

RETHINKING LEARNING

A REVIEW OF SOCIAL AND EMOTIONAL
LEARNING FOR EDUCATION SYSTEMS

SUMMARY FOR DECISION MAKERS

Coordinating Lead Authors: A. Duraiappah, J. Mercier, N. Chatterjee Singh

Extended Writing Team: L. Arthur, G. Borst, B. Dobia, M. Farber, J. Frank, P. Jennings, D. Khlentzos, M. J. Kitil, R. Parada, K. Ramanujan, S. E. Rivers, S. Roffey, C. Saron, J. Sauve, K. Schonert-Reichl, S. Sethi, N. Sheinman, N. Srinivasan, J. Trach



The 1996 UNESCO report, “Learning: the Treasure Within; Report to UNESCO of the International Commission on Education for the Twenty-first Century”, unequivocally stressed that while education is an ongoing process of improving knowledge and skills, it is also – perhaps, primarily – an exceptional means of bringing about personal development and building relationships among individuals, groups and nations.

The publication, titled “Rethinking Learning: A Review of Social and Emotional Learning (SEL) for Education Systems” was worked upon from 2018 to 2020. The purpose of this publication was to review the latest research on SEL and to present scientific evidence for why SEL is key to education, and by that corollary, to achieving the United Nations (UN) Sustainable Development Goals (SDGs), specifically SDG 4, Target 7 that focuses on building peaceful and sustainable societies through education. Some key points that emerged with regard to SEL are enumerated below.



FIRST, we must acknowledge that humans are complex social and emotional beings whose well-being depends on learning to communicate their needs to each other effectively and managing their emotions in healthy ways. These needs and capabilities are universal – every human brain develops to enable social and emotional skills such as empathy, compassion and perspective-taking. Empathy is the general capacity of individuals to recognise emotion and to also resonate with others’ emotional states such as happiness, excitement, sorrow, or fear (Baird, Scheffer and Wilson, 2011). Perspective taking may be described as the ability to consider others’ points of view and requires some understanding of others’ thoughts, feelings, motivations, and intentions. Compassion is the ability to take positive action to alleviate suffering in the other and requires behavioural action motivated by the need and desire to improve the other’s well-being (Klimecki *et al.*, 2012). The development of these skills may be hampered by difficult life circumstances and contexts or conversely, nurtured by an appropriate social environment.

SECOND, research in social cognition and human neuroscience has enhanced our understanding of the origins of violence and hatred, and has also uncovered the processes that facilitate the construction of behaviour and conceptions promoting peace. For instance, research in psychology and neuroscience has revealed that hatred, bullying, violence and intercommunal hate are all driven by perceptions of threat, alienation and negative emotion, and have neurobiological origins in aggression (Falkner *et al.*, 2016; Sapolsky, 2017).

THIRD, research from the neurosciences has also shown that these biological roots of rage and aggression can be trained using behavioural tools of SEL, and redirected towards peaceful and constructive action. This retraining of brain circuits happens because of a remarkable

process called neuroplasticity, which is the ability of the brain to rewire itself by repeated training and practice. Specifically, building competencies of attention regulation through programmes on mindfulness (Davidson *et al.*, 2003) and emotional regulation – which build positive peer relationships (Obsuth *et al.*, 2015), and compassion – has been shown to regulate and reduce aggression and violence, and promote peaceful and prosocial behaviour.

FOURTH, in addition to the rise in intolerance, violence and extremism (Institute for Economics and Peace, 2019), a recent study conducted by WHO (World Health Organization, 2017) also reports an increase in anxiety, stress and depression in youth.

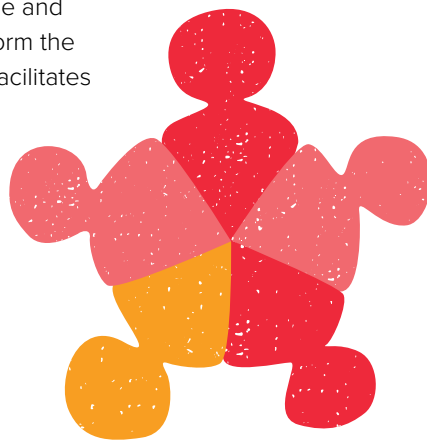
For instance, in India alone, about 25% of children between the ages of 13 and 15 suffer from some form of depression or anxiety. The highly competitive nature of the present education system, the growing uncertainty of the employment market and the types of jobs that will be in demand in the future have been mentioned as some of the major causes for the growing levels of stress and anxiety.

FIFTH, at the same time, research from the learning sciences tells us that the same knowledge and behaviours that contribute towards reduced aggression, violence, anxiety, fear and anger also contribute towards improved academic success. The competencies of attention regulation and emotional regulation improve with such knowledge, leading to improvement in learning.

SIXTH, the key findings summarised above indicate that the introduction of SEL can in fact provide a double dividend to learners and the society in the form of improving academic achievements and also nurturing empathic and compassionate individuals dedicated to building peaceful and sustainable societies across the world.

SEVENTH, it is thus urgent and necessary that this new knowledge and understanding be mainstreamed into education systems to transform the systems with the purpose of shaping a future that embraces and facilitates improved academic success as well as peace and human flourishing.

This summary, aimed at decision makers, synthesises and integrates the main findings, challenges and recommendations from the eight chapters of the full Review. The key questions that guided the Review were: (i) What constitutes an SEL intervention; (ii) Why and when SEL interventions are necessary; (iii) The science and evidence supporting SEL interventions; (iv) How can SEL be implemented; and (iv) The cost and benefits of SEL interventions.



The key questions that guided the Report were: (i) What constitutes an SEL intervention; (ii) Why and when SEL interventions are necessary; (iii) The science and evidence supporting SEL interventions; (iv) How can SEL be implemented; and (v) The cost and benefits of SEL interventions.

WHAT IS SEL?

SEL can be broadly defined as the process of acquiring the competencies, skills and/or attitudes to recognise and manage emotions, develop caring and concern for others, establish positive relationships, make responsible decisions and handle challenging situations (Payton *et al.*, 2000; Greenberg *et al.*, 2003; Weissberg *et al.*, 2015).

KEY MESSAGE 1



The key components of an SEL framework should include critical inquiry, focus attention, regulate emotion and cultivate compassionate action to produce a balance of intrapersonal, interpersonal and cognitive competencies while always ensuring that these frameworks are grounded in empirical evidence.

For instance, SEL focuses on the skills that allow children to calm themselves when angry, make friends, resolve conflicts respectfully, and make ethical and safe choices.

SEL emphasises active learning approaches in which skills can be generalised across curriculum areas and contexts when opportunities are provided to practice the skills that foster positive attitudes, behaviours and thinking processes. The popularity of this construct is due, in part, to the increased recognition that the key to prevention and intervention efforts is the identification of factors that lead to success rather than to just those factors that reduce risk. It is important to recast our priorities in terms of facilitating positive adjustment among children and youth, rather than only limiting risk, as well as extending our focus to all children and youth, instead of only those exhibiting risk factors.

Today, SEL has been characterised in a variety of ways, often being used as an organising framework for an array of promotion and prevention efforts in education and developmental science, including conflict resolution, cooperative learning, bullying prevention, mental health promotion and positive youth development (Elias *et al.*, 1997; Devaney *et al.*, 2006).

WHY IS SEL NEEDED IN EDUCATION?

Humans are social beings and possess an innate, biologically-driven ability to develop and form interpersonal connections. These social bonds, formed early in life, also create the foundation for human beings to coexist in and across groups, and are a vital part of the human experience.

KEY MESSAGE 2



Humans are born with an innate capacity for forming social connections. Humans need social and emotional connections for learning and higher-order cognition. Learning is facilitated or hindered by the social and emotional experiences of the learner. Therefore, an individual's emotional and social development is as important as the individual's cognitive and biological development. Education systems must be able to address and contribute to this aspect of human experience.

Thus, in addition to contributing to physical and psychological development, social connections also form the basis for human cognition and learning. Learning is facilitated or hindered by the *social and emotional experiences* of the learner, which help guide attention during learning, assist in information encoding and retrieval from memory, and effectively manage the social interactions and relationships that are fundamental to the learning process (Immordino-Yang and Damasio, 2007).

KEY MESSAGE 3



A growing body of scientific research indicates that students' social and emotional competence not only predicts their school success, but also predicts a range of important outcomes in late adolescence and adulthood, including high school graduation, postsecondary completion, employment, financial stability, physical health, and overall mental health and well-being.

The aspects of cognition that are recruited most heavily in education, including learning, attention, memory, decision making, motivation, and social functioning, are both profoundly affected by emotion and are in fact subsumed within the processes of emotion. Hence, how we feel affects how and what we learn.

Therefore, a school curriculum that ignores children's emotional, social or physical needs will find that those unmet needs will work against achieving cognitive and academic goals (Diamond, 2014). Whether it is acquiring the skills of literacy and numeracy in childhood or more intellectual content in the adolescent years, social and emotional competence provides a stable and secure state for the brain to learn.

Research on various populations has repeatedly shown that SEL can be learned and is durable. Studies show that students who received an SEL intervention continued to show increases in social and emotional skills, positive behaviours and academic achievement, and decreases in conduct problems, emotional distress, and drug use up to almost four years after programme completion, in contrast to those students who did not receive an SEL intervention.

KEY MESSAGE 4



There is a confluence of research from multiple studies showing that students who participate in SEL programmes, relative to students who do not, demonstrate significantly improved social and emotional competencies, attitudes, and behavioural adjustment. In addition they also outperformed those students who did not participate in SEL programmes, on indices of academic achievement by 11-percentile points. *Using extrapolative methods, preliminary results using data from over 60 countries suggests that the productivity lost for not spending on SEL interventions is about 29% of the Gross National Income.*

WHAT IS THE SCIENCE BEHIND SEL?

All learning occurs in a context involving social interactions, and triggers emotions and feelings in the learner. This is reflected in the brain by the involvement of key structures of the social and emotional brain, when children and adolescents learn to read, count, reason and also make decisions.

The human brain is not static; it develops throughout the lifetime of the individual, especially when adaptation to the environment is necessary. All mental activities are supported by hierarchical, distributed and integrated systems in the brain. From early childhood and even before birth, brain development is influenced by the social and the emotional environment to which a child is exposed (Farah, 2017).

At all ages of a human's existence, the brain has the unique ability to adapt to the demands of the environment (irrespective of its nurturing or toxic nature) by changing its functioning and its wiring. This is especially critical during periods of extreme sensitivity to the environment, namely early childhood and adolescence. The plasticity of the brain offers incredible opportunity for learning but also translates into responsibility for parents, teachers and policy decision makers.



KEY MESSAGE 5



Early childhood and adolescence constitute periods of maximal sensitivity of the brain to experience and to the environment. However, brain development, cognitive and social and emotional development are dynamic and non-linear. Therefore, enriched social environments and social interactions have a positive effect on brain maturation as well as on cognitive and social and emotional development at all ages.

The brain is definitely more ‘plastic’ (that is, it is more amenable to change) till the age of 24, which is considered to be the most sensitive period. We also know, however, that neuroplasticity can manifest at any age from intense and prolonged learning or during dramatic changes in the environment. Just as brain maturation is non-linear and dynamic, the cognitive and social and emotional aspects are also not linear in their development of children and adolescents.

Development should thus be conceived of as a non-linear dynamic system, consistently shaped by the environment and experience. Errors in learning or difficulties are not age-dependent, but are context-dependent. In particular, difficulties in learning occur at any age and in any context when children, adolescents or adults rely on automatic (pre-potent) responses, misleading strategies, cognitive and social and emotional heuristics rather than on deliberate, well-thought out strategies and responses adapted to the context. SEL competencies train the brain to develop deliberate response strategies that are socially relevant and emotionally resilient in design and structure.

Social interactions rely, also in part, on understanding and attributing mental states to others, the so-called Theory of Mind (ToM). ToM typically allows one to understand, think and reason about the beliefs and thoughts of others (Frith and Frith, 2005). A large network of areas in the brain sustain ToM abilities; these areas include the superior temporal sulcus (STS), fusiform gyrus (FG), temporal pole (TP), medial prefrontal cortex (mPFC), frontal pole (FP), orbitofrontal cortex (OFC), amygdala, insula, temporoparietal junction (TPJ) and cingulate cortex (Figure 1).

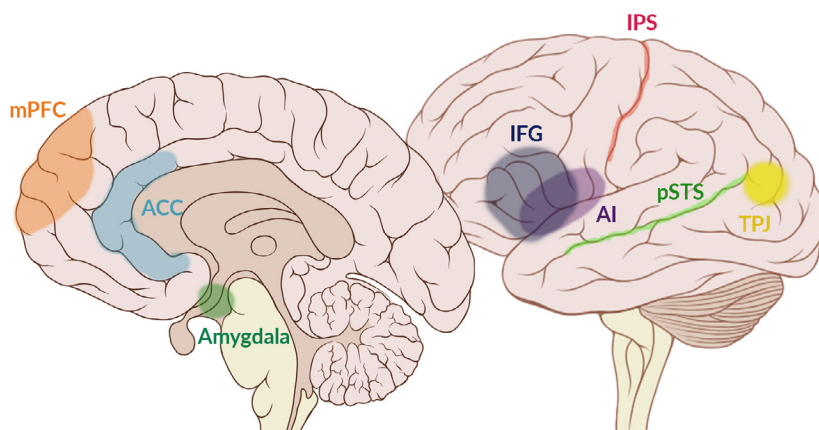
ToM abilities develop rapidly through preschool years but follow a protracted development through late childhood and into mid-adolescence, paralleling the structural maturation observed in the ‘social brain’ (Adolphs, 2009). Importantly, ToM is not restricted to reasoning about others’ mental states



but also about their affective states. ToM and empathy differ essentially by their degree of embodiment – ToM involves propositional knowledge of another’s mental or affective state, while empathy involves sensory, affective or bodily state sharing.

Other prosocial behaviours elicit activations of different structures of the social brain. For instance, charity activates the striatum, a subcortical structure of the brain involved in the reward system and the ventromedial prefrontal cortex (bottom part of the mPFC). Altruistic behaviours rely on the superior temporal sulcus and cooperation on the medial prefrontal cortex (Figure 1).

Figure 1: Key regions of the social brain



[Adapted from Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.
<https://creativecommons.org/licenses/by/2.5>]

To summarize, rather than being governed by a specific part of the brain, higher order social-psychological phenomena (e.g., self-control at the individual level, and empathy, altruism and compassion at the inter-individual level) are the result of a collection of skills hinging on interactions between multiple neurological networks that involve multiple areas of the brain (Beckes and Coan, 2015; Eisenberg, Spinrad and Knafo-Noam, 2015; Di and Biswal, 2019).

Finally, findings from brain science cannot be prescriptive of education policies but education policies that adhere to the principles of the learning mechanisms involving the brain, knowledge and behaviours, along with the accompanying social and emotional facets, are more likely to be effective (Immordino-Yang and Gotlieb, 2017). More precisely, educators who have knowledge of the cognitive, affective and developmental processes underlying academic learning are more likely to design interventions that are optimally tailored to children’s needs.

WHAT ARE SEL COMPETENCIES AND FRAMEWORKS?

Identifying and selecting an SEL framework for implementation in education is a critical first step because a framework ideally lays out the theoretical context underpinning the suite of social and emotional competencies that students would need to be successful in school, life and work. The education sector is presently replete with SEL frameworks due to the growing popularity and acknowledgement of SEL’s potential to address the academic and social issues challenges that learners face today.

A study conducted in 2017 identified 136 frameworks across 14 areas of study, including Positive Youth Development, Resilience, Character Education, School-Based Competency Development, Public Health, Mental Health and Mindfulness. One central finding that emerged was that “... different terms are used for competencies that have similar definitions, and that the same terms are used for competencies that have different definitions” (Berg *et al.*, 2017). Conceptual clarity is therefore a key necessity when using any SEL framework.

Examples of some key SEL frameworks are:

1. COLLABORATIVE FOR ACADEMIC, SOCIAL AND EMOTIONAL LEARNING. CASEL:

Figure 2: CASEL’s Five SEL Competencies



[Source: CASEL, ©2017. All rights reserved. <https://casel.org/core-competencies>]

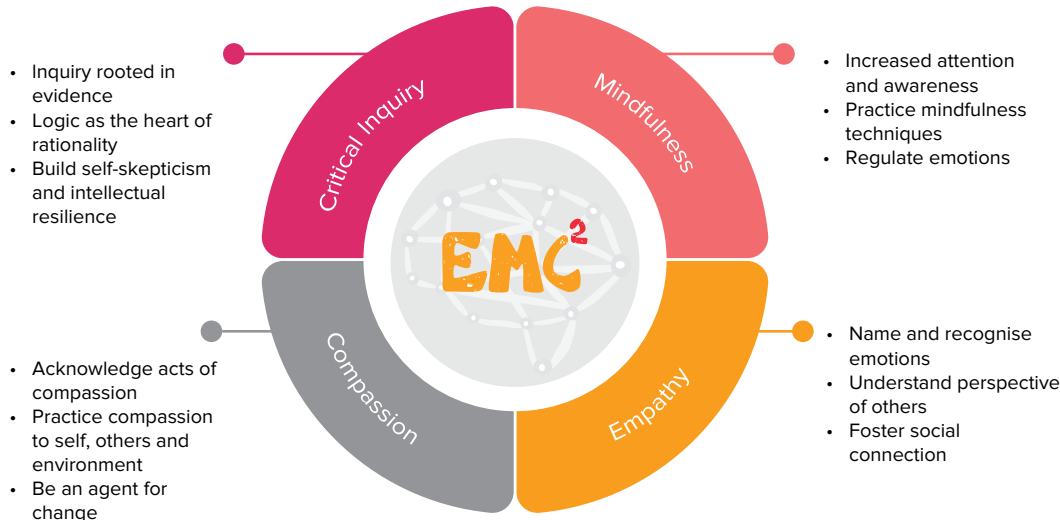
2. SOCIAL, EMOTIONAL, ACADEMIC DEVELOPMENT. SEAD:

Figure 3: Three Groups of SEL Competencies



[Source: Excerpted from the NCSEAD's report "From a nation at risk to a nation at hope: Recommendations from the National Commission on Social, Emotional and Academic Development" published by the Aspen Institute in January 2019]

Figure 4: UNESCO MGIEP's EMC²



The key competencies that emerge across this review can be categorised under three tiers. The first is the self, the second is the relationship with the external world and the third revolves around individual agency and behavioural change. The SEL competencies most commonly related with the tiers drawing from the key frameworks used today are the following:

Tier 1 – The Self

1. **Attention Regulation:** The ability to concentrate and focus in the present.
2. **Self-Regulation:** The ability to identify and recognise one’s own emotions, thoughts and influences on behaviour.
3. **Emotional Regulation:** The ability to regulate one’s emotions, thoughts and behaviours effectively.
4. **Critical Inquiry:** A process of collecting and analysing information and undertaking a critical analysis of the internal consistency in arguments, facts, data and conclusions.

Tier 2 – The Other and Society

1. **Empathy:** A combination of feeling and sensing from emotions of others as well as the ability to identify and understand other people’s emotions.
2. **Social Awareness:** The ability to appreciate diversity and respect others.
3. **Relationship Skills:** The ability to communicate, collaborate, listen and help others.

Tier 3 – Agency, Behavioural Change and Action

1. **Compassion:** The propensity to take action to help others for the better.
2. **Cooperation:** Working together with others without ulterior motives.
3. **Responsible Decision Making:** Understanding the consequences of one’s behaviour with respect to another’s well-being.



KEY MESSAGE 6



The level of conceptual clarity - the degree to which a framework is **Specific, Balanced, Developmental, Culturally Sensitive, and Empirically Grounded** - defines the effectiveness of an SEL framework.

An SEL framework is considered to be high in conceptual clarity when it displays the following five dimensions:

1. **Specific** – The framework has competencies that are clearly and specifically defined.
2. **Balanced** – The framework balances intrapersonal, interpersonal and cognitive competencies, and includes knowledge, skills and attitudes.
3. **Developmental** – The framework includes and utilises a developmental lens that illustrates whether competencies are malleable, how they develop over time, and what they look like at different ages and stages of development.
4. **Culturally Sensitive** – The framework is (i) sensitive to and addresses cultural variations in SEL processes, (ii) includes culturally related competencies that matter for success, and (iii) does not favour any one cultural group over others.
5. **Empirically Grounded** – The social and emotional competencies named in a framework are grounded in empirical studies that demonstrate their importance for success in school, work and life (Blyth and Borowski, 2018).

In addition to these five dimensions, SEL frameworks should adhere to several key characteristics for effective SEL programme implementation. Drawing from literature, ten key characteristics were identified and are illustrated in Table 1.

Table 1. Characteristics of Effective SEL Programmes

Characteristic	Description
1. Grounded in theory and research	It is based on sound theories of child development.
2. Teaches children to apply SEL skills and ethical values in daily life	It entails systematic instruction and application of learning to everyday situations.
3. Builds connection to school through caring, engaging classroom and school practices	It uses diverse teaching methods to engage students in creating a classroom atmosphere where caring, responsibility and a commitment to learning thrive.
4. Provides developmentally and culturally appropriate instruction	It emphasises cultural sensitivity and respect for diversity.

Characteristic	Description
5. Helps schools coordinate and unify programmes that are often fragmented	It offers schools a coherent, unifying framework to promote positive social, emotional, and academic growth of all students.
6. Enhances school performance by addressing the affective and social dimensions of academic learning	It introduces engaging teaching and learning methods, such as problem-solving approaches and cooperative learning, which motivate students to learn and to succeed academically.
7. Involves families and communities as partners	It involves school staff, peers, parents and community members in applying and modelling SEL-related skills and attitudes at school, at home and in the community.
8. Establishes organisational support and policies that foster success	It ensures high-quality programme implementation that includes active participation in programme planning by everyone involved, adequate time and resources, and alignment with school, district and state policies.
9. Provides high-quality staff development and support	It offers well-planned professional development for all school personnel.
10. Incorporates continuing evaluation and improvement	It continues gathering data to assess progress, ensure accountability, and shape programme improvement.

HOW CAN SEL COMPETENCE BE MEASURED?

A cornerstone of effective instruction and student learning is having the tools to assess and monitor student progress. These measurement tools have to be psychometrically sound and developmentally appropriate. This focus on assessment is just as important for SEL as it is for academic disciplines, such as reading, writing, mathematics and science; what gets assessed gets addressed!

It is critical to choose measures that adopt a *strengths-based* approach versus a *diagnostic* approach when considering SEL assessments. This implies assessing the strengths that need to be reinforced rather than restricting assessment to the problem areas.

Student learning assessments for SEL are conducted for three reasons, including:

- 1. Needs Assessment** (examines the aetiology of social and behavioural problems in a particular population, for example, “How many middle school children in this school district report being bullied?”),
- 2. Process Evaluation** (also called an ‘implementation evaluation’, it helps to determine the degree or extent to which a programme is being implemented as intended), and
- 3. Outcome Evaluation** (designed to examine what types of outcomes result from the programme after it is implemented).

KEY MESSAGE 7



One essential step in advancing the field of SEL is the development and implementation of psychometrically sound and developmentally appropriate measurement tools to evaluate and monitor students' social and emotional competence and development.

Assessments should achieve the following six key outcomes: (i) Communicate SEL as a priority; (ii) Establish a common language for SEL; (iii) Deepen understanding of how SEL competencies manifest in students over time; (iv) Continuously improve SEL instruction and implementation; (vi) Evaluate effectiveness of SEL programs and approaches; and (vii) Support equitable outcomes in education.

A possible step-by-step process for assessing students' social and emotional competence is delineated below (Taylor and Spinrad, 2018):

Part 1: Prepare

Step 1: Frame the overall SEL effort

Step 2: Plan the role of assessment

Step 3: Choose the SEL competencies to assess

Part 2: Select an Assessment

Step 4: Review the assessment options

Step 5: Select assessment tool(s)

Part 3: Use Measure data

Step 6: Implement assessment

Step 7: Use data

In the last step, the process through which educators use data, i.e., interpreting assessment data and making decisions based on those interpretations, is critical for any assessment approach. Data use practices are useful only when they are thoughtfully and systemically implemented. Designed well, data use practices can support the rigorous and appropriate use of SEL assessment data, and mitigate risk of unwarranted uses.

HOW CAN SEL BE IMPLEMENTED?

Despite substantial evidence of the positive impact of SEL on learning and development of children, there is considerable variability in its effectiveness when programmes that may have been successful at the pilot stage are transferred to ‘real world’ settings (Wigelsworth *et al*, 2016; Jones and Bouffard, 2012). These discrepancies are frequently associated with implementation factors (Humphrey, 2018).

KEY MESSAGE 8



Assessing and monitoring students’ SEL can support equitable outcomes in education. That is, a systemic approach to monitoring and evaluating students’ social and emotional competencies can assist in exposing any inequalities or disparities in the degree to which students’ needs are being supported by schools and districts.

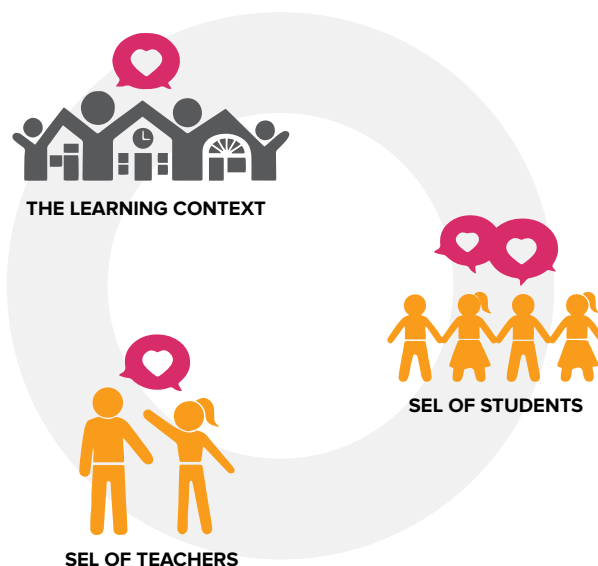
A Whole School Approach

Acknowledging that schools, by their very nature, are social institutions in which students learn social and emotional competencies in implicit and unintentional ways, is crucial for moving towards a system-wide approach to SEL.

It is only when educators are cognizant of the ways that students’ social and emotional competencies are being either promoted or hindered in the school context can they work towards the explicit or intentional promotion of SEL through SEL programmes and practices. Also important is understanding the ways in which the social and physical environment of a school can undermine SEL instruction.

SEL implementation requires three distinct and interrelated dimensions: the learning context, SEL of students and SEL of teachers as illustrated in Figure 5.

Figure 5: A Whole School Approach to implementing SEL



An integrated approach focussing on policy development for SEL, curricula, and identified programmes has been found to be more effective. A whole school approach is therefore a necessary condition for SEL to work. The school environment and its various actors must be conducive for SEL training. This means that even while the key to success lies with the teachers and the school, parents and caregivers are also crucial to SEL success.

KEY MESSAGE 9



Systemic implementation is critical for generalising learning beyond the classroom and into the daily life of the school. This is undertaken through a whole school approach that integrates SEL practices into school culture and operations.

Curricula and setting Standards

Standard setting is an important criterion for SEL success. Curriculum guidelines should provide scope for adaption to the needs of students and enable tracking and evaluation of implementation impacts. Specific SEL programmes should ideally have the SAFE characteristics: Sequenced, Active, Focused, Explicit. In addition, assessing the cultural and social fit is key for transferability to be used successfully.

The key factors for successful implementation and some of the barriers to implementation are listed in Tables 2 and 3 respectively.

Table 2. Factors for successful implementation of SEL

Fidelity (Adherence)	To what extent has the intended delivery model been adhered to?
Dosage (Exposure)	How often and for how long is the programme being delivered?
Quality	How well are the programme components delivered?
Responsiveness	How fully do participants actively engage with the programme or initiative?
Programme Differentiation	Does the programme provide clearly distinguished aims and methods?
Monitoring	Is there an effective system for monitoring quality and progress?
Reach	How well does the programme reach its target participant group/s?
Adaptation	What adaptations, if any, are required to fit the context?

Table 3. Factors that might hinder implementation of SEL

1. **Insufficient dosage, duration, and effectiveness.** This occurs when lessons are shortened, provided at less than the recommended frequency or offered sporadically. Lack of continuity limits effectiveness.
2. **Fragmentation and marginalization.** This occurs when SEL is not seen as core curriculum and is consequently given a low priority. Inconsistency of teaching undermines learning outcomes.
3. **Sole focus on classrooms.** Restricting the focus on SEL to classroom lessons only limits valuable opportunities to generalise and apply learning to other contexts and reduces skills development.
4. **Limited staff training.** Teaching SEL skills requires specialised understanding and effective support. Without appropriate training staff competence and confidence for teaching SEL will be limited.

DIGITAL TECHNOLOGY AND SEL

The digital innovation in the field of education during the past 20 years offers the option of scaling up SEL to reach the millions of learners within and beyond classrooms. Digital games, if designed with research-based pedagogical properties, can plant the seeds that can transform attitudes, knowledge, and skills in a socially and politically complex time. Indeed, games can propel social and emotional learning by offering deep, experiential learning opportunities that draw on students' active and creative engagement.

However, the potential depends upon the design of the environments wherein those digital tools that are deployed provide a ripe opportunity for social and emotional skill development. They provide a safe space to express ideas, experiment with solutions and obtain feedback on sensitive issues.

KEY MESSAGE 10



Digital games, if designed with research-based pedagogical properties, can plant the seeds for SEL that can transform attitudes, knowledge, and skills in a socially and politically complex time.

Digital games encourage effort and persistence, which produce emotions relating to reward and delight. Games also offer experience and help manage a wide range of emotions such as pride, frustration, gratitude, betrayal and fear. In addition, games offer learners the opportunity to

experiment and express themselves, and thereby gain an understanding of the consequences of their choices.

By presenting challenges and requiring players to learn, apply and grow specific skills and knowledge to overcome them, games have the potential to facilitate deep learning and self-awareness. For example, research findings from learners playing the game ‘Crystals of Kaydor’ suggest that playing the game boosted players’ ability to take others’ perspectives, as demonstrated by strengthened neural connections in the brain (Kral *et al.*, 2018) (see Figure 6).

Figure 6: Screenshots from the empathy training game, Crystals of Kaydor.



[Source: Retrieved from Kral *et. al* (2018). CC by 4.0]

However, games can also have negative unintended consequences and therefore must be properly vetted by experts and teachers before being used in the classroom. Also, ensuring the cultural appropriateness of the game or digital tool is important.

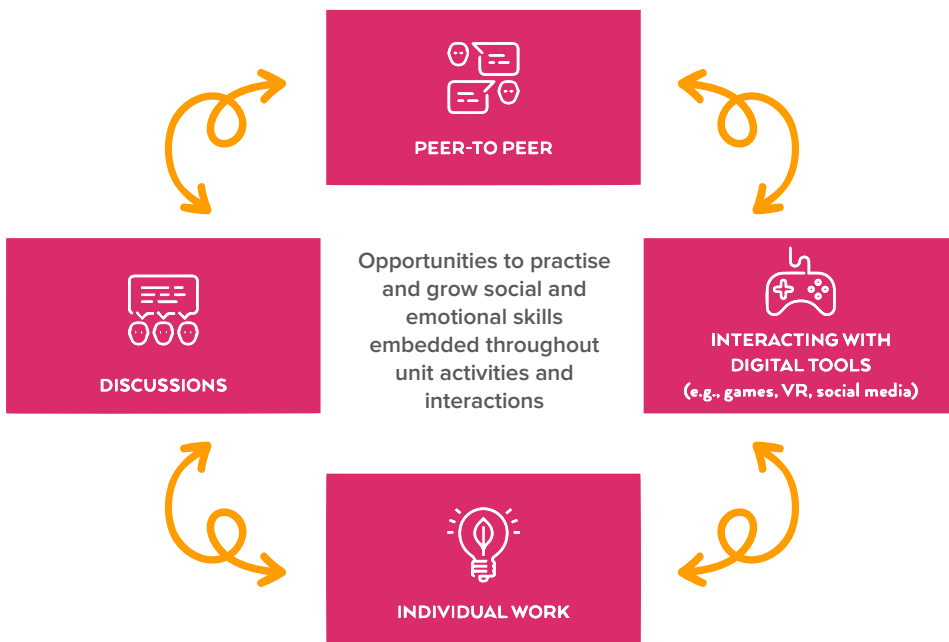
KEY MESSAGE 11



In addition to digital tools, educators need to incorporate activities for student reflection, classroom discussions, and other projects to deepen learning. Students should move between the digital tool and face-to-face interaction with peers and adults and individual work (self-reflecting, writing, creating) across the unit.

Importantly, digital tools should not be considered ‘teachers in a box’ or learning machines. They should not be used for transmitting knowledge. Instead, educators must engage with digital tools alongside their students for transformative learning to occur. Educators need to support students in using digital tools. Only then will the tools contribute to student learning, supporting them in developing their social and emotional skills. The tools should be integrated into other in-class and out-of-class activities, including discussions, self-reflection, peer-to-peer interaction, and creative activities, as clearly illustrated in Figure 7.

Figure 7: Games in an integrated learning environment



Not all games or digital technology tools are the same – educators need to align games and digital technology tools with intended learning objectives. As with any effective learning curriculum, time is needed to design compelling, effective units that embed SEL and digital tools. A strong pedagogical approach for marrying SEL with academic content using a digital tool is essential, and the tool is dependent upon the learning objectives. A ‘cool game’ or a ‘novel tool’ should not drive the decision to use tech in the classroom. See Figure 8 for a step-by-step process for integrating games for SEL.

Figure 8: A step-by-step process for integrating games for SEL



Venturing into the space where digital tools and social and emotional learning overlap, represents not only embracing the leading edge of where instruction is headed, but is also a solid step towards fully meeting young learners where they are, while creating experiences that enrich them academically, socially and emotionally.



POLICY AND SEL

Policies right from the national level down to the school level, play a key role in defining the success of mainstreaming SEL within education systems. In many countries, educational policies advocate the holistic development of children and acknowledge the role of education in children's social and emotional development. However, SEL when identified in national policy statements, is commonly linked to national education goals and priorities.

KEY MESSAGE 12



A holistic approach to policy design and implementation requires integration and collaboration across sectors, including education, health, community and social services to ensure policy coherence when implementing social and emotional learning programs.

Many SEL program policies are focused on increasing social and emotional outcomes to enhance labor market readiness – a key national education priority in most countries. However, a primary focus on economic productivity risks the failure of adequately prioritising a more holistic social and emotional development required to promote well-being and social inclusion.

Experiences in many countries in promoting children's mental health and well-being, demonstrate the importance of ensuring synergy across education, health, development, social, and community policies at the national and local level. It is therefore imperative to develop a nationwide policy on social and emotional learning after which each sector such as education, health and development can then develop its respective policies that contribute towards the national goal of mental health and well-being, while concurrently working towards achieving the respective objectives of each sector, including education.

It is also important to recognise that a successful SEL policy and programme in one country will also have similar success in another country with very different cultural and emotional settings. It is imperative to recognise the key characteristics and outcomes of SEL programmes, but also to design policies and programmes accordingly suited to local conditions.



WHO CAN BEST IMPLEMENT SEL?

Teachers are primary exemplars for social and emotional learning as they are central figures in the socialisation of children and serve as important role models for their students. To promote learning, teachers must find ways to meet the immediate social and learning needs of individual students in complex, frequently under-resourced educational environments.

KEY MESSAGE 13

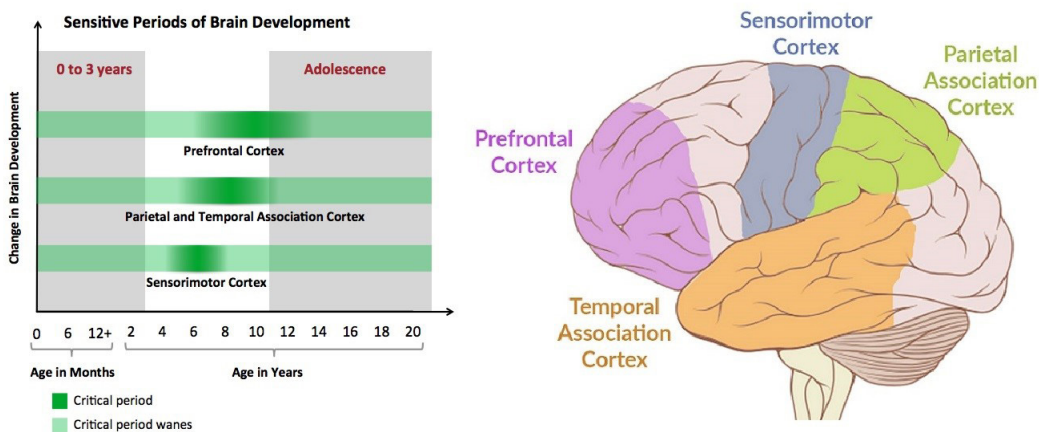


Mindfulness-based teacher professional development programmes, specifically designed to address teacher stress and social and emotional competence in the classroom context have been found to be effective in promoting teacher well-being, reducing psychological distress, and improving the quality of classroom interactions.

Teachers must recognise how their own behaviour models SEL concepts and competencies through their students' behavioural observational learning, which may be more powerful than the curriculum. In addition, teachers must have a good understanding of their students in order to deliver SEL programmes effectively and to apply the content knowledge to classroom interactions and events as they naturally occur in the classroom. Teachers must also model appropriate social behaviour and impact classroom dynamics directly and indirectly by taking actions to manage or modify the social networks emerging in their classroom. These include peer norms, status hierarchies and social affiliation patterns that can have a powerful effect on classroom environments.

WHEN SHOULD SEL BE IMPLEMENTED?

The brain not only gets bigger after birth but the number of connections between neurons also dramatically increases, with more than 90 per cent of the synapses formed after birth. The creation of new synapses (brain connections) is not homogeneous in the brain and occurs in successive waves in different regions of the brain. Neuroscience research studies show that the brain has the capacity to continuously adapt to changes in the environment, and its sensitivity and adaptability is the highest till the age of 24 years.

Figure 9: Sensitive Periods of Brain development after birth

KEY MESSAGE 14



Early childhood and adolescence constitute periods of maximal sensitivity of the brain to experience an environment. However, enriched social environments and social interactions have a positive effect on brain maturation as well as cognitive and social and emotional development at all ages.

Brain maturation continues up to 24 years of age in the prefrontal parts of the brain, especially those involved in controlling our mental activity and our behaviours. Periods of environmental sensitivity, when brain plasticity is at its peak (during early childhood and adolescence), emerge in part because structural (shape and connectivity of the brain) and functional (segregation and integration of the neural networks) maturation occurs at different rates in different regions of the brain. Periods of high brain plasticity (change in the brain due to the environment and experience) are characterised by the proliferation of synapses and axons described above and the shaping of efficient neural networks. Given the malleability of the brain and the positive impact of SEL intervention on cognitive, social and emotional development, it is strongly advocated that SEL needs to begin from early childhood and continue to adulthood, so that it can respond to the changing needs of the individual.

Although the brain is more plastic (more sensitive to experience, learning and the environment) during these sensitivity periods, neuroplasticity can occur at any age due to intense and prolonged learning or dramatic changes in the environment.

SEL skills such as mindfulness meditation improve attention control, emotion regulation and self-awareness in adults and in adolescents (Bajjal *et al.*, 2011) by producing changes at the structural and functional levels in a large network (Tang, Hölzel and Posner, 2015). Similarly, mindfulness-based stress reduction programs also improve aberrant emotional reactivity such as anxiety disorder by strengthening the functional connectivity between the amygdala, a key structure of emotional response, and the frontal cortex, a key structure of emotion regulation (Hölzel *et al.*, 2013).

The degree of stability of the structural or functional changes induced by training or learning (i.e. neuroplasticity) depends on the degree of proficiency in the acquired skills. Prolonged training or learning are thus necessary to produce long-lasting changes in the brain. Neuroplasticity and brain maturation essentially produce similar transformation of the brain at the functional and structural levels through epigenetic processes (modulations of the expression of the genes due to experience and the environment) (Larsen and Luna, 2018).

WHERE SHOULD SEL BE IMPLEMENTED?

While children hail from myriad backgrounds, they all need to be equipped with the social and emotional skills to achieve success in a diverse and ever-changing global society. Whereas many contexts would be suitable for the implementation of SEL, the education system is the most universal and durable experience during the first years of life in society. It is therefore urgent and necessary that social and emotional competencies be systematically and sustainably integrated into education systems.

KEY MESSAGE 15



Effective implementation of SEL should provide developmentally appropriate support for children’s ongoing social and emotional development. This requires careful planning and sequencing of active, focused and explicit teaching and learning activities.

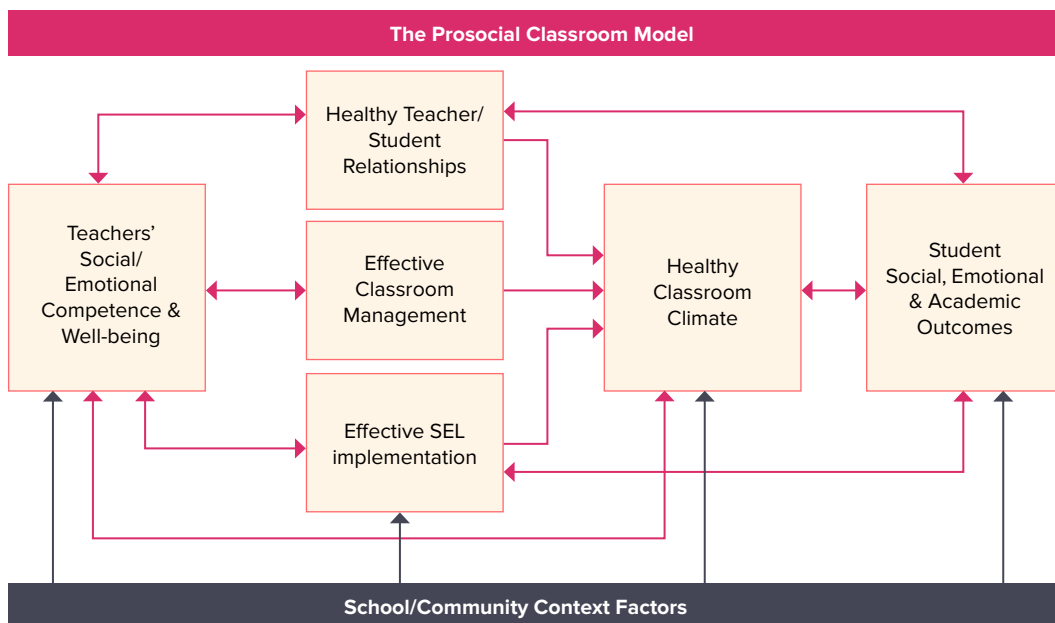
Education systems must be able to impart social and emotional skills. Schools, in particular, have been implicated as contexts that can play a crucial role in fostering students’ social and emotional development, and have been acknowledged as one of the primary settings in which activities to promote social and emotional competence and prevent unhealthy behaviours, should occur (Zins *et al.*, 2004; Weissberg *et al.*, 2015). Indeed, school-based prevention efforts have been heralded as a compelling and cost-effective way to promote children’s positive development and mental health, and stave off an upward trajectory of mental illness and aggressive behaviours (Greenberg, 2010) – problems that have been shown to increase over the course of the elementary school years (Farmer and Xie, 2007; Watling Neal, 2010).

In addition to teachers, students themselves are key to the success of any SEL programme. Engaging students proactively and increasing their agency will allow them to create a classroom atmosphere where caring, responsibility and a commitment to learning thrive. It will also nurture students' sense of emotional security and safety, and strengthen relationships among students, teachers, other school personnel and families.

Last but not the least, school staff, apart from teachers, peers, parents and community members, play a key role in applying and modelling SEL-related skills and attitudes at school, at home and in the community.

A prosocial classroom should ideally be structured to support the teacher in inculcating SEL skills. Figure 13 depicts one such prosocial classroom.

Figure 10: A typical prosocial classroom model.



Source: Jennings, P. A., & Greenberg, M. T. (2009). *The prosocial classroom: Reprinted with permission from SAGE Publications, Inc.*

KEY CHALLENGES FOR IMPLEMENTING SEL

Implementing SEL will be a non-trivial task. Many challenges will emerge ranging from acceptance of SEL into school curricula to financing of SEL interventions. The following ten challenges presented below offer some understanding and awareness of the hurdles to be crossed if the full benefits of SEL are to be experienced by students.

CHALLENGES

1

Systemic SEL is critical. Implementing SEL at a system level is complex and multifaceted. Obtaining ‘buy-in’ from all levels of the system, including administrators, parents, teachers, and the students, can be challenging.

2

Education policies are not designed to include the explicit teaching of social and emotional learning. As a consequence, social and emotional curricula practically do not exist either in curricula or in school activities. Countries need to ensure that they take into accounts social, economic and cultural context while designing education policies that include SEL.

3

Although a burgeoning research literature has identified the ingredients of effective SEL programmes, there is relatively little knowledge and research regarding the ways in which SEL can be infused into academic subjects.

4

Because SEL programmes and practices may vary across cultures, assessment tools for monitoring and evaluating students’ social and emotional competencies need to be designed to be flexible and adaptive so that they can be seen as relevant across cultures.

5

Objective performance-based assessments of SEL are limited. Online and game-based pedagogies that offer the possibility of real-life simulated environments need to be developed and evaluated as an approach in which to assess SEL.

6

A key challenge in the use of technology in education is access to reliable technology is inconsistent across schools and students' homes, presenting challenges to the equitable deployment of technology-supported SEL. Moreover, the fact that successful implementation of technology-supported SEL efforts requires significant time investment on the part of already taxed educators remains a significant barrier to adoption.

7

Many school districts do not provide adequate time for teacher professional learning nor do they recognise the critical importance of teachers' social and emotional competence to successfully promoting social and emotional learning in schools.

8

Dissemination of the key findings from the studies on the learning brain to the pedagogical community can be difficult if deemed to be prescriptive of the type of pedagogy in the classroom.

9

Current education systems are designed to encourage competition whereas research and evidence shows that collaboration is key to building peaceful and sustainable societies.

10

Universal implementation of formal programmes in secondary schools has had limited success. Greater emphasis on student voice and agency has been suggested as more appropriate for SEL implementation in secondary schools.



THE CALL TO ACTION

No review is complete without a set of recommendations. The following nine recommendations are not meant to be policy prescriptive but as general guidelines for decision makers. These recommendations range from suggestions to education policymakers at the national level right down to school boards and schools.

RECOMMENDATIONS

1

Social and Emotional Learning (SEL) to be mainstreamed into educational systems. Educational policies should adhere to the principles of the learning sciences and their social and emotional facets for social and emotional skills to be imparted effectively. It is therefore urgent and necessary that social and emotional competencies be systematically and sustainably integrated and mainstreamed into education systems

2

Teacher training in SEL. Initial training and professional development of teachers should include introduction to the basics of brain development, of the social brain, and of the social and emotional factors, promoting the cognitive, social and emotional development of children and adolescents.

3

Teacher training budgets for SEL. School districts should provide adequate time and budgets for teachers to develop the social and emotional competencies they need to manage the stress of the classroom and to intentionally model the social and emotional skills they aim to teach to their students.

4

A strength based approach to SEL learning assessments. Policymakers should take a strengths-based approach to SEL assessment and monitoring one in which students' social and emotional strengths and capacities are at the fore. This will pave the way for the promotion of students' positive development and will help prevent problems instead of the usual route of waiting for problems to occur and then finding solutions. Such an approach is cost-effective and provides for a sounder investment.

5

SEL learning assessments analysis should involve multi-stakeholder participation. In addition to the creation and implementation of sound SEL assessments, there needs to be a mechanism put in place to allow key stakeholders to be involved in making meaning of those data and using them for making positive change that promote the social and emotional competence and well-being of all students.

6

SEL policy coherence. Enable systemic and sustained implementation of SEL programmes by developing consistent policy settings, curriculum standards and effective implementation support, including expert guidance for schools.

7

Contextualize SEL programs. Prepare for SEL implementation by ensuring that SEL practices, programmes and implementation methods are effectively and inclusively contextualised to meet the social and cultural needs of their particular school communities. Learning communities, both online and within schools, should be formed to provide the vital support and models educators need to confidently experiment with technology-enabled SEL.

8

Continuous investment in SEL school programs. School and teacher training budgets should be revised to allow for SEL interventions to be integrated into classrooms and this should be done from Grade 1 onwards. Continuous investment in this should be an integral part of all education budgets. Investments should be made in professional development opportunities for educators to support them to design and implement high- quality instruction that fully integrates SEL with digital tools and academic content.

9

Forming a Global Collective on SEL. There needs to be an intentional focus (such as a campaign) organised by a coalition of partners led by UNESCO to communicate a common and unified message on the importance of SEL to parents and the public at large.

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