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## **Mindfulness in education: the case of Singapore**

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## **Mindfulness in education: the case of Singapore**

Since the formal introduction of mindfulness-based practices (MBP) into clinical settings in the late 1970s, a growing body of research has demonstrated their benefits in diverse settings, from clinical programs, business and sports, to education. Along with the development of standardized mindfulness-based programs in the areas of clinical therapy, counselling, self-enhancement, and corporate training, standardized curricula for school-based mindfulness have become available, and are gaining popularity around the world. However, the adoption of MBP in schools in Singapore, whether formally or informally, seems to be lagging behind that of counterparts in countries such as Australia, UK, and USA. The current paper describes the current state of mindfulness-in-education in Singapore, focussing on the extent and ways in which MBP are incorporated into the local school setting. Included are also brief introductions to mindfulness, mindfulness in education, and mindfulness-in-education research in Asia. Local research and continuing efforts in the area, as well as challenges and future directions are discussed.

Keywords: mindfulness; education; schools; Singapore; Asia

### **Mindfulness**

Mindfulness refers to a quality of attention – specifically, paying attention to the full spectrum of each moment’s experience in an open, non-judgmental manner (e.g., Kabat-Zinn, 2003). Hence, mindfulness can be seen as a quality that exists dispositionally in all individuals, with more mindful individuals being more able to pay attention in that manner compared to less mindful individuals. A rich body of research has shown dispositional or trait mindfulness – typically measured on self-reported mindfulness questionnaires such as the Five-Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) – to be positively related to psychological

health and emotional well-being and cognitive performance (for a review, see e.g., Keng, Smoski, & Robins, 2011).

While present as an inherent trait, mindfulness can be cultivated or increased with training or practice. For instance, the Mindfulness-Based Stress Reduction (MBSR) program, the first standardized program that initiated MBP into clinical therapy, was developed to cultivate mindfulness as a self-regulatory tool in chronic pain management (Kabat-Zinn, 1982). Mindfulness training typically seeks to foster mindful attention with the use of sensorial exercises to cultivate moment-by-moment, non-judgmental attention and awareness. For example, in mindful breathing, one is commonly instructed to focus and maintain one's attention on the physical sensations of one's breathing. If any thought or emotion should arise, one should merely notice that the thought/emotion has occurred and, without engaging further with the thought/emotion, redirect one's attention back to the physical sensations of the breath. By not engaging with the thought/emotion that arises, attention is able to stay focused on the present moment instead of being projected to the past or future (e.g., rumination, worry, judgement). Yet the thought/emotion that has arisen in a moment is part of that moment's full experience and hence, its presence is noticed or acknowledged and not denied or suppressed. Noticing/observing without engaging in judgment allows one to approach each new moment's experience with openness and acceptance. This open, non-reactive awareness and acceptance contributes to cognitive, emotional, and behavioral regulation by enabling one to respond reflectively rather than react reflexively (see e.g., Chiesa, Calati, & Serretti, 2011). Although this naturally facilitates compassion towards the self and others, some forms of mindfulness training also include explicit compassionate practices, such as sending kind thoughts to oneself or to others.

Since the introduction of MBSR, other mindfulness-based programs have been developed, with demonstrated efficacy in clinical, organizational and even military settings. Examples include Mindfulness Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002), Mindful Awareness Practices for ADHD (Zylowska, 2012), Integrative Body-Mind Training (Tang et al., 2007), and Mindfulness-Based Mind Fitness Training (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010), amongst others. Studies have demonstrated the efficacy of MBSR and its variants in improving mindfulness and other positive outcomes such as empathy, self-compassion and quality of life, in reducing negative psychological symptoms such as anxiety, depression, rumination, anger, and general psychological distress, and in enhancing cognitive abilities such as sustained attention, working memory and executive functions, in both clinical and non-clinical populations (e.g., Chiesa et al., 2011; Keng et al., 2011).

### **Mindfulness in education**

Amongst the programs developed for various applications, mindfulness-in-education has garnered increasing interest and momentum in the past decade or so. The recent announcement that the UK government will commit public funding to mindfulness-in-education in a nationwide initiative (Sharman, 2017) propels mindfulness from a fringe program to mainstream status in education. As part of a larger study on mental health and wellbeing programs, 150 schools will participate in a trial mindfulness training program. This followed from the initiation of the Mindfulness All-Party Parliamentary Group in the UK Parliament in 2014, which was set up to review evidence and practices, and develop policy recommendations in the application of mindfulness.

With increasing recognition of the self-regulatory benefits of mindfulness, a growing number of schools worldwide are incorporating mindfulness to support the development of socio-emotional competencies (e.g., self and social awareness),

emotional and behavioural self-regulation (e.g., stress, anxiety, and anger management), and academic achievement in students (e.g., Maynard, Solis, Miller, & Brendel, 2017). Although mindfulness-in-education began with programs for students, schools are also increasingly recognizing the benefits of mindfulness for teachers.

### ***Mindfulness for students***

The majority of mindfulness-based programs for K-12 students were adapted from the MBSR program (see Meiklejohn et al., 2012, for a review). Examples of standardized school-based curricula include the popular US-based Mindful Schools program (<http://www.mindfulschools.org>), and the UK-based Mindfulness in Schools Project (known as “b”, <http://mindfulnessinschools.org>). Curricula that incorporate similar mindful-attention practices include the Montessori system (Lillard, 2011), Promoting Alternative Thinking Strategies (PATHS) (Kusché & Greenberg, 1994), and the Canada-based MindUP (<https://mindup.org>).

Commonly incorporated in schools under the theoretical frameworks of Mindfulness, Positive Psychology (including Social and Emotional Learning; SEL), Executive Function (cognitive control) (Zenner, Herrnleben-Kurz, & Walach, 2014), or Contemplative Practices (Greenberg & Harris, 2012), MBP for school children typically involves age-appropriate mind-body integration exercises targeted at enhancing focused attention, social awareness/competencies and emotional/behavioural self-regulation. Practices for children are similar to those used with adults, but tend to start with shorter durations and include more movement-based activities (Meiklejohn et al., 2012). Common components include breath awareness, working with thoughts and emotions, psycho-education, awareness of senses, practices of daily life, group discussion, body-scan, home practice, kindness practices, and body-practices like yoga, and mindful movement (Zenner et al., 2014). According to the 2014 review by Zenner and

colleagues, mindfulness-based programs tend to be implemented in schools as interventions varying in the number, duration, and frequency of sessions, most commonly in the form of eight, 45min weekly sessions lasting between 4 to 24 weeks. Most programs are conducted by external professional trainers; some by class teachers with varying levels of experience with mindfulness practices, from no experience to an introductory session to having completed a full MBSR course (see also Maynard et al., 2017).

Although the evidence is at times mixed, published studies on school-based mindfulness programs report cognitive, social, and psychological benefits to elementary and high-school children, including improvements in working memory, attention, creativity, academic performance, mind wandering, stress and coping, resilience, well-being, affect, mood, anxiety, fatigue, emotional regulation, social and relationship skills, self-concept, and self-esteem (Meiklejohn et al., 2012; Zenner et al., 2014). In their recent review, Maynard et al. (2017) reported that the effects of mindfulness-based training for primary and secondary school students were generally consistent (especially for cognitive, socio-emotional and academic outcomes) despite the variations in interventions across studies.

### ***Mindfulness for teachers***

A complementary aspect of mindfulness-in-education is teacher mindfulness. In their review of the effects of mindfulness training in students and teachers, Meiklejohn et al. (2012) described three basic approaches to incorporate mindfulness into schools: directly via training programs for students; indirectly via teachers who have a personal mindfulness practice and thus interact and teach with mindfulness attributes (e.g., open, nonjudgmental mindful awareness and acceptance); and a combination of both. Hence, although MBP were probably first introduced into schools as direct

programs/curricula/interventions for students, mindfulness may be present in schools indirectly through mindful teaching and teacher-student interactions, even in schools without direct mindfulness training for students.

As described earlier, MBP are sometimes directly taught to students by class teachers, who would usually have first been given some level of training in mindfulness to increase their knowledge of, competency in, or buy-in on the approach. It is recommended that teachers be comfortable with practicing mindfulness in their own lives before they can effectively teach mindfulness in the classroom (Albrecht, Albrecht, & Cohen, 2012). At the same time, schools may introduce teachers to MBP to enhance teacher well-being. Stress and burnout are prevalent problems in the teaching profession; schools are increasingly concerned with equipping teachers with tools such as mindfulness practices for managing them.

Mindfulness-based training for teachers can include standard programs such as MBSR, or programs specifically for teachers, such as Mindfulness-Based Wellness Education (MBWE); Cultivating Awareness and Resilience in Education (CARE); and Stress Management and Relaxation Techniques (SMART) in Education. In these programs, teachers are taught to adopt mindfulness practices in their lives and to embody their mindfulness attitudes and behaviours during teaching and interaction in the classroom. Such programs also may emphasize more interpersonal aspects of mindfulness practice, such as listening deeply, compassion, emotional awareness, and empathy, as well as the application of mindfulness to teaching (for reviews, see Hwang, Bartlett, Greben, & Hand, 2017; Meiklejohn et al., 2012).

As with mindfulness-based interventions for children, several reviews on the effects of mindfulness-based interventions for teachers/educators report generally positive effects, despite some heterogeneity and inconsistencies. Reported

improvements include the areas of stress, burnout, anxiety, depression, resilience (Hwang et al., 2017), self-esteem, self-efficacy, classroom management, teacher-student relationships and instructional strategies (Albrecht et al., 2012) – some, if not all of which, also have cascading effects on classroom climate/environment, and student well-being and outcomes (Emerson et al., 2017).

### **Mindfulness-in-education in Asia**

The past two decades have seen a burgeoning of research evaluating the effects of mindfulness training in education, amongst its other applications. However, much of this research had been conducted predominantly in the West. In Maynard et al.'s (2017) recent review, most of the 44 studies reviewed were conducted in the West: North America (74%), Europe (16%), Canada (5%); only a few studies were conducted in Asia (5%).

In Asia, research on school-based mindfulness programs for children and adolescents, though scant, has been published by a few countries such as India (Anand & Sharma, 2014), Indonesia (Dewi et al., 2015), Hong Kong (Lam, Lau, Lo, & Woo, 2015; Lau & Hue, 2011), and Vietnam (Le & Trieu, 2016), focusing mostly on adolescents with learning or behavioural issues, but also on younger, elementary school students (Lam, 2016). Reflecting the nascent stage of development in Asia, most of the studies were small-scale pilot/trial interventions using programs adopted from the West, such as the MBSR/MBCT, and typically include discussions on feasibility and acceptability issues.

In addition, there is evidence that mindfulness has been incorporated into Asian educational systems outside of formal published research. For example, Albrecht et al. (2012) reports that mindfulness is implemented across Bhutan's education sector to improve the country's "Gross National Happiness." AsiaLife magazine reports on an

international school in Vietnam that has a daily mindfulness program for their students, staff, and parents, as the “spine” of Positive Education (PosEd) and as an integral part of empowering students (Ferrian, 2016). In this school, teachers, students and parents are trained not just in mindfulness-practices, but also in the peer-teaching of mindfulness concepts. Other international schools in Asia that have listed mindfulness as a core practice include the Global Sevilla School in Indonesia (as part of Character Building) and the United World College (UWC) Thailand (together with SEL). As explained on UWC Thailand’s website:

Daily quiet time is set-aside for both students and teachers to engage in secularised mindfulness practices. This includes a movement practice, a stillness practice and reflection. It is an opportunity to calm and ground the mind and body, and shift from the ‘thinking/doing mode of mind’ to the ‘sensing/being mode of mind’. This mode of inquiry can have a grounding effect, and enhances our ability to then engage with a calmer, clearer perspective of what is happening within, to, and around us. ("Social Emotional Learning and Mindfulness," n.d.)

The most comprehensive description of the application of mindfulness-in-schools in an Asian society probably comes from Lau (2016)’s recent chapter describing MBP in Hong Kong schools. In addition to the published studies cited above, the chapter described: two pilot trials using the Netherlands-based Mindfulness Matters curriculum (Snel, Kabat-Zinn, & Kabat-Zinn, 2013), one involving primary school students and the other involving 5 – 8 year-olds and their parents (Mindfulness Matters teaches mindfulness exercises for children and their parents); a randomized controlled pilot trial using the UK-based .b curriculum for Form 5 students with low academic achievement; several international schools that have offered mindfulness and/or yoga to students as elective courses, after-school classes, or during informal class-time slots

(using programs such as MindUP, .b, and Mindfulness Matters), and/or with teachers who have completed MBSR or training in teaching mindfulness.

The information from Asian studies suggests that adopting the Western mindfulness programs into Asian societies often requires translating them into the local language (Lau, 2016; Le & Trieu, 2016). Lau (2016) cites this as one possible reason that the international schools in Hong Kong were more active in adopting mindfulness on a whole-school level, compared to the local schools, which serve mainly the Chinese community. The need to develop mindfulness programs appropriate for the local Asian context, both culturally and linguistically, was highlighted. For instance, some of the metaphors and symbols used in mindfulness exercises, especially those for children (e.g., the frog that sits still in Mindfulness Matters), may not be as relatable to children from an Asian culture (Lau, 2016).

It is worth noting that MBP have reportedly also been incorporated into catholic schools and catholic spiritual education curricula in Hong Kong (Lau, 2016). This stands against concerns that have sometimes been raised over MBP being derived from meditative practices with origins in Eastern spirituality such as Buddhism. As has been clarified throughout the literature on contemporary mindfulness, the current form of MBP such as MBSR and its derivatives, including the mindfulness-for-education programs, are fully secular and can be practiced by individuals of any religious orientation (see e.g., Brensilver, 2016). As described earlier, mindfulness in the current context refers to a quality of attention that is present on some level in everyone.

### **Mindfulness-in-education in Singapore**

When mindfulness started making headway in education one/two decades ago, there was little knowledge or awareness amongst educators in Singapore about what the term “mindfulness” meant or entailed. However, much like in other parts of Asia,

mindfulness-in-education has gradually gained momentum, especially in the last several years.

Earlier this year, the national daily newspaper ran an unprecedented article reporting that at least 10 primary and secondary schools have introduced MBP to their students over the past two years (Toh, 2017a, 2017b). The article reports that five schools they spoke to cited the benefits of mindfulness – such as improved focus, mood regulation and self-awareness – as motivations for introducing mindfulness to their students. Benefits such as increased focused, calmness, and alertness in their students were reportedly observed. The practices at some schools were described: for example, Westwood Primary implemented a five-minute mindful breathing session at the end of daily recess for all students as part of a broader PosEd framework; varying levels of engagement with the practice were observed; a student was cited as using the technique to calm down when stressed; a parent reported improvements in her children in terms of calmness/relaxation, awareness, and alertness, and that this encouraged her to practice mindfulness alongside her children. At Damai Primary, students have been practicing three-minutes of deep breathing since the start of the year – though it was unclear whether mindful breathing was involved.

Although the article reported mainly on the introduction of mindful/deep breathing in a few schools, the reach of MBP in the local school setting is in effect more extensive. At an inaugural symposium on mindfulness research in Singapore last year, at least four of the paper presentations were in the area of mindfulness research conducted in Singapore schools. Three schools in Singapore that have adopted MBP also presented their journeys in sharing sessions at the symposium.

### ***School-based research on mindfulness***

One of the presented studies examined the effects of a single 15-min focused-attention

mindfulness training, developed from Napoli, Krech, and Holley's (2005) Attention Academy Program, on 113 kindergarten children's perceptual processing (Lim & Qu, 2016). Another examined the the relationships amongst dimensions of trait mindfulness and aspects of cognitive control (Tan, 2016). Although only the pilot study with adults was presented at the time of the symposium, this study has gone on to examine how dimensions of dispositional mindfulness relate to cognitive control, behaviour regulation, and academic achievement in adolescents. A total of 221 students from three local secondary schools participated in this study.

While the participating schools and students of the above two studies were given only minimal-to-no experience with MBP, the two other studies presented involved implementations of full mindfulness programs within schools. One was a trial of the Mindful Schools curriculum conducted in a local school with four classes of at-risk adolescents split into control and experimental groups. An external Mindful Schools trainer taught the intervention group in their classes during 30-min informal class-time slots ("contact time"), twice a week for 15 weeks (Khng, 2016b). As observed elsewhere, the degree of reception and engagement with the practices varied across students. Nonetheless, feedback from the students and teachers involved was overall positive. The general sentiment from students was that they liked the program and think more children should learn it. Some reported using what they have learnt to help with emotional regulation (e.g., when they are angry). Benefits reported by teachers include observable improvements in attentional focus, behavioral regulation, self-awareness and interpersonal relations in a large proportion of the students, gains in teaching time, and more peaceful and mindful interactions with students.

The other study presented results from a .b program that has been running in a local junior college since 2014 (Low, 2016). The school counsellor who initiated and

taught the program shared their journey: Mindfulness was introduced under the school's SEL framework as an evidence-based tool to support students' ability to regulate their attention and cope with stress and anxiety. After the counsellor completed her .b teacher training, a pilot run of the program was carried out on three classes of students. The program was rolled out (by conscription) to 10 classes the following year, with the weekly sessions integrated into students' curricular timetable. Preliminary results from their evaluation of a 10-week run suggests improvements in mindfulness, ego-resilience, and emotional and attentional regulation. Similar to the Mindful Schools study, students expressed overall positive sentiments about the enjoyment and usefulness of the program, and reported using the techniques for emotional regulation (e.g., calming down and focusing their minds). Importantly, the school shared some of the limitations and challenges faced in incorporating mindfulness-based programs – which are likely shared by other schools doing or who are interested in doing the same. These include: limited awareness of mindfulness in staff and students; the need for buy-in from school leaders and staff; shortage of qualified/certified mindfulness teachers; concerns over religiosity; difficulties in conducting controlled research evaluation studies (e.g., having control groups) in practical school-based implementations.

### ***Mindfulness in international schools***

Similar to what has been seen in other parts of Asia, the most active and complete adoption of mindfulness-in-schools in Singapore seems to be taking place in the international schools. The practice at UWC Southeast Asia East Campus (UWCSEA East) was briefly described in the 2017 news article and presented earlier at the 2016 symposium (Khng, 2016c). It started three years ago when some of their teachers took an interest in MBP and tried out simple breathing exercises in their classrooms. The positive impact observed spurred further development: many of their teachers have

since been trained in the Mindful Schools curriculum, and it is planned that all teachers will eventually be trained in mindfulness; the head of counselling (middle school) is also a certified teacher of the .b and MBSR programs. She teaches the 8-week MBSR program for interested staff to support their personal well-being, a Foundation in Mindfulness course for teachers, and the .b program for students in middle school. Though the .b program is currently on a sign-up basis, there is reportedly a waiting list for each session, reflecting its popularity amongst students. Various MBP programs and activities are made available to students from primary through to high school, being teacher-implemented in the classroom for younger students, and on a sign-up basis for the older students. Examples include teachers using the Head Space guided meditation and mindfulness app (<https://www.headspace.com>) with students, and a weekly Mindfulness Activity for students to attend as they like. Upcoming plans include teaching teachers a weekly Mindful Practice that they can integrate into their classrooms (C. Tisdall-McPhee, Head of Middle School Counselling, personal communication, June 20, 2017). The school affirms on their website the benefits of mindfulness for their students:

One of the more powerful benefits of mindfulness that we have seen is when students become more aware of themselves and their thoughts, whether they are in the past, the future or the present. Having the choice and the ability to redirect their attention to the present, enables them to focus for longer periods on whatever they are doing at that moment, whether learning, playing, talking, listening or just relaxing! (Kelly, 2015)

At least four other international schools in Singapore list incorporating mindfulness to various extents, ranging from talks on mindfulness for students at a wellness conference ("Singapore American School hosts inaugural wellness conference on August 28 and 29," 2015), to offering yoga and/or mindfulness through physical

education sessions, extracurricular activities, or in-class relaxation activities for staff and/or students (<https://www.owis.org>)("Yoga and learning," 2017), to the use of mindfulness apps and mindful colouring (Smith, 2017). Similar to UWCSEA East, the Tanglin Trust School (TTS) adopts a multi-level approach by introducing mindfulness to students, supporting teacher-training in mindfulness, and offering optional MBSR courses to staff and parents. Lead by MBSR-trained counsellors, mindfulness practices for students at TTS include introductory mindfulness sessions as part of their Personal, Social, Health and Citizenship Education (PSHCE), and yoga sessions for students as young as 4/5 years old. It is believed that “teachers lead by example by modelling Mindfulness, as they know only too well that it’s something that has to be caught not taught!” (Edwards, 2015); all staff are given introductory in-service training in mindfulness, with selected staff supported to attend further training.

### ***Mindfulness in local schools***

It appears that mindfulness is often introduced into schools as part of a larger framework, such as PosEd, SEL, and PSHCE. At the 2016 symposium, Da Qiao Primary School presented its example of how mindfulness is incorporated as one of the skills to foster PERMA – positive emotion, engagement, relationships, meaning, and accomplishment – tenets of wellbeing outlined in Seligman’s (2011) Positive Psychology framework (Samsudin & Rahumathullah, 2016). Believing in a “Teach, Embed and Live” approach, MBP are made part of a routine built into staff and students’ work and school life to create a school-wide culture that will help enhance self-regulation and awareness. Mindful training is given to staff; mindful communication and mindful teaching is emphasized; basic MBP such as mindful breathing, mindful eating, and mindful walking are implemented as routines practiced by students, in addition to other activities where mindful attention is applied, such as

reading and cleaning (<http://daqiaopri.moe.edu.sg>).

Other than the above schools where MBP have been officially implemented, personal communication reveals several others that are starting to explore incorporating mindfulness in various ways. Several schools have engaged mindfulness centres to conduct mindfulness sessions for their staff and/or students, ranging from introductory talks/presentations, to workshops, to foundation or full courses lasting several weeks (e.g., .b). Many of these schools also focus on just introducing selective MBP, most commonly mindful breathing and listening, in short sessions lasting a few minutes. These are sometimes coupled with instructions for reflection. Common implementations include making it a routine at the end of recess, or during morning assembly at the start of the day – to calm and settle the students down and to refocus their attention before going to class or engaging in the next learning activity. Some teachers also apply them in between lessons to give students a “brain break.” Calming music may be played and students are asked to listen, pay attention to the music, and practice deep breathing and breath awareness. Simple PowerPoint slides with visual aids/cues are sometimes used in tandem.

A common journey described by the schools includes a beginning with one or two teachers or key personnel gaining an interest in mindfulness – for example, after seeing presentations by schools using mindfulness at conferences overseas, or having read the research on mindfulness – followed by small-scale trials in their own classes, and upon observation of positive effects, rolling it out on a larger scale or for more, if not all, students. Many of these schools tend to be operating under SEL or PosEd frameworks. Observed benefits for students include less negative/disruptive behaviours, increased engagement, calmness, mindfulness, and awareness of what’s happening around them. At the same time, though most students comply and are able to do the

practices independently, the level of interest/engagement, usage and benefits vary across students. Expectedly, there are also cases where schools decided that mindfulness was not a good fit with what they were looking for after trying it out.

### *Challenges and constraints*

Integrating MBP into Singapore schools is not without challenges or constraints.

Common challenges expressed by schools include limitations in scaling up due to the availability of teachers trained to deliver mindfulness programs or teach MBP, as well as small class sizes for research evaluations. Schools/teachers have also expressed their desire for access to more training and resources to help them apply practices in the classroom. At the moment, locally available training is mostly limited to full programs such as MBSR or .b.

Especially in the local schools, time pressure to focus on the academic syllabus often necessitates any practice to be simple and easy to implement. Even then, some teachers may be unwilling to spend even a few minutes of their class time on non-academic activities. A related issue is in obtaining buy-in from teachers and key personnel. For instance, one of the PosEd schools remarked that new teachers who have transferred over from non-PosEd schools may find the practices hard to accept, especially if they had not experienced or seen the “before-and-after” of the students. While Albrecht et al. (2012) commented that implementation on a whole-school approach will be more effective, successful whole-school integration requires buy-in from school leaders. School leaders of UWCSEA East and Da Qiao Primary, for instance, have published supportive views on the practice (Dalziel, 2016; "Principal's message," n.d.). Concerns over the secularity of MBP continue to be an issue that can affect the extent of buy-in from staff, students and parents, and can be a barrier for schools who are otherwise interested. This seems to be more of an issue for the local

than the international schools, and may be a reason why MBP seem to be more extensively integrated in international schools (see Brensilver, 2016, for a discussion on secularity of mindfulness programs). Most, if not all, schools offer mindfulness practices on a non-mandatory basis.

### *Continuing efforts and future directions*

Despite the challenges and limitations, take-up and interest in incorporating mindfulness into schools continues to be on the rise. Several more local schools have indicated interest in exploring MBP. One of the schools featured in the news article indicated (via personal communication) that several schools and even hospitals have contacted them to understand how the practices are implemented and the benefits observed. According to mindfulness centres offering courses in Singapore, requests from schools for mindfulness training has been on the rise. Workshops are also sometimes requested at cluster level meetings for school leaders/counsellors/teachers; some school teachers/counsellors sign up for the centre's full course after experiencing the workshops.

Unlike in other parts of Asia, where the adoption of the Western mindfulness programs by local schools may be limited by obstacles such as having to translate the programs into the local language, all schools in Singapore use English as the language of instruction. Nonetheless, the need for a localized version of the Western programs has been expressed. Similar to that outlined by Lau (2016), it was felt that some of the references used in the Western programs may not be relatable to the children here.

Along with localized versions of mindfulness-in-schools programs, future research will need to evaluate the small, piecemeal practices that some schools are limited to using. Though not specifically on mindful breathing, some research evidence already exists for the efficacy of using short bouts of deep breathing in the local school

setting to reduce anxiety and enhance performance in students (Khng, 2016a). Several schools using MBP have expressed interest in participating in research efforts, understanding the approaches at other schools, and to further develop their approaches. However, challenges to “quality”, publishable school-based research – such as small sample sizes, impracticality of true randomization or control groups, heterogeneity in samples, practices and implementation, and teacher-dependent effects – as pointed out in reviews of mindfulness-in-schools programs (e.g., Zenner et al., 2014), will likely remain for research of this nature, especially with school-wide implementations.

## **Conclusions**

Mindfulness-based training has become one of the most studied and validated intervention techniques. With the rising movement on holistic education, such “practices that were once considered fringe or marginal by mainstream educators only a decade ago, are now being embraced and openly recognised as integral elements in running a successful classroom” (Albrecht et al., 2012, p.7) Mindfulness has been proposed to herald “a new age of positive education” (Ferrian, 2016), and “a new generation of professional teacher development” (Roeser, Skinner, Beers, & Jennings, 2012, p.167).

Mindfulness-in-education is still in its infancy in Singapore, but on a definite upward trend. As a Director of Learning at an international school expressed (via personal communication), “like most schools we are increasingly interested in promoting mental health and wellbeing – and mindfulness techniques are clearly an important element of that.” While developing children’s academic knowledge and skills, we should be reminded that “education is all about arming our kids with the tools they need to lead a happy and fulfilling life” (Edwards, 2015). By also giving children

coping skills and capacities to thrive in an evolving world, such as through mindfulness, “we are planting the seeds of sustainable success” (Edwards, 2015).

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