability a child needs to excel."

Students themselves need to take the lead to maximize their education and increase their chances of success. Intellectual curiosity leads to better educated and more informed workers who can quickly cultivate into value adding talent. Students who fully engage with their studies will inevitably develop faster.

Participating in group projects and co-curricular activities will help develop leadership, teamwork skills, and hone problem solving skills. Being bold in tackling challenges is far more impressive to employers as it arms students with credibility and builds their confidence.

Despite the complex challenges facing the Malaysian education system, we must not lose hope. In fact, we can move forward knowing that the MoE is executing the MEB (HE) and that the federal government is encouraging youth entrepreneurship. In addition, the sprouting of numerous EdTech startups around the world is promising to create a world where the delivery of knowledge is radically different to what we have been used to.

Advances in education analytics on the other hand, is informing stakeholders with accurate insights on a student's learning profile, thus facilitating better career planning. However, to maximise the potential of each of these efforts, relevant stakeholders must play their parts and work together. mb