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## **The Learning Revolution: From Pedagogues to Designers of Learning**

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The turn of the 21<sup>st</sup> century brought along with it a growing renewed interest in the concept of learning. A fitting example of this is what many have recognized as lifelong learning. Although the term, which was first introduced in the 1970s, initially mean giving adults access to formal courses at educational institutions, its meaning has now morphed to become more comprehensive (Badescu, 2014). Lifelong learning can be understood in varying perspectives: training, personal development, trade union, community, institutional, and personal (Payne, 1999). The expansion of the term is predominantly the result of the growing recognition given to the all-encompassing nature and importance of learning in individuals and societies. The usage of the term ‘learning’ also attests to the increasing premium placed on learning. The value on learning is evident in its ubiquitous usage in connection to a growing plethora of terms such as the following: E-learning, everywhere learning, innovative learning, problem-based learning, inquiry-based learning, big data learning, virtual learning environment, just-in-time-learning, job-embedded learning, learning communities, collaborative learning, group learning, collective learning, cooperative learning, distance learning, mobile learning, computer-aided learning, leadership for learning, learner-centred learning, student-centred learning, game-based learning, virtual reality learning, brain-based learning, situated learning, authentic learning, proficiency-based learning, knowledge-based learning, online learning, etc.

The many adjectives accompanying the word ‘learning’ reflect the diverse range of modes or approaches by which learning takes place. These wide-ranging terms pertaining to learning speaks volume to the primacy of learning in today’s world. Learning can thus be said to have become history’s newest revolution (Dryden & Vos, 1999) in the era of the 21<sup>st</sup> century. However, what is more essential is what all these diverse range of modes of learning seek to accomplish – that is, a diverse range of outcomes that pertain to 21<sup>st</sup> century learning, which are considered to be appropriate for the future world that we have now entered in. Notwithstanding the diverse perspectives on the idea of 21<sup>st</sup> century skills, the Partnership for 21<sup>st</sup> Century Learning framework (P21) (2007) has identified four main clusters of 21<sup>st</sup> century learning skills:

### **1. Key Subjects and 21<sup>st</sup> Century Themes**

Besides key subjects such as English, mathematics, economics and science, the following inter-disciplinary skills are included: global awareness; financial, economic, business and entrepreneurial literacy; civic literacy, health literacy, and environmental literacy.

### **2. Learning and Innovation Skills**

Skills include the following: creating and innovation; critical thinking and problem solving; communication; and collaboration.

### **3. Information, Media and Technology Skills**

Skills include the following: information literacy; media literacy; and ICT literacy.

### **4. Life and Career Skills**

Skills include the following: flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; and leadership and responsibility.

Some perspectives adopt a more holistic framework to the 21<sup>st</sup> century outcomes that explicitly include values underlying core 21<sup>st</sup> century competencies. For example, the Singapore education ministry outlined the cores values of respect, responsibility, integrity, care, resilience and harmony underpinning social and emotional competencies (self-awareness, self-management, social awareness, relationship management, and responsible decision-making), and emerging 21<sup>st</sup> century competencies (civic literacy, global awareness, and cross-cultural skills; critical and inventive thinking; and communication, collaboration and information skills)<sup>1</sup> (MOE, 2011).

Undoubtedly, the value placed on learning has the strong backing of policymakers, who are motivated by the need to successfully compete in the global market place. Learning has now become a vital commodity in the knowledge economy. The knowledge economy marks a significant turn in the way nation states compete in the global market place. In a knowledge economy, the productivity and growth in all types of industries – extraction of raw materials (primary), manufacturing (secondary) and services (tertiary), are accelerated by knowledge-based activities – namely, inventions and innovations. Seen in this light, it is perfectly understandable to see inventive and innovative thinking as part of the 21<sup>st</sup> century competencies which education policymakers arduously pursue and wish for schools to accomplish.

Although the term ‘knowledge economy’ was first popularized by Peter Drucker in his book “The Age of Discontinuity” in 1969, its steep rise in popularity and value came at the turn at the 21<sup>st</sup> century. This is in part due to the growth in technologies such as information and communication (ICT), and digital computing, which had also contributed to the acceleration of the production and dissemination of knowledge and information. Other technologies are now pushing innovations further such as robotics, artificial intelligence and Fintech, along with the creation of

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<sup>1</sup> [www.moe.gov.sg/docs/default-source/document/education/21cc/files/annex-21cc-framework.pdf](http://www.moe.gov.sg/docs/default-source/document/education/21cc/files/annex-21cc-framework.pdf)

new economies (e.g., digital economy, network economy, sharing economy, creative economy). Societies are no longer experiencing a few technologies, rather a combinatorial technology explosion (Greenberg, Hirt, & Smit, 2017). Underlying the creation of new technologies and economies is the strong competition among businesses, organizations and nation states. There is the need to increase productivity through increase revenue, lower costs, and satisfied customers. Learning at the individual level and learning at the collective and organizational levels would thus serve to increase productivity. In the current economic climate where every degree of competitive advantage matters, it is no wonder that learning – along with the diverse outcomes of learning, are highly prized.

The commoditization of learning has also been fueled by employees who seek to translate their learning to relevant qualifications and skills that satisfy not only employers' demands for appropriate knowledge and skills to improve productivity, but also their increasing aspirations to improve social mobility. Besides the need to attain productivity and competitive advantage, learning is also valued in view of the changes in contemporary societies characterized by volatility, uncertainty, complexity and ambiguity. In such contexts, individuals, communities and societies must remain adaptable, resilient and self-directed, and have problem-solving skills, responsibility and integrity. The growing complexity in societies is also another key factor in promoting learning in individuals, communities and societies insofar as the weakening of classifications in social structures promote the growth of network culture (Castells, 1996) and networked systems (Bar-Yam, 1997). These societal shifts provide the justification for the 21<sup>st</sup> century competencies on collaboration and communication.

Taking into consideration the primacy on learning for current times, it behooves teachers – and educators in general, to focus on the designs of learning. Teachers are no longer the sole purveyor

of knowledge. Learning has become far more sophisticated than just the transference of knowledge from teachers to students. There are now more sources of knowledge and more ways of learning than ever before. This is not, however, to say that didactic teaching is no longer relevant. Rather, teachers are now compelled to have a much wider range of pedagogical knowledge, and have to become designers of learning. The notion of designing learning also goes beyond the notion of curriculum developers along with its close ties with curriculum content, pedagogy and assessment. In fact, the term curriculum has been defined as “all of the educative experiences learners have in an educational program” (Hass, 1987, p. 5) – signifying that learning must be understood as part of more holistic and ecological perspectives and systems. Hence, teachers need to see themselves as designers of learning instead of just pedagogues or facilitators of learning.

This mindset shift is crucial for educators across the school organization and education system as a whole. The assumption that policymakers conceptualize education reforms for school teachers to implement, and school leaders to support teachers in the implementation of education reforms is untenable and unsustainable. This is simply because the world systems are becoming more complex in terms of its rapidity, uncertainty and fluidity of change. Education reforms conceptualized by policymakers have increasingly become broader so as to give greater flexibility to school teachers and leaders to design their own implementation approaches taking into consideration the differing and changing school contexts. This is consistent with the notion of giving schools greater autonomy in determining their curricular foci (i.e., school niches) along with the needed resources. This is also consistent with the growth in school-based curriculum development (SBCD) movement whereby school teachers and leaders are encouraged to develop and innovate their own school curriculum. However, in order to fulfill these ideals, there needs to

be a mindset shift in the way school teachers see themselves – that is, designers of learning. This idea has recently grown in popularity. Conole (2013) defines learning design as:

“a methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to curriculum-level design.” (p. 2)

The central objective of learning design is to help educators shift from the focus on content to learner experiences (Conole & Wills, 2013). In the 21<sup>st</sup> century, school teachers are quintessentially designers of learning, and school leaders lead in supporting teachers in building designs of learning. This emphasis also inadvertently gives greater credence to the growing recognition and importance to the term ‘leadership for learning’. The shift towards the notion of learning designs, in our view, is only an inevitable and imminent outcome for educators and education systems that are sincere and serious in the endeavor to invest in the education of the future.

### **This Edition**

Strachan, Lim, Yip and Lum explored the experiences faced by early childhood educators in their first year of implementing an Outdoor Learning Environment (OLE). Drawing on qualitative data of a case study, they found that students and teachers acted as co-designers of learning OLEs, which brought unique learning contexts that support curiosity and resilience in children. These

learning contexts had also afforded collaborative relations among students, parents and teachers in ways that mitigate the challenges in implementing OLEs.

Tay, Melwani, Liangyu and Ng described how teachers in an elementary school design learning for students using information and communication technology (ICT) – specifically, one-to-one computing learning devices, and wireless internet access. The interviews derived from a case study revealed a process of learning comprising acquisition, inquiry, practice, production, discussion and collaboration, along with structural elements of the school (e.g., school environment), to be of importance to support the experiences of student learning using ICT.

Chai and Koh investigated the change in teachers' design beliefs and their development of technological pedagogical content knowledge (TPACK) through courses designed with scaffolded TPACK lesson design model. These courses leaned towards learning by design where pre-service teacher students were tasked to synthesize their technological knowledge, pedagogical knowledge, and content knowledge, along with interconnecting TPACK knowledge sources: pedagogical content knowledge, technological pedagogical knowledge, and technological content knowledge. The data from the survey showed the possibility of increasing pre-service teacher students' TPACK through appropriate interventions.

Tan, Lee and Ng provided an exposition on the important role of failure as a way of promoting deep and lasting learning among students. Drawing on findings from an ethnographic case study, the authors described the failure experienced and embraced by students in a designed instruction course. The findings further revealed the social and cultural taboo associated with the notion of failure. There is also discussion on the uncomfortable relations between failure – or not failing, and the need for greater innovativeness in schools.



Thang and Koh reported how inquiry-based learning can potentially impact on secondary school students' perception on 21<sup>st</sup> century learning and outcomes. Using mixed-methods longitudinal survey design, they found that an inquiry-based integrated Science module had helped to deepen students' confidence with self-directed learning and authentic problem-solving. Furthermore, students' confidence in critical thinking had positively predicted students' year-end academic results. Also, three key implications were discussed: (1) pedagogical elements supporting 21<sup>st</sup> century learning, (2) designing for transfer, and (3) integration of the Science programme.

Fudge and Skipworth discussed the importance of experiential learning as part of designing students' learning in the context of civic literacy. They argued that students would benefit cognitively when they are exposed to first-hand experience of the political process using field trips as an experiential learning platform, which schools would find great difficulty in physical terms. Their proposition is supported by data derived from pre and post assessment on students' political knowledge.

Hung and Hong investigated the effects of two differing pedagogical approaches – concept-centred and idea-centred – on the development of college students' innovation-oriented cultural views using pre and post writing tests and content analysis. They found that while students initially tended to relate cultural practices with knowledge transmission, they progressively saw cultural practices as a means to knowledge innovation after experiencing idea-centred, designed based pedagogy. Their study highlights the importance of culture as an important part of human experience, and thus cannot be ignored when teachers design the learning of their students with the intent of moving from cultural transmission to cultural exchange, and finally to cultural innovation.

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