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DRAFT

Cultivating Creativity in a High-Performing Education System: The Example of Singapore

Abstract

Focussing on the cultivation of twenty-first century competencies in a high-performing education system, this article examines the teaching and learning of creativity in Singapore. It is argued that 'everyday creativity' and creativity as innovation are privileged by educators in Singapore. Creativity is promoted through a harmonised approach that is manifested in two main ways. First, novelty and usefulness are integrated with the help of design thinking for the sake of social good. Secondly, the advancement of creativity co-exists with and supports the high-stakes examination system by infusing creative thinking into the teaching of school subjects. The example of Singapore adds to the existing research by demonstrating a cultural approach to the teaching and learning of creativity as well as the potential of design thinking to developing creative thinking in students.

Keywords

Creativity; design thinking; harmonised approach; innovation; Singapore

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Introduction

The global phenomenon of propagating creativity to students has generated "a tsunami of opportunities for creativity in terms of pedagogy, curriculum and learning" (Craft, 2008, p. 1). Countries such as U.S., U.K., Australia, Canada, Japan, South Korea and China have enacted a host of policy measures, programmes and activities that converge on promoting creativity in schools (Cheng, 2010; Craft, 2006; Hargreaves, 2001; Hui & Lau, 2010; Hui & Yuen, 2010; Le Metais, 2003; Tan, 2015; Wu & Albanese, 2010). Among the countries, Singapore – a high-performing education system – offers an interesting example on the development of creativity in students. In this paper, high-performing education system refers to the education systems of countries that consistently emerged top across internationally benchmarked tests such the Programme for International Student Assessment (PISA) (Lee et al., 2014). In the latest PISA, Singapore students outperformed their peers globally not only in reading, mathematics and science but also in creative problem solving (OECD, 2014, 2015). Creativity is among the desired outcomes underlined in the Singapore education system since the country embarked on radical curriculum reforms over the last two decades to prepare students for the twenty-first century (Deng & Gopinathan, 2016; Tan, 2019a). To understand why Singapore performed well in creative problem solving, it is pertinent to examine how creativity is taught and learnt in the Singapore classrooms.

Although there is an extant research on creativity education in Singapore (e.g. Ee, Seng & Kwang, 2007; Garces-Bacsal, Cohen & Tan, 2011; Ng, 2003; Seng, Keung & Cheng, 2008; Tan, C., 2016, 2019b, Tan, O., 1999; 2000, 2001, 2004; Tan & Gopinathan, 2000; Tan

& Majid, 2011; Niu, 2006; Shaheen, 2010), there is relatively limited research on the cultivation of creativity in the Singapore educational landscape in recent years. A review of literature shows that most of the research studies on creativity education and pedagogy on Singapore were published more than a decade ago. Among the more recent publications, Shaheen (2010) provides only a short overview of creativity policy in Singapore. Other recent articles do not focus on the policy for creativity and attend instead to Singaporean teachers' perceptions of creativity and happiness (Tan & Majid, 2011) and creative experiences of Singaporean students (Garces-Bacsal, Cohen & Tan, 2011). The experience of the development of creativity in students in Singapore is instructive to inform researchers, policymakers and educators on the underpinning philosophy of and approaches to creativity in schools in one of the high-performing education systems in the world. Responding to this research gap, this article analyses the ongoing policy goals and initiatives to foster creativity in Singapore schools. The paper proceeds as follows: a brief introduction to creativity; a discussion of the policy and strategies for creativity in Singapore schools with a focus on three salient characteristics of creativity and creative education; and major educational implications arising from the experience of Singapore.

Creativity and Innovation

Creativity has been the subject of diverse definitions and debates. Scholars generally agree that creativity essentially involves novelty and usefulness (Csikzentmihalyi, 1996; Sternberg & Lubart, 1999). Creativity education includes "a combination of abilities, skills, motivation, attitudes, knowledge and other attributes" (Cheng, 2010, p. 121). McWilliam (2009), in an article on teaching creativity, identifies two main traditions of cultivating creative capacities: as "an outcome of individual processes of intuitive, subjective ideation", and as "an outcome of social processes with generic applicability" (p. 282).

A distinctive feature of creativity and creativity education in the contemporary world is a marketised view of creativity. Such a view of creativity underscores "individuality, consumption, acquisition, competitiveness and success in a global marketplace" that eliminates "alternative approaches which emphasise sustainability, spirituality, co-operation and understanding" (Craft, 2008, p. 7; also see Cheng, 2004; Craft, 2001; Collard & Looney, 2014; Cropley, 2012; Harris, 2014, 2016; Harris & Ammermann, 2016; Harris & de Bruin, 2017; Hui & Lau, 2010; Pang & Plucker, 2012). An economic view of creativity accounts for and gives incentive to coupling creativity with innovation. A creative person is, accordingly, an inventive individual who thinks out of the box and learns through experimentation (MOE, 2018b). Harris (2014) observes that creativity and innovation "are now conflated in rampant and proliferating discourses of technology and all things digital, while so often the embodied arts is abandoned or decoupled from explorations of creativity" (p. 5). Although closely related, creativity and innovation are not synonymous. Amabile (1996b) points out that while both creativity and innovation focus on novel and useful ideas, the former attends to the production of ideas whereas the latter concentrates on the implementation of these ideas. Creativity as innovation underlines the "high innovative engagement with the economy as both producer and consumer" (Craft, 2006, p. 340).

Accompanying a utilitarian presupposition of creativity is a marginalisation of moral and cultural values. By 'moral', we refer to a concern with "what is right and wrong" that constitutes and guides individuals' "intentions, attitudes and behaviours towards others and their environment" (Halstead, 2020, p. 630). Craft (2006) maintains, "Policy statements calling for increased creativity in some universalised form are made with no reference to macro- or sub-cultural values – a 'universalisation' of creativity" (p. 340; also see Jeffrey &

Craft, 2001; Ng, 2003). Other researchers have contended that the notions and practices of creativity are not morally neutral, nor are the formulations of creativity education in a specific education jurisdiction free of cultural norms (Cheng, 1999; Csikszenmihalyi, 1988; Gu, Zhang & Liu, 2014; Harris & Lemon, 2012; Rojas-Drummond, Albarram & Littleton, 2008; Rudowicz, 2010; Tan, 2019b). In other words, the interpretations of and contents for creativity and creative education are shaped by, among other factors, local histories, political systems, social institutions and economic developments. In a recent study on creativity education in Australia, USA, Canada, and Singapore, Harris and Bruin (2018) report that how creativity is interpreted and enacted in schools are dependent on prevailing sociocultural factors such as the nature of teacher collaboration, dialogue and classroom organisation.

A related comment on the cultural influences of creativity is that there is a common conception that Asian cultures are not conducive to the flourishing of creativity. A representative view is articulated by Kim (2005): "It is harder for Asians than Westerners to think, feel, and act in a creative manner because Asian society is tightly organised, collectivistic, hierarchical, and face-conscious" (p. 341, also see Gu, Zhang & Liu, 2014; Hui & Lau, 2010; Rudowicz & Ng, 2003; Tan, 2016, 2020a; Wu & Albanese, 2010). The perceived inhospitable conditions for creativity and creativity education in Asian contexts prompt Wu and Albanese (2010) to ask: "Is there something in Chinese society incompatible with creativity?" Researchers have responded to this question by proposing various explanations such as Confucian culture, East Asian schooling and high-stakes assessments (Cheng, 2010; Hayes, 2004; Maisuria, 2005; Niu, 2006; Tan, 2020b; Zawojewski & McCarthy, 2007). Based on a case study of creativity reform in Hong Kong, Cheng (2010) concludes that creativity education in East Asia is hampered by an exam-oriented and standardised curriculum that threatens "received knowledge, teacher self-image and classroom discipline" (p. 121). Having provided an overview of creativity education, the next section turns to the policy, teaching and learning of creativity in Singapore schools.

The Cultivation of Creativity for Students in Singapore

The interest in creativity and creativity education is not new in Singapore (Tan, 2000, 2001). Back in 1997, the Ministry of Education (MOE) in Singapore advocated the cultivation of creative thinking in students with the launch of the 'Thinking Schools, Learning Nation' (TSLN) vision in 1997. A noteworthy supporting document is the 'Learning, Creating, and Communicating: A Curriculum Review' that identifies creativity as a desired outcome (Hui & Lau, 2010). Some schools in Singapore have implemented creative thinking programmes since the mid-1990s, which are supported by the MOE and the Singapore Centre for Teaching Thinking (SCTT) (Tan 2000). The 'Teach Less, Learn More' (TLLM) initiative in 2004 gave further impetus to schools to experiment with new curriculum, pedagogy and assessment modes to advance creativity in students. Commenting on the developments in the past two decades, Gopinathan (2012) avers that the "TSLN and TLLM initiatives were designed to facilitate the creation of learning environments that would promote greater innovation and creativity" (p. 68).

Creativity education remains a cornerstone in the education policy in Singapore, as evident in the various official documents and speeches. In the 'desired outcomes of education' stipulated by MOE, all students should "be creative and have an inquiring mind" at the end of secondary school and be "innovative and enterprising" at the end of post-secondary school (MOE, 2018a). The MOE adds that all students should "strengthen values and build attributes like empathy, respect, resilience and *creativity*, and acquire useful skills to navigate our future" (MOE, 2016, para 2, italics added). Creativity is also mentioned as one of the attributes under MOE's broad-based and holistic education for all schools (MOE,

2015). The then Senior Minister of State, Ministry of Law and Ministry of Education encourages schools to "strengthen the development of thinking in our students, in particular, creativity, or what is often referred to as 'inventive thinking'" (Rajah, 2013, para 3). It comes as no surprise that creativity as 'inventive thinking' is listed in the latest 'Framework for 21st Century Competencies and Student Outcomes' by the MOE (MOE, 2018b). As mentioned earlier, a creative person is often regarded as an inventive individual who learns through experimentation and is prepared to think out of the box (MOE, 2018b). Relatedly, a former Minister of Education reiterates the primacy for students to "grow their imagination, *creativity* and socio-emotional skills" (Ng, 2017a, para 14, italics added).

Based on a content analysis of official documents, speeches, reports and other publications available in the public domain, three observations can be made about the policy for creativity education in Singapore: (1) 'everyday creativity' is championed; (2) creativity is used synonymously with innovation; and (3) creativity is fostered in students through a harmonised approach in Singapore. These three essential characteristics of the nature and teaching of creativity will be fleshed out in the next section.

'Everyday creativity'

First, 'everyday creativity' is promoted to students in Singapore on the basis that "all students can think well and be creative" (Rajah, 2013, para 8). As detailed by the then Senior Minister of State, Ministry of Law and Ministry of Education:

> "everyday creativity" can be displayed in what students say, write, ask and make in school. For example, creativity can be seen in a student's English composition or in students' efforts to design a gadget as part of a Design and Technology project that will keep the class clean. It could even manifest in the way they plan to break through the opponents' defence in a football game (Rajah, 2013, para 9-10).

Everyday creativity is also known as 'small c creativity' or 'mini-c' that centres on personal changes made by ordinary individuals, such as personalising one's appearance, activities or environment (Carlile & Jordan, 2012; Kaufmann & Beghetto, 2009; Tan, 2016). This form of creativity education underscores the "creative ways of thinking and doing that are observable and replicable processes and practices in daily economic and social life", rather than on individual genius and idiosyncrasy (McWilliam, 2009, p. 282). An example of 'everyday creativity' is a 'Design and Innovation' curriculum offered in a secondary school. Targeted at developing the creative thinking skills of students, the curriculum gives students the opportunities to create prototypes of innovative products used in daily life, such as a recycled bag made from an old T-shirt, and an old bag strap (Rajah, 2013).

Creativity as innovation

Besides 'everyday creativity', creativity is also tethered to innovation in Singapore schools. Announcing the objective to "nurture innovators and value-creators", the then Minister of Education explains that innovation refers to "an ongoing process of intentional exploration, that takes some risks in order to achieve a larger purpose" (Ng, 2017b, para 8). In his speech, the Minister gives details on what innovation encompasses and how it can be inculcated in students. Innovation comprises what he terms the '3Is' – Imagination, Inquisitiveness and Interconnections. Briefly, imagination invites a child to consider "new possibilities and alternative worlds", thereby contributing to "creativity, flexible thinking, and endless inspirations extending into adulthood" (Ng, 2017b, para 13). To instil imagination in students,

schools in Singapore have set aside 'white space' where students are given the free time to do what they desire, such as engaging in a personal hobby, student-led rehearsals, or peer conversations (Ng, 2017b, para p. 17). The second component of innovation is inquisitiveness, described by the Minister as "a commonality among creative individuals – They observe the world and ask 'why' until they are satisfied with the answer" (Ng, 2017b, para 20). He cites the example of the 'Programme for Active Learning' (PAL) that "nurture[s] creativity and inquisitiveness" in students (Ng, 2017b, para 24) through experiential learning. The final aspect of innovation is interconnections where students make substantial and unexpected interconnections through interdisciplinary learning. A case in point is the 'ANDventure programme' offered in a primary school that encourages pupils to link the Arts and the Sciences through projects such as learning about energy conversions through ceramic art (Ng, 2017b, para 29).

A significant initiative that brings innovation to all schools in Singapore is the 'Applied Learning Programme' (ALP). The then Minister of Education states that ALP seeks to "prepare our students for the future workplace as they can learn innovation, and nurture an entrepreneurial attitude in their learning" (Ng, 2016, para 39). ALP facilitates the translation of the "creative and applied projects of our students" into "solutions for real-world problems" (Ng, 2016, para 40). An instance is the robotics and engineering programme offered in a school that enables students to design a smart home using a smart toilet roll dispenser and solar array optimiser (Ng, 2016). Apart from APL, schools in Singapore have also initiated a wide range of programmes and activities that are directed at innovation. Examples are 'Applied Learning and Innovation', 'Innovation and Creativity', 'Innovation and Social Entrepreneurship' and 'Innovation and Social Entrepreneurship' (MOE, 2018c). Singapore's spotlight on innovation is not unique and is also observable in other Asian societies such as mainland China, Hong Kong and Taiwan (Hui & Lau, 2010; Keane, 2007; Pang & Plucker, 2012).

A harmonised approach

The third observation which is the employment of what we call a *harmonised approach* to the teaching and learning of creativity in Singapore schools. This approach brings together two or more different and even opposing components to form a complete whole (for details, see Tan, 2019). The harmonised approach for creative education is exhibited in two main ways: the integration of novelty and usefulness through design thinking to achieve social good; and the co-existence of creativity education and high-stakes examinations.

Integration of novelty and usefulness for social good through design thinking

First, the furtherance of creativity in Singapore is premised on combining what is novel and useful for social good through design thinking. This mode of thinking combines divergent and convergent thinking and aims to integrate desirability, feasibility and viability. An illustration of design thinking that serves the larger good is a 'Social Innovation' programme initiated by a secondary school in Singapore. The school has set up 'The Centre for Social Innovation' that hopes to develop in students "social responsibility and a deeper understanding for the community beyond themselves"; this goal is achieved by giving students the opportunity to "critically innovate and refine ideas and solutions to address the social issues identified" (Cedar Centre for Social Innovation, 2017, para 1). The innovative projects are anchored on the values of empathy, compassion, social and moral responsibility, open-mindedness, and respecting others. The overall goal is to drive innovation for social causes through providing the training and avenues for students to cooperate and co-create solutions with one another (Cedar Centre for Social Innovation, 2017). Examples of the

innovative projects are organising enrichment programmes for the elderly and children with developmental challenges.

A popular approach utilised by schools in Singapore to harmonise novelty and usefulness is design thinking. Design thinking is interpreted differently depending on its context. In the management field, for instance, design thinking is positioned as a way to be creative and innovative; in fields such as artificial intelligence and engineering, however, design thinking is understood "to encompass all conscious activities to create artefacts" (Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013, p.124). Regardless of the varied definitions, design thinking is valued for its close association with problem solving and innovation (Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013; Kimbell, 2011; Retna, 2016). In Kimbell's comprehensive review of the origins of design thinking and its adoption in various sectors, she identifies different ways of describing design thinking, including viewing design thinking as a cognitive style for problem solving, and as an approach to innovation. The link between design thinking, problem-solving and innovation is summed up by Retna (2016) based on her review of the literature on design thinking:

> Design thinking is a distinct approach to solving problems "in order to achieve the desired outcomes" such as "understanding the users' needs, a different way of thinking and innovation" . . . innovation can be in the forms of "service, product, behavioural and organisational culture through the practice of design thinking" (Retna, 2016, p. 7)

The potential of design thinking in enhancing creativity, innovation and problem-solving has motivated schools to embrace design thinking as a new approach to enhancing student learning of skills required for twenty-first century (Retna, 2016). In Singapore, design thinking is used in around 20% of all secondary schools (MOE, 2017). A school in Singapore that uses design thinking shares how this approach integrates economic and moral considerations:

> Design Thinking uses the mindset of designers to produce innovations in products, processes and business and organisational models, with the core focus on deep understanding of and empathy with the people who use them. […] integrates a designer mindset with a business-oriented value proposition. […] to make a meaningful and innovative impact in our society (St. Joseph's Institution, 2018a, para 1).

Another school that conceives a 'Innovation and Social Entrepreneurship' (ISE) programme states that it adopts "Design Thinking as the problem-solving approach where students work collaboratively under the facilitation of Form and Co-Form Teachers to research, brainstorm, design and co-create innovative solutions with the intent to address people's needs" (Westwood Secondary School 2015, para 3). Overall, creativity in Singapore schools is approached from a problem-solving mindset through design thinking for students to devise innovative solutions to meet human-centric needs. The acceptance of design thinking for creativity education presupposes that creativity can be taught and acquired by everyone. Significantly, this belief of creativity for all is not just held by MOE but also the teachers in Singapore. In an empirical study of student teachers in Singapore, Seng, Keung and Cheng (2008) report that the student teachers expressed a strong belief that "everyone can be creative in one way or another" (p. 83). It is interesting to note that this egalitarian view of creativity is also espoused by policymakers in China who view creativity not as an innate ability but rather a question of adequate training and motivation (Pang & Plucker, 2012).

Co-existence of creativity education and high-stakes examinations

The second way in which a harmonised approach is adopted in Singapore is the co-existence of creativity education and high-stakes examinations. Rather than viewing the standardised assessment system as incompatible with the promotion of creativity, MOE and educators in Singapore strive to foster creativity while maintaining the system of high-stakes examination. The synthesis of creativity education and standardised assessments is made possible through two key measures.

First, creative thinking is infused into the teaching and learning of school subjects. The then Senior Minister of State, Ministry of Law and Ministry of Education asserts that "good thinking should be deliberately developed within the context of subject disciplines" where students are taught inventive thinking in different subject disciplines (Rajah, 2013, para 14). The syllabus for English language highlights the importance of students speaking, writing and representing "for creative, personal, academic and functional purposes" (CPDD, n.d., p. 10). To achieve this goal, teachers should help their students to "grow creatively and gain expertise as writers by encouraging them to experience the process of producing a variety of written and multimodal texts for creative, personal, academic and functional purposes" (CPDD, n.d., p. 58). The syllabus for Science refers to "creativity" as a desired outcome and reiterates the objective for students to acquire "an attitude of seeking innovative and relevant ways to solve problems" (CPDD, 2012, p. 14). An example of cultivating creativity through the humanities is history: its syllabus stresses the importance of curiosity and creativity in students, defined as "the desire to seek and learn new knowledge; and generate relatively novel and appropriate ideas or new products" (CPDD, 2013, p. 30).

Creativity is also highlighted and assessed through an interdisciplinary subject that is compulsory for all pre-university students. Known as 'Project Work' (PW), this subject lists creative thinking as a key competence, as stated in the syllabus; "PW is a learning experience which aims to provide candidates with the opportunity to synthesise knowledge from various areas of learning, and critically and *creatively* apply it to real life situations" (MOE & UCLES, 2015, p. 2, italics added) (MOE and UCLES 2015, 3). This subject does not involve any written examination, requiring students instead to work on a task in a small group so as to prepare an oral presentation and submit a written report. The introduction of PW in Singapore schools reflects an international trend on emphasising interdisciplinary learning and STEM (Science, Technology, Engineering and Mathematics) education that supports creative/innovative thinking (for a good discussion and debate on STEM and STEAM, see Harris & de Bruin, 2017, 2018). Pedagogy wise, schools in Singapore rely on a variety of creative thinking frameworks and tools to promote creative thinking in students across the curriculum. An example is the 'Creative Problem Solving framework' adopted in a primary school; the objective is to infuse creative problem solving into various school subjects so that the teachers and students could speak "a common language for thinking" (Rajah, 2013, para 15). Another school utilises 'Thinking Routines' for all the school subjects where students are empowered to ask questions and make their thinking visible through drawing, writing to journaling (Ng, 2017b).

The inclusion of creative thinking in the teaching and learning of school subjects points to a 'compatibility view' towards knowledge-centred learning and creativity-centred learning. Put otherwise, the policy stance in Singapore rejects an 'incompatibility view' that sees the transmission of knowledge and teaching for creativity as mutually exclusive. Clarifying this 'incompatibility view', Cheng (2010) notes that knowledge-centred and creativity-centred learning requires "two different educational systems and cultures", requiring "different student learning and thinking style, different teacher style and skills,

different time-tabling and teaching schedule arrangements, different curriculum structure and assessment approach, and even different measures of teacher performance" (pp. 133-134). In the case of Singapore, however, the teachers regard basic skills as essential to the development of creativity (Cheng, 1999). In particular, Chinese language teachers in Singapore regard "the importance of top-down oligarchic control, and the need for skills to precede any creative attempt" (Cheng, 1999, p. 122). Supporting the 'complementary view' are Hui and Yuen (2010) who posit that knowledge and creativity go hand in hand as the former provides context for the latter while the latter offers opportunities for the former to be extended (also see Amabile, 1996a; Craft, 2005; Sternberg, 2006; Sternberg & Lubart, 1999).

The second measure to foster creativity in students is the Direct School Admission (DSA) where students are admitted to a school of their choice through their creative achievements. DSA is a scheme that allows students to gain entry to secondary and junior colleges (equivalent to high schools) based on their talents and achievements that may not be demonstrated in the high-stakes examinations (MOE 2018d). It needs to be pointed out that the DSA does not make the high-stakes examinations redundant or less important; students still need to sit for the terminal examinations, namely Primary School Leaving Examination (PSLE) at the end of the primary level and GCE 'O' Level at the end of the secondary level (exemption from taking the GCE 'O' Level examination is given for a small minority who are enrolled in the six-year Integrated Programme). But students who opt for DSA and who demonstrate outstanding performance in non-academic talents may qualify for a place in their choice school based on a lower exam score. DSA therefore complements rather than challenges the standardised assessment system (Tan, 2017). To date, there are 10 schools that offer DSA programmes on creativity and innovation under the category of 'Innovation and Entrepreneurship' (MOE, 2018c). The DSA categories under 'entrepreneurship' are Business and Enterprise, Entrepreneurship, and Innovation and Social Entrepreneurship, whereas the DSA categories under 'innovation' are 'Applied Learning and Innovation'. 'Innovation' and 'Innovation & Creativity'.

Students who choose the DSA route need to submit a portfolio that provides evidence of their talents and achievements such as their co-curricular activity records, personal statements and character references (MOE, 2018c). Schools, on their part, may select the students using alternative assessment modes such as interviews, selection camps and trials (MOE, 2018c). A case in point is a school that offers 'Innovation' as a programme for DSA; the school requires students to submit documented evidence on innovative practices within the school and/or outside of school, including photos and write-ups of works of innovation and certificates of achievement in competitions (St. Joseph's Institution, 2018b).

Educational Implications

The trend of creativity education in schools has engendered both challenges and prospects for school leaders, teachers and students. Regarding the challenges, Cachia and colleagues (2010) identify the reliance on traditional approaches to testing and assessment as a major barrier to creativity in education. Research by Berland (2013) affirms that teachers and parents in Australia, Germany, the US and the UK list the narrow curricula and high-stakes testing.as significant roadblocks to promoting creativity in schools. But schools can still push for creativity in students, as illustrated by the case of Singapore. This section highlights two major educational implications from the experience of Singapore in cultivating creativity in students: (1) a cultural approach to creative education; and (2) the potential of design thinking to cultivate creative thinking in students.

A cultural approach to creative education

First, Singapore exemplifies the strengths and limitations of a cultural approach to creativity education that shows up the dominant ideology of communitarianism (Chua, 1985; Hill & Lian, 1995). The policy and strategies for creativity in Singapore schools are premised on and energised by communitarianism values (Tan, Chua & Goh, 2015). Communitarianism fundamentally rejects the assumption that individuals are atomistic beings who are unencumbered by involuntary obligations. Instead, it maintains that we are all socially attached in a community from which we derive our shared identity (Arthur 1998). Arguing that human beings are "deeply social, embedded in culture and in social practices", Haste (1996) asserts, "Morality cannot be understood unless we take full account of the social, cultural and historical context" (51; also see MacIntyre 1984; Sandel 1982; Taylor 1989).

In the case of Singapore, the policy for creative education is rooted in a communitarian belief that creativity should principally be valued for its contribution to the community. This form of creativity is oriented towards what is "economically valuable, team- or community-based, observable and learnable" (McWilliam, 2009, p. 282). The dimension of problem solving in creativity education emphasises incremental change which is "more likely to be what educators will see from students on a daily basis" (Spendlove, 2008, p. 11). A manifestation of communitarianism in Singapore is a pragmatist slant in policy-making (Chua, 1985;, Dimmock & Tan, ,2016; Hill & Lian, 1995; Tan, 2019). Concrete evidence, especially quantitative measures, are preferred to qualitative evidence and philosophical arguments when evaluating the effectiveness of a policy (Chua, 1997; Tan, 2012). Pragmatism explains why creativity is oriented towards innovation, problem solving and social contribution. This approach to creativity education has been described as 'constructive creativity' that revolves around social responsibility through the creation of useful and ethical ideas (Hui & Lau, 2010; also see Soh, 2004; Tan, 2004). Rather than upholding individualistic and socially disruptive creativity, 'everyday creativity' and 'constructive creativity' are privileged and take place through group activities and collective problem solving tasks (Davis & Rimm, 1985; Feldhusen & Treffinger, 1980). A communitarian approach to creativity education that values social stability lends support to incremental improvement rather than radical transformation in Singapore schools. The education system in Singapore as a whole encourages "gradual, evolutionary" changes and "continuing dialogue and alignments in the change process" (Lee, Hung & The, 2016, p. 56).

But the strengths of a communitarian slant to creativity education are ironically also the limitations of such formulations. Because of its accent on collectivism and small changes that do not disrupt the status quo, a communitarian-based form of creativity education may not be sufficient to generate and endorse more drastic changes if such a need arises. It also may be challenging for individuals to question the existing regulations, norms, institutions, policies and practices and champion bold innovations. Policymakers, researchers and educators therefore need to ensure that a communitarian orientation of creativity does not suppress or imperil the development of autonomy and independent thinking in students. Community interests and needs, in other words, should be balanced with individual interests and needs. On this point, a main debate concerning creativity in education is how to assess and foster the collaborative aspects within an individually-assessed system for global assessments such as PISA. Responding to this challenge, Collard and Looney (2014) suggest practical ways for teachers to nurture creativity through group activities. An example is the adoption of a tracking tool for creativity which was developed by Lucas, Claxton and Spencer (2013). The tool which was validated by teachers and learners in the UK includes collaboration as a creative habit of mind. Accordingly, students are assessed in three areas under collaboration: cooperating appropriately, giving and receiving feedback, and sharing the product (Collard & Looney, 2014).

The potential of design thinking to cultivate creative thinking in students

The second key implication arising from the example of Singapore is the potential of design thinking to cultivate creative thinking in students. Design thinking serves as a useful creative thinking strategy to integrate novelty and usefulness. Design thinking is an approach to innovation that addresses real-life problems using the sensibilities, techniques and logics of product designers. Rejecting novelty for its own, design thinking focuses on practical issues confronting humanity such as the alleviation of poverty, access to education, improvement of basic healthcare, and environmental preservation. It is important to note that design thinking does not segregate the various disciplines rigidly or judge the sciences as more useful than the arts. Rather, what is useful for the design thinkers must transcend technological or material concerns to meet real human needs and meanings (Brown, 2009; Cross, 2011; Martin, 2009). In the school context, design thinking in a communitarian setting warrants an 'ecological' whole-school approach to furthering creativity through STEAM (Science, Technology, Engineering, Arts and Mathematics) education where arts subjects (the 'A' in STEAM) are part and parcel of creativity education (Harris, 2016; Harris & de Bruin, 2017).

Design thinking is also human-centred as it is concerned with the holistic and lived experiences of human beings based on empathy, participation between the designer and consumer, and prototyping. Design thinking is fundamentally ethical since it locates problems and solutions within prevailing cultures, mores and moral behaviour. A recommendation, therefore, is for policymakers and educators to implement a values-centric creative education through design thinking. Such an approach inspires the learner to harmonise novelty and usefulness so that socially responsible and morally appropriate solutions are devised and applied. As illustrated in the case of creativity education in Singapore, creativity through design thinking blurs the line between creativity and innovation – 'good' design should involve the generation of fresh and feasible ideas that are successfully implemented to improve human lives.

Conclusion

This article has explored the cultivation of creativity in a high-performing education system using Singapore as an example. We have explained that 'everyday creativity' and creativity as innovation are privileged by educators in Singapore. Creativity is promoted through a harmonised approach that is manifested in two main ways. First, novelty and usefulness are integrated with the help of design thinking for the sake of social good. Secondly, the advancement of creativity co-exists with and supports the high-stakes examination system by infusing creative thinking into the teaching of school subjects. Furthermore, the creative achievements of students may be used in conjunction with their exam scores for admission to a school of their choice via the Direct School Admission. We have also expounded on two major implications from the example of Singapore: the adoption of a communitarian approach to creative education; and the potential of design thinking to cultivate creative thinking in students.

The conception and practice of creativity in schools in Singapore debunks a widely-held perception that creativity is absent or neglected in Asian education systems which are known for their testing culture (Tan, 2019c). The claim that Asians are less creative than Westerners – mentioned at the start of the paper – is questionable as it overlooks the fact that diverse interpretations and applications of creativity exist, conditioned by local cultures and norms. What this study has hoped to achieve is to bring attention to an Asian formulation of creativity and creativity education through the example of Singapore. The example of Singapore adds to the existing research by demonstrating a communitarian approach to the

teaching and learning of creativity as well as the potential of design thinking to developing creative thinking in students.

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