RETHINKING
LEARNING

A REVIEW OF SOCIAL AND EMOTIONAL
LEARNING FOR EDUCATION SYSTEMS

Editors:

Nandini Chatterjee Singh ● Anantha Duraiappah

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FOREWORD

Matthieu Ricard
*Buddhist Monk,
Photographer, Author and
Humanitarian*

What kind of education would I have loved to receive as a child? Pondering retrospectively, 'it would have been wonderful to receive some meaningful guidance on becoming a good human being — happy within and benevolent without, and to have benefitted from an education fostering emotional balance, compassion, tolerance, self-discipline, resilience, contentment and other fundamental human qualities. This is the kind of education I wish today to any young person coming into this world.

Children certainly need to sharpen their intelligence, refine their capacities for problem-solving and acquire a corpus of knowledge that will allow them to succeed in life. What matter most in the end is flourishing, for the twofold benefit of oneself and others.

Obsessed with performance and material success, modern education has given less importance to cultivating qualities that are central to physical and mental well-being, and to accomplishing a meaningful life. This applies, just as well, to society at large — if a nation is the most powerful and the richest while everyone is unhappy, what's the point?

As the Dalai lama often reminds us in his public talks, human intelligence is a tool that can be used to do good or to do harm. Intelligence must therefore be imbued with benevolence. We should certainly be wary of any form of prescriptive moral education that reflects the particular worldviews of a group of people or an individual educator. But who could object to inspiring in children kindheartedness, cooperation, emotional literacy, openness and honesty? Children will develop a value system anyway, but unless given some sources of inspiration, they risk acquiring their values in media that focus on violence, selfishness, ruthless competition, consumerism and narcissism.

We need to be creative in helping young people to face the challenge of a world that is changing rapidly. That is precisely where emotional intelligence and social skills can become the best assets to navigate through those changes. Theoretical knowledge and artificial intelligence cannot show us how to be a good-hearted human being, someone who is knowledgeable about social skills, who has the inner resources to deal with the ups and downs of life, and who can contribute to relieving the sufferings of others and favour their well-being. Since we are all interdependent, various forms of cooperative learning can thus be encouraged, instead of fostering competition, whereby students work against each other to achieve a goal that only a few of them can attain.

> 'WE NEED TO BE CREATIVE IN HELPING YOUNG PEOPLE TO FACE THE CHALLENGE OF A WORLD THAT IS CHANGING RAPIDLY. THAT IS PRECISELY WHERE EMOTIONAL INTELLIGENCE AND SOCIAL SKILLS CAN BECOME THE BEST ASSETS TO NAVIGATE THROUGH THOSE CHANGES"

Teachers also need to do their homework, since one of the most precious lessons is transmitted through living examples — when the messenger becomes the message. Teachers trained in Social and Emotional Learning (SEL) can thus act as a reference point against which young people are able to find inspiration and guidance.

Over the years, Social and Emotional Learning has taken a preeminent role imbuing education with precious human skills. As it is abundantly and convincingly shown in the present volume, the positive, durable outcomes of SEL are clear and well-documented by scientific studies and evaluations. Both research and opinion polls show that students and teachers love SEL, families notice the benefits, the general public is in favour of it, and even an economic cost-benefit analysis overwhelmingly supports its implementation. Conversely, the societal and economic cost of inaction is roughly ten times higher than the cost of implementation. Every effort should thus be made to convince the education authorities all over the world to translate this evidence-based knowledge into practical measures.

Scientific research and ancient wisdom have both concluded that constructive human qualities can be cultivated as skills. Happiness is a skill and so are attention, prosocial attitudes, compassion, and

mastery of our thoughts and emotions. One of the groundbreaking developments in neuroscience has been to show that any form of training changes the brain and, consequently, our ways of being. Our brains remain pliant throughout life but are particularly malleable during young age. Over the last twenty years, scientists and meditators have collaborated to advance new fields of research such as contemplative neuroscience, mindfulness-based stress reduction and mindfulness-based cognitive therapy. Various kinds of interventions for cultivating these basic human qualities in young children have been designed, tested and evaluated, such as the 'kindness curriculum' devised at the Center for Healthy Minds by a team guided by neuroscientist Richard Davidson.

So, while engaging with enthusiasm in implementing SEL, let's keep in mind the illuminating words of Jacques Delors, Chairman of the International Commission on Education for the Twenty-first Century, quoted in this volume: "We must be guided by the utopian aim of steering the world towards greater mutual understanding, a greater sense of responsibility and greater solidarity, through acceptance of our spiritual and cultural differences. Education, by providing access to knowledge for all, has precisely this universal task of helping people to understand the world and to understand others."

Matthieu Ricard

– Matthieu Ricard
Buddhist Monk, Photographer, Author and Humanitarian

DIRECTOR'S MESSAGE

Anantha K. Duraiappah
Director, UNESCO MGIEP

The World Health Organization (WHO) classifies 'depression' as a mental disorder affecting more than 264 million people globally.[1] Extreme levels of depression can lead to suicide, affecting close to 800,000 people annually around the world. Moreover, suicides are known to be the second-highest leading form of death amongst 15-29 year olds. In the current fast-paced and competitive environment, in which individuals are attempting to 'succeed', they are also experiencing undue levels of stress. This stress is apparent, particularly amongst children and adolescents as many feel pressurised to 'perform well' at school or generally in their lives.

Pressure to excel in exams and assessments is prevalent in most education systems as a criterion to 'get ahead of the curve' or to 'find the perfect job'. Further, tight deadlines and interpersonal conflicts cause high levels of stress in classrooms. Recent evidence indicates that stress may hamper the natural form of learning and induce a shift from "flexible 'cognitive' form of learning" to "rigid, habit-like behaviour"[2]. Furthermore, stress can have a significant impact on learning and memory processes[3]. Learning is most effective in a stress-free environment or when learners are equipped with coping mechanisms that help them deal with daily stress.

Emotions play a critical role in influencing what we learn and how much we learn. Similarly, the content of what we learn also influences our emotions. Recent advances in neurosciences suggest that the critical aspects that we use substantively in

1   https://www.who.int/news-room/fact-sheets/detail/depression
2   https://www.nature.com/articles/npjscilearn201611
3   https://www.nature.com/articles/npjscilearn201611

schools (i.e. attention, memory, decision-making), are "affected by and subsumed within the process of emotion"[4]. Emerging research also highlights the connections between the cognitive and emotional functions of our brain, and the role that the emotional function plays in imparting effective learning experiences. In order to navigate the idea of the influence that emotions have on our learning and vice versa, it is critical for individuals to be emotionally resilient, which effectively means the ability of individuals to adapt to different situations.

'SEL CAN BE DESCRIBED AS LEARNING THAT ALLOWS ALL LEARNERS TO IDENTIFY AND NAVIGATE EMOTIONS, PRACTICE MINDFUL ENGAGEMENT AND EXHIBIT PROSOCIAL BEHAVIOUR FOR HUMAN FLOURISHING TOWARDS A PEACEFUL AND SUSTAINABLE PLANET"

Social and emotional learning (SEL) can be described as learning that allows all learners to identify and navigate emotions, practice mindful engagement and exhibit prosocial behaviour for human flourishing towards a peaceful and sustainable planet. Research suggests that SEL is key to building emotional resiliency in individuals. This research is in line with emerging literature from the neurosciences, which encourages the 'whole-brain learning approach', suggesting that just as the brain, which is the 'seat' of our learning experiences, can be trained in cognitive intelligence, it can also be trained in 'emotional intelligence'.

With increasing evidence of the effectiveness of SEL in classrooms, various frameworks, resources and curricula have been developed the world over. The proliferation of SEL frameworks requires a critical science and evidence-based review of the literature in order to define key constituents of quality SEL that can be imparted to the learner as SEL frameworks are increasingly being adopted by education systems globally.

This publication is in response to this urgent need for a science and evidence-based guide on the adoption of SEL in classrooms. Credibility of frameworks is an absolute necessary condition if we are to do this "right". The publication, titled *'Rethinking Learning – A Review of Social and Emotional Learning for Education Systems'* intends to provide an overview of the SEL literature and serves

4   https://onlinelibrary.wiley.com/doi/full/10.1111/j.1751-228X.2007.00004.x

as a guidance to teachers, policymakers, parents and learners on what constitutes key characteristics of a 'good' SEL framework. The evidence provided by this review is not only robust and compelling but advocates an urgent need to mainstream SEL in education systems, to ensure both mental well-being and improve academic growth.

This publication would not have been possible without the valuable contribution of many experts. The unique nature of this publication highlights the key insights a multi-disciplinary lens brings to the educational sphere. I am happy to have worked with some of the world's most recognised experts in the field of SEL for the development of this publication. A vote of special thanks must also go to the excellent panel of independent experts who very closely reviewed the publication and provided valuable insights and recommendations to further strengthen the publication.

I am confident that this publication will be a useful tool for a range of stakeholders from educational policymakers to school administrators to teachers. The Summary for Decision Makers (SDM) offers a quick synopsis of what this publication can offer to the various stakeholders and I hope that the Call to Action offers a recipe for the kind of change in our educational systems that is needed to build peaceful and sustainable societies across the world.

Anantha K. Duraiappah
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AUTHORS

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Jennifer Kitil completed her doctorate in Human Development, Learning, and Culture at the University of British Columbia, Canada. She has collaborated with a number of agencies including the Collaborative for Academic, Social, and Emotional Learning (USA), and the Organisation for Economic Co-operation and Development (France) to conduct research on social and emotional learning in K-12 and pre-service teacher education to inform policy. Her research interests also include mindfulness, self-regulation, and psychological well-being across the lifespan.

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Sue Roffey is a psychologist, academic and speaker. She is a prolific author and international authority on all aspects of schools and student wellbeing with a particular focus on behaviour and relationships. Her most recent books are the Primary and Secondary Behaviour Cookbooks and Circle Solutions for Student Wellbeing (3rd Ed) which includes the ASPIRE principles for SEL implementation.

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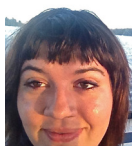
Jessica Trach studies the social dynamics of children's peer groups, with a focus on understanding how their emotional experiences and social relationships with children and adults at school influence their prosocial behavior in different situations (for example, when they witness bullying). For the past several years she has worked closely with educators and community organizations to increase awareness about the benefits of including social and emotional learning (SEL) instruction in schools.

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ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
AI	Anterior Insula
AIC	Akaike Information Criterion
ARC	Attachment, Regulation and Competency
BR	Bullying Reduction
CALM	Community Approach to Learning Mindfully
CARE	Cultivating Awareness and Resilience in Education
CASEL	Collaborative for Academic, Social, and Emotional Learning
CBA	Cost Benefit Analysis
CEB	Cultivating Emotional Balance
CEN	Central Executive Network
CLASS	Classroom Assessment Scoring System
CLRM	Classical Linear Regression Model
CSCI	Comprehensive School Climate Inventory
DALY	Disability Adjusted Life Years
DESSA	Devereux Student Strengths Assessment
DMN	Default Mode Network
EASEL	Ecological Approaches to Social Emotional Learning
EDI	Early Development Instrument
ELA	English Language Arts
ENSEC	European Network for Social and Emotional Competence
EPIC	Ethics, Practice, and Implementation Categorization

FG	Fusiform Gyrus
FP	Frontal Pole
GABA	Gamma Aminobutyric Acid
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GNI	Gross National Income
HBSC	Health Behaviour in School-Aged Children
HELP	Human Early Learning Partnership
HK	Human Capital
HMK	Human-Made Capital
HPA	Hypothalamic-Pituitary-Adrenal
HPS	Health Promoting Schools
HSA	Holistic Student Assessment
IQ	Intelligence Quotient
IW	Inclusive Wealth
mACC	Middle Anterior Cingulate Cortex
MBEB	Mindfulness-Based Emotional Balance
MBSR	Mindfulness-Based Stress Reduction
MCFD	Ministries of Children and Family Development
MDI	Middle Years Development Instrument
MGIEP	Mahatma Gandhi Institute of Education for Peace and Sustainable Development
MMO	Massively Multiplayer Online
mOFC	Medial Orbitofrontal Cortex
mPFC	Medial Prefrontal Cortex
MSCEIT-YRV	Mayer-Salovey-Caruso Emotional Intelligence Test – Youth Research Version
MSCS-SV	Meriden School Climate Survey – Students Version
NCSEAD	National Commission on Social, Emotional and Academic Development
OECD	Organisation for Economic Co-Operation and Development
OFC	Orbitofrontal Cortex
OLS	Ordinary Least Squares

PACER	Parent Advocacy Coalition for Educational Rights
PBS	Public Broadcast System
PCI	Per Capita Income
PISA	Programme for International Student Assessment
PL	Professional Learning
RA	Reduced Aggression
SC	Social Competence
SCBA	Social Cost Benefit Analysis
SEAD	Social, Emotional, and Academic Development
SEAL	Social and Emotional Aspects of Learning
SEC	Social and Emotional Competencies
SEL	Social and Emotional Learning
SEL-C	Social and Emotional Learning Competency Survey
SES	Socio-Economic Status
SN	Salience Network
STEM	Science, Technology, Engineering and Mathematics
STS	Superior Temporal Sulcus
TEC	Technology in Early Childhood
ToM	Theory of Mind
TP	Temporal Pole
TPG	Temporoparietal Junction
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
VESIP	Virtual Environment for Social Information Processing
VR	Virtual Reality
WEF	World Economic Forum
WHO	World Health Organization
WTA	Willingness to Accept
WTP	Willingness to Pay

RETHINKING
LEARNING

A REVIEW OF SOCIAL AND EMOTIONAL LEARNING FOR EDUCATION SYSTEMS

SUMMARY FOR DECISION MAKERS

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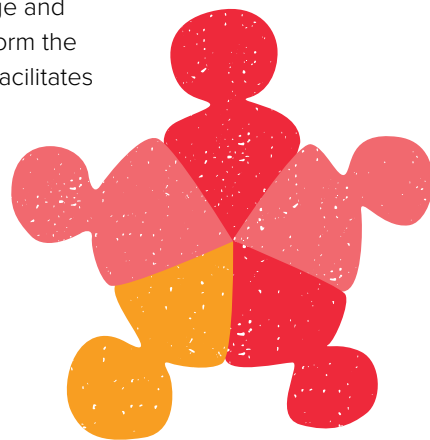
The key questions that guided the Report were: **(i) What constitutes an SEL intervention; (ii) Why and when SEL interventions are necessary; (iii) The science and evidence supporting SEL interventions; (iv) How can SEL be implemented; and (iv) The cost and benefits of SEL interventions.**

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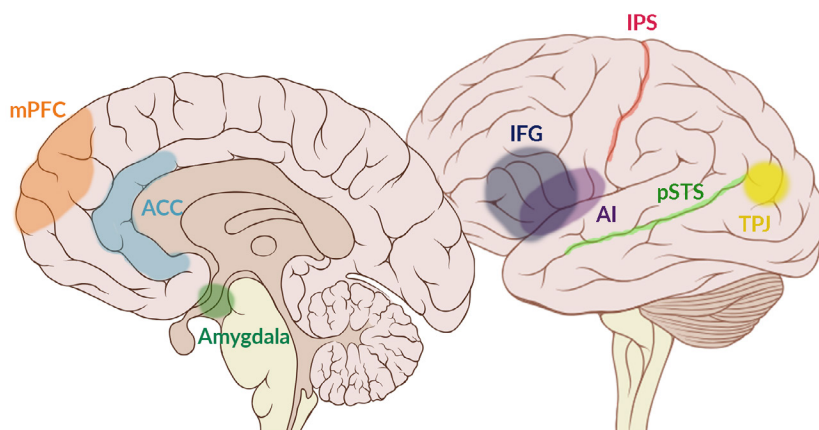
[Adapted from Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist. https://creativecommons.org/licenses/by/2.5]

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"]
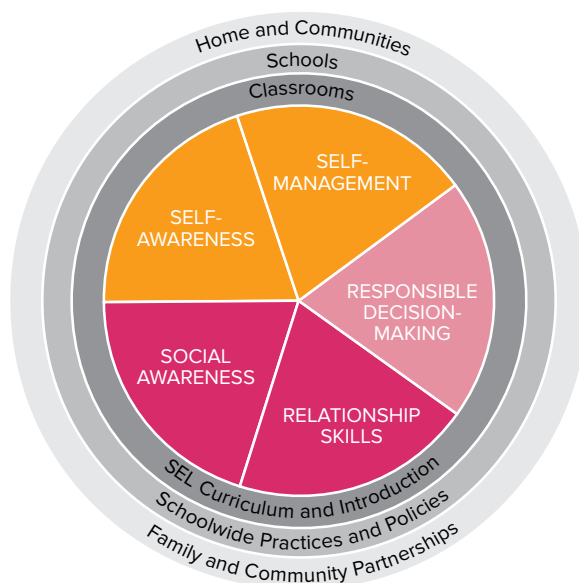
2. SOCIAL, EMOTIONAL, ACADEMIC DEVELOPMENT. SEAD:

Figure 3: Three Groups of SEL Competencies

COGNITIVE	SOCIAL & INTERPERSONAL	EMOTIONAL
Including the ability to:	*Including the ability to:*	*Including the ability to:*
• Focus and pay attention • Set goals • Plan and organise • Perservere • Problem solve	• Navigate social situations • Resolve conflicts • Demonstrate respect towards others • Cooperate and work on a team • Self-advocate and demonstrate agency	• Recognise and manage one's emotions • Understand the emotions and perspectives of others • Demonstrate empathy • Cope with frustration and stress

[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

• Inquiry rooted in evidence
• Logic as the heart of rationality
• Build self-skepticism and intellectual resilience

• Increased attention and awareness
• Practice mindfulness techniques
• Regulate emotions

• Acknowledge acts of compassion
• Practice compassion to self, others and environment
• Be an agent for change

• Name and recognise emotions
• Understand perspective of others
• Foster social connection

Critical Inquiry · Mindfulness · Compassion · Empathy

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

THE LEARNING CONTEXT

SEL OF STUDENTS

SEL OF TEACHERS
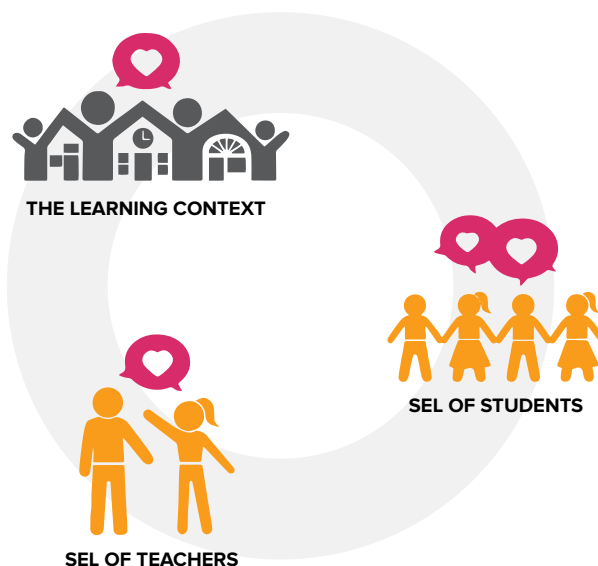
An integrated approach focussing on policy development for SEL, curricula, and identified programmes has been found to be more effective. A whole school approach is therefore a necessary condition for SEL to work. The school environment and its various actors must be conducive for SEL training. This 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.
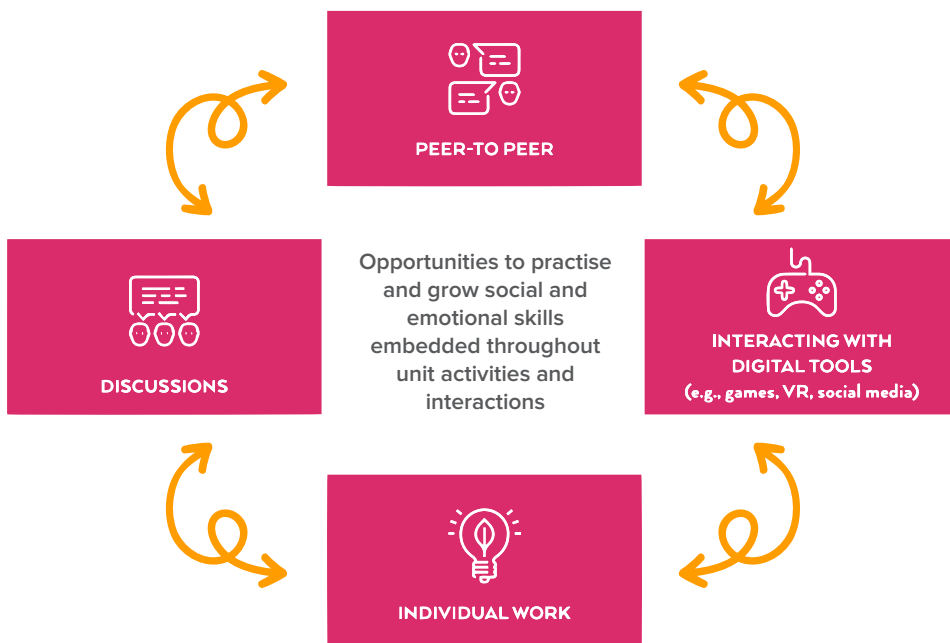
KEY MESSAGE 11

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

PEER-TO PEER

DISCUSSIONS

Opportunities to practise and grow social and emotional skills embedded throughout unit activities and interactions

INTERACTING WITH DIGITAL TOOLS
(e.g., games, VR, social media)

INDIVIDUAL WORK

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

① Think about yor students. Keep them at the centre, always.

② Identify social and emotional learning goals and subject matter learning goals.

③ Brainstorm games that connect in some way to the identified learning goals.

④ State learning objectives: Students will be able to do _____ by the end of the unit.

⑤ Sketch activities that will comprise each lesson in the unit.

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.
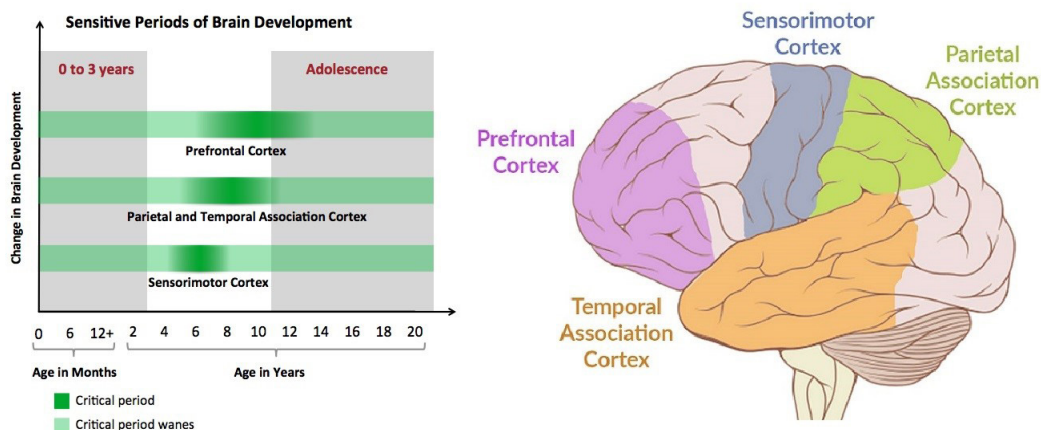
KEY MESSAGE 13

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 develop, 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 (Baijal *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.

The Prosocial Classroom Model

- Healthy Teacher/Student Relationships
- Teachers' Social/Emotional Competence & Well-being
- Effective Classroom Management
- Effective SEL implementation
- Healthy Classroom Climate
- Student Social, Emotional & Academic Outcomes

School/Community Context Factors
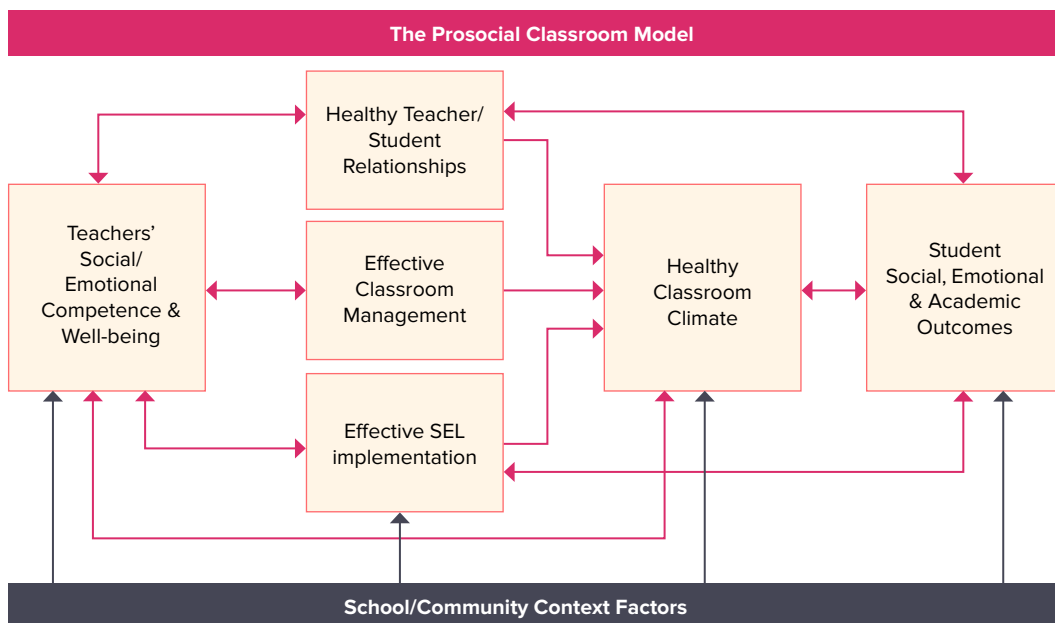
Source: Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Reprinted with permission from SAGEPublications, Inc.]

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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SINCE WARS BEGIN IN
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IT IS IN THE MINDS
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AND CHILDREN)
THAT THE DEFENCES
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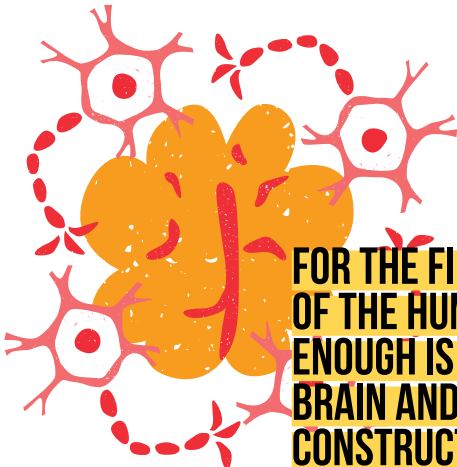CONSTRUCTED"

INTRODUCTION

BACKGROUND

SOCIAL AND EMOTIONAL LEARNING FOR A PEACEFUL AND SUSTAINABLE PLANET

The Preamble to the Constitution of UNESCO declares "That since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed". For the first time in the history of human evolution, enough is known about the human brain and behaviour to begin constructing neural networks for peace.

Accumulating research in social cognition and neuroscience during the last two decades has enabled not only an understanding of the origins of violence and hatred, but also uncovered the processes that facilitate the construction of networks of peace in the brain. For instance, brain research has revealed that, hatred, bullying, violence and intercommunal hate are all driven by perceptions of threat, alienation and negative emotions, and have neurobiological origins in aggression (Falkner et. al., 2016,
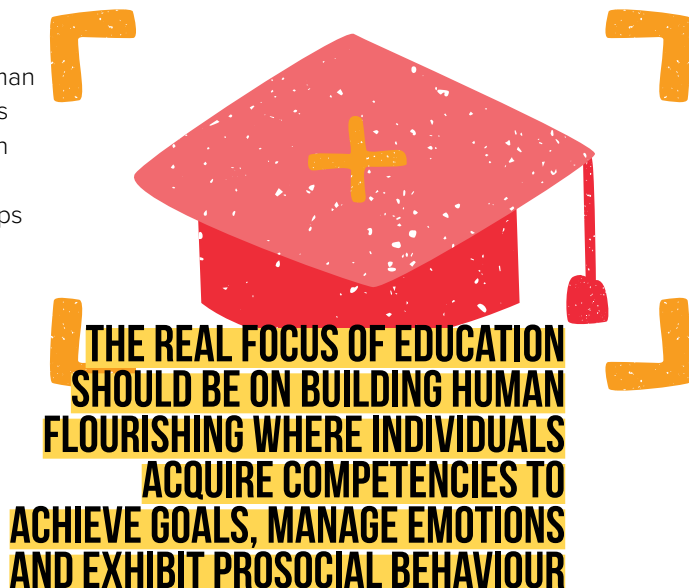
FOR THE FIRST TIME IN THE HISTORY OF THE HUMAN EVOLUTION, ENOUGH IS KNOWN ABOUT HUMAN BRAIN AND BEHAVIOUR TO BEGIN CONSTRUCTING NEURAL NETWORKS FOR PEACE

Sapolsky 2019). However, neuroscience research has also shown that these biological roots of rage and aggression can be trained using the behavioural tools of social and emotional learning (SEL), and redirected towards peaceful and constructive action. This retraining of the brain happens because of a remarkable process called neuroplasticity, which is the ability of the brain to rewire itself by repeated training practices. Specifically, the introduction of programmes on mindfulness (Davidson et al., 2003), positive peer relationships (Osbuth et al., 2015) and compassion have been shown to regulate and reduce both aggression and violence, and promote peaceful and prosocial behaviour. The icing on the cake has been provided by the effect of SEL on academic achievement. There is accumulating empirical evidence that SEL not fosters academic growth and success (Greenberg et al., 2003; Zins et al., 2004) but is a better predictor than standardised test scores and IQ of classroom achievement (Wentzel, 1993).

It is thus urgent and necessary that SEL be mainstreamed into education systems to transform education and shape a future that is geared towards promoting peace and human flourishing, as well as improving academic scores in the classroom. The purpose of this report is to review the latest research in SEL and to present scientific evidence on why mainstreaming SEL in education is key to building peaceful and sustainable societies.

The following paragraphs will attempt to (a) establish that the purpose of education is to build human flourishing; (b) summarise research that all humans are complex social and emotional beings, and social context and emotional responses influence all decisions and actions, and (c) argue that social and emotional skills are necessary to achieve the United Nations (UN) Sustainable Development Goals (SDGs).

(a) **Purpose of education** –The purpose of education thus far has been to build human capital for human well-being. Yet, there is increasing evidence that an emphasis on only GDP or material well-being leads to insecurity, poor interpersonal relationships and a consequent loss of a sense of community and shared collective goal attainment (Putnam, 2000; Rogers et al., 2012). Evidence from recent World Bank (2018) and World Health Organization (2017) reports highlight an alarming increase in the number of individuals affected by depression and anxiety, with adolescents being the most vulnerable. This growing

THE REAL FOCUS OF EDUCATION SHOULD BE ON BUILDING HUMAN FLOURISHING WHERE INDIVIDUALS ACQUIRE COMPETENCIES TO ACHIEVE GOALS, MANAGE EMOTIONS AND EXHIBIT PROSOCIAL BEHAVIOUR

decrease in human well-being challenges the paradigm that economic growth leads to human well-being, and instead highlights the need to look beyond only materialistic wealth as a drivers of human well-being.

Human flourishing may be described as an effort to achieve self-actualisation and fulfilment within the context of a larger community of individuals, each with the right to pursue his or her own such efforts. It encompasses the uniqueness, dignity, diversity, freedom, happiness and holistic well-being of the individual within the family, community and population. Achieving human flourishing is a life-long existential journey of hopes, achievements, regrets, losses, illness, suffering and coping. Each individual helps the other to reclaim or develop new pathways toward human flourishing (National League of Nursing, 2014).

We postulate that the real focus of education should be on building human flourishing where individuals acquire competencies to achieve goals, manage emotions and exhibit prosocial behaviour. Studies from psychology and neuroscience have shown that states of human flourishing can be explicitly cultivated (Davidson et al., 2003; Frederickson & Marcial, 2005), thereby suggesting great hope and promise for humanity. These states of human flourishing mandate that the explicit training of social and emotional skills is key to cultivating human flourishing. We thus posit that SEL needs to be explicitly combined with intellectual learning in order to cultivate and promote human flourishing.

(b) **Humans are complex social and emotional beings** – Humans are a social species who possess a very special form of social cognition, namely, the ability to understand conspecifics as beings like themselves who have intentional and mental lives like theirs (Tomasello, 1999). This naturally existing social brain forms the basis of our interactions with others. Human mindsets have behavioural antecedents that rely on two important abilities – (i) theory of mind and (ii) mentalising. The ability of the social brain to make predictions about people's actions on the basis of their mental states is referred to as 'having a theory of mind' (Premack & Woodruff, 1978) and the process by which we 'read' the mental states of others is called mentalising (Bateman & Fonagy, 2012). Thus, if we are able to better 'read' the mental states of others, we can respond appropriately such that we may resolve rather than provoke conflict and thereby achieve positive outcomes. Similar to other interactions with the world, if we can improve our decision-making abilities to predict the behavioural outcomes of our social interactions, the more successful will be our interaction with others. It is thus essential that we cultivate the social brain to successfully read and predict behaviour during social interactions (Frith, 2007).

A second factor that has been identified as an important contributor to human flourishing is the processing of emotions and its important role in empathy. Empirical data from cognitive neuroscience and brain imaging research shows that emotions distinguish people's lives and are characterised by distinct brain states (Kragel, 2016). In particular, they also show that positive emotions serve as states of happiness and reward, promote discovery of novel and

creative actions, and build an individual's personal resources, which in turn lead to states of human flourishing (Frederickson, 2001). In this context, the notion of empathy has assumed new significance. Also characterised as the ability to 'put oneself into another's shoes, societal structure and harmony relies on the recognition of others as human beings and nurturing empathy is necessary not only for sustenance and preservation of the human race (Rifkin, 2009) but also in promoting human flourishing'.

Social cognition research has also shown that voluntary social action has an important role in promoting human flourishing. Also termed as prosocial behaviour, actions that seek to improve another person's welfare, in contrast to egoistically motivated action, promote positive emotion and lead to states of human flourishing (Batson, 1998).

In summary, social and emotional skills are fundamental competencies if the purpose of education is to cultivate human flourishing.

(c) **SEL for the SDGs** – The 17 SDGs adopted in 2015 by 193 countries of the United Nations are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. Yet, recent reports have suggested that the SDGs appear to be perceived as a series of potentially conflicting goals that entail inconsistencies in actions (Dasgupta et al., 2015). Attainment of these goals may necessitate a balancing act–development agents may consider multiple options and make trade-offs (Asah & Chatterjee Singh, 2019). For instance, the resistance to climate change policies may be attributed to the relationships across work choice, economic growth and climate change. The attainment of the SDGs necessitates the need for development agents to consider multiple perspectives and make trade-offs.

SEL FOR

SDGs

SDGs ADOPTED IN 2015 BY 193 COUNTRIES OF THE UNITED NATIONS ARE A UNIVERSAL CALL TO ACTION TO END POVERTY, PROTECT THE PLANET AND ENSURE THAT ALL PEOPLE ENJOY PEACE AND PROSPERITY

At the level of the individual and social collectives, these trade-offs in SDGs are cause for dissonance (Festinger, 1957). According to the dissonance theory (Festinger, 1957), inconsistent cognitions evoke aversive arousal states that are inherently emotional, and lead to attitudes and behaviours aimed at reducing such arousal (Randles et al., 2015). When confronted with dissonance, human beings align cognitions to facilitate the execution

of actions that are not conflicting (Jones & Gerard, 1967). Thus, dissonance strains and challenges both rational decision-making and emotional capabilities that facilitate the attainment of the SDGs. This potential of dissonance to undermine development goals by enabling both compromise and inactions necessitates the need for appropriate dissonance management. Given the emotional inclination of dissonance, its management requires emotional competencies.

Here too, focused training in social and emotional competencies may facilitate dissonance management and attainment of the SDGs. Education needs to include skills that sustain coherent thinking (Gawronski, 2012), build emotional resilience and promote prosocial behaviour. Coherent thinking builds rational perspective and inter-cultural understanding, emotional resilience to draw upon positive emotions in order to cope with negative and stressful experiences (Tugade & Frederickson, 2004), and prosocial behaviour aimed at improving another person's welfare, in contrast to egoistically motivated action (Batson, 1998).

PURPOSE

In recent years, there has been a growing consensus that individuals need to be better prepared for the social and economic challenges of knowledge-based societies (Siarova et al., 2017). However, the objective of most education systems has been to equip future citizens with skills to work and live in the 21st century, improve human capital and enhance well-being *only* of the self.

This report differs from such an objective by advocating that the purpose of education is to build human flourishing and that social and emotional skills are key to achieve 'human flourishing'. The underlying basis of human flourishing, in this case, is to facilitate **the well-being of the self and of the other.** We believe that this creates the need for a better understanding of the 'other'. A common thread binding all approaches aimed at human flourishing is an explicit need to include learning that builds social skills necessary to successfully interact and get along with others, and emotional skills that require the recognition and regulation of emotions. Both these skills are linked and require an ability to understand not just the self but also the other, and then respond appropriately. The shift from a human capital-centric approach to human flourishing is radical. For the first time, it brings to centrestage the need to comprehend the other, and thereby acknowledges the social and emotional attributes of all human beings. All

THE UNDERLYING BASIS OF HUMAN FLOURISHING IS TO FACILITATE THE WELL-BEING OF THE SELF AND OF THE OTHER

efforts at designing education systems so far have focused on improving well-being for the 'selfish' self, which is well-being driven purely by utilitarian objectives, often at the cost of the other.

The purpose of this publication is to review the latest state of research on SEL and assessment, and to present the scientific evidence for why SEL is key to achieving the SDGs and building peaceful and sustainable societies. We thereby seek to mandate the explicit introduction of social and emotional skills in education systems.

This report seeks to urgently inform Member States about policies and practices related to SEL, based on validated international cognitive and neuroscience research. The findings of the research propose to mandate not only integration but explicit instruction in social and emotional education for teachers and students.

SCOPE

While this report uses Social and Emotional Learning (SEL) as the primary terminology in this report, other related terms such as 'social and emotional skills', 'social and emotional competencies', and 'non-cognitive skills' have been used occasionally. The report makes a case for SEL as a necessary component of all learning, specifically in tandem with brain and cognitive development throughout a child's early years of primary and secondary education. Higher and tertiary education, and child care in the first three years of life, lie outside the scope of this report. The report discusses successes of whole school SEL programmes and encourages the use of emerging technology to implement and assess SEL worldwide. In short, the report seeks to draw the urgent attention of policy makers to mainstream SEL to build human flourishing and achieve the SDGs.

Specifically, in this report we will review:

- Humans as complex social and emotion beings whose flourishing depends on learning to communicate their needs to each other effectively and manage their emotions in healthy ways (Chapter 1)
- The brain networks that support SEL that needs to be nurtured and trained to cultivate human flourishing (Chapter 2)
- A review of the various frameworks for SEL, their monitoring and implementation (Chapters 3, 4 and 5)
- The explicit need for SEL training for and of teachers (Chapter 6)
- The economic benefits of implementing SEL (Chapter 7)
- Key benefits, key challenges and key recommendations for the effective, sustainable and feasible inclusion of SEL as a core feature of regular school curricula across member states (Chapter 8)

METHODOLOGY

This analytical report is primarily based on the use of secondary data from various types of sources, primarily externally peer-reviewed sources, search engines such as ERIC, e-journals EBSCO, HYDI, PsycArticles, SCOPUS, PsycInfo, Social Care Online, Science Direct, Social Care Online, Web of Science, and dissertation abstracts. Our search focused on only documents in English and made use of international peer-reviewed studies on SEL in the aforementioned databases by including many of the terms outlined in the scope.

OUR ACKNOWLEDGEMENTS

Readers are encouraged and advised to read the entire report in order to appreciate the breadth and depth of the evidence supporting social and emotional learning and the potential it offers to impact not just education but humanity in general. However, each chapter has been written as stand-alone where the reader can focus on a particular topic.

Our acknowledgements and gratitude go to each of the authors for generously sharing their research, time, professional expertise, and insights so willingly. It has been a pleasure and a privilege to have worked with them on this volume. We would also like to express our appreciation to our reviewers who patiently provided great suggestions and guidance to improve the chapters and address gaps in the earlier versions of the chapters.

We hope this report can spur into action a revolution in education systems and will lead to a transformation of education from purely focusing on the academic to a whole child approach and bringing the social and emotional dimension to education.

– Nandini Chatterjee Singh and Anantha Duraiappah

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HUMANS ARE SOCIAL AND EMOTIONAL BEINGS

JESSICA TRACH, KEERTHI RAMANUJAN,
CLIFFORD SARON AND
NANDINI CHATTERJEE SINGH

EARLY SOCIAL RELATIONSHIPS HELP SET THE STAGE FOR LATER SOCIAL AND EMOTIONAL DEVELOPMENT

HUMANS ARE SOCIAL AND EMOTIONAL BEINGS

CH // 01

JESSICA TRACH, KEERTHI RAMANUJAN, CLIFFORD SARON AND NANDINI CHATTERJEE SINGH

ABSTRACT

Humans as a species evolved to be social. We have 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 and essential part of the human experience. Understanding the role that relationships play in our personal well-being is necessary for informing broader social and educational policies aimed at improving the well-being of future generations, and indeed, society as a whole. Interventions aimed at fostering and promoting peaceful communities within rapidly changing socio-ecological climates must first embrace the fact that human beings are social beings. Moreover, our social interactions are often the basis for experiencing intense emotions, positive or negative. In this chapter, we discuss the idea that humans are complex social and emotional beings whose well-being depends on learning to communicate their needs to each other effectively and manage their emotions in healthy ways.

AN ESSENTIAL CHARACTERISTIC OF THE ATTACHMENT RELATIONSHIP IS THAT IT CREATES A SENSE OF SAFETY FOR THE CHILD
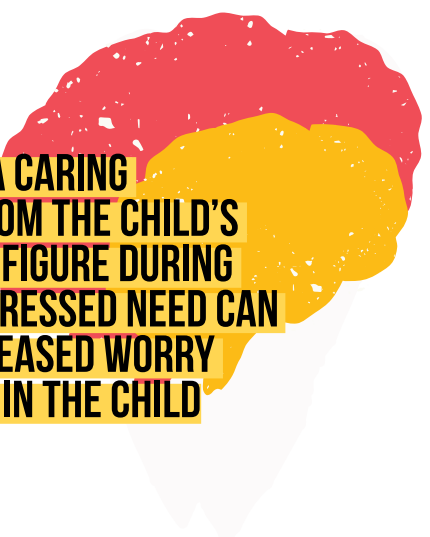
KEY MESSAGES

- Humans are born with an innate capacity for forming social connections. Early socialisation during infancy and childhood plays a significant and critical role in guiding one's personal and emotional development.

- Humans also 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.

- An individual's emotional and social development is therefore as important as their cognitive and biological development. Education systems must be able to address and contribute to this aspect of human experience.

THE NEED FOR CONNECTION — ATTACHMENT THEORY

Humans have a fundamental need for connections with each other (Baumeister & Leary, 1995; Immordino-Yang & Damasio, 2007). This is apparent even from a very young age. Newly born infants instinctively engage in social behaviours to establish and strengthen the bond between themselves and their caregivers, which then prompt adults to engage in reciprocal affectionate bonding behaviours with the infant (for example, making eye-contact, cooing, babbling, and smiling) (Rheingold, 1966; Freedman, 1974; Beier & Spelke, 2012). This early social bond that humans develop with their caregiver(s) during infancy is called *attachment*. Successful early attachment increases an infant's chances of survival and is crucial for healthy child development.

Research has shown that early social relationships help set the stage for later social and emotional development, including an individual's personality and temperament, the development of identity and how we understand ourselves in relation to others, and the capacity to participate in healthy peer relationships (Ainsworth, 1989; Bronwell, 2016; Vaugh Bost et al., 2008). Decades of scientific evidence shows that humans are born with internal psychological and biological systems that cause us to seek closeness to protectors in times of perceived threat, need or danger.

ABSENCE OF A CARING RESPONSE FROM THE CHILD'S ATTACHMENT FIGURE DURING TIMES OF EXPRESSED NEED CAN LEAD TO INCREASED WORRY AND ANXIETY IN THE CHILD

The needs of a developing child vary with age, and researchers have identified a wide range of attachment-related behaviours that are present throughout the lifespan. Some examples include needing food or soothing for the infant to fall asleep, a reassuring glance when an exploring toddler looks for encouragement, and a set of open arms when the world seems a bit too scary. The essential characteristic of the attachment relationship is that it creates a sense of safety for the child. She/he develops an expectation for future care and a sense of self that largely depends on how responsive and nurturing caregivers are in response to the child's expressed needs. If these needs have been adequately addressed, humans develop a sense of security and are more likely to view relationships with others as positive and helpful (also known as 'secure' attachment style) (Shaver, Mikulincer, & Cassidy, 2019). In this way, our early attachments with our primary caregivers lay the groundwork for relationships with other caring adults (e.g., grandparents, aunts and uncles, elders and teachers), peers (e.g., friends, siblings, classmates and colleagues), and our adult intimate partners (Hazan & Shaver, 1987).

Research has also shown that the absence of a caring response from the child's attachment figure during times of expressed need can lead to increased worry and anxiety in the child. Over time, a lack of consistent support from caregivers may produce a persistent sense of insecurity in the child, a negative perception of the self as unworthy of love and care, and feelings of mistrust towards others (also known as 'anxious' attachment style). For some individuals, the learned response to neglectful caregiving is an attempt to 'go it alone', resulting in a failure to form close,

Figure 1.1 Schematic Overview of Attachment Theory
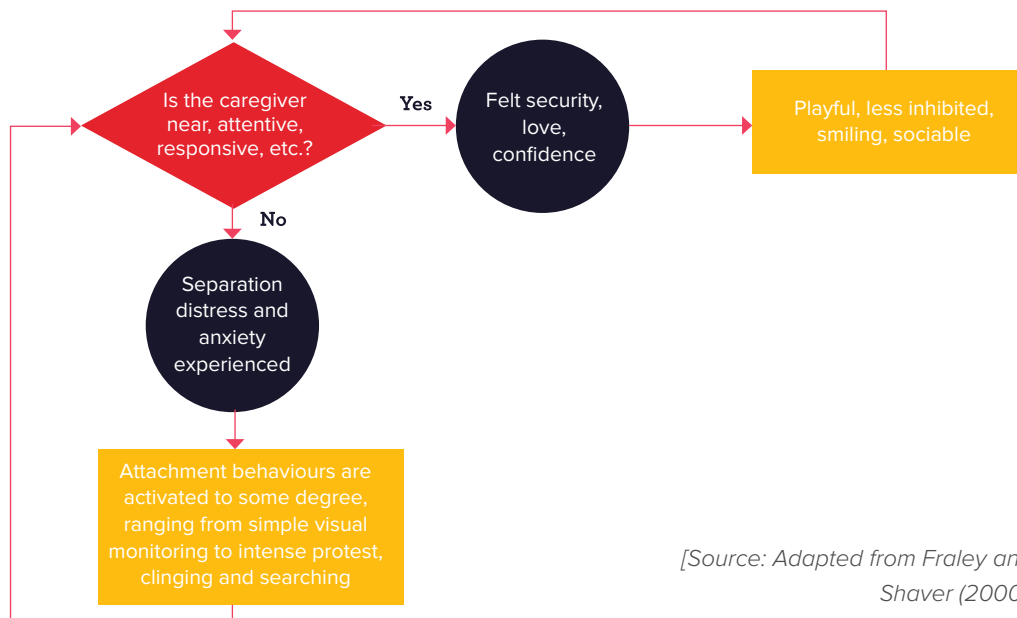
[Source: Adapted from Fraley and Shaver (2000)]

lasting attachments (also known as 'avoidant' attachment style). A summary of the attachment system is shown below in Figure 1.1.

We can extend this concept of attachment to human experiences in the wider social world. The purpose of the early attachment system is to enable individuals to develop a stable, positive view of oneself, and a feeling of safety and security in one's relationships with others. In the way a flower seeks sunlight, individuals with a secure attachment style are positively motivated to seek out mutually satisfying social interaction with others. One of the many positive outcomes of building a secure sense of self is an increased openness to noticing and responding appropriately to others' needs, suffering and joy. Such styles of relating may help to reduce anxiety and insecurity in others, and build a sense of collective safety, empathic concern and mutual care. This 'positivity resonance' or the experience of having our positive emotions shared with, reflected by, and reinforced through social connections with others (Fredrickson, 2013), can even accumulate over time to have a lasting impact on individuals' health, well-being and social relationships (Major et al., 2018).

LEARNING THROUGH CONNECTION

In addition to contributing to physical and psychological development, social connections also form the basis for human cognition and learning. Vygotsky's Social Development Theory (1987), originally published in Russia in 1934 and then translated to English in the 1970s, was one of the most influential developmental psychology theories of the 20th century, with powerful implications for education systems worldwide. In contrast to Western notions that human development is an *individual* process, Vygotsky argued that human thinking and learning is primarily mediated through *social* and *cultural* interactions. According to Vygotsky, learning originated outside of the individual, existing first in the social or '*inter*-mental' space. Through social interactions between individuals and groups, socially relevant concepts and schemas are internalised (i.e., come to exist within the individual, in the '*intra*-mental' or psychological space). This gradual internalisation of thought is carried out through socially developed and organised cultural tools, including spoken and written language, counting systems, algebraic symbols, creative arts, diagrams and maps, etc.

One example that illustrates learning as a social process is the 'zone of proximal development' (Vygotsky, 1987), which is the distance between a student's current level of independent functioning and the level of 'potential development' that is achieved with the support of a more knowledgeable adult or peer. Through their relationship with the learner, the 'more knowledgeable other' creates a 'scaffold' or bridge between the student's current level of understanding and more complex or sophisticated ways of knowing. In this way, the relationship between the 'teacher' and 'learner' serves as the mechanism that allows the student to

Figure 1.2 A Schematic Representation of Vygotsky's (1997) 'Zone of Proximal Development' in the Context of a 'Teacher-Learner' or 'Adult-Child' Relationship
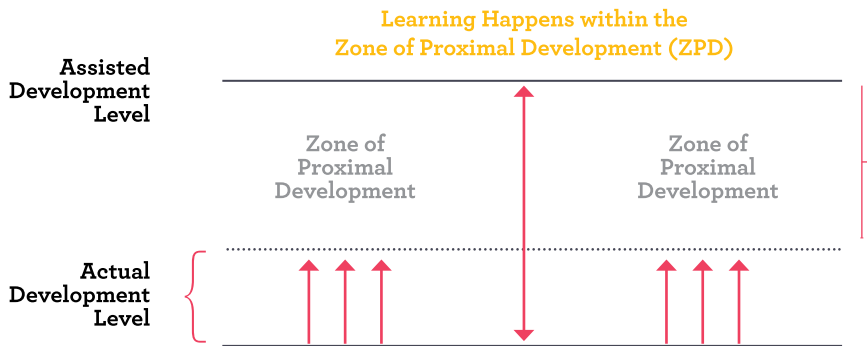
[Source: Adapted from Inoue (2012)]

transcend their previous levels of knowledge and skill, and attain new ways of thinking that were previously out of reach (see Figure 1.2).

Importantly, according to Social Development Theory (Vygotsky, 1987), learning happens from the 'outside-in', with culturally-relevant knowledge and values being acquired from the environment through social interactions with significant others. This is not a passive process. Learning is also internally motivated by humans' innate biological drive to form social connections, which are required in order for a child to survive. An important part of this social learning process is adapting to 'fit in' with the social environment, that is, to align with or conform with modelled behaviours and views of significant others. For this reason, learning always occurs within a specific cultural context – the knowledge and values of a particular culture are passed on to the learner through such social connections.

Modern advances in science and technology have provided support for Vygotsky's original claims that learning is a social process. In particular, the field of social neuroscience, which is concerned with understanding how the human and non-human primate brain contributes to our propensity for social connection, has grown substantially over the past two decades (e.g., Adolphs, 2009; Platt, Seyfarth & Cheney, 2016). One important finding that has emerged from this discipline is an appreciation for the immense complexity of human social behaviour. Rather than being governed by a specific part of the brain, higher order social-psychological phenomena (e.g., empathy, altruism, compassion) are the result of interactions between multiple neurological networks that involve multiple areas of the brain (Beckes & Coan, 2015; Di & Biswal, 2019; Eisenberg, Spinrad, & Knafo-Noam, 2015).

As a result of advances in research design and brain-imaging technology, neuroscientists have proposed the existence of three key networks that are distributed and specialised across large areas of the brain – the central executive network (CEN), which is involved in attentional control and higher-order cognitive functions such as working memory and problem-solving; the salience network (SN), which helps identify to what we should attend; and the default mode network (DMN), which is involved in understanding the self and others (Bressler & Menon, 2010). Even more fascinating is the discovery that the DMN, among other brain networks, shows increased activity when we are processing relational information (i.e., information about the self and others). The DMN is thought to

THE PURPOSE OF THE EARLY ATTACHMENT SYSTEM IS TO ENABLE INDIVIDUALS TO DEVELOP A STABLE, POSITIVE VIEW OF ONESELF, AND A FEELING OF SAFETY AND SECURITY

Figure 1.3 The Salience Network (SN) segregates the most relevant internal and extrapersonal stimuli, to guide behavior and plays an important role in dynamic switching between the Central Executive Network (CEN) and the Default Mode Network (DMN). The SN recruits the CEN to maintain cognitive set and manipulate working memory information while suppressing the DMN to stay focused on task relevant goals. Key nodes of the SN include the Anterior Insula (AI) and ACC (Anterior Cingulate Cortex; the DMN includes the VMPFC (Ventro Medial Prefrontal Cortex) and PCC (Posterior Cingulate Cortex; the CEN includes the DLPFC (Dorso Lateral Pre frontal Cortex) and the PPC (Posterior Parietal Cortex)".

Default mode network	Salience network	Central-executive network
VMPFC	AI	DLPFC
PCC	ACC	PPC
Internally mediated/self referential mental activity	Dynamic switching	Externally driven/cognitively demanding mental activity
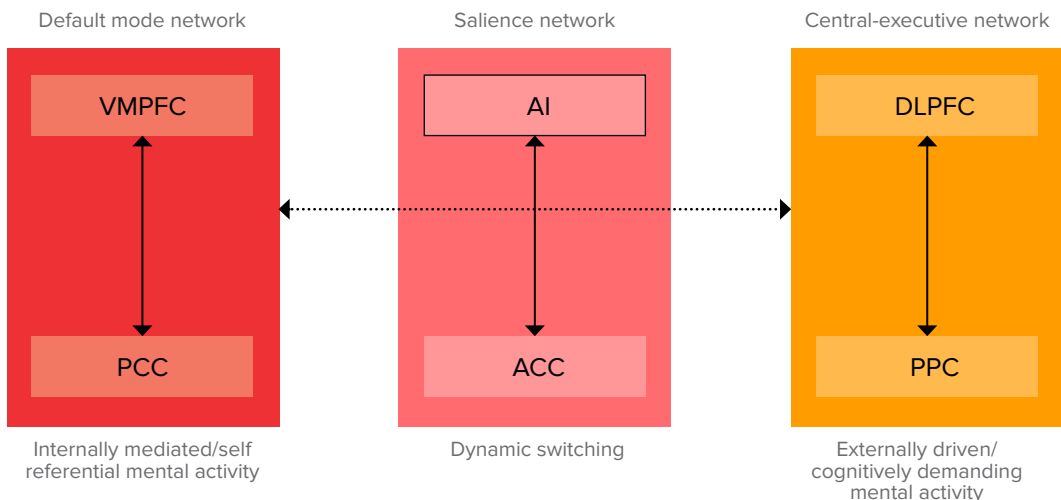
[Source: Adapted from Bressler and Menon (2010)]

primarily reflect self-referential processes such as recollected memory, anticipation and planning of future events, and internally directed attention (Andrews-Hanna et. al., 2010). Given this association of functions, it is not surprising that the DMN is one of the brain networks consistently found active in social interaction-related tasks (McCormick et al., 2018).

The complex non-linear development of these brain networks in childhood, and the profound impact of environmental and social factors on their coordinated function is explored in the next chapter, 'Understanding the Social Brain: Key Findings from the Brain Sciences.' These distinct, yet dynamically interrelated brain networks are each essential to the learning process described in Vygotsky's Social Development Theory (1987). Learning is facilitated or hindered by the *social and emotional experiences* of the learner, which help to 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 & Damasio, 2007). An education system that considers the well-being of the whole child is one that considers their emotional and social development to be as important as their cognitive and academic performance. A school curriculum that ignores children's emotional, social or physical needs will find that that those unmet needs will work against achieving academic goals (Diamond, 2014).

CONNECTING THE EMOTIONAL TO THE SOCIAL — GROUP PROCESSES

This vast network of social relations in humans is mediated through a wide repertoire of emotional responses. Indeed, the main purpose of 'emotional literacy' — a skill that involves being able to name and understand one's own emotions and the emotions of others — is to improve relationships and facilitate more cooperative functioning between individuals, within communities and throughout society as a whole. Moreover, social connection is a necessary condition for human functioning and human beings rely on social contact to aid emotion regulation, particularly in difficult or stressful situations (Beckes & Coan, 2015).

Of course, human relationships are complicated and these social and emotional processes create opportunities for both cooperation and conflict, which can occur between individuals, as well as within and between groups. In fact, we are biologically prepared to bond with our in-group through hormones in the brain that encourage affiliation, such as oxytocin (de Drue et al., 2010; Kosfeld et al., 2005). In addition, research on the altruistic tendencies of young children has shown that helping and sharing are biologically-based behaviours that function to increase one's own chances of survival by helping others to achieve their goals (Warneken & Tomasello, 2014). Remarkably, under conditions that encourage competition for limited resources, these very same social and biological systems that support bonding and affiliation within our in-group can actually foster aggression towards individuals from other groups, also known as the out-group

(e.g., de Drue et al 2010; Gross & de Drue, 2019; Tajfel & Turner, 1979). This biological paradox provides an immediate basis for considering the need to counter our aggressive tendencies toward intergroup conflict and for promoting peaceful methods of resolving disputes.

THE MAIN PURPOSE OF 'EMOTIONAL LITERACY' IS TO IMPROVE RELATIONSHIPS AND FACILITATE MORE COOPERATIVE FUNCTIONING BETWEEN INDIVIDUALS, WITHIN COMMUNITIES AND THROUGHOUT SOCIETY AS A WHOLE

In addition to the friction that can exist between groups, human behaviour is also shaped by interpersonal conflict that arises within our various in-groups, which may consist of family, friends, and other significant relationships (Harris, 2009). Although individuals in the same group tend to become more similar over time, group members also engage in social comparisons with each other as a means of judging their relative abilities and to identify their role within the group (also known as *niche-picking*). These within-group comparisons produce a sense of collective group identity and a social hierarchy that is developed and maintained by group members through a variety of strategies. For example, group members might positively reinforce behaviour that corresponds to group norms through verbal encouragement, praise and increased social status. However, group members who refuse to comply – thereby threatening the survival of the group – may be confronted with more severe tactics, such as public shaming, ridicule, bullying and social exclusion (Harris, 2009). These group dynamics magnify the importance of helping individuals develop the social and emotional skills to navigate social conflicts that naturally arise within and between groups. In addition to limiting negative interactions, learning to expand our altruistic and compassionate tendencies can help to lessen the impact of both interpersonal and intergroup conflicts. This is not to suggest an elimination of strong differences, but rather to modify an approach to conflict that is based on mutual respect and peaceful resolution.

INTERPERSONAL INTERCONNECTIVITY

The world we live in has shrunk, with vastly increased possibility of connections between diverse groups of people. This shift in the ability to globally communicate with large numbers of colleagues, family, friends and strangers has not necessarily meant that individuals who share different perspectives and worldviews actually engage productively with each other. A recent analysis of American attitudes towards hot-topic issues in the United States, such as gun control and abortion, revealed that the messages that go 'viral' on social media are often associated with strong moral emotions (e.g., anger and disgust). Brady et al. (2017) examined Twitter retweets by

over 550,000 people and found that there were massive interactions within groups but sparse interactions between individuals who identified with different political groups. Shown graphically below, the spread of ideas *within* each group (red and blue) far outweighed interactions across groups. Underlying this phenomenon is an important component of human social interaction – the transfer of emotional states across individuals, a phenomenon known as 'emotional contagion' (Hatfield, 2009). Research involving large-scale social network data has shown that transfer of both positive and negative emotions can occur through both face-to-face and online social interactions, and depends on the degree of distance (both physical and psychological) between the interactants (Fowler & Christakis, 2009; Kramer et al., 2014; Rosenquist et al., 2011).

The implications of such evidence are rather profound. They illustrate both the possibilities and challenges we face in fostering societal understanding and building a 'social infrastructure' that has, as its core, the goal of better understanding the perspectives of others with whom we may disagree. Such evidence indicates the need for building our capacity to hold multiple points of

Figure 1.4 **A network graph of moral contagion shaded by political ideology. The graph represents a depiction of messages containing moral and emotional language, and their retweet activity, across all political topics (gun control, same-sex marriage, climate change). Nodes (dots) represent a user who sent a message, and edges (lines) represent a user retweeting another user. The two large communities were shaded based on the mean ideology of each respective community (blue represents a liberal mean, red represents a conservative mean).**
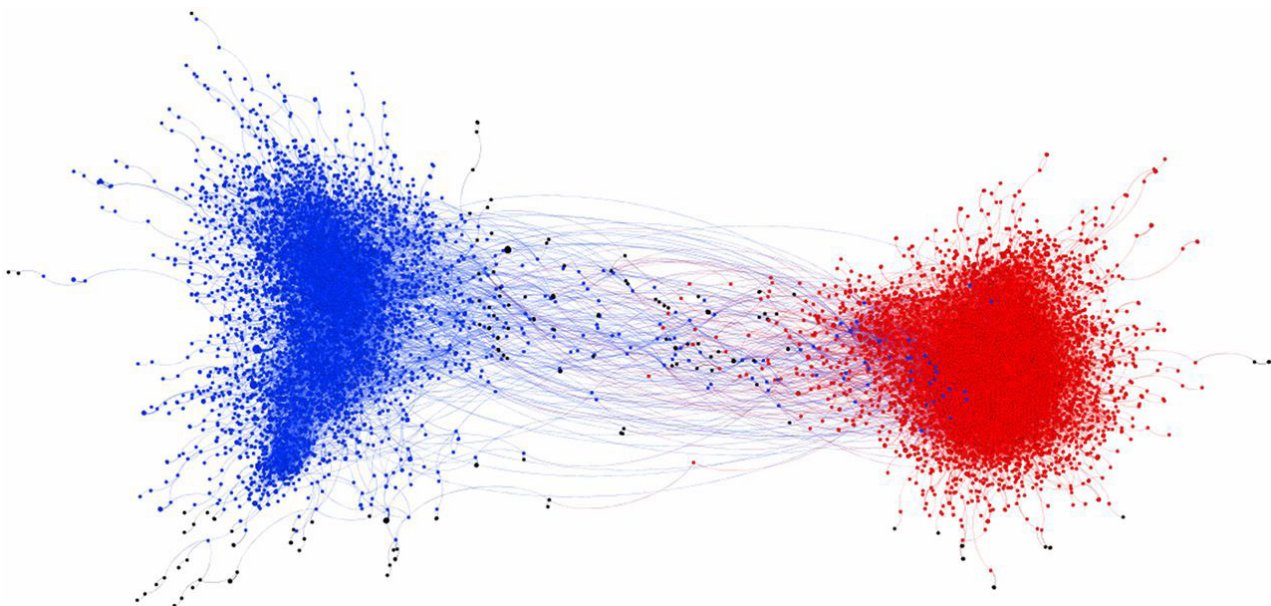
[Source: Brady et al. (2017)]

view through practicing skills such as empathy and perspective taking. It is thus urgent that in this rapidly expanding global social ecosystem we cultivate the skills and abilities needed to engage in peaceful and harmonious social relations, even in the presence of strong emotion and conflicting views. These skills have come to be known as 'social and emotional competency' or SEC. SEC is key to ensuring that the impact and consequences of emotional states and behaviours at both the individual and group levels remain largely peaceful, if not positive.

SOCIAL AND EMOTIONAL COMPETENCE

SEC presents an alloy of teachable skills that facilitate healthy and productive relationships while fostering behavioural regulation in the face of strong emotion. Intrapersonal competencies are those that are directed at oneself; they include positive perceptions of oneself, as was well as the ability to manage one's emotions and behaviour. Interpersonal skills are aimed at enhancing an individual's ability to participate in healthy social relationships and be effective in social institutions. These skills include empathy, perspective-taking and the ability to cooperatively and collaboratively complete tasks and solve problems. Both types of competencies work together to ensure that individuals develop into socially and emotionally productive members of society. These competencies are summarised in Table 1.1.

Table 1.1 Categories and Examples of SEL Competencies

	Intrapersonal: Knowledge, skills, and attitudes directed toward oneself	Interpersonal: Knowledge, skills, and attitudes directed toward other people, institutions, or social structures
Awareness: Mindsets, knowledge, beliefs, or understandings	Intrapersonal Awareness (e.g., growth mindset, self-efficacy)	Interpersonal Awareness (e.g., empathy, social awareness)
Skills: Learned abilities to carry out a task with intended results or goals	Intrapersonal Skills (e.g., self-control, goal-setting, stress management)	Interpersonal Skills (e.g., social perspective taking; collaborative problem-solving)

Currently, there is a large, growing body of empirical research indicating that SEC are skills that can be learned and acquired at any stage of life. Empirical results of several meta-analyses seeking to determine the effect of SEC training on young children and adolescents shows that SEC can be explicitly taught and cultivated through exposure and practice (Durlak et al., 2011; Payton et al., 2008). Developing children's SEC via educational intervention programmes has been shown to lead to demonstrable improvements in important prosocial skills and behaviours such as accurate emotion recognition and identification, improved interpersonal problem-solving and conflict-resolution skills, more positive attitudes about the self, and strengthened beliefs

about the importance of social justice, non-violence, and compassionate action (Catalano et al., 2002; Durlak et al., 2011; Taylor et al., 2017). Moreover, improving children's SEC has also been shown to reduce antisocial behaviours such as bullying, aggression and social-withdrawal (Bierman et al., 2010). Although SEC can be taught at any age, adolescent children and young adults stand to gain the most benefit as they will have more time and opportunities to practice honing these skills during development.

SOCIAL INTERACTIONS ARE COMPLICATED AND ANY SOCIAL SITUATION CAN BECOME POTENTIALLY DESTRUCTIVE IF WE ALLOW OUR EMOTIONS TO ESCALATE AND DICTATE THE SITUATION

As previously mentioned, perspective-taking, or making sense of others' thoughts and feelings, is an intrapersonal SEC that is an important prerequisite for peaceful social interactions. However, a mere awareness of others' emotions, thoughts, goals and motivations is not sufficient for peaceful relations to thrive. In order for the connections we forge with others to remain cooperative, we require the capacity for empathetic and sympathetic *involvement* with others. Cultivating attitudes of altruism (concern for the well-being of others) and compassion (concern for the suffering of others), combined with a desire to help, can empower individuals to take a proactive role in their interactions with others. Such a mindset may, in turn, promote acting in ways that are more thoughtful, kind and caring towards others, whether they are individuals from the same group or from a group with different beliefs and values than one's own. The ability to view others as deserving of kindness and compassion, despite obvious differences in nationality, creed or background, is a vital skill that could help to bridge societal divides.

Social interactions are complicated and any social situation can become potentially destructive if we allow our emotions to escalate and dictate the situation. This is particularly true of emotions such as anger, frustration or despair, the experience of which, in addition to disrupting cooperative or collaborative stances toward one another, may subsequently trigger and fuel acts of violence and aggression. SEC involves correctly identifying emotions that develop within oneself, identifying the source of such emotions, learning ways to cope and manage such emotions, developing self-control and redirecting emotional energies in healthy, non-destructive ways. At the same time, SEC also involves cultivating and amplifying positive emotions such as joy, happiness and love, which can facilitate cooperation, peaceful conflict resolution and empathetic attitudes of perspective-taking and compassion. In this way, SEC functions both within and between individuals, and within and between groups, to promote the health and well-being of a person as an autonomous human being, as a partner and participant in social relationships, and as a member of a larger community/society.

IMPARTING SEC VIA EDUCATIONAL SYSTEMS

We are more connected than we have ever been in our collective history, thanks to rapid changes in technology and global mobility. This increased interconnectivity has shone a spotlight on the exquisite diversity of humankind. As a consequence of the increased complexity of intra- and intergroup relations, we are – perhaps now more than ever – acutely aware of the differences among us. Children, including adolescents, can hail from a myriad of backgrounds, but all need to be equipped with the SEC needed to achieve success in such a diverse and ever-changing global society. Education systems serve as platforms that bring together youth from all backgrounds and ability levels, and provide them with learning experiences specifically designed to teach them how to better understand themselves and each other, so they may develop into peaceful and productive members of society. Education is perhaps the only way to reach most, if not all, children in order to prepare them for a changing and uncertain world. It is therefore urgent and necessary that SEC be systematically and sustainably integrated into the education system.

In the words of Jacques Delors, Chairman of the International Commission on Education for the Twenty-first Century,

"WE MUST BE GUIDED BY THE UTOPIAN AIM OF STEERING THE WORLD TOWARDS GREATER MUTUAL UNDERSTANDING, A GREATER SENSE OF RESPONSIBILITY AND GREATER SOLIDARITY, THROUGH ACCEPTANCE OF OUR SPIRITUAL AND CULTURAL DIFFERENCES. EDUCATION, BY PROVIDING ACCESS TO KNOWLEDGE FOR ALL, HAS PRECISELY THIS UNIVERSAL TASK OF HELPING PEOPLE TO UNDERSTAND THE WORLD AND TO UNDERSTAND OTHERS"

(Delors, et al., 1996, p.34).

The past 20 years have witnessed an impressive advancement of knowledge about the social and environmental conditions that promote positive human development. Now let us finally begin to turn this vision into reality.

KEY RECOMMENDATIONS

- Education systems must be able to impart social and emotional skills. These include the ability to understand and regulate emotions and behaviour, cultivate healthy interactions and relationships, learn to solve problems peacefully, and make responsible and ethical decisions.

- Children can hail from a myriad of backgrounds, but all need to be equipped with the social and emotional skills to achieve success in a diverse and ever-changing global society. It is therefore urgent and necessary that SEC be systematically and sustainably integrated into education systems.

- Social and emotional learning is the strongest support for academic learning. 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.

KEY CHALLENGES

- Education policies are not designed to include social and emotional learning. As a consequence, social and emotional themes/texts do not exist either in curricula or in school activities. Their importance cannot be overemphasised in learning and cognitive development.

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

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UNDERSTANDING THE SOCIAL AND EMOTIONAL BRAIN

GREGOIRE BORST AND
NARAYANAN SRINIVASAN

UNDERSTANDING THE SOCIAL AND EMOTIONAL BRAIN
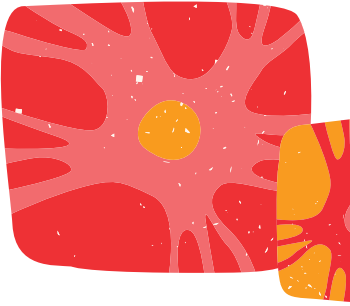
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ABSTRACT

All learning occurs in a context involving social interactions, and triggers emotions and feelings in the learner. This is reflected at the brain level through the involvement of key structures of the social and emotional brain when children and adolescents learn to read, count, reason and make decisions. Understanding the basics of the social and the emotional brain is thus critical to understand how human beings learn and adapt to their environment. This chapter presents the latest findings on how the social and emotional brain develops and how it can support and be shaped by social and emotional abilities. Finally, we address how different social environments (the home and the school) have an effect on the development of the social and emotional brain and its consequences on learning.

ALL LEARNING OCCURS IN A CONTEXT INVOLVING SOCIAL INTERACTIONS AND TRIGGERS EMOTIONS AND FEELINGS IN THE LEARNER

KEY MESSAGES

- Social and emotional and cognitive development are closely related to academic success at all ages.
- Brain, cognitive and social and emotional development are dynamic and non-linear.
- Enriched social environments and social interactions have a positive effect on brain maturation as well as cognitive and socio and emotional development at all ages.
- Early childhood and adolescence constitute periods of maximal sensitivity of the brain to experience and to the environment.

INTRODUCTION

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 important during periods of extreme sensitivity to the environment, namely early childhood and adolescence. The plasticity of the brain offers incredible opportunity but also responsibility for parents, teachers and policy decision makers.

FROM EARLY CHILDHOOD AND EVEN BEFORE BIRTH, BRAIN DEVELOPMENT IS INFLUENCED BY THE SOCIAL AND THE EMOTIONAL ENVIRONMENT OF A CHILD

Learning at school and in our daily life is not only supported by cognitive processes but also by socio and emotional processes – 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 socio and emotional brain, when children and adolescents learn to read, count, reason and also make decisions.

Findings from brain science cannot be prescriptive of education policies but educational policies that adhere to the principles of the learning brain with its socio and emotional facets are more likely to be efficient (Immordino-Yang & Gotlieb, 2017). In addition, educators who have knowledge of the brain, its development and the factors that affect brain plasticity are more likely to design interventions that are optimally tailored to the child's needs.

THE ARCHITECTURE OF THE BRAIN

The brain is organised as two hemispheres connected by a large bundle of nerve fibres, the corpus callosum, allowing information to be exchanged between the two hemispheres. Each hemisphere can be further divided into six lobes (see Figure 2.1) – the occipital lobe (posterior part of the brain), the temporal lobe (lateral part of the brain), the parietal lobe (upper part of the brain), the frontal lobe (anterior part of the brain), the limbic lobe (in the centre of the brain) and the insular lobe (buried under the frontal lobe). Within each lobe, smaller areas can be identified based on their specific histological organisation, i.e., type of neurons and their spatial arrangement in a given region (Garey, 2006).

Each lobe is preferentially involved in certain activities – occipital lobe for vision; parietal lobe for numerical and spatial cognition; temporal lobe for categorisation and face recognition; frontal lobe for abstract reasoning, decision and self-control; the limbic lobe for emotion; and the insular lobe for body-related feelings.

However, almost all daily mental activities rely on the activation of a network of brain areas. Identifying an object in our visual environment requires us, for instance, to process in parallel the perceptual information (colour, texture, size, orientation) relative to this specific object in the occipital and parietal lobe. This information then converges to the inferior part of the temporal lobe to identify the category and the identity of the object. If the object needs to be named, this information propagates to the area of the production of language in the frontal lobe (Broca's area). The identification of the object is also facilitated by top-down information from the frontal cortex, which helps to focus the attentional system on the most distinctive parts of the object. Mental activities are thus supported by hierarchical, distributed and integrated systems in the brain (Bressler & Menon, 2010).
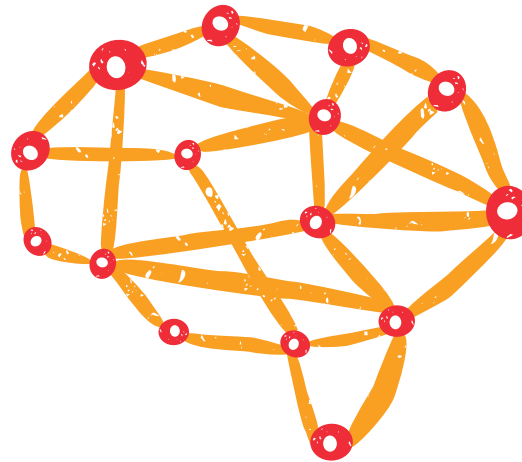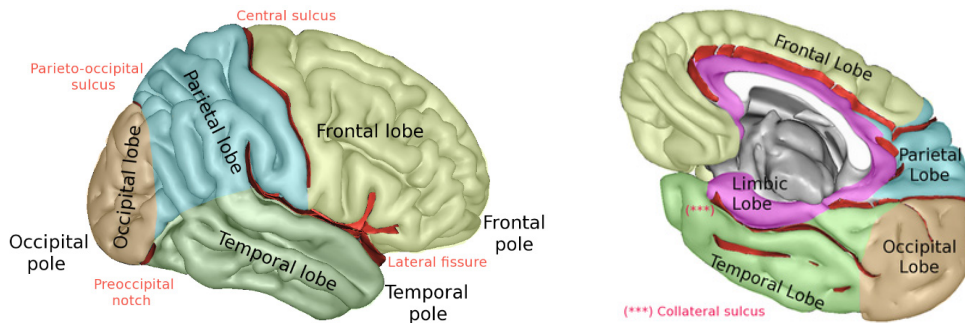
Figure 2.1. Lobes and principal folds in the brain (Note that the insular lobes are not represented).

[Source: https://commons.wikimedia.org/w/index.php?curid=21020857 and https://commons.wikimedia.org/w/index.php?curid=21020886, Sebastian023, CC BY-SA 3.0]

THE BUILDING BLOCKS OF THE SOCIO AND EMOTIONAL BRAIN

The brain is composed of 86-100 billion specific cells called neurons and of 1 million billion connections (synapses) between these neurons. Each neuron is composed of a body (soma), of an axon (nerve fibre up to 10 cm long) and of dendrites (a tree-like branching structure collecting and sending information to the soma of the neuron). All our conscious and unconscious mental activities emerge from the activity of large populations of neurons across the brain.

Neurons have exceptional physiological activity that allows them to process and produce electrical signals. These electrical signals (nerve impulses) propagate from one neuron to the next via synapses. In chemical synapses, the nerve impulse releases neurotransmitters (chemical molecules) stored in the terminal buttons of the pre-synaptic neuron to the synaptic gap (gap between two neurons). These neurotransmitters travel through the synaptic gap to the receptors of the next (post-synaptic) neuron in a fraction of a millisecond. Receptors are generally large molecules that change their structure when bound to a specific neurotransmitter, allowing specific ions to flow in or out of the neuron. A change in the concentration of certain ions in the neuron will trigger an electrical activity in

NEUROPLASTICITY CAN OCCUR AT ANY AGE DUE TO INTENSE AND PROLONGED LEARNING OR DRAMATIC CHANGES IN THE ENVIRONMENT
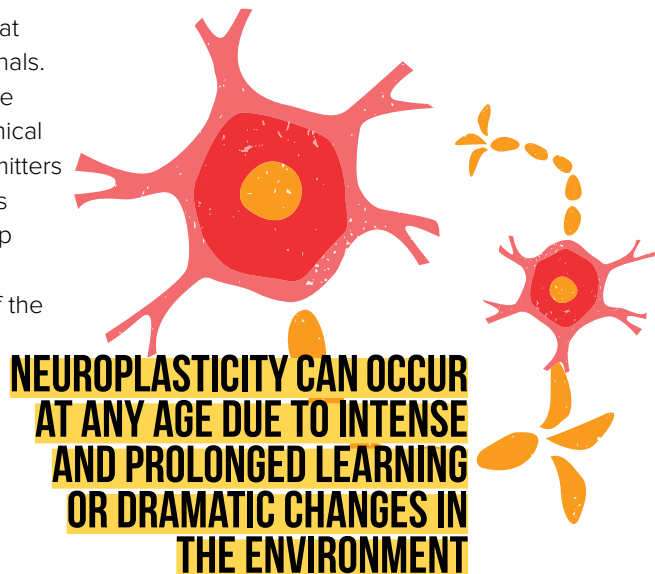
this neuron that might eventually propagate to the neighbouring neurons. The neurotransmitters can also be released outside of the synaptic gap to regulate the activity of very large populations of neurons. The regulation of these large populations of neurons is critical for sleep/wake cycles or quick behavioural responses to threats in the environment.

Each neuron, at any point in time, integrates all the information that it receives from other neurons. When the amount of excitatory information received by a neuron outweighs the amount of inhibitory information it receives, the nerve impulse is transmitted to the next neuron. When the excitatory information is smaller than the inhibitory information, the impulse is stopped. Some neurotransmitters and neurons are excitatory (glutamate) and others inhibitory in nature (Gamma aminobutyric acid or GABA, for instance), which allows the regulation of the activity of different sub-regions of the brain (Bear, Connors & Paradiso, 2006).

BRAIN MATURATION AND ONTOGENESIS

The biological architecture of the brain is composed of hierarchical systems of populations of neurons highly specialised yet fundamentally integrated with one another. This is one of the keys to understanding how the brain gives rise to thoughts, emotions, feelings and consciousness. This neuronal architecture is inherited from millions of years of evolution (phylogenesis) and emerges progressively during embryogenesis in utero and continues throughout brain maturation from childhood to adolescence and adulthood (ontogenesis) (Changeux, 1986).

Morphogenesis (three-dimensional architecture) and functional maturation of the brain starts with the neural tube between the 19th and the 28th days of embryogenesis under a strong genetic influence. The neural tube is composed of a single layer of cells. The rapid division of these cells will produce several billion brain cells over a few months. At certain stages of brain development, more than 250,000 new cells are created per minute. Between 26 and 36 weeks of gestational age (in utero), folds (sulcus) will progressively appear on the surface of the cortex. The cortical folding is guided by genes but also by the intrauterine environment (Figure 2.2). For instance, chronic stress or inflammation during pregnancy can produce alterations in cortical folding.

Brain maturation continues after birth (ex-utero) and lasts up to 25 years of age. The protracted maturation of the brain is specific to humans. While the gestation period in humans and chimps is 270 and 224 days, respectively, the volume of the skull increases 4.3 times after birth in humans and 1.6 times in chimps. Due to the extraordinary length of human brain development, brain maturation in humans is strongly influenced by the social context, moral norms and early learning, such as language. At five years of age, the human brain has almost reached its adult weight (1.3 kilos in five-year-old children vs. 1.4 kilos on average in adults) (Fuster, 1997). It is important to note here that brain maturation is determined by brain connectivity and not by brain weight or size.

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 ex utero. At certain periods of synaptogenesis, millions of synapses appear every second. The creation of new synapses is not homogeneous in the brain and occurs in successive waves in different regions of the brain – from sensory posterior regions (occipital cortex) to associative regions (temporal and parietal cortex) and finally to anterior regions hosting higher cognitive functions (frontal cortex). The periods of synaptic proliferation (multiplication) allow the brain to adapt optimally to its social and cultural environment. The multiplication of synapses in the brain produce an increase in the cortical thickness at different ages in different regions of the brain.

BRAIN MATURATION AND COGNITIVE AND SOCIO-EMOTIONAL DEVELOPMENT RUN IN PARALLEL, AND CONSTANTLY INFLUENCE EACH OTHER

In a second phase of brain maturation, connections that maximise the brain's adaptation to its social and cultural environment are strengthened, especially when two neurons connected to each other are activated at the same time (also called Hebbian reinforcement) (Hebb, 1949). Some of the connections that are non-pertinent for brain functioning are gradually pruned. The synaptic pruning results in a thinning of the cortex in different parts of the brain at different ages (see Figure 2.2).

Figure 2.2. Sensitive periods of brain development after birth
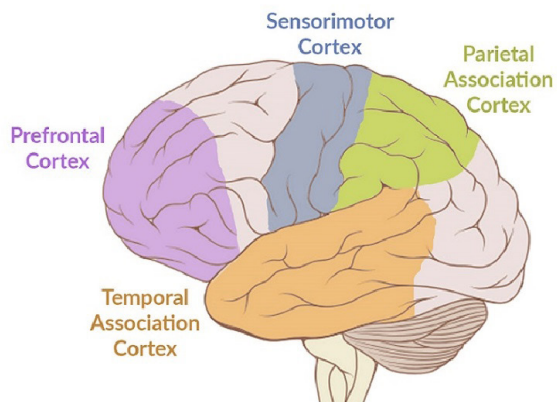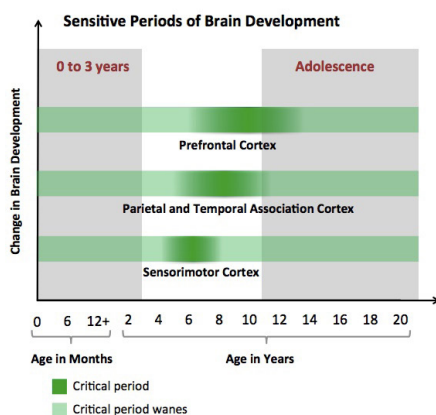
Functional maturation occurs concomitantly to structural maturation. It is characterised by the segregation and progressive integration with age, of the neural networks involved in each of the different cognitive functions (perception, attention, memorisation, reasoning, decision-making). This segregation and integration of the neural networks is ensured by the strengthening and myelination (increase in the speed of the nerve impulse) of long-distance axonal connections that allow relatively distant regions in the brain to 'work' together (Fair et al., 2007).

SENSITIVE PERIODS OF DEVELOPMENT, LEARNING AND NEUROPLASTICITY

These maturational mechanisms last up to 25 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 the 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 (Figure 2.2).

The onset of a period of high sensitivity to the environment and experiences such as early childhood and adolescence is dependent on the balance between excitatory and inhibitory signals in the brain. In particular, the maturation of inhibitory networks in the brain downregulate the spontaneous activity of the brain to upregulate activity in response to meaningful stimuli in the environment. This increase of the signal-to-noise ratio in the brain interacts with neurobiological factors promoting plasticity (synaptic proliferation, axon growth) to shape the networks in the brain. These networks are then progressively stabilised to restrict additional plasticity and close the sensitivity period (Larsen & Luna, 2018).

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.

For example, learning to read during childhood (usually at six years of age or so) will produce massive reorganisation

PERIODS OF HIGH BRAIN PLASTICITY ARE CHARACTERISED BY THE PROLIFERATION OF SYNAPSES AND AXONS AND THE SHAPING OF EFFICIENT NEURAL NETWORKS

of the visual and language networks in the brain. In particular, some of the neurons of the lateral part of the occipito-temporal cortex, originally specialised in the visual recognition of faces, animals or objects, will be remapped to handle the recognition of written letters and words, forming the so-called visual word form area. The emergence of the visual word form area in the brain occurs after a couple of months of schooling (Dehaene-Lambertz et al., 2018) and is associated with the strengthening of the connection (white matter tracts) between this visual area and the language areas in the superior temporal and frontal areas of the brain (Yeatman et al., 2012).

Neuroplasticity not only supports the acquisition of cultural tools, such as reading and mathematics, in childhood but also the acquisition of simple and complex skills throughout life. For instance, in adults, the volume of visual areas of the brain dedicated to tracking moving objects in our visual field increases following three months of training to juggle (Draganski et al., 2004). In addition, practicing mindfulness meditation improves attention control, emotion regulation and self-awareness in adults and in adolescents (Baijal et al., 2011) by producing changes at the structural and functional levels in a large network of brain (i.e., the mid-cingulate and anterior cingulate cortex and the orbito-frontal cortex) (Tang, Hölzel & Posner, 2015). Mindfulness-based stress reduction programmes 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 modulations of the expression of the genes due to experience and the environment – a process called epigenetics (Larsen & Luna, 2018).

NON-LINEAR DYNAMICAL SOCIAL AND EMOTIONAL DEVELOPMENT

Just as brain maturation is non-linear and dynamic, the cognitive and socio and emotional development of children and adolescents are less linear and incremental than we think (see Figure 2.3). Indeed, infants already possess an understanding of not only the physical properties of objects, of agents and their actions, of the numerical properties of sets of objects, of the spatial relations of objects and their geometrical organisation in the environment, but also of social and emotional processes (Spelke, 2000). For instance, infants under one year of age display preference for prosocial (cooperative) behaviours and individuals in their environment (Hamlyn & Wynn, 2011) and learn early on to pay attention to information that is socially relevant (Frank, Vul & Saxe, 2012). Surprisingly, older children and even adults can have striking difficulties

in situations relying on cognitive or socio and emotional skills, some of which infants have no problem dealing with (Borst, Aïte & Houdé, 2015).

Brain maturation and cognitive and socio and emotional development run in parallel, and constantly influence each other. In infancy, the brains of newborns are largely immature but newborns possess a set of core cognitive and socio and emotional processes, allowing them to build a progressive understanding of the world and of the mental states and emotions of people that surround them. In order to do so, they typically behave as little scientists and psychologists in the crib by making inferences on the consequences of their actions in their environment and on the emotional reactions of the caregivers they interact with (Gopnik, Meltzoff & Kuhl, 2000). Through these processes, newborns acquire new skills and abilities that shape the development of their brain.

BRAIN MATURATION AND COGNITIVE AND SOCIO-EMOTIONAL DEVELOPMENT RUN IN PARALLEL
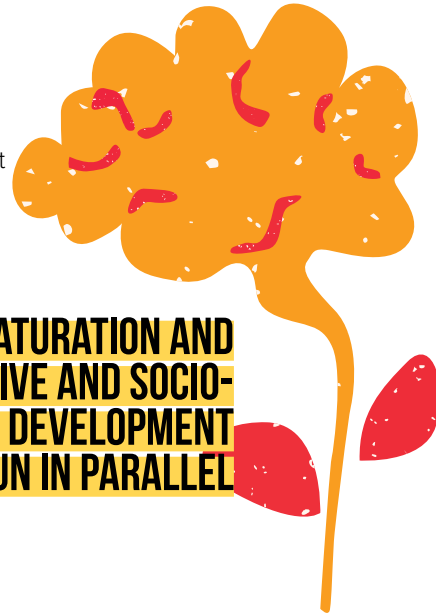
During early childhood, sensorimotor and language areas of the brain become more efficient and integrated, allowing children to develop language; social communication; joint attention; motor coordination; feeling, expressing and perceiving emotions; and a more complex understanding of their environment. Under the slow protracted development of frontal cortices, children learn to deal with conflicting information by starting to develop the ability to control their behaviours and thoughts (inhibitory control) and the ability to control immediate impulses and desires to achieve a goal in the future (self-control) (Diamond, 2013).

During middle-late childhood, cognitive, behavioural and socio and emotional development are driven and influenced by the maturation of associative regions of the brain involved in bringing together information from different senses. By combining and associating different information, children build a set of more abstract and formal representations about the physical, cognitive and socio and emotional world and about themselves. Social, emotional and cognitive development are closely related throughout childhood. For instance, inhibitory control plays an important role in the development of socio and emotional abilities, including emotional regulation (Carlson and Wang, 2007).

The asynchronous dynamical maturation of the brain also explains the emergence of certain specific behaviours at a certain age. For example, some risky behaviours (drug use, unprotected sex, violent games, etc.) that appear during adolescence are explained by the maturation asynchrony between subcortical (limbic) and cortical (prefrontal) areas of the brain. In

adolescents, the limbic system involved in the emotional response to reward and more generally in the feeling of pleasure (involving a particular neurotransmitter, dopamine) matures more quickly than the system in the prefrontal cortex that regulates the activity of the limbic system (Casey, 2015) (see Figure 2.3). Pubertal hormones (testosterone and estradiol) that typically drive brain maturation during adolescence (Peper & Dahl, 2013) seem also to influence specific social and affective processes by their influence on brain maturation at the structural and functional levels. For instance, sexual hormones modulate activity within the striatum during reward processing, within the amygdala and striatum in response to emotional stimuli, and activity within the anterior medial prefrontal cortex and temporal-parietal junction in a social reasoning task. More generally, adolescence is characterised by the development of high-order abilities such as planning, decision making, executive functioning and high-order thinking (Crone & Dahl, 2012).

Development should thus be conceived as a non-linear dynamic system consistently shaped by the environment and experience. Errors or difficulties are not age-dependent but context-dependent. In particular, difficulties occur at any age and in any context when children, adolescents or adults rely on automatic (prepotent) responses, misleading strategies, cognitive and socio and emotional heuristics rather than on deliberate, well thought-out strategies and responses adapted to the context. Inhibitory control and self-control are some of the critical abilities that help us adapt efficiently to our consistently changing environment by allowing us to override our routines to overcome any cognitive or socio and emotional non-adapted responses (Casey, 2015). Controlling cognitive and socio and emotional routines remains a challenge throughout childhood, adolescence and early adulthood because of the protracted maturation (until 25 years of age) of the prefrontal cortex (Casey et al., 2005).

INHIBITORY CONTROL AND SELF-CONTROL ARE SOME OF THE CRITICAL ABILITIES THAT HELP US ADAPT EFFICIENTLY TO OUR CONSISTENTLY CHANGING ENVIRONMENT
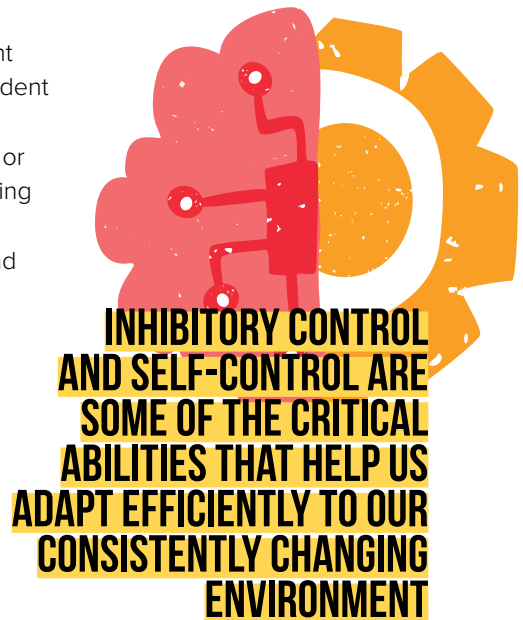
Figure 2.3. Classical model of development proposed by Jean Piaget, in which development is conceived as linear and cumulative (A). The current model of development proposed by Siegler, in which development is conceived as overlapping waves. In this model and others, errors are essentially context-dependent and depend on the level of adaptation of a given strategy in a given context (B). Three-systems model of development proposed by Houdé & Borst, in which self-control and self-regulation (System 3) allow an individual to override emotional and cognitive routines (System 1) to select appropriate responses (System 2) (C). Dual-system model of risk-taking during adolescence, in which increased risk-taking is driven by a hyper-responsive socio and emotional system in regard to the response of the cognitive control system (D).
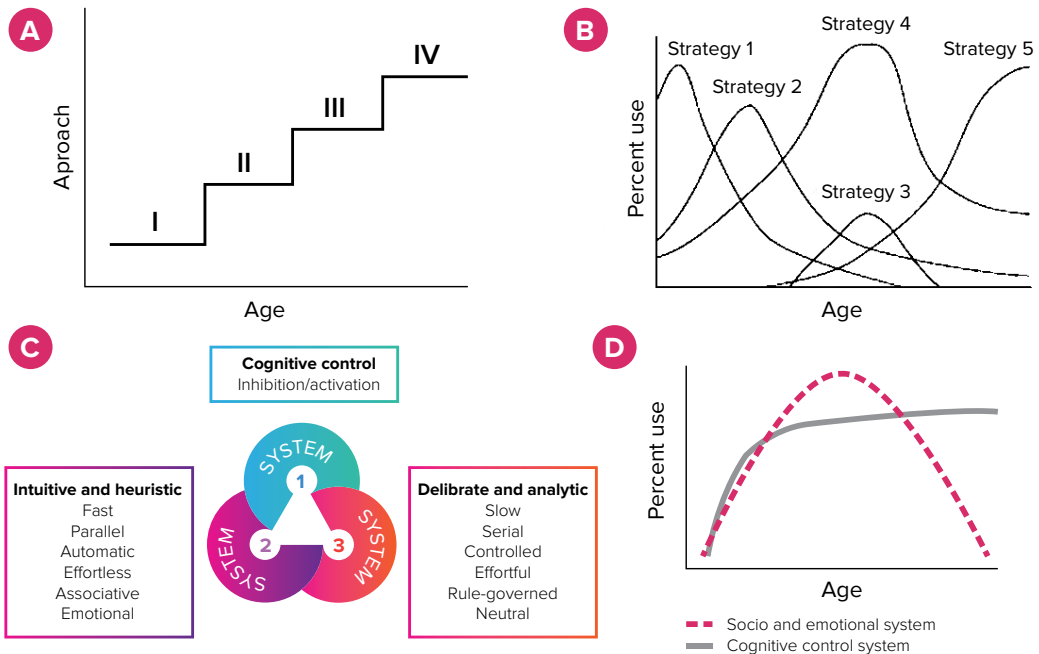
THE UNIVERSALITY AND INDIVIDUALITY OF THE SOCIAL BRAIN

Successful social interactions critically rely on one's ability to understand others by sharing their emotions and by being able to infer their thoughts and intentions. Understanding others relies both on affective and cognitive processes.

Empathy is a hallmark of the affective processes involved in understanding others. Empathy typically allows us to share and understand one's emotional states (Singer, 2006). Empathic responses, when witnessing others' suffering and when suffering oneself, typically rely on a number of core brain areas, in particular, the anterior insula (AI) and middle anterior cingulate cortex (mACC) (Fan et al., 2011).

Compassion is another important social ability allowing one to understand others' suffering. It typically involves feelings of warmth and care toward such suffering and the wish to alleviate it, and relies on neural structures typically associated with reward, love and affiliation: insula, ventral striatum and medial orbitofrontal cortex (mOFC).

Importantly, empathic resonance training leads to functional plasticity in the anterior insula and the middle anterior cingulate cortex, with higher activation of these regions following training associated with stronger negative affect in response to others' suffering. Whereas empathic training generally leads to improvement of social and emotional abilities, it could lead to aberrant negative effects in response to others' suffering, in some instances causing empathic distress, a form of pathological altruism. Compassion training can reverse the effect of empathic distress. Positive effects of compassion training are sustained by higher activation of the insula, the ventral striatum and the medial orbitofrontal cortex following training (Klimecki at al., 2014).

Social interactions also rely on understanding and attributing mental states to others, the so-called Theory of Mind (ToM) and perspective-taking abilities. ToM typically allows one to understand, think and reason about the beliefs and thoughts of others (Frith & 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

EMPATHY TRAINING GENERALLY LEADS TO IMPROVEMENT OF SOCIAL AND EMOTIONAL ABILITIES, IT COULD LEAD TO ABERRANT NEGATIVE EFFECTS IN RESPONSE TO OTHERS' SUFFERING, IN SOME INSTANCES CAUSING EMPATHIC DISTRESS
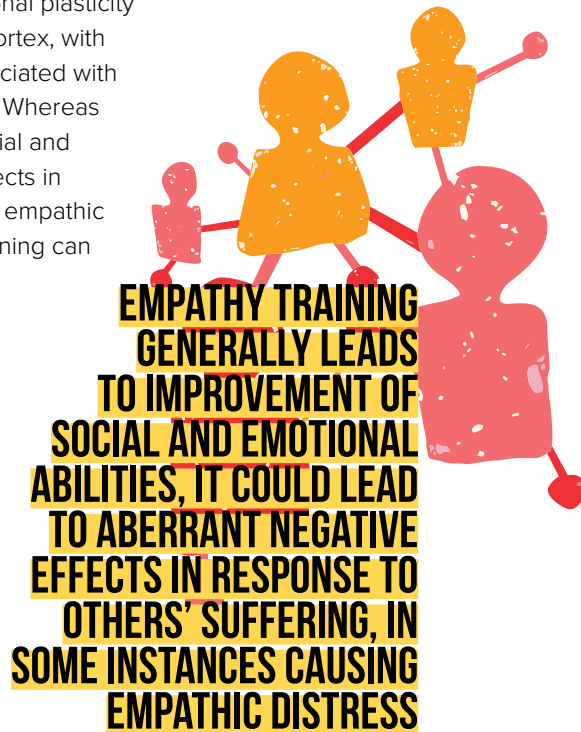
(FP), orbitofrontal cortex (OFC), amygdala, insula, temporoparietal junction (TPG) and cingulate cortex. (Figure 2.4)

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 but also to 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 behaviors rely on the superior temporal sulcus and cooperation on the medial prefrontal cortex.

Figure 2.2. Key regions of the social brain
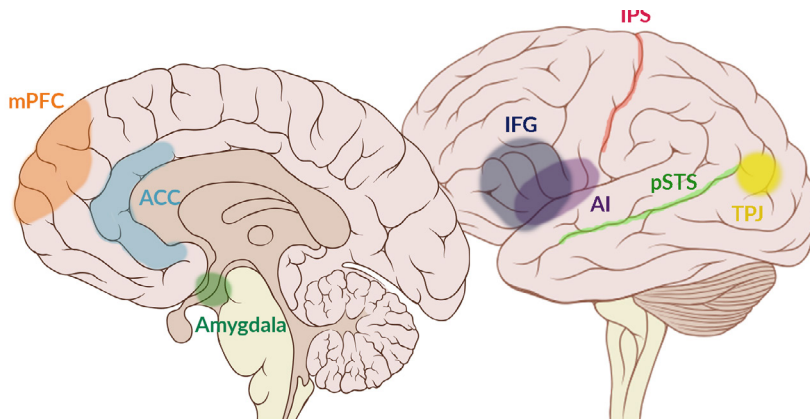
[Source: Adapted from Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist. https://creativecommons.org/licenses/by/2.5]"

SOCIAL, EMOTIONAL, COGNITIVE AND PHYSICAL ENVIRONMENT

Experience-induced brain plasticity is a key aspect of any cognitive and socio and emotional learning, and is affected by social environments (the home and the school) in which the children and the adolescents develop. The brain is constantly being shaped by these social environments throughout childhood and adolescence. Rich social environments foster advantageous brain changes that are related to successful learning. However, impoverished or

even toxic social environments can have negative consequences for brain development and learning.

Enriched environments promote better learning as well as better capacity for brain plasticity, by accompanying age-appropriate development of dedicated brain systems important for memory consolidation and rule-acquisition (Baroncelli et al., 2010). For instance, children of educated mothers have better developmental and learning trajectories (Wang et al., 2008). More generally, enhanced *cognitive-nurturing* fosters better academic achievement. For instance, children's math-related skills are enhanced when they engage in math-story time with their parents (Berkowitz at al., 2015). On the contrary, inadequate cognitive stimulation leads to poor cognitive development and learning.

ENHANCED COGNITIVE NURTURING FOSTERS BETTER ACADEMIC ACHIEVEMENT. ON THE CONTRARY, INADEQUATE COGNITIVE STIMULATION LEADS TO POOR COGNITIVE DEVELOPMENT AND LEARNING
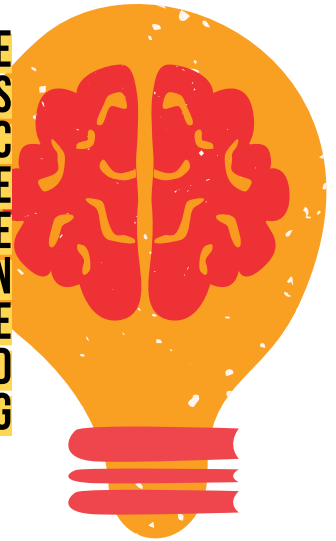
Enriched environments provide not only *cognitive* but also *emotional nurturing,* which represent another foundational factor for successful learning. Emotional neglect can induce severe disturbances in multiple aspects of social and emotional functioning, with the most dramatic effects in the amygdala (Casey, 2015), a structure of the brain critical for motivation and anticipating reward, and therefore involved in all learning.

Malnutrition can also negatively and significantly impact brain development and learning. Prolonged deprivation of key nutrients, which is common in low socio-economic status (SES) environments, affects the maturation of frontal, hippocampal, and emotional regions important for learning. For example, children with marked levels of iron deficiency, one of the most common forms of nutrient deficiency worldwide, perform worse on tasks mediated by the frontal lobe (Lukowski et al., 2010). These children also display deficits in memory-tasks, mediated by slower cell proliferation during development and alterations of certain neurotransmitters in the hippocampus (Congdon et al., 2012). Moreover, iron deficiency alters the reward system in the brain and, in particular, the amygdala.

All in all, deprived environments characterised by protracted *lack of nurturing* in multiple domains can be dramatic. Yet, these effects are not permanent and can be reversed. For

instance, in animals, environmental enrichment can reverse the negative effects of a poor protein diet on memory and hippocampal neuroanatomy (Soares et al., 2017). In humans, early engaging interventions involving high-quality and nurturant parenting hold the promise of ameliorating the biological impacts of childhood deprivation (Boparai et al., 2018).

STRESS AND SLEEP

Within disadvantaged environments, children are greatly exposed to high levels of stress on a daily basis (Matthews & Gallo, 2011). Importantly, high levels of stress during development affect the functional and structural maturation of the hippocampus and the frontal lobes (Davidson & McEwen, 2012). Apart from these, stress also affects regions associated with emotions, such as the amygdala, because these regions contain an abundant number of receptors to cortisol, the *stress hormone* (Blair & Raver, 2016).

As a consequence of their stressful environments, lower-SES children can develop an early sensitivity to social threats related to hyper-active response of the amygdala (Gianaros et al., 2008), leading to dysregulated forms of emotional control and negative effects on learning (McEwen, 2007). Negative effects of low-SES start even in-utero. For instance, regulation of a gene expression that determines brain cells' properties during foetal life is affected by prolonged exposures to stress (Houtepen et al., 2016).

Quality of sleep constitutes another factor affecting the maturation of brain regions important for learning (mostly the hippocampus and the frontal lobes). The integrity of the sleep-wake cycle is crucial for learning and generalisation of newly acquired and initially labile memories into existing and stable knowledge (Diekelmann & Born, 2010). During childhood, consolidation of memories is greater during sleep than wakefulness. For instance, slow wave sleep facilitates memory formation and thus learning (Mander et al., 2015). Importantly, fragmented sleep patterns can be highly common in low-SES households, due to several factors including parents' work schedule, overcrowded households, as well as chronic stressors associated with scarcity of resources (Casey, 2015). Therefore, low-SES children are at greater risk for slower learning due to poor quality of sleep.

A synergistic interplay between high stress and poor sleep could exacerbate the risk for declined learning in low-SES environment. Notably, slow wave sleep has been associated with emotional distress and history of violence (Spoormaker & Montgomery, 2008). Hence, it is possible that sleep dysregulation represents an important mechanism by which stress adversely impacts learning and brain plasticity in low-SES children.

MULTIPLE DISADVANTAGES OF LOW SES FOR THE LEARNING BRAIN

Children and adolescents from low SES have poorer educational access and fewer resources, reduced environmental stimulation, and poorer health and nutrition, which can lead to marked cognitive, socio and emotional, behavioural and brain alterations (Walker et al., 2007). As a result of impoverished, unstable and stressful environments, children from low SES display higher rates of emotional disturbance, anxiety, stress (Luby et al., 2013) and of fragmentary sleep patterns (Buckhalt, El-Sheikh & Keller, 2007). All these factors, with different degrees of anatomical/regional specificity (Figure 2.5), have consequences for brain development and plasticity, particularly in brain systems that are foundational to any type of learning – the *memory-formation system* (critically involving the hippocampus) (Davachi, Mitchell & Wagner, 2003), the *emotional system* (critically involving the limbic system) (Joseph, 1999) and the *rule learning and control system* (critically involving the frontal lobes) (Curtis & D'Esposito, 2003).

Figure 2.5. Brain structures activated during memory formation, emotions and rule learning in a typical environment ("Learning"). Activations of the same brain structures in deprived environments ("Deprivation") and stressful situations ("Stress").
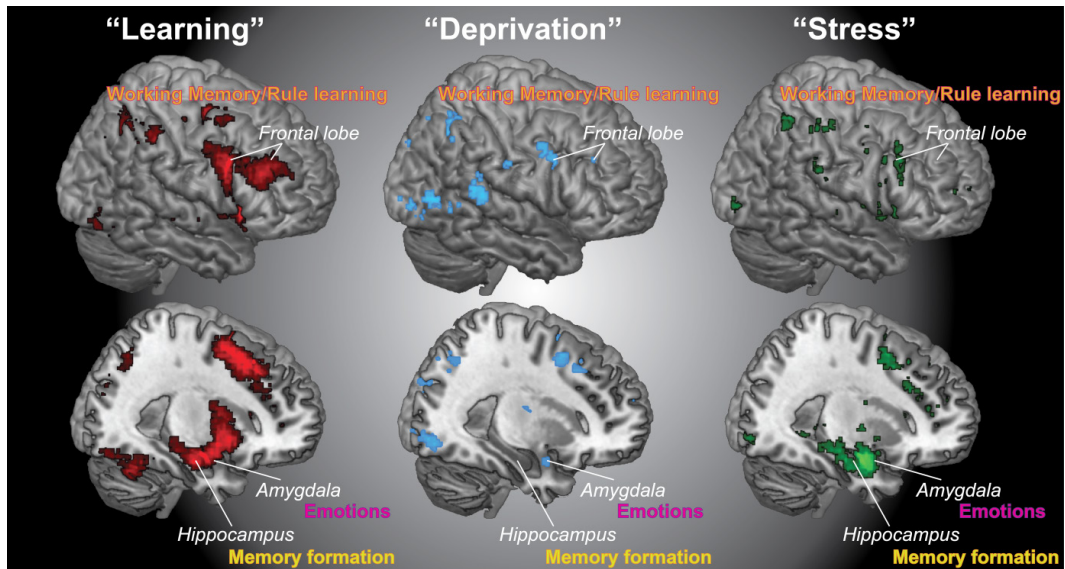
[Image created by Teresa Iuculano]

PROTECTIVE FACTORS AND SOCIAL INTERACTIONS

Protective factors include the promotion of *cognitive, emotional* and *physical nurturing*, as well as containment of *toxic* factors such as stress and reduced sleep. Brains are highly plastic, and some of these environmental influences can be reversed with appropriate, highly targeted interventions that will have to be preceded by dedicated policies that prioritise healthier brain development, especially in at-risk cohorts. This, in turn, will have positive consequences for social and economic growth.

Social interactions can also trigger brain plasticity both in the infant's and parents' brains. Parents calming their baby results in a decrease of the stress hormone (cortisol) and an increase of the bonding and social affiliation hormones (such as oxytocin). In turn, these social hormones impact the development of the infant's brain and regulate the connectivity of certain key neural networks in the parents' brains, such as the one involved in self-regulation (Sethna et al., 2017). Thus, social interactions at home, at school, or at the workplace shape our brain profoundly and influence cognitive and socio and emotional development and learning.

KEY CHALLENGES

- Knowledge regarding the social mechanisms involved when one brain teaches another brain remains scarce due to methodological challenges involved in recording activity from two brains at the same time.
- Transferring findings from the cognitive and affective neurosciences to the classroom is challenging because the classroom is a complex social, emotional and cognitive environment.
- Dissemination to the pedagogical community of the key findings from the studies on the learning brain can be difficult if deemed to be prescriptions of the type of pedagogy in the classroom.

KEY RECOMMENDATIONS

- 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.
- Educational policies should adhere to the principles of the learning brain with its socio-emotional facets.

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SOCIAL AND EMOTIONAL LEARNING

DEFINITIONS, FRAMEWORKS, AND EVIDENCE

KIMBERLY A. SCHONERT-REICHL

SOCIAL AND EMOTIONAL LEARNING

CH // 03

DEFINITIONS, FRAMEWORKS, AND EVIDENCE

KIMBERLY A. SCHONERT-REICHL

ABSTRACT

The overall aim of this chapter is to provide a summary of the extant theory and research on enhancing children's success in school and in life through social and emotional learning (SEL). The chapter begins by providing a definition of SEL and a brief history of SEL, which is followed by a description of the various dimensions that comprise SEL. Included in this section is a description of some of several frameworks that have been developed, along with some criteria for assessing an SEL framework. Next, a brief review of recent research that offers strong empirical support for an SEL approach is put forth. Following this, characteristics that comprise effective SEL approaches are described. The chapter ends by offering some conclusions on how an understanding of SEL has implications for the transformation of education.

JOHN DEWEY ESPOUSED THAT "THE AIM OF EDUCATION IS GROWTH OR DEVELOPMENT, BOTH INTELLECTUAL AND MORAL"

KEY MESSAGES

3.1   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.

3.2   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.

3.3   SEL is important for school and life success. 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, post-secondary completion, employment, financial stability, physical health, and overall mental health and well-being.

3.4   SEL programs are effective. There is a confluence of research from multiple studies showing that students who participate in SEL programs, relative to students who do not, demonstrate significantly improved social and emotional competencies, attitudes, and behavioural adjustment, and outperformed non-SEL students on indices of academic achievement by 11-percentile points.

SOCIAL AND EMOTIONAL SKILLS ARE TEACHABLE. RESEARCH FROM DEVELOPMENTAL COGNITIVE NEUROSCIENCE INDICATES THAT SOCIAL AND EMOTIONAL SKILLS CAN BE TAUGHT ACROSS A PERSON'S LIFE SPAN AND ARE VIEWED AS MORE MALLEABLE THAN IQ

INTRODUCTION

UNESCO's attention to the field of SEL is an important and timely marker in our burgeoning empirical knowledge about the key factors that lead to the successful development of children and youth. Rarely since the early 20th century, when educational influencers such as John Dewey espoused that "the aim of education is growth or development, both intellectual and moral" (Dewey, 1934/1964, p. 213), have we witnessed such increased attention to the social and emotional dimensions of learning in efforts to transform education. Around the globe, dialogues about educational reform and the integration of SEL into policy and curriculum are proliferating. SEL is now a worldwide phenomenon, with SEL approaches and programmes being implemented in countries throughout the world (Frydenberg, Martin & Collie, 2017; Humphrey, 2013; Torrente, Alimchandani, & Aber, 2015).

PROMOTION OF THESE SOCIAL AND EMOTIONAL SKILLS IN EDUCATION IS SEEN AS MORE CRITICAL THAN EVER BEFORE, WITH BUSINESS AND POLITICAL LEADERS URGING SCHOOLS TO PAY MORE ATTENTION TO EQUIPPING STUDENTS WITH WHAT ARE OFTEN REFERRED TO AS '21ST CENTURY SKILLS'

Analogously, large-scale organisations such as the World Bank, the World Health Organization (WHO), and the Organisation for Economic Co-operation and Development (OECD) are joining in the call for a more explicit and intentional consideration of social and emotional competencies and social and emotional well-being into both education and health (e.g., OECD 2015, 2018; Varela, Kelcey, Reyes, Gould & Sklar, 2013).

Current theory and research posit that a high-quality education should not only cultivate the intellectual skills of students but also nurture the development of positive human traits such as social awareness, empathy, compassion and altruism – characteristics that will lead to meaningful employment and engaged citizenship (Greenberg, 2010).

Indeed, there is growing consensus among educators and educational scholars that we need a more comprehensive vision of education – one that includes an explicit focus on educating 'the whole child' and one that fosters a wider range of life skills and competencies[1], including social

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1   Note that skills and competencies are often used interchangeably as if they are synonymous. However, it is important to recognise that they are not. Whereas skills can refer to a specific ability, such as being able to identify one's strengths and weakness, 'competencies' is a broader term that comprises a range of skills and includes the capacity to apply knowledge, skills, and attitudes to accomplish something.

and emotional competence (Association for Supervision and Curriculum Development, 2007; Bushaw & Lopez, 2013; Greenberg et al., 2003; Rose & Gallop, 2000).

In the face of current societal economic, environmental and social challenges, the promotion of these 'non-academic' skills in education is seen as more critical than ever before, with business and political leaders urging schools to pay more attention to equipping students with what are often referred to as '21st Century Skills' (Heckman, 2007; National Research Council, 2012), including problem solving, critical thinking, communication, collaboration and self-regulation. In order for children to achieve their full potential as productive adult citizens in a pluralistic society and as employees, parents and volunteers who contribute to the well-being of society, there must be explicit and intentional attention given to promoting social, emotional and ethical education in schools.

SCHOOLS ARE AN IDEAL CONTEXT FOR PREVENTION AND INTERVENTION EFFORTS THAT BEGIN TO ADDRESS MANY OF THE SOCIAL AND EMOTIONAL CHALLENGES THAT SOME CHILDREN FACE

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 (Weissberg et al., 2015; Zins, Bloodworth, Weissberg & Walberg, 2004). Indeed, schools are important settings in which to promote students' social and emotional development because there are no other places in which the majority of children and youth can be found during their formative years of development. Furthermore, from a cost-benefit standpoint, schools are an ideal context for prevention and intervention efforts that begin to address many of the social and emotional challenges that some children face. Indeed, school-based prevention efforts have been heralded as an effective 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 (e.g., Farmer & Xie, 2007; Neal, 2010). Bolstered by evidence indicating that empirically-based curricula can prevent the onset of problem behaviours, such as anxiety and aggression (e.g., Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011; Jones, Brown & Aber, 2011), many school districts throughout North America have strengthened their efforts to include programmes that promote students' social and emotional competence via SEL initiatives. Because virtually all children go to school during key developmental years, schools are important contexts for fostering children's positive social and emotional development. Due to many competing demands and time constraints, however,

schools need to prioritise their efforts and implement curricular approaches that are evidence-based.

Yet, while many policy makers, educators and the public at large have supported approaches that integrate SEL into academic instruction, it is important to note that the integration of SEL into the fabric of education is not a view shared unanimously, with some viewing SEL as peripheral to the mission of education (e.g., Tyack, 1993; Tyack & Cuban, 1995).

DEFINING SOCIAL AND EMOTIONAL LEARNING

Social and emotional learning, or SEL, is the process of acquiring the competencies to recognise and manage emotions, develop caring and concern for others, establish positive relationships, make responsible decisions and handle challenging situations effectively (Greenberg et al., 2003; Payton, Graczyk, Wardlaw, Bloodworth, Tompsett & Weissberg, 2000; Weissberg et al., 2015). In other words, SEL programmes and practices teach the personal and interpersonal competencies we all need to handle ourselves, our relationships, and our work effectively and ethically. Accordingly, SEL is aimed at helping children and even adults develop fundamental skills for success in school and life.

SEL builds on work in child development, classroom management, prevention and emerging knowledge about the role of the brain in self-awareness, empathy and social-cognitive growth (e.g., Best, Miller & Naglieri, 2011; Gallese & Goldman, 1998; Carter, Harris & Porges, 2009; Diamond & Lee, 2011; Diamond, Barnett, Thomas & Munro, 2007; Gallese & Goldman, 1998; Goleman, 2006; Greenberg, 2006; Singer & Lamm, 2009), and focuses on the skills that allow children to calm themselves when angry, make friends, resolve conflicts respectfully, and make ethical and safe choices. Moreover, SEL offers educators, families and communities relevant strategies and practices to better prepare students for 'the tests of life, not a life of tests' (Elias, 2001). In short, SEL competencies comprise the foundational skills for positive health practices, engaged citizenship and school success (Weissberg et al., 2015). SEL is sometimes called 'the missing piece' because it represents a part of education that is inextricably linked to school success, but has not been explicitly stated or given much attention until recently. SEL emphasises active learning approaches in which skills can be generalised across curriculum areas

SEL PROGRAMMES AND PRACTICES TEACH THE PERSONAL AND INTERPERSONAL COMPETENCIES WE ALL NEED TO HANDLE OURSELVES, OUR RELATIONSHIPS, AND OUR WORK EFFECTIVELY AND ETHICALLY

and contexts when opportunities are provided to practice the skills that foster positive attitudes, behaviours and thinking processes. The good news is that SEL skills can be taught through nurturing and caring learning environments and experiences (Greenberg, 2010).

In SEL, social and emotional competencies are viewed as 'mastery skills' underlying virtually all aspects of human functioning. Moreover, 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.

A BRIEF HISTORY OF SEL

Although the term SEL is relatively recent – dating back to approximately 20 years – the attention to children's social and emotional development in relation to education dates back much longer. For instance, centuries ago Aristotle posited that, "Educating the mind without educating the heart is no education at all", emphasising that education should not solely focus on the mastery of subject areas such as reading, writing, math, science and social studies, but should include an explicit and intentional focus on teaching students social and emotional competencies, including empathy and compassion. More recent instantiations of SEL can be traced back to the early 1900s –John Dewey's (1916) progressive education efforts that focused on the promotion of students' social responsibility, Maria Montessori's (1912) schools that emphasised child-centred education and a focus on whole child education (cognitive, social, emotional and physical development), and Jane Addams' (1902) focus on engaged citizenship and student agency and autonomy, which aligned with Dewey's focus.

The theoretical and empirical work in SEL-related fields, in particular, can be traced back to the beginning of the 20th century. Osher et al. (2016), in their recent review of the genesis of SEL, noted that, "The roots of SEL are intellectually diverse and politically nonpartisan" (p. 647). In their review, they trace the roots of SEL to educational reform efforts in the early part of the 20th century (including John Dewey and Jane Addams) to the 'Mental Hygiene

RECASTING OUR PRIORITIES IN TERMS OF FACILITATING POSITIVE ADJUSTMENT AMONG CHILDREN AND YOUTH, RATHER THAN ONLY LIMITING RISK, EXTENDS OUR FOCUS TO ALL CHILDREN AND YOUTH, INSTEAD OF THOSE JUST EXHIBITING RISK FACTORS

Movement' with its presage attention to prevention of mental illness, and to Thorndike's (1920) conception of 'social intelligence.' Over the course of the 20th century, the shift to understanding the contextual influences that shape child development began to emerge and researchers such as Bronfenbrenner and his 'bioecological model of human development' (1979; Bronfenbrenner & Morris, 2006) espoused the importance of taking into account the nature and levels of context as influencers on child development. Bronfenbrenner's 'bioecological model of human development' led to increased attention to the implementation of systemic interventions in the 1980s and 1990s (Elias et al., 1997).

Simultaneously, in the 1950s and 1960s, Norman Garmezy and others began examining children who were successful despite significant adversity. Initially described as the study of 'invulnerability' in children, the field is currently identified as the study of resiliency. Resiliency research redirects the focus on the examination of psychopathology and problems of children who face adversity to examining the ways in which individuals, despite the presence of risk factors, develop in healthy ways – are resilient and 'beat the odds.' 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. As noted by Sir Michael Rutter (1979) – a preeminent leader in the resiliency field, "There is a regrettable tendency to focus gloomily on the ills of mankind and on all mankind and on all that

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

can and does go wrong...The potential for prevention surely lies in increasing our knowledge and understanding of the reason why some children are not damaged by deprivation..." (p. 49). Recasting our priorities in terms of facilitating positive adjustment among children and youth, rather than only limiting risk, extends our focus to all children and youth, instead of those just exhibiting risk factors.

The growth of SEL work was gradual and somewhat intermittent across the century but expanded markedly in the 1990s when researchers such as Salovey and Mayer (1990) began to work in the new field of 'emotional intelligence.' Their work both built upon and expanded the work of Howard Gardner's (1983) 'multiple intelligences' and Robert Sternberg's (1985) 'practical intelligence,' challenged typical definitions of intelligence by showing the critical roles of emotion and motivation in predicting life success.

In 1995, the publication of Daniel Goleman's book *Emotional Intelligence: Why It Can Matter More than IQ* catalysed the field by making SEL a term known by researchers and the larger public. At the same time that interest in SEL was growing, there was an accumulating research base regarding the effectiveness of programmes to prevent problem behaviour and promote healthy development, coupled with a growing knowledge base on the importance of school climate to promote students' healthy relationships, achievement, and school connectedness, and prevent dropout (e.g., Thapa, Cohen, Guffey & Higgins-D'Alessandro, 2013). Similarly, growing concerns around problems such as bullying and school shootings spurred an urgency for the creation and implementation of school programmes focused on promoting safe and supportive school environments (Dwyer, Osher & Warger, 1998; Dwyer & Osher, 2000).

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 (Devaney, O'Brien, Resnick, Keister & Weissberg, 2006; Elias et al., 1997).

SEL AND THE HIDDEN CURRICULUM

Although the explicit attention to promoting students' social and emotional development in schools via SEL is relatively recent, some would argue that schools, by their very nature, impact students' social, emotional and moral development. One person at the forefront of this argument is Philip W. Jackson, a renowned expert in the field of education. In his landmark book *Life in Classrooms* (1968) — one of the very first book-length qualitative studies in the field of educational research — Jackson spent a year observing a fourth-grade classroom. It was in this book that he coined the phrase the 'hidden curriculum', described as "...the pervasive moral atmosphere that characterises schools. This atmosphere includes school and classroom rules, attitudes toward academics and extracurricular activities, the moral orientation of teachers and school administrators, and text materials." (Santrock, 1993, p. 452). The 'hidden curriculum' then can be perceived as educating students according to their social class and status, thereby reinforcing larger social inequalities.

WHAT HAPPENS TO THOSE STUDENTS WHOSE ACCOMPLISHMENTS ARE NOT HONOURED, WHO PERCEIVE THEMSELVES AND THEIR ACCOMPLISHMENTS AS UNIMPORTANT IN THE SCHOOL SYSTEM?

Consider, for instance, the physical context of high schools and the implicit messages that are conveyed to students about what is valued in school. When one walks into the front foyer of almost any high school in North America, one can usually see a trophy case, honouring past and present athletic achievements and star athletes of the school, and a plaque honouring the school's top academic scholars. What is missing? Missing are the students who are competent in areas other than sports, such as art, drama, chess, home economics woodworking, and so on. What is not 'honoured' on the honour roll? Prosocial behaviour such as caring, kindness, compassion and citizenship are neglected. If one of the common missions of schools is to develop students into caring and contributing citizens in a democratic society, why is it that schools do not make this explicit? When considering the moral life of schools, Jackson, Boostrom and Hansen (1993) argue that the implicit messages regarding who and what matters is readily apparent to all students and to parents. What happens to those students whose accomplishments are not honoured, who perceive themselves and their accomplishments as unimportant in the school system? Recent incidents of school violence may be subtly connected with this negative aspect of life in schools.

What does the hidden curriculum have to do with SEL? 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 toward a system-wide approach to SEL. It is only when educators are cognisant of the ways that students' social and emotional competencies are being either promoted or hindered in the school context can they work toward the explicit and 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 FRAMEWORKS AND SOCIAL AND EMOTIONAL COMPETENCIES
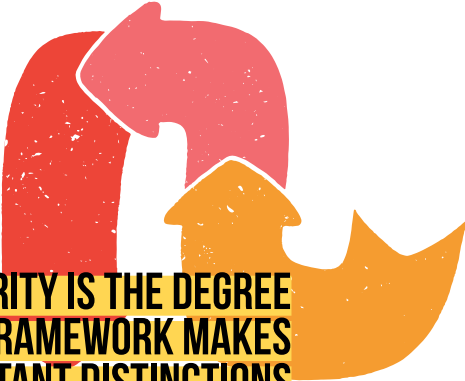
Identifying and selecting an SEL framework is a critical first step because a framework comprises the social and emotional competencies that students need to be successful in school, life and work, and it can catalyse action. Essentially, frameworks provide a way in which to organise various social and emotional competencies, and describe the relationships among them and to aspects of the SEL implementation process. Dusenbury et al. (2019) posit, "A framework is simply a tool that helps organise ideas in order to provide a foundation for thinking, communicating, and acting."

Blyth and Borowski (2018) recently wrote a brief to assist educators and community organisations in selecting an SEL framework to meet their needs and highlighted the importance of conceptual clarity when choosing an SEL framework. As they say, "Conceptual clarity is the degree to which a framework makes clear and important distinctions that connect

directly or indirectly to what is known about social and emotional learning" (Blyth & Borowski, 2018, p. 2).

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

a. **Specific** – The extent to which a framework has competencies that are clearly and specifically defined.

b. **Balanced** – The extent to which a framework balances intrapersonal, interpersonal and cognitive competencies, and includes knowledge, skills and attitudes.

c. **Developmental** – The extent to which a framework includes and utilises a developmental lens that illustrates that competencies are malleable, how they develop over time, and what they look like at different ages and stages of development.

d. **Culturally Sensitive** – The extent to which a 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.

e. **Empirically Grounded** – The extent to which 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 & Borowski, 2018, p. 2)
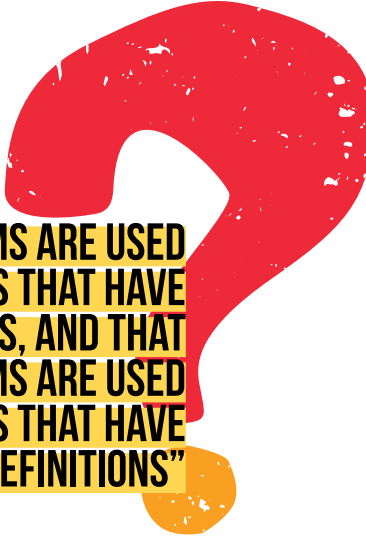
"CONCEPTUAL CLARITY IS THE DEGREE TO WHICH A FRAMEWORK MAKES CLEAR AND IMPORTANT DISTINCTIONS THAT CONNECT DIRECTLY OR INDIRECTLY TO WHAT IS KNOWN ABOUT SOCIAL AND EMOTIONAL LEARNING"

Note: See Appendix A at the end of this chapter for a rating form for assessing an SEL framework's conceptual clarity.

EXISTING SEL FRAMEWORKS: EXAMPLES

The SEL landscape is replete with SEL frameworks. In their recent report titled 'Identifying, Defining, and Measuring Social and Emotional Competencies', Berg et al. (2017) conducted an extensive review of frameworks related to the social and emotional competencies among youth between the ages of 6 and 25 years. Through their examination of reports, papers and discussions with experts across a range of fields, including economics and health, they

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 (see Berg et al., 2017, for a full description of their approach and findings). One central finding that emerged in their review 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" (p. 40). Their work underlines the importance of conceptual clarity when identifying and analysing appropriate SEL framework. In the following section, I identify a couple of the existing SEL frameworks.

> **...DIFFERENT TERMS ARE USED FOR COMPETENCIES THAT HAVE SIMILAR DEFINITIONS, AND THAT THE SAME TERMS ARE USED FOR COMPETENCIES THAT HAVE DIFFERENT DEFINITIONS"**

CASEL: 5 SEL COMPETENCIES

The Collaborative for Academic, Social, and Emotional Learning (CASEL; www.casel.org) a non-profit organisation in Chicago, Illinois, is at the forefront in North American and international efforts to promote SEL. Founded in 1993 by Daniel Goleman and Eileen Rockefeller Growald, its mission is to advance the science of SEL and expand evidence-based, integrated SEL practices as an essential part of preschool through high school education.

CASEL has identified a set of social and emotional skills that underlie effective and successful performance for social roles and life tasks, drawing from extensive research in a wide range of areas, including brain functioning and methods of learning and instruction. The SEL competencies identified by CASEL include the following five dimensions (Weissberg et al., 2015):

1. **Self-awareness:** The ability to identify and recognise one's own emotions, thoughts and influences on behaviour, including recognising one's own strength and challenges, being aware of one's own goals and values, possessing a well-grounded sense of self-efficacy and optimism, and having a growth mindset that one can learn through hard work. High levels of self-awareness require recognising how thoughts, feelings and actions are interconnected.

2. **Self-management:** The ability to regulate one's emotions, thoughts, and behaviours effectively, including stress management, delaying gratification, impulse control, motivating oneself, and persevering through challenges to achieve personal and educational goals. It also includes self-management within social interactions.

3. **Social awareness:** The ability to take the perspectives of others – including those who come from a different background and culture, to empathise with others, understand

social and ethical norms, and to recognise resources and supports in family, school, and community.

4. **Relationship skills:** The ability to form and maintain positive and healthy relationships, communicate clearly, listen actively, cooperate, negotiate constructively during conflict, solve problems with others effectively, and to offer and seek help when needed.

5. **Responsible decision making:** Knowledge, skills and attitudes to make constructive choices regarding one's own behaviour and social interactions, considering safety concerns, ethical standards, social and behavioural norms, consequences and the well-being of self and others.

Figure 3.1. CASEL's Five SEL Competencies

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

THE NATIONAL COMMISSION ON SOCIAL, EMOTIONAL, AND ACADEMIC DEVELOPMENT

The Aspen Institute's National Commission on Social, Emotional, and Academic Development (NCSEAD) was created to bring together SEL researchers, educators, community leaders, policymakers, teachers, parents and students as a way to foster a better understanding of how schools can fully integrate social, emotional and academic development to support students' success in school and in life. The Commission was created with these primary goals: "(a) Build an alliance of stakeholders; (b) Elevate promising practices in schools and innovative policies; (c) Identify future research that will help integrate social, emotional, and academic development; and (d) Develop a culminating road map with recommended action steps in research, practice, and policy to support the whole student in K–12 education" (https://www.aspeninstitute.org/programs/national-commission).

One main goal of the Commission was to bring together several multidisciplinary entities in the hope of breaking down silos. The participating groups included – a Council of Distinguished Scientists; a Council of Distinguished Educators; the Aspen Institute Youth Commission on Social, Emotional, and Academic Development; a virtual Parent Advisory Panel; a Partner Collaborative; and a Funder Collaborative.

Based on their extensive analysis of frameworks, the NCSEAD identified three social, emotional and academic development (SEAD) competencies that were categorised into three domains: Cognitive, Social and Interpersonal, and Emotional (illustrated below).

Figure 3.2. Examples of SEAD Skills and Competencies

🧠 COGNITIVE	🔗 SOCIAL & INTERPERSONAL	🧠 EMOTIONAL
Including the ability to: • Focus and pay attention • Set goals • Plan and organise • Perservere • Problem solve	*Including the ability to:* • Navigate social situations • Resolve conflicts • Demonstrate respect towards others • Cooperate and work on a team • Self-advocate and demonstrate agency	*Including the ability to:* • Recognise and manage one's emotions • Understand the emotions and perspectives of others • Demonstrate empathy • Cope with frustration and stress

[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]

EMC² — A 'WHOLE BRAIN' FRAMEWORK FOR SOCIAL AND EMOTIONAL LEARNING — THE KEY FOR HUMAN FLOURISHING

Most recently, UNESCO MGIEP has created a new SEL framework that focuses on the promotion of human flourishing. Entitled EMC² (Singh and Duraiappah, 2019), the framework argues that the core of SEL is an approach that will focus on building four SEL competencies, namely, Empathy, Mindfulness, Compassion and Critical Inquiry. (Figure 3.3) The framework posits that education systems need to move beyond a focus on economic growth and instead focus on building human flourishing, which requires an explicit focus on promoting social and emotional skills in addition to rational thought.

EDUCATION SYSTEMS NEED TO MOVE BEYOND A FOCUS ON ECONOMIC GROWTH AND INSTEAD FOCUS ON BUILDING HUMAN FLOURISHING, WHICH REQUIRES AN EXPLICIT FOCUS ON PROMOTING SOCIAL AND EMOTIONAL SKILLS

Figure 3.3: EMC² Framework for Human Flourishing

Critical Inquiry
- Inquiry rooted in evidence
- Logic as the heart of rationality
- Build self-skepticism and intellectual resilience

Mindfulness
- Increased attention and awareness
- Practice mindfulness techniques
- Regulate emotions

Compassion
- Acknowledge acts of compassion
- Practice compassion to self, others and environment
- Be an agent for change

Empathy
- Name and recognise emotions
- Understand perspective of others
- Foster social connection

SEL SKILLS IN CHILDHOOD PREDICT ACADEMIC ACHIEVEMENT AND ADULT SUCCESS

A substantial body of literature supports the premise that children's social and emotional competence not only predicts success in school (e.g., Oberle, Schonert-Reichl, Hertzman & Zumbo, 2014), but also predicts a range of important outcomes in late adolescence and adulthood, including physical health, substance dependence, and overall well-being (e.g., Moffitt et al., 2011). Recognising the relationship between social and emotional competencies and academic success, researchers have argued that fostering positive social and emotional development may be key to enhancing academic growth (see Greenberg et al., 2003; Zins et al., 2004). Empirical evidence supports this notion. For example, in one early study that, in my opinion, was pioneering in its design and approach to demonstrating the critical role of social and emotional competencies in predicting students' academic success, Wentzel (1993) found that students' prosocial classroom behaviours were better predictors of academic achievement than were their standardised test scores, even after taking into account academic behaviour, teachers' preferences for students, IQ, family structure, sex, ethnicity, and days absent from school. Similarly, in a longitudinal study of 294 Italian children, Caprara, Barbaranelli, Pastorelli, Bandura and Zimbardo (2000) found that prosocial behavior in the third grade, as rated by self, peers and teachers, significantly predicted both academic achievement and social preference five years later, when children were in the eighth grade. Most interestingly, students' prosocial behavior, which included cooperating, helping, sharing, and consoling behaviours, significantly predicted academic achievement five years later, even after controlling for third grade academic achievement. In contrast, early academic achievement did not contribute significantly to later achievement after controlling for effects of early prosocialness.

In a short-term, longitudinal study of 441 sixth grade Canadian students, Oberle, Schonert-Reichl, Hertzman, and Zumbo (2014) examined the association between social and emotional competence and academic achievement in early adolescents. Social and emotional competence in grade six, operationalised in terms of both self-reports of social responsibility goals and teacher

IN ADDITION TO PLAYING A CRUCIAL ROLE IN PREDICTING ACADEMIC SUCCESS, RECENT LONGITUDINAL RESEARCH ALSO DOCUMENTS LINKS BETWEEN CHILDREN'S SOCIAL AND EMOTIONAL SKILLS AND LATER SUCCESS IN ADULTHOOD

assessments of frustration tolerance, assertive social skills, task orientation, and peer interaction, were evaluated as predictors of student academic achievement test scores in math and reading grade seven. As hypothesised, teacher reports of students' social and emotional competencies significantly predicted higher scores in math and reading in seventh grade. Self-reported social and emotional competence in grade six was a significant predictor of grade seven reading scores for boys but not girls. Although more research is needed regarding the link between SEL and academic achievement, there is a confluence of empirical evidence suggesting that if we want students to be successful in school, efforts should be made to intentionally and explicitly teach SEL.

In addition to playing a crucial role in predicting academic success, recent longitudinal research also documents links between children's social and emotional skills and later success in adulthood. In another recent and notable longitudinal study, Moffitt et al. (2011) followed a cohort of 1000 children from birth to 32 years in New Zealand, assessing children's self-control across the ages of 3, 5, 7, 9, and 11 years via reports from researcher-observers, teachers, parents, and the children themselves. Self-control in childhood was found to predict physical health, substance dependence, personal finances, and criminal offending in adulthood, even after taking into account intelligence, social class, and problems the children had in adolescence (e.g., smoking, being a school drop-out, having an unplanned baby). The authors concluded that focusing on the promotion of children's self-control "might reduce a panoply of societal costs, save taxpayers money, and promote prosperity" (p. 1). Thus, results from several recent longitudinal studies examining the association between early SEL skills and later adult adjustment suggest that, in the long run, higher levels of social and emotional competence can increase the likelihood of high school graduation, financial success, mental and physical health, and reduced criminal behaviour.

More recently, Jones Greenberg, and Crowley (2015) examined the degree to which late adolescent and early adult outcomes were predicted by teacher ratings of children's social competence measured many years earlier, when children were in kindergarten, following 753 kindergarten children longitudinally for 13 to 19 years. Kindergarten teacher ratings of children's prosocial skills (getting along with others, sharing, cooperating) were found to be significant predictors of whether participants would graduate from high school on time, complete a college degree, obtain stable employment in adulthood, and be employed full time in adulthood. Moreover, kindergarten children who were rated by their teachers as high in prosocial skills were less likely, as adults, to receive public assistance, live in or seek public housing, be involved with police, be placed in a juvenile detention facility, or be arrested. Early social competence inversely predicted the number of days an adult participant had engaged in binge drinking in the previous month, and the number of years an adult participant had taken medication for emotional or behavioral problems during high school. Given these findings, the authors emphasise the importance of assessing young children's social and emotional competence early on, and

contend that these 'softer' skills can be more malleable than IQ or other cognitive measures, and are hence important contenders for intervention.

SOCIAL AND EMOTIONAL SKILLS ARE MALLEABLE AND CAN BE TAUGHT

SEL is grounded in research from developmental cognitive neuroscience (e.g., Diamond, 2012) which indicates that social and emotional skills can be taught across a person's life span and are viewed as more malleable than IQ. Research that informs SEL indicates that emotions and relationships affect how and what is learned (Izard, 2002; Spinrad & Eisenberg, 2009). As Immordino-Yang and Damasio (2007) assert, "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 in fact subsumed within the processes of emotion" (p. 7). Hence, how we feel affects how and what we learn.

Perhaps the most compelling evidence for the importance of SEL programmes in promoting students' social and emotional competence and academic achievement comes from a meta-analysis conducted by Durlak et al. (2011) of 213 school-based, universal SEL programmes involving 270,034 students from kindergarten through high school. Students who received an SEL programme, compared to those who did not, were found to demonstrate significant improvements in four outcomes. For example, SEL students outperformed non-SEL students on indices of academic achievement by 11 percentage points. Moreover, when classroom teachers and other school personnel implemented SEL programmes, all six outcomes were positively affected, in contrast to SEL programmes implemented by non-school personnel, in which only three of the six were positively affected (i.e., improved SEL skills and prosocial attitudes, decreased conduct problems). Hence, because SEL programmes are successful when delivered by regular classroom teachers, they can be easily incorporated into routine school practices and do not require staff from outside the school.

Similar results were obtained in a meta-analysis of 75 published studies of SEL programmes conducted by Sklad and colleagues (2012). Sklad et al. found that universal, school-based SEL programmes had significant positive effects on seven outcomes: social and emotional skills,

(1) SEL SKILLS, (2) PROSOCIAL ATTITUDES, (3) POSITIVE SOCIAL BEHAVIORS, AND (4) ACADEMIC PERFORMANCE, AND SIGNIFICANT DECREASES IN TWO OUTCOMES: (1) CONDUCT PROBLEMS AND (2) EMOTIONAL DISTRESS

prosocial behaviour, positive self-image, academic achievement, antisocial behaviour, mental health problems, and substance abuse. Not surprisingly, the most positive effects were found for social and emotional skills, with an effect size of 0.70, indicating that the average SEL programmes student had better social and emotional skills than 76% of non-SEL students. Moderate effect sizes (program effects of nearly a half of a standard deviation) emerged for four of the outcomes: academic achievement, positive self-image, prosocial behavior and antisocial behavior.

As noted by Mahoney, Durlak, and Weissberg (2019) in their recent review of four meta-analyses of the effectiveness of SEL programmes, " We can report that all four of these meta-analyses showed significant, positive connections between participation in universal, school-based SEL programmes and student academic performance over the short and longer term" (p. 22). Taken together, these results provide strong empirical evidence for the 'added-value' of SEL programmes in fostering students' social and emotional skills, attitudes, and behaviours, and also counter the claim that taking time to promote students' SEL would undermine or take away from students' successful academic achievement.

SEL SKILLS ARE DURABLE

Do students maintain their SEL competencies after the SEL programmes has ended? Findings from Durlak et al.'s (2011) meta-analysis provide additional support for the durability of effects of SEL programming on students' social and emotional competencies. Among a smaller group of 33 interventions that included follow-up data (an average follow-up period of 92 weeks), the positive effects remained statistically significant, although the effect sizes were smaller.

A TOTAL OF 82 RESEARCH STUDIES WERE REVIEWED. RESULTS DEMONSTRATED THAT STUDENTS WHO HAD 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
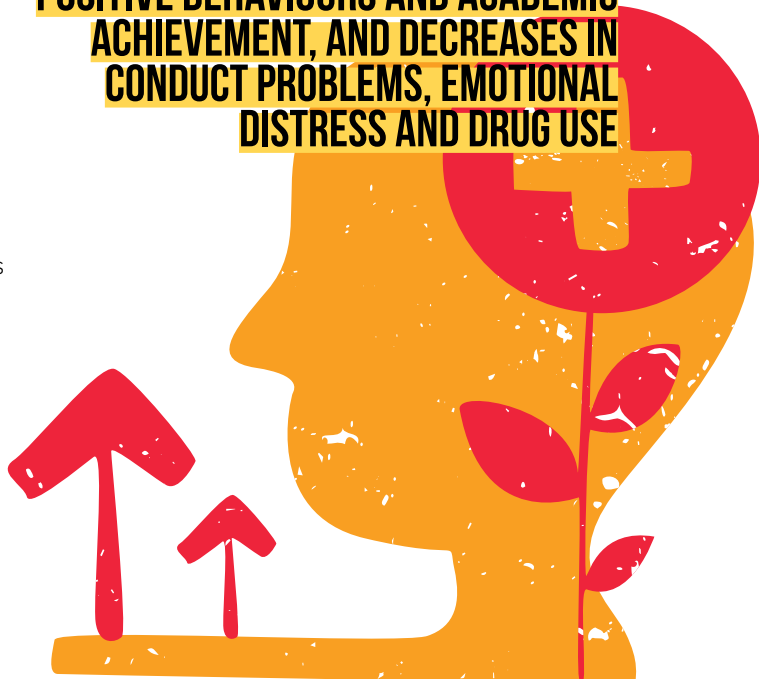
Research by Hawkins, Kosterman, Catalano, Hill and Abbott (2008) documented the long-term positive effects of multi-year SEL programming on student outcomes. Specifically, Hawkins et al. found significantly reduced diagnosable mental health disorders (e.g., major depression, generalised anxiety disorder) at ages 24 and 27, which was 12 and 15 years after their SEL intervention had ended. Their results also showed intervention effects indicating better educational and economic achievement among those individuals who received the SEL intervention in contrast to those who did not. Although more research is clearly needed, Hawkins et al.'s research provides important evidence about the potential long-term benefits of well-designed and well-implemented SEL interventions.

Most recently, Taylor and colleagues (2017) conducted a systematic review to address the relative paucity of evidence on the long-term effectiveness of SEL programming in enhancing positive student outcomes. This review is important because it addresses a critical question regarding the benefit of investment in SEL programmes. A total of 82 research studies evaluating school-based, universal SEL programmes involving 97,406 ethnically and socio-demographically diverse students, from kindergarten to high school and in urban and rural settings, were reviewed. Results demonstrated that students who had 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.

SEL IS IMPORTANT TO EDUCATORS

Recent research indicates that the myopic focus on academics as the sole purpose of education appears to be shifting, at least among teachers and the general public. A nationally representative survey published by Civic Enterprises and Peter D. Hart Research Associates of more than 600 teachers (Bridgeland, Bruce & Hariharan, 2013) illustrates this point. Their report showed that the vast majority of preschool to high school teachers believe that social and emotional skills are teachable (95%) and that promoting SEL will benefit students from both rich and poor backgrounds (97%), and will have positive effects on their school attendance and
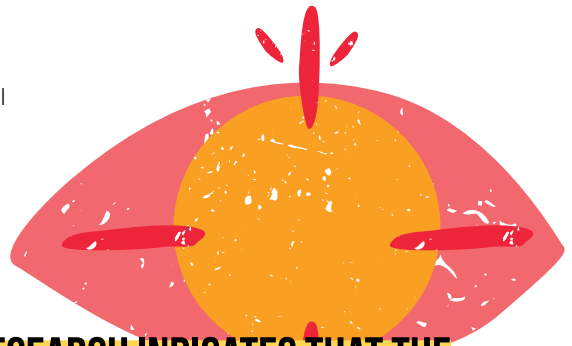
RECENT RESEARCH INDICATES THAT THE MYOPIC FOCUS ON ACADEMICS AS THE SOLE PURPOSE OF EDUCATION APPEARS TO BE SHIFTING, AT LEAST AMONG TEACHERS AND THE GENERAL PUBLIC

graduation (80%), standardised test scores and overall academic performance (77%), college preparation (78%), workforce readiness (87%), and citizenship (87%). Additionally, these same teachers reported that, in order to effectively implement and promote SEL in their classrooms and schools, they need strong support from district and school leaders. These findings are important because they demonstrate that although there is a readiness among teachers to promote SEL, there is a need for systemic supports for implementation at the district level.

Results from the 2013 PDK/Gallup Poll of the Public's Attitudes Toward Public Schools indicates that sentiments of the general public echo those espoused by teachers (Bushaw & Lopez, 2013). The report found that most Americans agree that public schools should teach students a full range of social, emotional and cognitive competencies, including how to set meaningful goals (89%), communication skills (94%), how to collaborate on projects (84%) and character (76%). Despite the strong consensus among educators and the public regarding the enormous potential of SEL as a fundamental component of school reform, it is essential that policy makers take action in order to make SEL a national priority.

SEL: THE ESSENTIAL INGREDIENTS
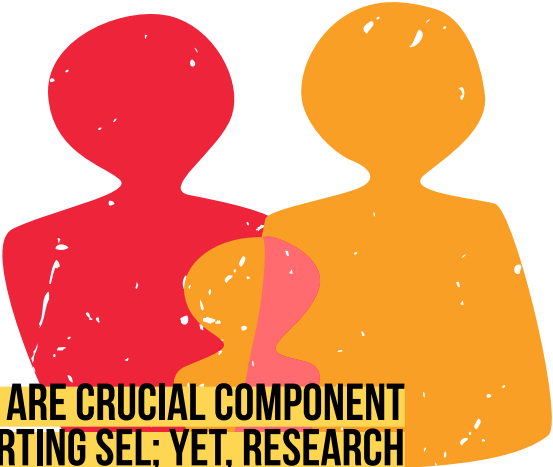
Several organising frameworks have been proposed for SEL (e.g., Collaborative for Academic, Social, and Emotional Learning, 2013; Jones & Bouffard, 2012), each one outlining various components that influence SEL – such as school culture and climate, and teachers' pedagogical skills – and each framework identifies similar student outcomes, such as improved academic achievement and social and emotional competence. Many SEL approaches include both an *environmental focus* and a *person-centred* focus (Zins et al., 2004). Hence, in addition to focusing on specific instruction in social and emotional skills, SEL is a process of creating a school and classroom community that is caring, supportive and responsive to students' needs. Moreover, effective SEL interventions and skill development occur when teachers possess the requisite social and emotional skills to create an environment that is safe, caring, supportive and well-managed, and also have the competencies and knowledge to effectively implement SEL programs. Hence, SEL implementation requires three distinct and interrelated dimensions: the learning context, SEL of students and SEL of teachers. As illustrated in Figure 3.4, these three dimensions are portrayed in a circle to illustrate the interconnectedness among each dimension; that is, each dimension is both influenced and influences other dimensions. Each dimension is discussed, in turn, below.

The Learning Context: Effective SEL interventions and skill development should occur in an environment that is safe, caring, supportive, participatory and well-managed, supports students' development, and provides opportunities for practising the skills. Communication styles, high-performance expectations, classroom structures and rules, school organisational climate,

commitment to the academic success of all students, district policies, and parental and community involvement are all important components of system-wide approach to SEL. Parents are crucial components for supporting SEL; yet, research on the role of parents in promoting their children's social and emotional competencies is relatively limited.

SEL of Students: As noted earlier in this chapter, SEL involves the processes through which individuals acquire and effectively apply the knowledge, attitudes and skills necessary to understand and manage their emotions, feel and show empathy for others, establish and achieve positive goals, develop and maintain positive relationships and make responsible decisions (Collaborative for Academic, Social, and Emotional Learning, 2015; Weissberg et al., 2015).

PARENTS ARE CRUCIAL COMPONENT FOR SUPPORTING SEL; YET, RESEARCH ON THE ROLE OF PARENTS IN PROMOTING THEIR CHILDREN'S SOCIAL AND EMOTIONAL COMPETENCIES IS RELATIVELY LIMITED

SEL of Teachers: Teachers are the engine that drives SEL programmes and practices in classrooms and school, and teachers' own SEL competence and well-being plays a critical role in influencing the learning context and the infusion of SEL into classrooms and schools (Jones, Bouffard, & Weissbourd, 2013). Indeed, classrooms with warm teacher-child relationships facilitate deep learning among students (Merritt, Wanless, Rimm-Kaufman, Cameron & Peugh; 2012), and when children feel comfortable with their teachers and peers, they are more willing to grapple with challenging material and persist at difficult learning tasks. Conversely, when teachers poorly manage the social and emotional demands of teaching, students demonstrate lower levels of performance and on-task behaviour (Marzano, Marzano & Pickering, 2003). Hence, it is essential that efforts are made to support the development of teachers' SEL competencies in order to optimise their classroom performance and their ability to promote SEL in their students (Jennings & Frank, 2015). Also critical is the SEL of principals and other school administrators, and their support and buy-in for SEL.

Figure 3.4. The Three Essential Ingredients of SEL

THE LEARNING CONTEXT

SEL OF STUDENTS

SEL OF TEACHERS
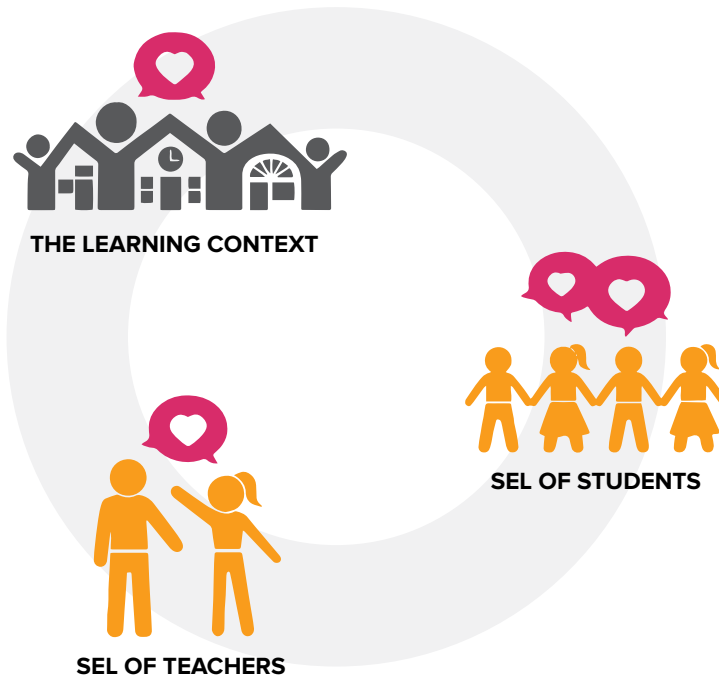
CHARACTERISTICS OF EFFECTIVE SEL PROGRAMMES

Table 3.1 delineates the characteristics of effective SEL programming. Research has shown that the most beneficial school-based prevention and promotion programmes are based on sound theory and research, and provide sequential and developmentally appropriate instruction in SEL skills (Bond & Hauf, 2004). They are implemented in a coordinated manner, from preschool through high school. Lessons are reinforced in the classroom, during out-of-school activities and at home. In such programmes, educators receive ongoing professional development in SEL, and families and schools work together to promote children's social, emotional, and academic success (Nation, Crusto, Wandersman, Kumpfer, Seybolt, Morrisey-Kane & Davion, 2003). In short, SEL can be seen as a template for effective school reform.

Table 3.1. Characteristics of Effective SEL Programmes

1 Grounded in theory and research

It is based on sound theories of child development, incorporating approaches that demonstrate beneficial effects on children's attitudes and behaviour through scientific research.

2 Teaches children to apply SEL skills and ethical values in daily life

Through systematic instruction and application of learning to everyday situations, it enhances children's social, emotional and ethical behaviour. Children learn to recognise and manage their emotions, appreciate the perspectives of others, establish positive goals, make responsible decisions, and handle interpersonal situations effectively. They also develop responsible and respectful attitudes and values about self, others, work, health and citizenship.

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. It nurtures students' sense of emotional security and safety, and strengthens relationships among students, teachers, other school personnel and families.

4 Provides developmentally and culturally appropriate instruction

It offers developmentally appropriate classroom instruction, including clearly specified learning objectives for each grade level from preschool through high school. It also emphasises cultural sensitivity and respect for diversity.

5 Helps schools coordinate and unify programs that are often fragmented

It offers schools a coherent, unifying framework to promote the positive social, emotional, and academic growth of all students. It coordinates school programmes that address positive youth development, problem prevention, health, character, service-learning and citizenship.

6 Enhances school performance by addressing the affective and social dimension of academic learning

It teaches students social and emotional competencies that encourage classroom participation, positive interactions with teachers and good study habits. It introduces engaging teaching and learning methods, such as problem-solving approaches and cooperative learning that 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 supports and policies that foster success

It ensures high-quality programme implementation by addressing factors that determine the long-term success or failure of school-based programs. These include leadership, 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. This includes basic theoretical knowledge, modelling and practice of effective teaching methods, regular coaching and constructive feedback from colleagues.

10 **Incorporates continuing evaluation and improvement**

It begins with an assessment of needs to establish a good fit between the school's concerns and SEL programmes. It continues gathering data to assess progress, ensure accountability and shape programme improvement.

CONCLUSIONS AND FUTURE DIRECTIONS

Although much has been learned in the past decade about SEL and its effects on children's social and emotional competence and academic success, the field has to go further before firm conclusions can be made about the specific ways in which an SEL approach advances children's short-term and long-term school and life success. Indeed, many questions remain regarding the ways in which programmes and practices designed to promote children's SEL skills will best support children's future success. For example, what are the processes and mechanisms that lead to successful improvements in children's social and emotional competence? Which programmes work best for which children? And under what conditions is optimal development fostered?

One of the biggest challenges that confronts the field of SEL is the translation of knowledge garnered from rigorous research on the effectiveness of programmes into policy and widespread practice across countries (Greenberg, 2010; Shonkoff & Bales, 2011). Clearly, there is a need for greater efforts to translate science for practice and policy so that SEL approaches can be better integrated into schools and communities. Such efforts can help build the processes and structures needed to foster high-quality implementation and promote sustainability (Elias, Zins, Graczyk, & Weissberg, 2003).

Greater collaboration between researchers and educators is also needed so that research can inform practice and vice versa. Indeed, to create a world characterised by the values and practices that illustrate caring and kindness among all people, it is essential that educators, researchers, parents, community members and policy makers work in concert to achieve long-term change. In today's complex society, we need to take special care to encourage and assist our young people to reach their greatest potential and to flourish and thrive.

APPENDIX A
COMMON FEATURES OF EFFECTIVE PROGRAMMES

Research indicates that the most effective SEL programs incorporate four elements represented by the acronym SAFE: (1) **sequenced** activities that lead in a coordinated and connected way to skill development, (2) **active** forms of learning that enable children to practice and master new skills, (3) **focused** time spent developing one or more social and emotional skills, and (4) **explicit** defining and targeting of specific skills.[11] But SEL is about more than just targeting and building skills, and our own research [12, 13, 14] builds upon on the SAFE elements to add that SEL efforts are most successful when they also:

1. **Occur within supportive contexts.**
   School and classroom contexts that are supportive of children's social and emotional development include (a) adult and child practices and activities that build skills and establish prosocial norms; and (b) a climate that actively promotes healthy relationships, instructional support, and positive classroom management. For this reason, efforts to build social and emotional skills, and to improve school culture and climate are mutually reinforcing and may enhance benefits when the two are pursued in a simultaneous and coordinated fashion.

2. **Build adult competencies.**
   This includes promoting teachers' own social and emotional competence, and supporting the ongoing integration of SEL-informed pedagogical skills into everyday practice.

3. **Partner with family and community.**
   This includes taking into consideration the environments and contexts in which children learn, live and grow by building family-school-community partnerships that can support children at home and in other out-of-school settings, fostering culturally competent and responsive practices, and considering how specific educational policies may influence children.

4. **Target key behaviors and skills.**
   This includes targeting, in a developmentally appropriate way, skills across multiple domains of development, including: (a) emotional processes, (b) social/interpersonal skills, and (c) cognitive regulation or executive function skills.

CRITERIA FOR DESCRIBING AND SELECTING SEL FRAMEWORKS

FIVE CRITERIA FOR CONCEPTUAL CLARITY	LOW	MEDIUM	HIGH
1. **SPECIFICITY –** The extent to which a framework has competencies that are clearly and specifically defined	☐	☐	☐
2. **BALANCE –** The extent to which a framework balances intra-personal, inter-personal, and cognitive competencies and includes knowledge, skills and attitudes	☐	☐	☐
3. **DEVELOPMENTAL –** The extent to which a framework includes and utilizes a developmental lens that illustrates competencies are malleable, how they develop over time, and what they look like at different ages and stages of development	☐	☐	☐
4. **CULTURALLY SENSITIVE –** The extent to which a framework is 1) sensitive to and addresses cultural variations in SEL process, 2) includes culturally related competencies that matter for success and 3) does not priviledge any one cultural group over others	☐	☐	☐
5. **EMPIRICALLY GROUNDED –** The extent to which 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	☐	☐	☐

KEY CHALLENGES

3.1 **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.

3.2 **Adults are important**. One key ingredient of effective SEL implementation is ensuring that the social and emotional competence and well-being of the teacher is nourished and promoted – however, until recently, this has been given little attention.

3.3 **Infusion of SEL into academic subjects**. 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.

3.4 **Implementing SEL in secondary schools**. Most of the extant SEL programmes are focused on primary and elementary school children; there is an overall paucity of SEL programmes for secondary students.

KEY RECOMMENDATIONS

3.1 Teacher training and education programmes need to include course work and experiences on SEL before teachers enter the profession.

3.2 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.

3.3 Larger educational systems need to integrate the promotion of SEL into policy and practices, and provide professional development and resources to teachers.

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MONITORING AND EVALUATING

SOCIAL AND EMOTIONAL

LEARNING

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MONITORING AND EVALUATING SOCIAL AND EMOTIONAL LEARNING

CH // 04

KIMBERLY A. SCHONERT-REICHL, M. JENNIFER KITIL, JULIE SAUVE AND JESSICA TRACH

ABSTRACT

As conveyed in the widely known axiom 'What gets assessed gets addressed' – we now know that assessing and monitoring social and emotional learning is critical for creating accountability systems in which priority is given to the promotion of students' social and emotional competencies and skills. The present chapter introduces the rationale for evaluating and monitoring students' social and emotional competencies in schools, and delineates the benefits of an SEL monitoring approach. Also presented are several examples of ways to specifically evaluate SEL programmes, which is followed by examples of a public health approach to monitoring children's social and emotional competence at the population level. The chapter ends with a comprehensive list of examples of SEL assessments that: (a) measure students' intrapersonal and/or interpersonal competencies,

RATIONALE FOR EVALUATING AND MONITORING STUDENTS' SOCIAL AND EMOTIONAL COMPETENCIES IN SCHOOLS

(b) were developed for pre-kindergarten to Grade 12 students, (c) are actively used in practice and not just for research purposes, (d) are strengths-based (assess strengths rather than deficiencies), and (e) have evidence of sound psychometric properties.

KEY MESSAGES

4.1　One essential step in advancing the field of social and emotional learning (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.

4.2　Current research indicates that students' social and emotional skills can be reliably and validly assessed and monitored, and there exists a large corpus of measures that can be used.

4.3　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 surfacing any inequalities or disparities in the degree to which students' needs are being supported by schools and districts.

INTRODUCTION

In recent years, a variety of fields — from education and psychology to health promotion — have witnessed a surge in research aimed at understanding the ways in which the social and emotional competencies and well-being of children and youth can be promoted. This burgeoning research has been spurred, in part, by findings from the field of SEL, which has shown that children's social and emotional competencies are critical for success in both school and in life. Indeed, a growing body of literature supports the premise that children's social and emotional competence predicts a range of important outcomes in late adolescence and adulthood,
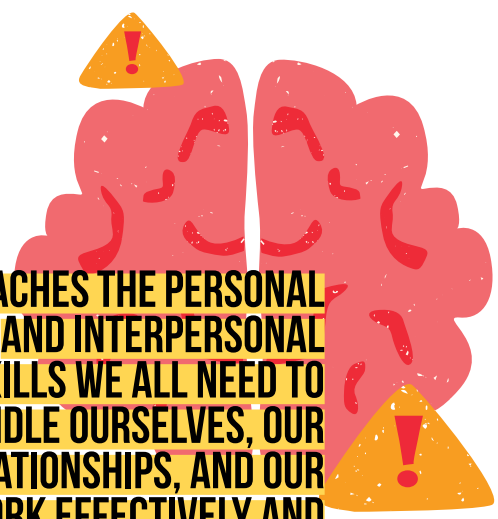
CURRENT RESEARCH INDICATES THAT STUDENTS' SOCIAL AND EMOTIONAL SKILLS CAN BE RELIABLY AND VALIDLY ASSESSED AND MONITORED, AND THERE EXISTS A LARGE CORPUS OF MEASURES THAT CAN BE USED

including physical health, positive relationships, well-being and successful employment (Jones, Greenberg, & Crowley, 2015; Moffitt et al., 2011; Olsson, McGee, Nada-Raja & Williams, 2012). In addition, social and emotional competencies can serve as protective factors that can stave off an upward trajectory of aggression and other problem behaviours. Similarly, recognising the relationships between social and emotional competencies and academic success, researchers have argued that fostering positive social and emotional development may be key to enhancing academic growth (Durlak et al., 2014; Greenberg et al., 2003; Schonert-Reichl, 2019; Zins et al., 2004.

SEL TEACHES THE PERSONAL AND INTERPERSONAL SKILLS WE ALL NEED TO HANDLE OURSELVES, OUR RELATIONSHIPS, AND OUR WORK EFFECTIVELY AND ETHICALLY

SEL involves the processes through which individuals acquire and effectively apply the knowledge, attitudes and skills necessary to understand and manage their emotions, feel and show empathy for others, establish and achieve positive goals, develop and maintain positive relationships, and make responsible decisions (C.A.S.E.L., 2013; Weissberg, Payton, O'Brien, & Munro, 2007). That is, SEL teaches the personal and interpersonal skills we all need to handle ourselves, our relationships, and our work effectively and ethically. As such, social and emotional competencies are viewed as 'mastery skills' underlying virtually all aspects of human functioning.

In tandem with this growth in an explicit focus on promoting students' social and emotional competencies (SEC), literature is increasingly delineating the importance of monitoring students' SEC and evaluating SEL programmes. Indeed, with ever-increasing demands for accountability, it appears that we can no longer rely on our 'common sense' or 'good hunches' in knowing what works and what does not. Instead, it is necessary that we obtain empirical evidence regarding a programme's efficacy or effectiveness. With regard to this latter point, in the field of education, evaluations of a programme's effectiveness were virtually non-existent for decades. As noted by Slavin (2008), "Throughout the history of education, the adoption of instructional programmes and practices has been driven more by ideology, faddism, politics and marketing than by evidence" (p. 5). So why are evaluations of SEL programmes becoming increasingly warranted? A predominant reason may be simple economy. Indeed, In the face of multiple competing demands and time constraints, educators now more than ever before are being called upon to identify programmes and practices that have shown to be effective – that are 'evidence-based' – and coordinate educational strategies that yield multiple benefits.

For today's children to achieve success in school and in work, and to become happy, productive, and healthy citizens in a global economy, it is vital that we identify the knowledge, skills, attitudes and values that are needed to ensure that they are fully prepared for their adult roles as citizens, employees, parents and volunteers. Indeed, if we want to ensure that our young people are prepared to reach their full potential as adult citizens in a pluralistic society and are prepared for the future, high-quality formal and informal educational experiences must provide explicit and intentional attention to helping develop 'the whole child.'

One approach to promoting the well-being and success of our young people and to ensure that they grow into productive adults is to identify the cognitive and social and emotional knowledge, skills, attitudes and values that are considered to be 'malleable' – that is, those that can be changed and promoted through education and other experiences. Although the previous terminology in psychology referred to many

HIGH-QUALITY FORMAL AND INFORMAL EDUCATIONAL EXPERIENCES MUST PROVIDE EXPLICIT AND INTENTIONAL ATTENTION TO HELPING DEVELOP 'THE WHOLE CHILD'

of these constructs as 'traits,' hence conveying a sense of immutability or permanence, current descriptions identify these constructs as 'skills', because they can be shaped and changed over a person's life cycle. Moreover, there is now clear evidence that social and emotional competencies are malleable and can be assessed via reliable and valid measures.

AN ESSENTIAL STEP TO ADVANCE THE SEL FIELD: EVALUATING AND MONITORING

Building on milestones in the field of SEL, educators, scholars and policymakers collectively have discussed essential steps for advancing a future agenda of supporting students' well-being and social and emotional needs, and making the promotion of students' social and emotional development and SEL in schools and communities a priority (Weissberg, Durlak, Domitrovich & Gullotta, 2015). One essential step in this endeavour involves the development and implementation of psychometrically sound and developmentally appropriate measurement tools to evaluate and monitor students' SEC and development (See the Assessment Work Group's *State of the Field Report*, 2019, for a comprehensive discussion on this topic).

As conveyed in the widely known axiom 'What gets assessed gets addressed' – we now know that a systematic monitoring and evaluation framework is critical for creating accountability systems in which a priority is given to the promotion of students' social and emotional competencies and skills. That is, in order to determine how and when to intervene, one must first have data that can inform what is working, and what interventions or programmes should be put into place to foster students' SEC, well-being and resiliency to promote thriving and to prevent adjustment problems later in life.

Nonetheless, although there has been much progress in the field of SEL in the past decade, there exist significant gaps in our understanding of the best ways in which to measure, evaluate and monitor children's SEC. As noted by Dr. Clark McKown, a renowned researcher and pioneer in the field of SEL assessment, "In the push to boost young people's SEL, assessment has lagged behind policy and practice. We have few usable, feasible and scalable tools to assess children's SEL. And without good assessments, teachers, administrators, parents and policymakers can't get the data they need to make informed decisions about SEL" (2017, p. 157).

This latter point is particularly noteworthy – there is a dire need for the identification of scientifically sound assessment tools that are cost-effective and easy to use if we hope to promote a more comprehensive understanding of children's SEC and the mechanisms and processes that influence it. The present chapter has three main objectives. First, we introduce the rationale for evaluating and monitoring students' social and emotional competencies in schools. Second, from the lens of social and emotional well-being and public health approach, we provide an example of monitoring of children's SEC at the population level. Third, we present a step-by-step process for choosing and using SEL assessments and using data for moving to action. Finally, we provide examples of SEL assessment tools and provide information on their scope and usability.

THERE IS A DIRE NEED FOR THE IDENTIFICATION OF SCIENTIFICALLY SOUND ASSESSMENT TOOLS THAT ARE COST-EFFECTIVE AND EASY TO USE IF WE HOPE TO PROMOTE A MORE COMPREHENSIVE UNDERSTANDING OF CHILDREN'S SOCIAL AND EMOTIONAL COMPETENCE

WHY EVALUATE SEL: THE RATIONALE FOR MONITORING AND EVALUATING STUDENTS' SEC

A cornerstone of effective instruction and student learning is having the tools for assessing and monitoring student progress. Such information can provide critical information on where students are and direct where one should focus instruction. This focus on assessment is just as important for SEL as it is for academic disciplines, such as reading, writing, mathematics and science. What are the benefits of assessing students' SEC? Moreover, what information can such evaluation provide us to further the understanding of how to promote SEL? More simply, what information can we gain from an assessment that we would not have if we chose not to evaluate?

In the past few years, there has been a surge of interest and important advances in the design and implementation of a corpus of measures and monitoring tools in the field of SEL. At the forefront of this work is the Collaborative for Academic, Social, and Emotional Learning (CASEL) SEL Assessment Work Group (see https://measuringsel.casel.org/our-initiative/) and their project titled 'Establishing Practical Social-Emotional Competence Assessments of Preschool to High School Students.' The project was formed with the specific intention of advancing progress in the field of developing SEL tools and assessments that are practical and feasible to use, scientifically sound and actionable. The individuals comprising the work group include a multidisciplinary collaborative of both internationally recognised researchers and practitioners in the fields of kindergarten to grade 12 education, assessment, SEL, and related fields. The mandate of the three-year project is to make key advancements in student SEL assessment.

The SEL Assessment Work Group is managed and staffed by CASEL, in close partnership with collaborators from a number of other organisations, including the RAND Corporation (see their website for the RAND Education Assessment Finder: https://www.rand.org/education-and-labor/projects/assessments.html), Harvard University Taxonomy Project in the EASEL (Ecological Approaches to Social Emotional Learning) Laboratory (https://easel.gse.harvard.edu/taxonomy-project), California's CORE Districts (https://coredistricts.org/), Transforming Education (https://www.transformingeducation.org/), xSEL Labs (https://xsel-labs.com/) and several universities, non-profit organisations, and school districts across the United States. Acknowledging that there exists a wide array of ways in which to assess students' social and emotional competencies, members of the work group are focused on two key aspects, (a) the need to continually improve approaches for assessing SEL, and (b) the importance of providing resources and recommendations for how educators and other stakeholders can use the data that is actionable.

THE IMPORTANCE OF TAKING A STRENGTHS-BASED APPROACH

Noted by CASEL's SEL Assessment Work Group, along with others in the field, it is critical to choose measures that take a *strengths-based* approach versus an approach that is *diagnostic* in nature when considering SEL assessments. That is, as educators and other practitioners implement SEL assessment tools, these tools should not be used to screen or diagnose students for deficits (e.g., behavioural or emotional problems). SEL competency assessments are not the appropriate tool for this critical function. Taking a strengths-based approach – one in which students' strengths and capacities are at the fore – paves the way for the promotion of students' positive development and serves as a pathway for preventing problems from emerging, rather than waiting for problems to occur. Such an approach is cost-effective and a sounder investment.

DIAGNOSTIC
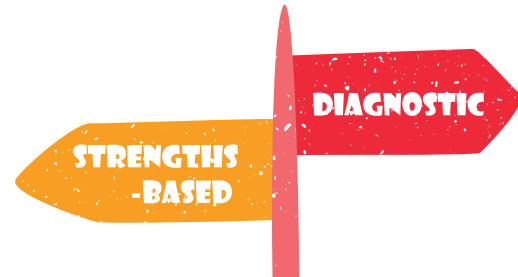
STRENGTHS -BASED

IT IS CRITICAL TO CHOOSE MEASURES THAT TAKE A STRENGTHS-BASED APPROACH VERSUS AN APPROACH THAT IS DIAGNOSTIC IN NATURE WHEN CONSIDERING SEL ASSESSMENTS

EVALUATING AND MONITORING SEL IN EDUCATION CONTEXTS

In the education context, what goals might SEL assessment help educators accomplish? A recent report connected to the CASEL/RAND assessment guide (2018, see https://measuringsel.casel.org/access-assessment-guide/) describes a range of benefits that student SEL assessment brings to educators at multiple levels. Specifically, the authors of that report argue that student SEL assessments can help schools and districts to:

- **Communicate SEL as a priority** – Recognising that there are limited priorities, making the decision to dedicate resources to assessing and reporting students' social and emotional competencies communicates to stakeholders that SEL competencies are a priority.

- **Establish a common language for SEL** – An SEL assessment tool can both establish and reinforce a school's SEL framework and communicate a common description of SEL to staff, students and parents.

- **Deepen understanding of how SEL competencies manifest in students over time** – With a focus on SEL assessment, all stakeholders can receive education and training on how to interpret data, which in turn can stimulate discussions about the assessment results. This can enhance the knowledge of teachers, school staff, students and families about how SEL competencies develop. Further, this information can provide the foundation for schools

and districts to set goals that are achievable for the promotion of students' social and emotional competencies, and shine a light on which competencies need to be emphasised in instruction and practice.

- **Continuously improve SEL instruction and implementation** – Educators can measure and monitor how the implementation of SEL programmes and practices is impacting instruction through formative approaches, so that they are then in a position of knowing whether any adjustments need to be made. Formative assessment is conceived as 'assessment for learning' rather than 'assessment of learning.' Formative assessment is embedded within instructional practice and is specifically designed to provide information to guide instruction and practice.

- **Evaluate the effectiveness of SEL programming and approaches –** Through summative uses of assessment, districts can undertake a higher-level examination of the effectiveness of district-wide or school-wide SEL implementation, as well as classroom-based programmes. Summative assessment can be thought of as 'assessment of learning'. These data are also valuable for reporting to stakeholders about progress with SEL initiatives.

- **Support equitable outcomes in education –** When SEL is integrated in a systemic manner, it can play a central role in supporting equity in the educational context due to its emphasis on improving learning for *all students* through a strengths-based approach. A systemic approach to monitoring and evaluating students' SEC can assist in surfacing any inequalities or disparities in the degree to which students' needs are being supported by schools and districts.

The online SEL Assessment Guide offers advice to districts and schools on how to choose and use student SEL competency assessments, provides a curated catalogue of 23 assessments currently used in practice, and features real-world examples of how practitioners are using SEL competency assessments. Users can search by SEL competency, grade level, and/or assessment type. The goal of the guide is to help educators determine which SEL competency assessments are right for them.

WHEN SEL IS INTEGRATED IN A SYSTEMIC MANNER, IT CAN PLAY A CENTRAL ROLE IN SUPPORTING EQUITY IN THE EDUCATIONAL CONTEXT DUE TO ITS EMPHASIS ON IMPROVING LEARNING FOR ALL STUDENTS THROUGH A STRENGTHS-BASED APPROACH

MONITORING AND EVALUATING SEL PROGRAMMES

As the development and implementation of SEL programmes increases, so does the need for assessing what programmes are effective in promoting students' SEC. Below we delineate a variety of reasons as to why evaluations of SEL programmes are necessary:

- To determine the degree of achievement of a programme's objectives
- To document programme strengths and weaknesses to inform planning decisions
- To establish quality assurance and control methods, and monitor performance
- To determine the generalisability of a programme to other populations/settings
- To identify hypotheses about human behaviour for future evaluations
- To contribute to the science base of prevention programmes
- To improve staff skills required for planning, implementation and evaluation
- To fulfil grant or contract requirements
- To promote positive public relations and community awareness
- To meet public and fiscal accountability requirements

EVALUATIONS OF SEL PROGRAMMES: TYPES OF ASSESSMENTS

According to the Committee for Children in Seattle, WA (www.cfchildren.org/), there are three types of programme evaluations:

(a) **Needs Assessment** (examines aetiology of social and behavioural problems in a particular population – for example, "How many middle school children in this school district report being bullied?"),	(b) **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	(c) **Outcome Evaluation** (designed to examine what types of outcomes result from the programme after it is implemented).

PHASES OF EVALUATING SEL PROGRAMMES AND PRACTICES

The Center for Prevention Research at Pennsylvania State University (www.prevention.psu.edu/) outlines three phases of evaluation that can assist programme evaluators when designing evaluations of SEL programmes. What is important here is that an effective evaluation needs to include a step-by-step process or evaluation results may lead to misleading conclusions.

THE CENTRE FOR PREVENTION RESEARCH OUTLINES THREE PHASES OF EVALUATION THAT CAN ASSIST PROGRAMME EVALUATORS WHEN DESIGNING EVALUATIONS OF SEL PROGRAMMES

Phase 1: Formative Evaluation

This evaluation is designed to provide insight during the early developmental phase of an intervention, often via the collection of both quantitative and qualitative data. The types of questions that may be addressed in a formative evaluation include: (a) what is the feasibility of implementing this programme with this at-risk population in this particular context? (b) what is the appropriateness of content, methods, materials, media and instruments for the population in which the programme is implemented? and (c) what are the immediate (e.g., one hour to one week) or short-term (e.g., one week to six months) cognitive and psychosocial skills and/or behavioural impacts of this intervention on a well-defined at-risk population?

Phase 2: Efficacy Evaluation

This second type of evaluation is designed to determine the extent to which a new intervention/prevention produced significant changes in a behavioural impact or a health outcome rate under optimal conditions (i.e., the conditions in which the researcher controlled the programme implementation and helped to eliminate any potential confounds). Often, these evaluations are high in internal validity and low in external validity.

Phase 3: Effectiveness Evaluation

This type of evaluation is directed toward determining the extent to which an intervention that has already been tested via an efficacy evaluation (i.e., with documented internal validity) produced a significant change in social and behavioural outcome rates. The question that is asked in this type of evaluation is, "Did the intervention produce a significant change among a large, representative sample of a well-defined population at risk under normal programme-practice conditions?"

EVALUATIONS OF SEL PROGRAMMES: THE CASEL SEL PROGRAMME GUIDES

In recent years, a large corpus of SEL programmes have been developed with considerable diversity in terms of the scope of SEL skills addressed, intervention design, content of the curriculum, target audience (e.g., elementary vs. middle vs. high school), and research evidence supporting the programme's effectiveness. Whereas some SEL programmes include lessons that focus on the explicit instruction of students' SEL competencies, others integrate SEL content into core academic subject areas, such as Language Arts or Social Studies, and several SEL programmes and approaches explicitly target teacher instructional practices and pedagogy to create and promote safe, caring, engaging and participatory learning environments that foster student attachment to school, motivation to learn, and school success (Zins et al., 2004). Research has shown that the most beneficial school-based prevention and promotion programmes are based on sound theory and research, and provide sequential and developmentally appropriate instruction in SEL skills (Bond & Hauf, 2004). They are implemented in a coordinated manner, school-wide, from preschool through high school. Lessons are reinforced in the classroom, during out-of-school activities, and at home. In effective SEL programmes, educators receive ongoing professional development in SEL, and families and schools work together to promote children's social, emotional, and academic success (Nation et al., 2003). In short, SEL can be seen as a template for effective school reform.

CASEL reviewed more than 200 SEL preschool and elementary school programs and identified 23 programmes that met high standards for programme design, implementation supports, evidence of effectiveness and applicability to specific grades. To be included in the *2013 CASEL Guide* (CASEL, 2013) and designated as 'SELect', the programme had to meet three criteria: (a) be a well-designed classroom-based programme that systematically promotes students' social and emotional competence, provides opportunities for practice and offers multi-year programming, (b) deliver high-quality training and other implementation supports, including initial training and ongoing support to ensure sound implementation and, (c) be evidence-based with at least one carefully conducted evaluation that documents positive impacts on student behaviour and/or academic performance. A guide for middle school and high school programmes was released by CASEL in 2015 (Both programme guides are available at: www.casel.org/guide).

RESEARCH HAS SHOWN THAT THE MOST BENEFICIAL SCHOOL-BASED PREVENTION AND PROMOTION PROGRAMMES ARE BASED ON SOUND THEORY AND RESEARCH, AND PROVIDE SEQUENTIAL AND DEVELOPMENTALLY APPROPRIATE INSTRUCTION IN SEL SKILLS

MONITORING CHILD SOCIAL AND EMOTIONAL COMPETENCE AT THE POPULATION LEVEL

Policy makers, along with those in public health and epidemiology, are interested in monitoring child development at the population level. One organisation that has spent considerable time and effort in this endeavour is the Human Early Learning Partnership (HELP) – an interdisciplinary, collaborative research institute in the School of Population and Public Health in the Faculty of Medicine at the University of British Columbia in Vancouver, Canada. HELP was founded by Dr. Clyde Hertzman, a world-renowned expert who played a central role in creating a framework that links population health to human development, emphasising the special role of early child development as a determinant of health. For more information about HELP, see their website: http://earlylearning.ubc.ca/

HELP facilitates the creation of new knowledge, and helps apply this knowledge by working directly with government and communities in the province of British Columbia (BC) and across Canada. HELP works in partnership with, and receives funding from, the BC Ministries of Children and Family Development (MCFD), Education, and Health.

EDI MEASURES CHILD VULNERABILITY ON FIVE CORE SUBSCALES THAT ARE INDICATIVE OF DEVELOPMENTAL READINESS: 1. PHYSICAL HEALTH AND WELL-BEING, 2. SOCIAL KNOWLEDGE AND COMPETENCE, 3. EMOTIONAL MATURITY, 4. LANGUAGE AND COGNITIVE DEVELOPMENT, AND 5. COMMUNICATION SKILLS

One of HELP's strategic priorities is to contribute to the establishment of a comprehensive child development monitoring system. A central component of this system is the Early Development Instrument (EDI) – a teacher-report questionnaire that has been used across BC since 2001 to gather data about children's developmental characteristics at age five and how ready they are to start school. The EDI was designed to provide policy makers and communities with an informative, inexpensive and psychometrically sound measure of children's social, emotional, physical and cognitive development. Specifically, the EDI measures child vulnerability on five core subscales that are indicative of developmental readiness: (a) physical health and well-being, (b) social knowledge and competence, (c) emotional maturity, (d) language and cognitive
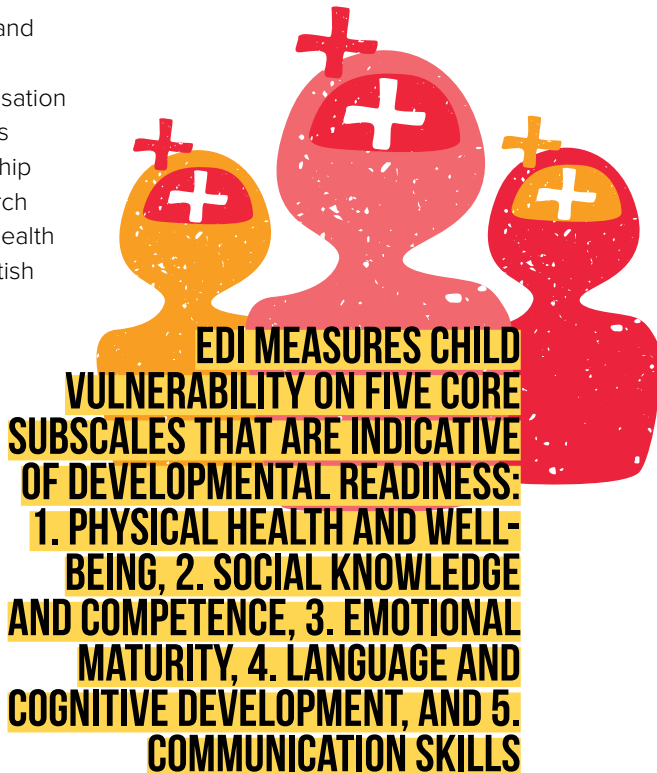
development, and (e) communication skills. Two additional indicators are special skills (literacy, numeracy, dance, music, etc.) and special problems (health problems, learning problems, etc.).

EDI data provide essential insights into how the health and well-being of our children is changing over time so that evidence-based decision-making can improve our investment in children and therefore improve child development outcomes. This is critical if we are to improve the overall health and well-being of our society as a whole. To date, data have been collected from approximately 300,000 kindergarten children across BC and reports are used by policymakers, educators, and community members to understand early child development. The EDI data represent the first population-level, geographically mapped database on children's health and well-being in Canada. Additionally, the EDI platform has been linked to administrative databases (e.g., birth records, academic achievement tests, medical records), and the EDI project thus serves as a way in identifying the factors that predict children children's vulnerability and well-being over time that, in turn, informs the design and implementation of programmes and policies to promote children's social and emotional health. More information about the EDI, including reports and maps are found here: http://earlylearning.ubc.ca/maps/edi/

In addition to the focus on monitoring early child development, researchers at HELP also have developed and implemented the Middle Years Development Instrument (MDI: Schonert-Reichl et al., 2013) – a population-level measure of children's social and emotional development and well-being in middle childhood – that was developed to address key questions about children's development in schools and communities (see Thomson et al., 2017, for a link between the MDI and SEL). Data from the MDI has been collected from approximately 120,000 students in school districts in BC and is currently being piloted in multiple provinces and territories across Canada as well as in the US, Australia, Germany, England and Peru. The MDI aids educators, community leaders and policy makers in tracking trends in children's social and emotional health, well-being, and developmental assets over time, and thus provides stakeholders with essential data for decision-making aimed at creating healthy social conditions and integrating social services in ways that enhance children's flourishing. The MDI uses a strengths-based approach to assess five dimensions of child development linked to social and emotional well-being,
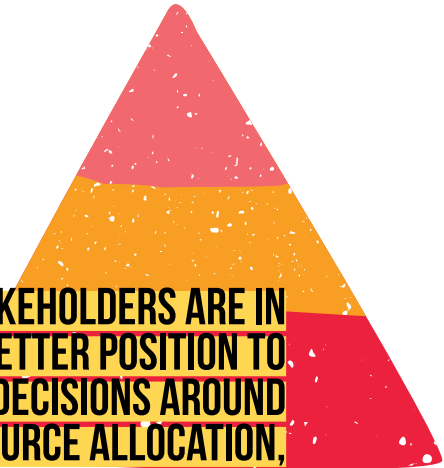
THE MDI USES A STRENGTHS-BASED APPROACH TO ASSESS FIVE DIMENSIONS OF CHILD DEVELOPMENT LINKED TO SOCIAL AND EMOTIONAL WELL-BEING, HEALTH, ACADEMIC ACHIEVEMENT, AND OVERALL SUCCESS THROUGHOUT THE SCHOOL YEARS AND IN LATER LIFE

health, academic achievement, and overall success throughout the school years and in later life (see http://earlylearning.ubc.ca/documents/476/):

- **Social and Emotional Skills & Well-being** (e.g., optimism, self-regulation, empathy, well-being and distress, prosocial behaviour)

- **Physical Health & Well-being** (e.g., general health, body image, nutrition, meals with family members, and sleeping patterns)

- **Social Connectedness** (e.g., presence of supportive adults in schools, families, and neighbourhoods, sense of belonging with peers)

- **After-school Time Use** (e.g., sports, lessons, watching TV, playing video games/using social media)

- **School Experiences & Motivation** (e.g., school climate, bullying, academic self-concept)

By collecting information on children's perspectives on their experiences both inside and outside of school, the MDI provides useful information to stakeholders that can support evidence-based decisions on funding allocation, programme delivery and policy. As children's social-emotional competencies and health become more prominent in schools and communities looking to prevent problems and foster flourishing, parents, educators, community members and policy makers are looking for reliable and valid methods to assess their children's social and emotional development, health, school success, and involvement in after-school time. With such information, these stakeholders are in a better position to make decisions around resource allocation, service integration and policy.

The information provided by the MDI are reported out at three different levels of geography: school, neighbourhood and school district. School district reports are not publicly available to avoid ranking and comparisons. Through a website titled 'Discover MDI' (http://www.discovermdi.ca/), educators and communities are given access to a curated selection of videos, talks, worksheets, community stories and links to academic research on child development as means of helping them think through the implications of their MDI data and to use the data in movements to action. To see how such reports are used in Canada, please visit the HELP website for a detailed example of the MDI reports and supporting resources (http://earlylearning.ubc.ca/maps/mdi/nh/).

STAKEHOLDERS ARE IN A BETTER POSITION TO MAKE DECISIONS AROUND RESOURCE ALLOCATION, SERVICE INTEGRATION, AND POLICY

With each additional year of MDI data collection, data linkage between EDI and MDI data is, accordingly, growing. This provides with greater opportunities for exploring longitudinal associations between EDI-kindergarten outcomes and Grade 4 and/or Grade 7 outcomes.

HOW TO ASSESS SEL COMPETENCIES

What are the steps for assessing students' social and emotional competence? Until recently, the answer to this question remained elusive. However, with great gratitude to colleagues at CASEL, Transforming Education and Rand (Taylor, Buckley Hamilton, Stecher & Schweig, 2018), the recently published guide titled 'Choosing and Using SEL Competency Assessments: What Schools and Districts Need to Know' provides explicit and detailed guidance on this topic. Starting with a cogent rationale for SEL assessment, Taylor et al., provide a step-by-step process, which is delineated below:

Part I: 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 their 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 only useful 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.

Helpful resources for data use practices include the CASEL Assessment Guide and Assessment Work Group (2019).

Districts interested in using assessment data effectively will need to ([Assessment Work Group (2019)](#)):

1 **Identify who the users are –** If the intended use is to inform instruction, instructional staff and those supporting instruction are key users. If the intended use is to evaluate a programme, district decision-makers might be the main users.

2 **Ensure that users understand the assessment measures –** Assessment scores are useful only if users have a good grasp of the competencies the scores reflect. It is important, therefore, that users understand accurately and clearly, the competence each score reflects and can articulate how that competence expresses itself in daily life.

3 **Ensure that users understand what the assessment scores mean –** Assessment scores are useful only if users know how the numbers are scaled. For example, with a norm-referenced assessment, users should know what the average score for a child's age or grade level is and what the standard deviation is so they can interpret the meaning of the numbers in relation to the performance of the normative sample.

4 **Decide the form and level of aggregation of assessment data reports –** As discussed previously, the assessment goal should help determine the level of aggregation of the data that are reviewed.

5 **Provide time for users to review data together –** Assessment data will only inform educators' understanding of their students, and their decisions about teaching and learning, if they have time to review and discuss the data. Many schools already have regular meetings to review student assessment data. In those schools, assimilating SEL assessment data may be more straightforward, as they can be included in existing meeting agendas. In schools that do not have systematic assessment data review practices, more work is required to establish a culture of data-based decision-making and the practices that support it.

6 **Facilitate a structured data review process –** Assessment data and its meaning is not always intuitive, particularly when discussing content areas, such as SEL, that are less familiar. To support effective data interpretation, we recommend a structured data review process, whereby a member of the group who understands data and its meaning helps the group with interpretation, and advises them when their interpretations are beyond what the data can support.

7 **Support action based on data review –** Data-based decision-making is most powerful when decision-makers are empowered to take action based on the decisions they make from the data. For example, if a teacher, based on student SEL data, wants to alter their

instructional approach to build on student strengths and address student needs, they will be in the best position to do so if the principal supports that modification and offers resources, such as professional development and coaching, to support the teacher's success.

An accompanying Practitioner Guidance Report supports educators in choosing and, ultimately, using SEL competency assessments. TransformEd has curated existing survey-based scales – freely available – that were developed and validated by other researchers for district partners to use.

TOOLS FOR EVALUATING AND MONITORING SEL: EXAMPLES FROM THE FIELD

In order to obtain a full understanding of children's SEC, it is critical to use a variety of measures that assess outcomes from multiple perspectives. An assessment of SEC may include the use of surveys and questionnaires (measures that rely on an individual's report of their own abilities, perceptions, thoughts or feelings, as well as rating scales that provide this information from another's perspective), performance-based assessments (task-based 'objective' measures that assess an individual's ability to apply SEC knowledge and skills), and population-based monitoring tools, (measures designed to capture larger trends among a population, rather than at the individual level). Each of these types of assessments add value to the understanding of SEC outcomes by providing information from a specific lens (e.g., personal, observed, objective, or at a larger scale). Each of these approaches to assessing SEC provides part of the picture – when used collectively, such assessments can provide a fuller understanding of the scope of children's SEC.

In the following pages are tables that provide examples of the type of assessments discussed above. Although this table is not meant to be exhaustive, it highlights examples of assessments that meet the following criteria:

▶ Measures intrapersonal and/or interpersonal competencies

▶ Developed for pre-kindergarten to Grade 12 students

▶ Actively used in practice and not just for research purposes

▶ Strengths-based (assesses strengths rather than deficiencies)

▶ Has evidence of sound psychometric properties

Table 4.1. Approaches and Methods of Assessing Children and Adolescents' Social and Emotional Competencies (SEC)

Self and Teacher Reports (Surveys, Questionnaires and Rating Scales) Individually administered surveys and rating scales provide information from the rater's perspective about the SEC knowledge and skills of individual students.					
Name of Assessment	**Description**	**SEL Competencies Assessed**	**Population Assessed**	**Available Languages**	**Respondent and Format**
Holistic Student Assessment (HSA) **Developer:** The PEAR Institute, Harvard Medical School https://www. thepearinstitute. org/holistic-student-assessment	The HSA is a self-report tool that provides a social and emotional profile of a child's individual strengths and challenges across school and afterschool settings. Child development is viewed as a holistic interaction between four core developmental needs: Active Engagement (engaging the world physically), Assertiveness (expressing voice and choice), Belonging (social connection and relationships), and Reflection (thought and meaning-making). Data can be reported at individual, classroom, school and district levels.	• Academic Motivation • Action Orientation • Assertiveness • Critical Thinking • Emotion Control • Empathy • Learning Interest • Optimism • Perseverance • Reflection • Relationships with Peers • Trust	Grades 3-12	• English • Spanish • Chinese • Amharic • Arabic • Cape Verdean Creole • Haitian Creole • German • Hmong • Karen • Portuguese • Somali • Vietnamese	Student self-report
Panorama Social-Emotional Learning Student Measures **Developer:** Panorama Education https://www. panoramaed. com/resources	The Panorama Social-Emotional Learning Student Measures are a suite of customisable assessment tools that measure students' SEC as well as various aspects of the learning environment that can impact students' SEC. These assessment tools were developed in collaboration with researchers at the Harvard Graduate School of Education, and include student self-report surveys and teacher ratings of students' SEC.	• Self-Efficacy • Self-Management • Social Awareness • Social Perspective Taking • Grit (Perseverance) • Growth Mindset • Learning Strategies (Self-Regulated Learning) • School Engagement • Classroom Belonging • Teacher-Student Relationships	Grades K-12	• English • Spanish • Mandarin • Cantonese • Korean • Vietnamese • Arabic • Bengali • French • Haitian Creole • Russian • Urdu • Portuguese	Student self-report, teacher's ratings of students

Self and Teacher Reports (Surveys, Questionnaires and Rating Scales)					
Individually administered surveys and rating scales provide information from the rater's perspective about the SEC knowledge and skills of individual students.					
Name of Assessment	**Description**	**SEL Competencies Assessed**	**Population Assessed**	**Available Languages**	**Respondent and Format**
Devereux Student Strengths Assessment (DESSA) **Developer:** Aperture Education https://apertureed.com	Grounded in resilience theory, the DESSA is a strengths-based measure designed to assess students' social and emotional competencies. The DESSA captures multiple perspectives of students' strengths, with different surveys completed by teachers, after-school staff and parents. Additionally, a shorter assessment (DESSA-mini) is available to measure and monitor students' social and emotional development throughout the school year.	▪ Self-Efficacy ▪ Decision-Making ▪ Goal-Directed Behaviour ▪ Optimistic Thinking ▪ Personal Responsibility ▪ Relationship Skills ▪ Self-Awareness ▪ Self-Management ▪ Social-Awareness ▪ Social and Emotional Composite	Grades K-8	▪ English ▪ Spanish	Ratings of students completed by teachers, parents and after-school staff
Social and Emotional Learning Competency Survey for Students (SEL-C) **Developer:** Tripod Education Partners https://tripoded.com	SEL-C is a student self-report survey that assesses the core components of five SEL competencies: self-awareness, self-management, social-awareness, relationship skills, and responsible decision-making. Additional measures are also available that assess secondary dimensions of the competencies listed above. Data collected can be reported for individuals or at the group level.	▪ Future Orientation ▪ Growth Mindset ▪ Integrity ▪ Other Group Orientation ▪ Positive Decision-Making ▪ Positive Regard ▪ Relationship Skills ▪ Self-Awareness ▪ Self-Management ▪ Social Awareness ▪ Susceptibility to Peer Pressure	Grades 3-12	▪ English ▪ Spanish Developer states they can translate the assessment into any language.	Student self-report

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CHAPTER 8

Technology & Performance-Based Assessments
Performance-based measures provide a direct assessment of children's SEC skills, usually through computer-based simulations of social problem-solving scenarios.

Name of Assessment	Description	SEL Competencies Assessed	Population Assessed	Available Languages	Respondent and Format
Mayer-Salovey-Caruso Emotional Intelligence Test – Youth Research Version (MSCEIT-YRV) **Developer:** MHS Assessments https://www.mhs.com	Available through online or paper administration, this performance-based assessment tool measures students' ability to solve emotionally salient problems. Tasks include: identifying the extent to which an emotion is present on facial expressions; matching emotions to physical sensations in the body; selecting emotions that are the best fit for a cause of an emotion; and reading a vignette and determining how effective an emotion is in altering a behaviour.	▪ Emotion Awareness ▪ Emotion Understanding ▪ Emotion Management ▪ Using emotion to facilitate thought (e.g., positive emotions for stimulating creativity)	Ages 10-18	▪ English	Student, online or paper
SEL Web **Developer:** xSEL Labs https://xsel-labs.com/	SEL Web offers a suite of web-based assessment tools that directly measure children's social and emotional competences by asking them to solve problems that involve a variety of skills, including: understanding others' emotions and perspectives, social problem-solving skills, and self-control. The illustrated assessment modules are brief, engaging and narrated, making them suitable for use with young children, and children with reading or language difficulties.	▪ Emotion Awareness ▪ Self-Management ▪ Social Awareness ▪ Perspective-Taking ▪ Social Problem-solving ▪ Relationship Skills	Grades K-3 (early elementary version) Grades 4-6 (Late elementary version)	▪ English ▪ Spanish	Student, web-based

Technology & Performance-Based Assessments
Performance-based measures provide a direct assessment of children's SEC skills, usually through computer-based simulations of social problem-solving scenarios.

Name of Assessment	Description	SEL Competencies Assessed	Population Assessed	Available Languages	Respondent and Format
Virtual Environment for Social Information Processing (VESIP) **Developer:** Rush Neurobehavioral Center http://rnbc.org/research/vesip/	VESIP is a web-based, direct assessment of students' social information processing skills using an interactive computer simulation format. Through an immersive computer animation experience, individuals interact with characters within the programme to respond to five types of challenging social situations using real-time social decision-making.	- Emotion Awareness - Emotion Management - Social awareness - Social Problem-Solving	Grades 3-7	- English - Spanish	Student, web-based

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Population Monitoring Tools					
Measures designed to capture larger trends among a population, rather than at the individual level.					
Name of Measure	**Description**	**SEL Competencies Assessed**	**Population Assessed**	**Available Languages**	**Respondent and Format**
Programme for International Student Assessment (PISA) **Developer:** Organisation for Economic Co-operation and Development (OECD) http://www.oecd.org/pisa/	PISA is an international self-report survey of adolescents' skills, knowledge and well-being. It has been conducted in over 90 countries since 2000, and is administered every three years by the OECD to identify trends over time in youth's educational experiences.	▪ Collaborative Problem-Solving ▪ Achievement Motivation ▪ Life Satisfaction ▪ Academic Self-Efficacy ▪ Relationships with Adults (Parents and Teachers)	15-year-olds	▪ Arabic ▪ Basque, ▪ Bokmål ▪ Bulgarian ▪ Catalan ▪ Chinese ▪ Croatian ▪ Czech ▪ Danish ▪ Dutch ▪ English ▪ Estonian ▪ Faroese ▪ Finnish ▪ French ▪ Galician ▪ German ▪ Greek ▪ Hebrew ▪ Hungarian ▪ Icelandic ▪ Italian ▪ Japanese ▪ Korean ▪ Latvian ▪ Lithuania ▪ Malay ▪ Nynorsk ▪ Polish ▪ Portuguese ▪ Russian ▪ Serbian ▪ Slovenian ▪ Spanish ▪ Swedish	Student self-report

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Population Monitoring Tools					
Measures designed to capture larger trends among a population, rather than at the individual level.					
Name of Measure	**Description**	**SEL Competencies Assessed**	**Population Assessed**	**Available Languages**	**Respondent and Format**
				▪ Mandarin ▪ Thai ▪ Turkish ▪ Valencia ▪ Welsh	
Early Development Instrument (EDI) **Developer:** Offord Centre for Child Studies at McMaster University https://edi.offordcentre.com/	The EDI provides nationally representative data on key social indicators of young children's health and well-being. The survey is completed by teachers during the first year of school, and measures five core domains of early childhood development: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge. It has been used in over 30 countries to provide an assessment of developmental vulnerability at a national level.	▪ Social Competence ▪ Responsibility and Respect ▪ Prosocial and Helping Behaviour	Kindergarten	▪ Amharic ▪ Arabic ▪ Bahasa ▪ Chinese ▪ English ▪ Estonian ▪ French ▪ German ▪ Greek ▪ Italian ▪ Khmer ▪ Korean ▪ Kyrgyz ▪ Mandarin ▪ Portuguese ▪ Russian ▪ Sindhi ▪ Spanish ▪ Swedish ▪ Vietnamese ▪ Urdu	Teacher ratings of students

Population Monitoring Tools
Measures designed to capture larger trends among a population, rather than at the individual level.

Name of Measure	Description	SEL Competencies Assessed	Population Assessed	Available Languages	Respondent and Format
Middle Years Development Instrument (MDI) **Developer:** Human Early Learning Partnership (HELP) at the University of British Columbia http://earlylearning.ubc.ca/mdi/	The MDI is a comprehensive, strengths-based measure of child well-being. This self-report survey measures children's thoughts, feelings and experiences across multiple contexts, including at school, at home, and in the community. The MDI assesses five areas of development that are strongly linked to children's well-being, health, and academic achievement: social & emotional development, physical health and well-being, connectedness, use of after-school time, and school experiences.	▪ Optimism ▪ Self-Awareness ▪ Academic Self-Efficacy ▪ Happiness (Life Satisfaction) ▪ Self-Esteem ▪ Empathy ▪ Assertiveness ▪ Prosocial Behaviour ▪ Self-Regulation (Short & Long term) ▪ Perseverance ▪ Motivation ▪ Responsible Decision-making ▪ Citizenship and Social Responsibility ▪ Relationships with Adults (Home, School and Community) ▪ Peer Belonging ▪ Friendship Intimacy	Grades 4 & 7	▪ Croatian ▪ English ▪ French ▪ German ▪ Italian	Student self-report

Population Monitoring Tools
Measures designed to capture larger trends among a population, rather than at the individual level.

Name of Measure	Description	SEL Competencies Assessed	Population Assessed	Available Languages	Respondent and Format
Health Behaviour in School-Aged Children (HBSC) Survey **Developer:** World Health Organization (WHO) http://www.hbsc.org/	The HBSC Survey was originally developed by the WHO in collaboration with researchers at the University of Edinburgh. It has been used for over 30 years to provide cross-national information about young people's well-being, health behaviours, and social environments. The HBSC is a self-report survey that is conducted every four years in 49 countries across Europe and North America to identify trends over time in adolescent health and well-being.	- Academic Self-Efficacy - Self-Compassion - Life Satisfaction - Mental Health - Body Image - Relationships with Family and Peers - Communication - Technology Use	11-, 13- and 15-year olds	The HBSC Survey has been implemented in the following countries: - Albania - Armenia - Austria - Azerbaijan - Belgium (Flemish) - Belgium (French) - Bulgaria - Canada - Croatia - Czech Republic - Denmark - England - Estonia - Finland - France - Germany - Georgia - Greece - Greenland - Hungary - Iceland - Ireland - Israel - Italy - Kazakhstan - Latvia - Lithuania - Luxembourg - TFYR Macedonia - Malta - Moldova - Netherlands	Student self-report

Population Monitoring Tools
Measures designed to capture larger trends among a population, rather than at the individual level.

Name of Measure	Description	SEL Competencies Assessed	Population Assessed	Available Languages	Respondent and Format
				▪ Norway ▪ Poland ▪ Portugal ▪ Romania ▪ Russian Federation ▪ Scotland ▪ Serbia ▪ Slovakia ▪ Slovenia ▪ Spain ▪ Sweden ▪ Switzerland ▪ Turkey ▪ Ukraine ▪ USA ▪ Uzbekistan ▪ Wales	

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Table 4.2. Assessing Teacher's Social and Emotional Competencies (SEC)

Name of Measure	Description	Competencies Assessed	Population Assessed	Languages Available	Respondent and Format
The Classroom Assessment Scoring System (CLASS) **Developer:** Teachstone https://teachstone.com/class/	The CLASS is a reliable and valid classroom observation tool. It measures important aspects of the classroom environment that promote positive academic and social outcomes for children, such as the quality of interactions between the teachers and students. This tool is used to inform the professional development of teachers.	▪ Emotional Support ▪ Teacher-Student Relationships ▪ Student Engagement	Early Childhood Kindergarten to Grade 12	▪ English	Trained CLASS observer Paper-pencil or computer

Criteria for selecting school climate measures:

- Available to use in practice, not just for research (includes reporting system)
- Multiple languages (if possible)
- Good psychometric properties
- Multiple informants (not just student perspective)

Table 4.3. Assessing the Learning Context: Measuring School Climate

School Climate Measures					
Name of Measure	**Description**	**Dimensions Assessed**	**Population Assessed**	**Languages Available**	**Respondent and Format**
The Comprehensive School Climate Inventory (CSCI) **Developer:** National School Climate Center https://www.schoolclimate.org/services/measuring-school-climate-csci	The Comprehensive School Climate Inventory (CSCI) is a survey that provides information about how students, parents, and school staff perceive the social, emotional, and learning climate of their school. The data is used to make informed, data-based decisions for school improvement.	▪ Rules and Norms ▪ Physical Security ▪ Social Emotional Security ▪ Support for Learning ▪ Social and Civic Learning ▪ Respect for Diversity ▪ Social Support (Adults and Students) ▪ School Connectedness-Engagement ▪ Physical Surroundings ▪ Social Media ▪ Leadership ▪ Professional Relationships	Grades 3-5 Grades 6-12	▪ English ▪ Spanish	Student report Parent report Staff report Computer-based

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School Climate Measures					
Name of Measure	**Description**	**Dimensions Assessed**	**Population Assessed**	**Languages Available**	**Respondent and Format**
The 5 Essentials Survey **Developer:** UChicago Consortium on School Research https://consortium.uchicago.edu/surveys	The 5 Essentials Survey measures five 'essential supports' for school improvement: Effective Leaders, Collaborative Teachers, Involved Families, Supportive Environment, and Ambitious Instruction. The student survey measures students' experiences, attitudes, and activities in school. The teacher survey includes questions about instructional practices, professional development, and the workplace environment.	▪ Program Coherence ▪ Teacher Principal Trust ▪ Teacher Influence ▪ Instructional Leadership ▪ Collaborative Practices ▪ Collective Responsibility ▪ Quality Professional Development ▪ School Commitment ▪ Teacher-Teacher Trust ▪ Teacher-Parent Trust ▪ Parent Involvement in School ▪ Parent Influence on Decision-Making ▪ Peer Support for Academic Work ▪ Academic Personalism ▪ Safety ▪ Student-Teacher Trust ▪ School-Wide Future Orientation ▪ Expectations for Post-Secondary Education ▪ English Instruction ▪ Math Instruction ▪ Academic Press ▪ Quality of Student Discussion	Kindergarten to Grade 8	▪ English	Student report Teacher report Computer administration

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School Climate Measures					
Name of Measure	**Description**	**Dimensions Assessed**	**Population Assessed**	**Languages Available**	**Respondent and Format**
School Climate Surveys **Developer:** Ministry of Education, Ontario, Canada http://www.edu.gov.on.ca/eng/teachers/climate.html	The Ontario Ministry of Education developed the School Climate Surveys to assist schools in meeting their legal requirements to conduct an assessment of school climate at least once every two years. Data collected from these surveys enables schools and school districts to measure perceptions of school safety from multiple perspectives, make informed programme-planning decisions, determine ongoing programme effectiveness, and create and maintain safe and inclusive learning environments.	▪ Equity and Inclusive Education ▪ Bullying and Harassment	Grades 4-6 Grades 7-12	Student and Staff surveys are available in English and French Parent surveys are available in the following languages: ▪ Arabic ▪ Chinese (Simplified and Traditional) ▪ Cree ▪ English ▪ Farsi ▪ French ▪ Greek ▪ Italian ▪ Korean ▪ Ojibwe ▪ Oji-Cree ▪ Polish ▪ Portuguese ▪ Punjabi ▪ Russian ▪ Somali ▪ Spanish ▪ Tagalog ▪ Tamil ▪ Ukrainian ▪ Urdu	Student report Parent report Staff report Paper-pencil and computer-based options

School Climate Measures					
Name of Measure	**Description**	**Dimensions Assessed**	**Population Assessed**	**Languages Available**	**Respondent and Format**
Meriden School Climate Survey – Students Version (MSCS-SV) **Developer:** Meriden Public Schools http://www.shankerinstitute.org/blog/new-school-climate-tool-facilitates-early-intervention-social-emotional-issues-bullying-and http://www.meridenk12.org/customer-content/www/cms/files/validity_and_relability.pdf	The Meriden School Climate Survey for Students (MSCS-SV) is a confidential, online survey that was developed by a school district to measure overall levels of social and emotional support within the school community, and identify students in need of additional support. The survey measures factors associated with school climate, such as caring, safety, respect and aggression. Student responses to items measuring verbal and physical harassment are flagged for follow-up by school administrators.	▪ Teacher Caring ▪ Safety ▪ Respect for Differences ▪ Parent Values School ▪ Home Support ▪ Caring Friends ▪ Student Aggression	Grades 3-12	▪ English	Student report Computer-based

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KEY CHALLENGES

4.1 Although there exists an array of reliable and valid measures of assessments of students' social and emotional competencies, they are not widely used, and several barriers for widespread implementation exist.

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

4.3 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.

KEY RECOMMENDATIONS

4.1 Social and emotional assessment tools should not be used to screen or diagnose students for deficits (e.g., behavioural or emotional problems).

4.2 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 a better investment.

4.3 Instead, taking a strengths-based approach to SEL assessment and monitoring – one in which students' social and emotional strengths and capacities are at the fore – paves the way for the promotion of students' positive development and serves as a pathway for preventing problems from emerging, rather than waiting for problems to occur. Such an approach is cost-effective and a sounder investment.

4.3 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 deriving meaning out of the data and using it for making positive change that promotes the social and emotional competence and well-being of all students.

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SOCIAL AND EMOTIONAL LEARNING FOR EDUCATORS

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SOCIAL AND EMOTIONAL LEARNING FOR EDUCATORS

CH // 05

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ABSTRACT

Teacher quality has become a top priority of the global agenda to improve student academic achievement and behaviour (MacBeath, 2012), and to prepare the world's children for a global economy (Schleicher, 2016). Education is an essential human right recognised by the United Nations Universal Declaration of Human Rights, which emphasises that *"Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding,*

EDUCATION IS AN ESSENTIAL HUMAN RIGHT RECOGNISED BY THE UNITED NATIONS UNIVERSAL DECLARATION OF HUMAN RIGHTS

tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace" (Article 26(2)). It is noteworthy that — despite vast differences in goals, resources, and educational system infrastructure — all U.N.

Nations recognise the vital role that schools play in supporting the development of key social-emotional competencies such as tolerance, respect and understanding. Teachers play a vital role in shaping if, and how, this international vision for education is to be achieved.

KEY MESSAGES

5.1 Children learn social and emotional skills by observing and interacting with adults, and teachers are primary exemplars in the school context. Teachers foster the development of prosocial behaviours by modelling social and emotional competencies in their interactions with their students, their students' parents and other adults.

5.2 Stress can have a negative impact on teachers' social and emotional competence. When teachers lack the ability to manage their negative emotional reactions in response to troublesome student behaviours, their performance can be impaired. Teacher emotional reactivity can result in further student disruption and teacher burnout.

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

STRESS CAN HAVE A MAJOR NEGATIVE IMPACT ON TEACHERS' SOCIAL AND EMOTIONAL COMPETENCIES

TEACHERS ARE EXEMPLARS OF SOCIAL AND EMOTIONAL LEARNING

Teachers are primary exemplars for social and emotional learning (SEL); they are central figures in the socialisation of children and serve as important role models, guiding the development of their students' social and emotional competence and learning (Denham, Bassett, & Wyatt, 2007). Above and beyond delivering curriculum content, effective teachers foster the development of prosocial behaviours by modelling their own social and emotional competencies as they interact with their students, their students' parents and other adults. They provide examples of emotional awareness and self-management for their students. They teach relationship skills and social awareness by building supportive relationships with their students, fostering positive peer relationships, and establishing safe and effective learning environments. Effective teachers recognise students' strengths and abilities, individualise instruction to maximise student learning, use diverse strategies to foster student intrinsic motivation, enforce fair and effective classroom rules, and help students learn to manage conflict and work together cooperatively.

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. The educational disparities among students who represent vulnerable and marginalised groups (students with disabilities, female students, those exposed to adverse experiences or those displaced due to conflict) are heavily influenced by their teachers' abilities to navigate these complexities. Moreover, as the diversity of classrooms increases around the world, the complexity of the dynamics also increases due to factors such as diverse races and ethnicities, economic disparity, variable learning abilities and linguistic differences, which requires teachers to respond to individual students' needs with higher understanding and sensitivity. These factors increase the difficulty of addressing both social-emotional and academic learning (Downer, Maier & Jamil, 2011). Although teaching is a very emotionally and cognitively challenging profession, teachers receive little training to prepare them for these demands.
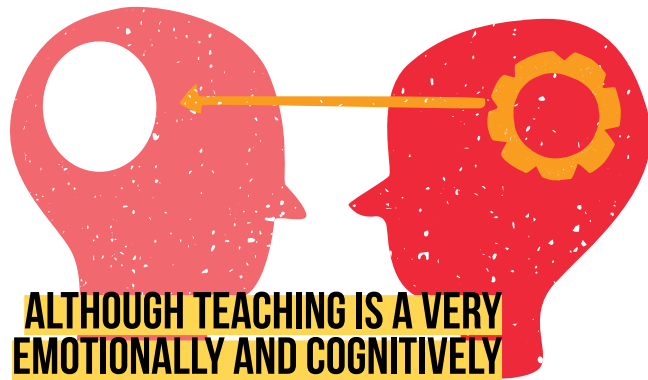
ALTHOUGH TEACHING IS A VERY EMOTIONALLY AND COGNITIVELY CHALLENGING PROFESSION, TEACHERS RECEIVE LITTLE TRAINING TO PREPARE THEM FOR THESE DEMANDS

Worldwide, over 150 million children ages 3 to 5 do not have access to any form of preschool education, and less than 20 per cent of children in low-income countries have access to any form of preschool preparation (UNESCO, 2016). Thus, the demands on early-primary school

teachers in countries with limited or no early education and socialisation opportunities is particularly pronounced. Increasing levels of disruptive student behaviour in the classroom compounds these demands (Gilliam, 2005; U.S. Department of Health and Human Services, 2000). A 2014 study by the Organisation for Economic Co-operation and Development (OECD) on effective teaching and learning worldwide found that a quarter of the teachers in over half of the participating countries reported losing at least 30 per cent of their classroom time to disruptions. Almost one third of teachers surveyed reported losing time to behavioural problems and 26 per cent reported that their classrooms have a great deal of disruptive noise. Schools serving high concentrations of children exposed to risk factors such as poverty, community violence and other stressors experience higher levels of classroom disruption, placing a greater demand on their teachers (Hauts, Caspi, Pianta, Arseneault & Moffitt, 2010; Oliver & Reschly, 2007).

EFFECTIVE PROFESSIONAL LEARNING

Due to a lack of resources, teachers in many countries lack adequate professional learning opportunities (OECD, 2014). As a result, professional learning (PL) practices often do not comply with best-practice standards. Research has identified three core components of PL that improve teachers' knowledge, skills and classroom instruction: (a) focus on content knowledge, (b) active learning opportunities and (c) alignment with other PL activities (Garet, Porter, Desimone, Birman, & Yoon, 2001). In addition, this research identified three structural features of PL that impact the core components: (a) the format of the PL (e.g., workshop vs. ongoing reform projects), (b) the extent of the PL activities (e.g., short, 'one-shot' training vs. systematic and ongoing training and technical assistance) and (c) the PL activities (didactic lecture vs. cooperative learning opportunities). PL opportunities presented systematically over an extended period of time that involve active learning are more effective than the 'one-shot' workshop approach that most teachers experience (Garet et al., 2001).

SEL CONTENT KNOWLEDGE

Over the past several decades, SEL concepts have spread internationally through the efforts of organisations such as the Collaborative for Academic, Social, and Emotional Learning (CASEL) in the United States, the European Network for Social and Emotional Competence (ENSEC), KidsMatter in Australia and the Social and Emotional Aspects of Learning (SEAL) initiative in the United Kingdom. Over the past two decades, SEL has been introduced in various frameworks. As one of the founding organisations in this international movement, CASEL has defined SEL competencies as skills needed to "recognise and manage emotions, demonstrate caring and concern for others, establish positive relationships, make responsible decisions and handle challenging situations effectively" (CASEL, 2019). These skills are organised into five competency area domains of Self-Awareness, Self-Management, Social Awareness, Social Management and

Responsible Decision-Making. Combined, these skills are thought to work synergistically to help promote academic achievement, well-being, resilience and social responsibility.[1]

Teachers must recognise how their own behaviour models SEL concepts and competencies through their students' observational learning, which may be more powerful than the curriculum delivery itself. Consequently, they must carefully monitor their behaviour to assure it aligns with their teaching aims and objectives (Jennings & Frank, 2015; Jennings & Greenberg, 2009). In order to prepare teachers to effectively teach SEL to their students, effective PL must deepen teachers' content knowledge of the SEL theories and concepts upon which SEL programme activities are based. Effective PL must also provide opportunities for teachers to apply this knowledge to actual classroom situations so they can generalise and transfer this knowledge to classroom interactions. Effective SEL PL can also help teachers understand how the learning objectives of SEL programmes fit within the goals of the broader community. Classroom teachers can help students develop social and emotional competencies through direct instruction and cultivation activities such as informal social interactions, establishment of classroom norms and classroom management practices (Cohen, 2006; Durlak et al., 2011; January, Casey, & Paulson, 2011; Kress & Elias, 2006; Weare & Nind, 2011; Zins et al., 2004). Thus, teachers' understanding of SEL theory and concepts is key to ensuring the alignment of teacher behaviour, curricular objectives and classroom management practices.

CLASSROOM TEACHERS CAN HELP STUDENTS DEVELOP SOCIAL AND EMOTIONAL COMPETENCIES THROUGH ACTIVITIES SUCH AS INFORMAL SOCIAL INTERACTIONS, ESTABLISHMENT OF CLASSROOM NORMS AND CLASSROOM MANAGEMENT PRACTICES

SEL PROGRAMME PL FEATURES

SEL programme effectiveness depends upon the provision of high-quality PL (Weissberg & Greenberg, 1998). However, very few teacher preparation programmes offer instruction in the social and emotional knowledge and skills required to effectively implement SEL content (Schonert-Reichl, Hanson-Peterson & Hymel, 2015; Schonert-Reichl, Kitil & Hanson-Peterson, 2017). This leaves teachers unprepared to deliver SEL programme content and generalise

1   The CASEL Framework includes components covered in other national SEL programmes. The UK SEAL programme has a high degree of overlap, but uses slightly different terminology recognising self-awareness, managing feelings and emotions and social skills and empathy as core SEL skills.

SEL concepts to classroom management and student interactions. However, when teachers receive training in the behavioural and emotional factors that impact teaching and learning in the classroom, they report feeling better prepared to implement positive classroom management and community building strategies to reduce aggressive behaviours and promote a more positive learning environment (Schonert-Reichl, 2017). Therefore, there is a need for specialised PL to prepare teachers to teach and model SEL knowledge and skills at both the pre-service and in-service level (Jennings & Frank, 2015; Schonert-Reichl, Hanson-Peterson & Hymel, 2015). CASEL (2019) identified high-quality, evidence-based SEL programmes that include PL and ongoing training and technical assistance for teachers and administrators. However, the PL offered for these programmes varies widely in terms of what is required, recommended, or optional (Jennings & Frank, 2015), and little research has compared variations in PL quality and intensity with student outcomes.

PROFESSIONAL KNOWLEDGE CRITICAL FOR SEL INSTRUCTION

Pedagogical content knowledge – There is general agreement regarding the elements of effective PL (i.e., how and why it is delivered). However, the actual content of PL is necessarily linked to our assumptions about what pedagogical content knowledge educators need to effectively teach SEL. Pedagogical content knowledge has been defined as the "blending of content and pedagogy into an understanding of how particular topics, problems or issues are organised, represented, and adapted to the diverse interests and abilities of learners" (Shulman, 1987, p.4). Existing PL designed to prepare teachers to deliver SEL curriculum tends to focus on fidelity to the programme model rather than cultivating teachers' strong pedagogical content knowledge. Unlike other curricular content, SEL requires that teachers model the actual competencies and behaviours in the social interactions that they aim to teach. Otherwise, they may inadvertently model behaviours that contradict the content they are teaching. For example, if an objective of an SEL curriculum is for students to learn how to manage conflicts using problem-solving skills rather

SEL REQUIRES THAT TEACHERS MODEL THE ACTUAL COMPETENCIES AND BEHAVIOURS IN THE SOCIAL INTERACTIONS THAT THEY AIM TO TEACH

than aggression or rejection, but the teacher uses such tactics to manage disruptive student behaviour, students will tend to learn from observing the teacher's behaviour rather than from the SEL curriculum. This points to the critical importance of authoritative and proactive classroom management strategies for effective SEL instruction (Jennings & Frank, 2015).

Knowledge of learners – 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. This includes a general understanding of social and emotional development and, more specifically, what competencies are expected to be appropriate for students of any particular stage of development (Schonert-Reichl, 2017). Teachers must also consider students' cultural backgrounds because the way in which social and emotional skills and competencies are taught and displayed should adapt to varying cultural norms and expectations (Hecht & Shin, 2015). Teachers need to understand how risk and resilience factors may affect the development of certain social and emotional competencies and how classroom interactions between teachers and their students and peers may promote resilience or increase risk.

Knowledge of educational contexts – The above highlights the critical importance of an emotionally supportive classroom environment for promoting social and emotional competencies among students. Teachers 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 such as peer norms, status hierarchies and social affiliation patterns that can have a powerful effect on classroom environments (Gest, Madill, Zadzora, Miller & Rodkin, 2014). Indeed, a teacher's awareness of the classroom social networks can have a positive impact on the classroom. For example, peer norms against aggressive behaviour are more effective when teachers exhibit a clear understanding of their classroom peer networks (Neal, Cappella, Wagner, & Atkins, 2011).

PROBLEM-SOLVING SKILLS CAN BE REINFORCED THROUGH THE PROCESS OF COACHING STUDENTS THROUGH THE RESOLUTION OF DAILY INTERPERSONAL CONFLICTS

Knowledge of educational outcomes and pedagogical content – To effectively generalise social and emotional concepts to classroom interactions, teachers must possess knowledge of educational outcomes and pedagogical content. This includes an understanding of how to encourage prosocial behaviour and how to integrate this understanding into diverse curricular areas. For example, the humanities can provide multiple opportunities to promote and reinforce students' understanding of core SEL competencies (Barr et al., 2015; Brown, Jones, LaRusso & Aber, 2010). Characters in literature or historical figures can act as exemplars or antitheses of self-awareness, self-management, social awareness, relationship skills and responsible decision-making if teachers explicitly link the content to SEL concepts. Further, problem-solving skills can be reinforced through the process of coaching students through the resolution of daily interpersonal conflicts.

HOW TEACHER DISPOSITIONS AND BELIEFS AFFECT SEL INSTRUCTION

Teachers' implicit beliefs, efficacy and values shape the instruction and learning environment in which SEL programmes occur (Goddard, Hoy, & Woolfolk Hoy 2004). Indeed, teachers' dispositions and beliefs may have a more powerful impact on SEL than on other, more content-based instruction. Teachers deliver SEL more effectively when they hold a positive attitude toward SEL, are motivated to deliver it well and have the confidence that they have the knowledge and skills necessary to do so (Durlak & DuPre, 2008). In contrast, teachers are less likely to deliver SEL effectively when they do not believe that SEL aligns with their teaching philosophy, that they do not have the ability to effectively teach SEL, hold authoritarian beliefs about classroom management, and perceive a lack of support from the school leadership and climate (Collie, Shapka, Perry & Martin, 2015; Schonert-Reichl, 2017). The increasing social and emotional demands of the classroom may require teachers to deliver interventions to support SEL and mental health. This highlights the growing need for professional learning to help teachers build their SEC (Askell-Williams & Cefai, 2014).

Effective SEL PL must address common implicit beliefs that may impact the way SEL programmes are delivered. This can be challenging because these implicit beliefs may be based in cultural norms and expectations. For example, a teacher who believes that it is inappropriate to discuss emotions in class may find it very difficult to deliver a curriculum that involves naming and describing specific emotions or create a welcoming environment for students to talk about emotions. In addition, autocratic beliefs associated with classroom management may lead to teachers over-controlling interpersonal problem-solving among students, preventing students from learning these skills independently (Jennings & Frank, 2015).

THE IMPORTANCE OF ADULT SOCIAL AND EMOTIONAL COMPETENCE

The previous section of this chapter examined how SEL PL might be further developed by extending the scope of professional learning beyond content and curriculum knowledge. However, effective SEL instruction also requires that teachers themselves possess a high degree of SEC. This aspect of SEL instruction is noteworthy, and too often overlooked in the design of SEL PL. However, just as it is important for a music teacher to be able

EFFECTIVE SEL INSTRUCTION ALSO REQUIRES THAT TEACHERS THEMSELVES POSSESS A HIGH DEGREE OF SEC

to demonstrate what ideal tone, pitch and rhythm sound like, so too is it important for teachers of SEL content to model self-awareness, self-management, social awareness, social management and responsible decision-making. In this next section, we consider the role that a teachers' own SEC plays in the successful delivery of SEL programmes, and the mechanisms of action linking teacher well-being to student social and emotional and learning outcomes.

THE PROSOCIAL CLASSROOM MODEL

The Prosocial Classroom theoretical model holds that teachers' SEC and well-being influence a classoom's emotional climate and student academic and behavioural outcomes (Jennings & Greenberg, 2009). This relationship is mediated by supportive teacher-student relationships, quality classroom management, and effective SEL programme implementation (see Figure 5.1).

Figure 5.1. A Model of Teacher Well-Being and Social and Emotional Competence, Support,
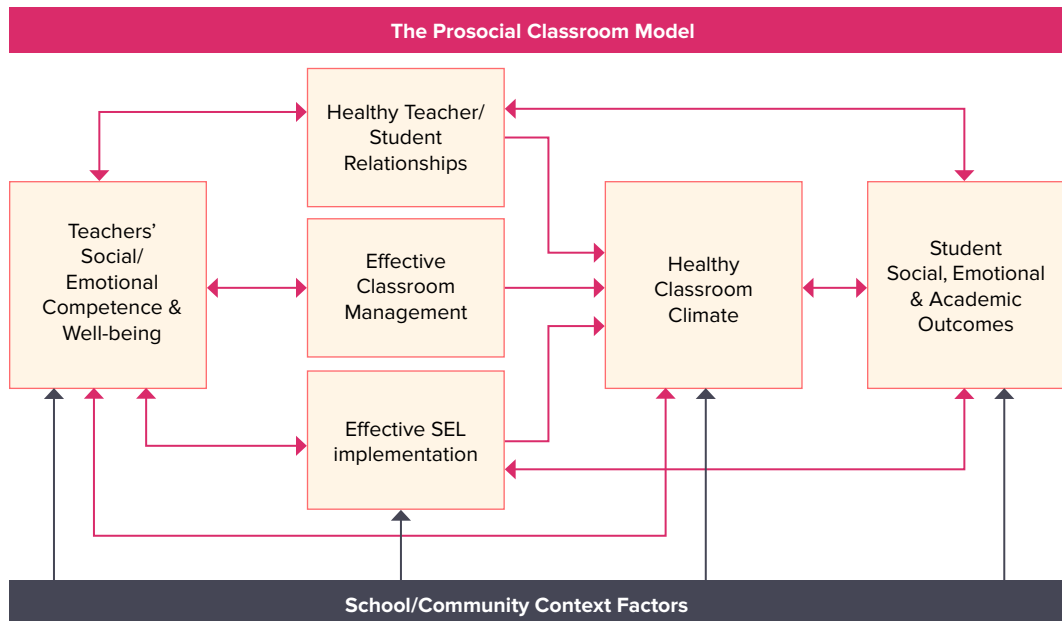
[Source: Jennings, P. A., & Greenberg, M. T. (2009). Reprinted with permission from SAGE Publications, Inc.]

TEACHERS' SEC AND WELL-BEING

CASEL (2019) has identified five core dimensions of SEC: self-awareness, social awareness, responsible decision-making, self-management and relationship management. Depending on the framework upon which they are based, SEL programmes apply these or other dimensions to SEL curricular content and they can also be applied to adult development. SECs develop across one's lifespan in response to life challenges and are context-dependent. Therefore, teachers need specific social and emotional skills to manage the stressors of the classroom and to effectively cultivate SEL (Jennings & Greenberg, 2009). For example, teachers with appropriate SEC will demonstrate high levels of self-awareness in a classroom context. Teachers with high SEC recognise their own emotions and emotional habits and patterns. They can manage their emotions, even during emotionally challenging classroom interactions. They do this in healthy ways that facilitate positive classroom social interactions without compromising their own well-being. They respectfully and firmly set limits and can tolerate some degree of ambiguity that can arise when students are allowed to solve problems independently. Teachers exhibiting high degrees of social awareness recognise how their expressions of emotions affect their classroom climate and student learning. They can intentionally generate positive emotions such as enthusiasm to motivate student learning. They know how to build a caring and supportive classroom social environment and engage students in cooperative learning.

Teachers with strong relationship skills demonstrate the ability to develop supportive relationships with their students. They practice cultural sensitivity, understand that others' perspectives may vary from their own, and take this into account during interactions with students, parents and colleagues. Teachers with high degrees of SEC demonstrate prosocial values by respecting their students and their families and by understanding how educational decisions may affect them. SEC is related to psychological well-being. When teachers experience mastery over socially and emotionally challenging classroom situations, they experience a greater sense of efficacy and enjoyment of teaching (Goddard, Hoy & Woolfolk Hoy, 2004). In contrast, when teachers experience

TEACHERS WITH STRONG RELATIONSHIP SKILLS DEMONSTRATE THE ABILITY TO DEVELOP SUPPORTIVE RELATIONSHIPS WITH THEIR STUDENTS.

psychological distress (or a lack of well-being), their ability to provide emotional and instructional support to their students is impaired (Jennings, 2015).

TEACHER STRESS AND SEC

Stress can have a negative impact on teachers' SEC. When they lack the ability to manage their negative emotional reactions in response to troublesome student behaviours, their performance can be impaired (Carson, Weiss & Templin, 2010). Constant emotional distress can eventually lead to a burnout cascade: deteriorating teacher performance, which leads to increased student misbehaviour (Jennings & Greenberg, 2009). Out of frustration, the teacher may resort to reactive and punitive responses, which may undermine student motivation and perpetuate a negative cycle of classroom disruption (Osher et al., 2007).

Stress contagion – Recent research shows that stress is contagious. A study examined the relationship between classroom environments and students' mental health in over 10,000 first grade students and their teachers. They found that in classrooms where teachers reported higher levels of stress due to a lack of resources, higher numbers of students experienced mental health problems (Milkie & Warner, 2011). More specifically, when teachers lacked the key ingredients for teaching — ranging from basic resources such as paper, pencils and heat, to child-friendly furnishings and computers — students experienced higher levels of externalising problems (e.g., arguing, fighting, impulsivity), interpersonal issues (e.g., expressing emotions, resolving conflicts) and internalising problems (e.g., anxiety, sadness, low self-esteem). Additionally, when teachers did not receive the support of colleagues, students also suffered.

More recent research also lends support for stress contagion in the classroom and the potential detrimental role of teacher stress in predicting student well-being. Drawing from the stress-contagion framework, Oberle and Schonert-Reichl (2016) examined the link between teacher burnout and student stress in a sample of 4th and 7th grade children in Canada. To assess teacher burnout, teachers completed the Maslach Burnout Inventory modified for Teachers (Maslach et al., 1996). To assess student stress, students' salivary cortisol was collected as a biological indicator of students' stress reactivity. Biological stress reactivity is frequently assessed via the reactivity of the hypothalamic-pituitary-adrenal (HPA) axis, a homeostatic system that follows a circadian rhythm

> MORE RECENT RESEARCH ALSO LENDS SUPPORT FOR STRESS CONTAGION IN THE CLASSROOM AND THE POTENTIAL DETRIMENTAL ROLE OF TEACHER STRESS IN PREDICTING STUDENT WELL-BEING.

and is activated in response to cognitive (e.g., fear, excitement, anxiety) or non-cognitive (e.g., infections) stressors (Jessop & Turner-Cobb, 2008). Cortisol levels found in saliva or blood can be used as an indicator for HPA axis activity. Integrity of the HPA axis is essential to human health. In a typical diurnal HPA-axis regulation pattern, cortisol levels rise within 20-45 min after waking and then gradually decline throughout the day. Inappropriately low or elevated levels of cortisol can compromise HPA axis functioning (Jessop & Turner-Cobb, 2008). In one study, student's salivary cortisol was collected from children at 9 a.m., 11:30 a.m. and 2 p.m. on one day in the classroom setting. Analyses revealed that, after adjusting for differences in cortisol levels due to age, gender and time of awaking, the variability in students' morning cortisol levels could be significantly predicted from higher levels of self-reported burnout of classroom teachers. Although these findings were correlational and the study utilised only one day of cortisol data, the research conducted by Oberle and Schonert-Reichl (2016) was the first to show that teachers' occupational stress is linked to students' physiological stress regulation. What is not yet known is the direction of the stress contagion. That is, does teachers' burnout lead to higher levels of stress in students or do students who enter the classroom with higher levels of stress lead to increased teacher burnout? Future research examining the causal pathway will lend further clarity to this relationship.

WORKING WITH STUDENTS EXPOSED TO ADVERSITY, CHRONIC STRESS & TRAUMA

Supporting teachers so they do not become overly stressed and suffer from burnout is especially important for those working with students exposed to trauma, chronic stress and adversity. This can impact social and emotional development in ways that are adaptive to the stressful environment (Ellis, Bianchi, Griskevicius & Frankenhuis, 2017), but that teachers may not understand or know how to respond to effectively (Jennings, 2019). One example of this is the hostile attribution bias, which is the tendency to assume that others are acting in hostile ways. Children who live where there are high levels of violence and threat develop this bias as an adaptive strategy. However, in the classroom, they may

EARLY TRAUMA CAN AFFECT BOTH BRAIN DEVELOPMENT AND EMOTIONAL AND RELATIONAL DEVELOPMENT OF CHILDREN

over-react in aggressive ways to their peers or adults because they misapprehend the behaviour as hostile. They require additional support from their teachers to feel safe and adapt to the school setting, especially with regard to interpersonal conflicts (Crick & Dodge, 1996; Dodge & Price, 1994). SEL PL activities should include this knowledge to prepare teachers to respond

proactively rather than react in ways that may exacerbate the problem. Trauma-related difficulties include cognitive challenges such as developmental delays and learning disabilities, physical health problems and psychosocial problems such as mental illness, anti-social behaviour, difficulties building and maintaining healthy relationships and substance abuse, suicide risk and self-harm (Adams, 2010; Lamont, 2010).

Childhood trauma is a common and pervasive problem. International studies (American Psychological Association, 2015; Centers for Disease Control and Prevention, 2016) estimate that two-thirds of children have experienced a traumatic event before the age of 16, including life-threatening accidents, disasters, maltreatment, assault, and family and community violence. There is a clear and well-documented relationship between trauma, learning and behavioural problems in children and adolescents (Blodgett et al., 2013; Clarkson Freeman, 2014; Putnam, 2006). Early trauma can affect both brain development, and emotional and relational development of children (Cook et al., 2005; Perry, 2009). Heightened emotional activity in the limbic centers of the brain and reduced activity in the pre-frontal cortex inhibits a child's ability to control aggression and other impulses, establish appropriate boundaries and form positive peer and adult relationships (Cole et al., 2005; Siegel & Bryson, 2011). Trauma undermines a child's sense of safety, and affects regulation, attachment, trust, belonging and identity (Kinniburgh et al., 2005). Children with trauma often require more intensive support to understand, express and manage their own feelings and behaviours, solve problems effectively, empathise with others and develop healthy connections.

The significant risks associated with exposure to trauma can be mitigated when protective factors are present such as provision of a supportive environment and caring relationships (Oehlberg, 2008; Cole et al., 2005). Maintaining safety, supportive connections and management of emotions are three main objectives of trauma-informed care (Bath, 2008). These concepts have been found to be essential for creating an appropriate classroom environment for traumatised students (Cole et al., 2005).

Traumatised children and adolescents often lack role models and appropriate skills for developing healthy relationships, especially if they experienced mistreatment by caregivers. One of the most important actions educators can take is to build positive relationships with students and help students build positive relationships with other adults and peers (Jennings, 2019). Such relationships help reduce the impact of trauma (Maikoetter, 2011), improve mental health and well-being, and optimise academic and social outcomes (Mihalas, Morse, Allsopp & Alvarez McHatton, 2009). SEL provides an essential foundation for developing supportive relationships.

Trauma-informed or trauma-sensitive care recognises the essential role of adult regulation in effectively managing children's dysregulation. Responding effectively to children impacted by trauma requires well-developed social and emotional skills and effective professional support.

A trauma-informed approach to SEL includes training in: neurobiological and emotional impacts of trauma; potential trauma triggers; principles of attachment theory and social neuroscience of education and achievement; problematic traditional schoolwide and classroom management approaches that may exacerbate the effects of trauma; and trauma-responsive behaviour management practices, including relationship-based strategies.

Teachers' participation in professional development that focuses on positive teacher-student relationships has been found to reduce the negative impact of student problem behaviour on teacher attitudes (Hafen, Ruzek, Gregory, Allen & Mikami, 2015) and increase teacher self-efficacy to help their students (Jones, 2013). In their Attachment, Regulation and Competency (ARC) framework for trauma-informed care, Blaustein and Kinniburgh (2010) position staff development in SEL practices (including self-care and self-regulation of emotion in the face of stressors such as challenging student behaviour) as an essential precursor to any student interventions. When teachers explicitly learn, teach and employ SEL practices such as attunement and co-regulation, both staff and students learn to recognise and calm emotional responses. Such practices help teachers and students manage stress and behaviour positively and help students to build critical positive relationships with adults and peers (Jennings, 2019; Rose, McGuire-Snieckus & Gilbert, 2015).

Schools can meet the needs of children with trauma using a tiered approach to SEL instruction and support (Froiland, 2011). Universally, all students would ideally receive explicit and ongoing classroom SEL instruction that develops skills such as: attention and executive functioning; emotional literacy; self-regulation; empathy and perspective taking; and adaptive problem-solving. Small, group-targeted support includes pre-teaching of SEL lessons and additional support in emotion coaching, regulation and coping strategies. Intensive supports include individualised relational interventions and trauma-informed mental health planning and support. Whole-school behaviour management practices promote positive relationships and social and emotional skill development such as emotional regulation, problem-solving and healthy coping behaviours. Schools can use SEL to proactively respond to, mitigate and overcome the impact of trauma for vulnerable students. SEL helps to create supportive environments where children can develop healthy relationships, coping skills and the resilience to overcome the impacts of trauma, improving the experiences and outcomes for students and staff alike.

SEL HELPS TO CREATE SUPPORTIVE ENVIRONMENTS WHERE CHILDREN CAN DEVELOP HEALTHY RELATIONSHIPS, COPING SKILLS AND THE RESILIENCE TO OVERCOME THE IMPACTS OF TRAUMA

INTERVENTIONS TO ADDRESS TEACHER STRESS

It is clear that teacher stress must be addressed in order to promote SEL in school settings. While the research is in its early stages, several programmes and practices have been found to be effective for reducing teacher stress, promoting their well-being, and improving classroom and student outcomes. When new teachers receive mentoring, they report greater satisfaction and retention, and students' academic achievement shows gains (Ingersoll & Strong, 2011). Workplace wellness programmes for teachers are effective for reducing health risks, health care costs and absenteeism (Aldana, Merrill, Price, Hardy & Hager, 2005; Merrill & Sloan, 2014; Merrill & LeCheminant, 2016). Delivering SEL programmes has been found to have positive impacts on teachers' well-being (Domitrovich, Bradshaw, Berg, Pas, Becker, Musci & Ialongo, 2016). However, the most extensively developed and tested approach specifically designed to promote teachers SEC and well-being are mindfulness-based interventions (MBIs). The next section will review these programmes and the research their impact on teachers' well-being and SEC, the quality of classroom interactions and student outcomes.

MINDFULNESS-BASED INTERVENTIONS FOR TEACHERS

What is mindfulness and how might MBIs help teachers reduce stress, cultivate SEC and teach SEL more effectively? Mindfulness can be described as a state involving two primary dimensions: self-regulated attention "so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment" (Bishop et al., 2004, p. 232), and an orientation toward experience "that is characterised by curiosity, openness, and acceptance" (p. 232). Years of research involving adults have concluded that MBIs promote attentional and emotional regulation skills (Chambers, Gullone & Allen, 2009; Lutz, Jha, Dunne & Saron, 2015). These skills promote stress management (calm), attentional focus and perceptual clarity (clear) and kindness towards oneself and others (kind; see Hofmann, Grossman & Hinton, 2011; Grossman et al., 2004).

A recent meta-analysis involving a total of 347 effect sizes from 29 studies (n = 1,493) was conducted to examine the overall treatment effect of MBIs with teachers, the specific impact on mindfulness and mechanisms of mindfulness, the specific

MINDFULNESS CAN BE DESCRIBED AS A STATE INVOLVING TWO PRIMARY DIMENSIONS: SELF-REGULATED ATTENTION AND AN ORIENTATION TOWARD EXPERIENCE

impact on psychological well-being, psychological distress, psychological indicators, and classroom climate and instruction. Study inclusion criterion involved a sample of preK-12 teachers with mindfulness identified as a primary therapeutic component (Klingbeil & Renshaw, 2018). Of the 29 controlled studies, three were unpublished, four were published in Spanish and one was published in Persian. Eighteen of the studies were randomised-controlled trials, two studies were randomised at the school level and nine involved quasi-experimental designs. The results of the meta-analysis indicated that the MBIs had an overall significant positive treatment effect, similar to other MBIs studied with non-clinical samples of adults. The MBIs also had significant positive impacts on mindfulness, psychological well-being, psychological distress, classroom climate and instructional practices. While this meta-analysis was limited by the small number of rigorous studies, it suggests that MBIs designed for teachers have promise for reducing stress and improving classroom climate, providing preliminary support for the Prosocial Classroom model.

To better understand the role mindfulness plays in supporting teachers' SEC, scholars have proposed that MBIs for teachers offer a unique form of professional learning that helps teachers engage in more calm, clear and kind interactions with students (Taylor et al., 2019). The Calm, Clear, Kind framework proposes that MBIs promote teachers' embodied mindfulness in the classroom, which is defined as their capacity to be calm, clear and kind in their speech and interactions with students despite the emotional demands and challenges (Rickert, 2016; Rickert et al., 2016; Taylor, 2016). Thus, the skills teachers learn in MBIs become embodied such that they are observable in teachers' classroom behaviour and, in this way, may promote student academic learning and prosocial behaviour. Several qualitative studies of MBIs lend support to this theory (Schussler, Jennings, Sharp & Frank, 2016; Schussler et al, 2018; Taylor et al., 2016; Taylor, Jennings, Harris, Schussler & Roeser, 2019).

Three programmes designed specifically to cultivate the Calm, Clear, Kind framework among teachers were adapted from the Cultivating Emotional Balance (CEB) programme (http://cultivating-emotional-balance.org/). This programme arose from a dialogue with His Holiness the Dalai Lama in Dharamshala, India, sponsored by the Mind and Life Institute in 2000, entitled 'Destructive Emotions' (Goleman, 2003). A team of contemplative teachers and emotion researchers combined their expertise and designed a programme to promote prosocial behaviour and reduce hurtful behaviour that is associated with dysregulated negative emotions. CEB combines contemplative practice and emotion skills instruction, and was first evaluated with a sample of teachers in the United States. A large randomised controlled trial found that CEB was effective for promoting well-being and reducing negative emotions

MBIs HAD AN OVERALL SIGNIFICANT POSITIVE TREATMENT EFFECT
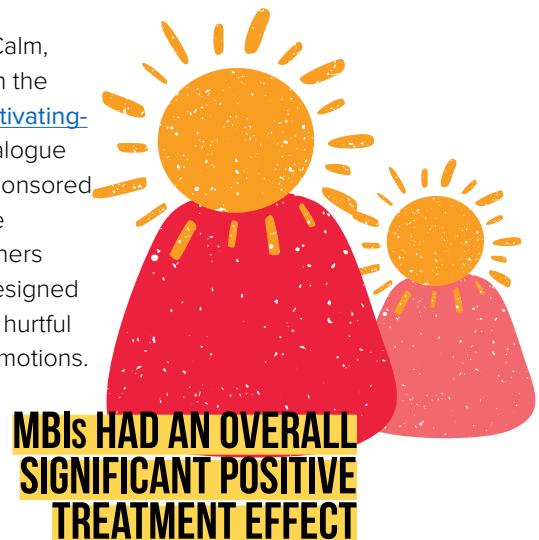
(Kemeny et al., 2012). A study to examine whether CEB would improve the quality of teachers' observed classroom interactions was conducted and found that it had no significant impact (Jennings, Foltz, Snowberg, Sim & Kemeny, 2011). However, CEB was not specifically designed to promote teachers' SEC and several teams began to adapt the elements of the programme to more specifically address their classroom challenges. Next, we introduce the three professional learning programmes that have been shown to be effective for helping teachers become more calm, clear and kind. We provide brief descriptions of each programme and their associated research findings.

MINDFULNESS-BASED EMOTIONAL BALANCE (MBEB) [2]

Mindfulness-Based Emotional Balance (MBEB) is a programme for teachers based upon Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) (Cullen & Pons, 2015). It involves approximately 50 per cent of the mindful awareness and movement practices found in MBSR. An additional 30 per cent of the programme involves didactic instruction in emotion theory and mindful emotion regulation. Theory and practices of compassion and forgiveness make up the remaining 20 per cent of the programme. Similar to MBSR, MBEB is presented in evening sessions over eight weeks, plus one day-long retreat. In randomised, controlled studies of MBEB, results showed improvements in teachers' mindfulness (e.g., attentional awareness, non-reactivity) and emotion regulation, and reductions in occupational stress, burnout, anxiety and depression at post-programme and follow-up (Akiva, Arel, Benn, Eccles & Roeser, 2011; Roeser et al., 2013). One study also showed improved cognitive functions among teachers (e.g., sustained attention and working memory) (Roeser et al., 2013). Furthermore, these studies demonstrated that MBEB impacts teachers' specific skills and mindsets of focused attention, mindful awareness, self-compassion, forgiveness and reduced work rumination (Roeser et al., 2013, Taylor et al., 2015; Crain et al., 2016).

CULTIVATING AWARENESS AND RESILIENCE IN EDUCATION (CARE)

Cultivating Awareness and Resilience in Education (CARE) is a professional learning programme designed to reduce teachers' psychological distress and to promote teachers' SEC over the course of a school year. CARE introduces instructional material sequentially, integrating didactic, experiential and interactive learning processes. Participants learn a structured set of mindful awareness and compassion practices, and didactic and experiential practices specifically designed to promote emotion awareness, emotion regulation and compassion in the classroom context. Typically, CARE is presented in 30 hours over five in-person training days (six hours each) over the course of several weeks. The breaks in between sessions give teachers an opportunity for home practice, reflection and application of the material to their teaching

experience. Teachers receive coaching via phone or internet between sessions to support this process.

Based upon the CARE Logic Model (Figure 5.2), CARE's efficacy was evaluated in a randomised controlled trial involving 36 urban elementary schools and 224 teachers (Jennings et al., 2017). Teachers were randomised within schools to receive CARE or assigned to a waitlist control group. All teachers completed self-report measures and assessments of their participating students before and after the intervention group received CARE. Teachers' classrooms were observed and coded using the Classroom Assessment Scoring System (CLASS). Results showed that CARE had direct positive impacts on adaptive emotion regulation, mindfulness, psychological distress and time urgency. Significant decreases in psychological distress and significant increases in emotion regulation continued for 9.5 months after intervention (Jennings et al, 2019). CARE also had a positive impact on the emotional support domain of the CLASS; this was reflected in positive impacts on teacher sensitivity and a positive emotional climate. CARE also had a positive impact on classroom productivity (Jennings et al, 2017). Furthermore, CARE had a direct positive impact on student engagement. Students with low baseline social skills showed higher reading competence at the end of the year if they were in a classroom taught by CARE teachers compared to students taught by control teachers. Among students with teachers low in mindfulness at the beginning of the year, students of CARE teachers had higher motivation and reading competence at the end of the school year than students of low-mindfulness teachers in the control condition (Brown et al., 2017).

Figure 5.2 CARE for Teachers Logic Model
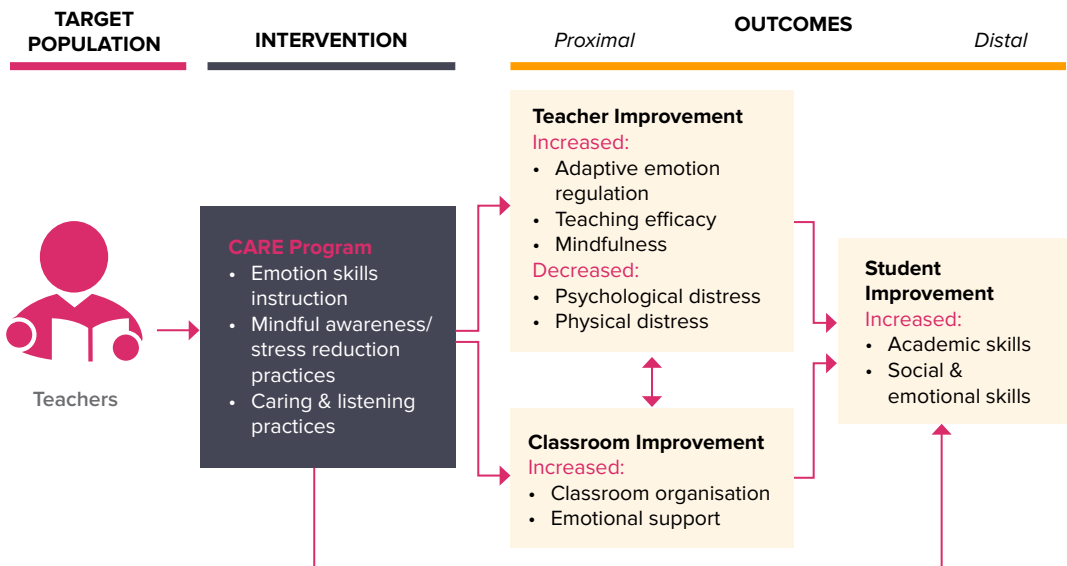
COMMUNITY APPROACH TO LEARNING MINDFULLY (CALM FOR EDUCATORS)

The Community Approach to Learning Mindfully (CALM) programme was specifically designed as a school-based programme to promote teachers' SEC. The programme is typically offered as an optional opportunity for self-care at the start of the school day and all school personnel are encouraged to attend as often as they wish. The programme is delivered by trained yoga instructors and includes many of the same mindful awareness practices found in the other two programmes, but also includes gentle yoga and intentional breathing practices. The brief 15-20 minute sessions are scripted and designed to be completed over 16 weeks. Each session begins with a few of minutes of grounding in the present moment by taking three mindful breaths together and setting an intention for the practice session. This is typically followed by a breathing practice and gentle yoga movements. The session ends with a few minutes of relaxation, caring and compassion, or gratitude practice, and with setting an intention for the teaching day. Participants receive personal practice cards containing instructions for a brief practice to try in the classroom or at home, and a reflection on the theme of the week.

CALM was evaluated in a quasi-experimental trial involving educators from two middle schools randomly assigned to receive CALM or serve as a waitlist control group (Harris et al., 2016). Sixty four educators participated in the study; those who participated in CALM showed improved mindfulness, distress tolerance and decreased burnout and physical symptoms compared to those in the control school. Furthermore, their efficacy for classroom management improved. Researchers also collected psychological data related to stress and well-being, including blood pressure and salivary cortisol. Results showed that educators in the CALM group displayed reduced blood pressure and better cortisol functioning compared to controls.

THOSE WHO PARTICIPATED IN CALM SHOWED IMPROVED MINDFULNESS, DISTRESS TOLERANCE AND DECREASED BURNOUT

CONCLUSIONS

Teachers play a critical role in SEL instruction as models of SEC and as implementers of SEL programmes. 'However, little work has been done to understand the SEC that teachers require to successfully fulfill this important role. While MBIs show promise for supporting teachers' well-being and promoting SEC, this research has also provided support for the Prosocial Classroom Model. While all the elements of the model have not been fully tested, CARE research has demonstrated that improvements in teachers' SEC and well-being are associated with improved classroom interactions and student engagement and learning. Further research is required to examine whether MBIs can improve the quality of SEL programme delivery and effectiveness.

KEY CHALLENGES

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

5.2   Growing numbers of students are exposed to trauma. This can impact social and emotional development in ways that are adaptive to the stressful environment, but that teachers may not understand or know how to respond to effectively. Supporting teachers so they do not become overly stressed and suffer from burnout is especially important for those working with students exposed to trauma, chronic stress and adversity.

KEY RECOMMENDATIONS

5.1   School districts should provide adequate time 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.

5.2   Teachers need instruction on trauma-sensitive practices to support students exposed to trauma and adversity.

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IMPLEMENTATION OF SOCIAL AND EMOTIONAL LEARNING

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IMPLEMENTATION OF SOCIAL AND EMOTIONAL LEARNING

CH // 06

BRENDA DOBIA, LEONIE ARTHUR, PATRICIA JENNINGS, DION KHLENTZOS, ROBERTO PARADA, SUE ROFFEY AND NIMROD SHEINMAN

ABSTRACT

While social and emotional learning (SEL) can have many benefits for psychosocial development and well-being, the extent to which the benefits of SEL are realised depends to a large extent on how well it is implemented. This chapter takes up the question of what is necessary for effective implementation of SEL initiatives and why it is important to attend to implementation factors when undertaking SEL in schools and other settings. Included in the discussion is a consideration of policy settings and curriculum frameworks that provide important context and support for SEL implementation in schools. Critical research-based factors for effective implementation of SEL programmes are identified and discussed. The chapter also provides a detailed examination of the benefits and components of systemic approaches to implementation using a whole school approach.

THE EXTENT TO WHICH THE BENEFITS OF SEL ARE REALISED DEPENDS TO A LARGE EXTENT ON HOW WELL IT IS IMPLEMENTED

KEY MESSAGES

6.1 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.

6.2 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.

6.2 Systemic implementation is critically important for generalising learning beyond the classroom and into the daily life of the school. This is undertaken through a school-wide approach that integrates SEL practices into school culture and operations.
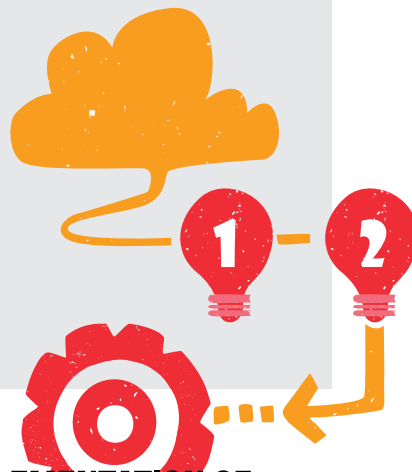
INTRODUCTION

Recent international interest in the field of SEL has seen the development of a range of programmes and delivery approaches. Embedded in these various approaches are assumptions about what to teach, how to teach,

EFFECTIVE IMPLEMENTATION OF SEL REQUIRES CAREFUL PLANNING AND SEQUENCING OF ACTIVE, FOCUSED AND EXPLICIT TEACHING AND LEARNING ACTIVITIES

who should teach, how children learn and more. Decisions relating to these kinds of questions have direct implications for the ways that SEL initiatives are designed and implemented. Such decisions extend to the reach or breadth of an initiative, for example: whether the initiative's singular focus is on formal classroom teaching, or whether it involves the whole school community, parents and others. Decisions taken regarding the design of the initiative should inform its implementation and evaluation.

The following consideration of issues and benefits associated with SEL implementation begins with a comparative overview of four key aspects of its conceptualisation and delivery: policy frameworks, national and subnational curricula, specific SEL programmes and whole school approaches. Table 6.1 presents a summary comparison, drawing on criteria adapted from Humphrey (2018).

Table 6.1: **Four Aspects of SEL Implementation**

	Policy for SEL	**National Curricula**	**Identified Programmes**	**Whole School Approaches**
Form	Overarching educational objectives	Curriculum standards	Explicit staged lessons	Multi-level, curriculum, school-wide ethos & practices
Function	Sets priorities and goals for education	Informs schools and teachers regarding guidelines & outcomes for SEL Sets assessment standards	Provides structure, content and resources to enable effective delivery of SEL	Supports systemic implementation of SEL practices to enable generalisation across school & home settings
Breadth (Complexity)	Establishes frameworks for inter-sectoral and multi-stakeholder collaboration	Guides integrated and sequential learning across schooling levels	Emphasises sequenced in-depth teaching of explicit skills	Multi-component approach involving schools, families, community
Flexibility	Reviews progress and adjusts settings based on evidence	Educators develop and adapt content for their settings	Fidelity to programme guidelines supports effectiveness	Tailors implementation for identified school needs
Focus	Education system as a whole, policy makers, education directorates, all education stakeholders	Education system, schools, teachers, evaluators	Student learning Teacher professional development	Brings all school staff, parents, community together to support student learning & development Targets intensity of intervention according to need

Although much of the evidence for SEL has come from the implementation and evaluation of discrete programmes, recent developments in the field call for a systemic approach to implementation in which features of all four aspects outlined in Table 6.1 are deployed in combination (Elias et al., 2018; Meyers et al., 2019). Indeed, a comprehensive and systemic approach to SEL implementation that integrates elements of all aspects has been conceptualised and trialled in several jurisdictions internationally (Banerjee et al., 2014; Björklund et al., 2014; Graetz et al., 2008). Hence, while each of these aspects identified in Table 6.1 will be considered in turn, it is important to recognise that they are interrelated.

POLICY SETTINGS

Educational policy establishes and articulates goals and priorities for education systems at national, state and/or regional levels. Policies that identify the importance of children's social and emotional development for learning and life success can help to direct educational efforts and establish a basis for investing resources. It is imperative, however, that policies go beyond broad intentions to explicitly address SEL in educational objectives and practice (Cefai et al., 2018; Elias et al., 2018).

In many countries, educational policies advance children's holistic development as a key goal of education and actively acknowledge the role of education in children's social and emotional development. A recent cross-country review of SEL in OECD countries identified that, while most had policies relating to SEL, there was considerable variability in the ways that this focus is articulated and addressed (OECD, 2015). Where identified in national policy statements, SEL is commonly linked to national education priorities.

IN MANY COUNTRIES, EDUCATIONAL POLICIES ADVANCE CHILDREN'S HOLISTIC DEVELOPMENT AS A KEY GOAL OF EDUCATION

One argument for comprehensive implementation of SEL highlights the potential to increase economic and social outcomes through enhancing labour market readiness. However, a primary focus on economic productivity risks failing to adequately prioritise holistic social and emotional development through educational objectives that promote well-being and social inclusion, as well as academic success (Cefai et al., 2018; UNESCO, 2017). While advocating the explicit teaching of SEL skills, recent policy-oriented reviews for the European Union (Cefai et al., 2018) and the United States (National Commission on Social, Emotional, & Academic Development, 2018) call for a realignment of education policies and practices based on the recognition that social and emotional dimensions of experience underpin all learning and are essential to establishing effective relationships with learners who may experience a variety of life stressors.

Promoting children's mental health and well-being has been a significant driver of SEL policy in a number of countries. For example, in Australia, school-wide SEL has been implemented successfully as a central component of school-based initiatives for mental health (Littlefield et al., 2017). A focus on promoting mental health has also informed the development of educational policy and programming for SEL in a number of EU countries (Barry, 2015; Cefai et al., 2018; Fitzpatrick et al., 2013). In Korea, SEL has become an important method for addressing heightened mental health and behavioural issues amongst adolescent students (Lee & Bong, 2017), and in British Columbia, a comprehensive strategy to embed SEL in schools has been

developed to address Canada's national priority on child and youth mental health (Hymel et al., 2017).

While evidence for the benefits of SEL is substantial, it is important to recognise that SEL is not 'one-size-fits-all'. Cultural conceptions of well-being and human flourishing may give rise to very different goals for social and emotional development, both between countries and among different communities in the same country (Hecht & Shin, 2015; Rappleye et al., 2019). Implementation and effectiveness may be compromised when SEL programmes developed for one particular setting are transferred to another without accounting for such differences. Ensuring cultural fit and rigour of implementation are therefore important objectives for policymakers, educators and researchers.

Many countries promote cultural values and citizenship education as a means of addressing children's social and moral development through cultivating prosocial values such as integrity, respect, kindness, cooperation and compassion (Torrente et al., 2015). Aligning SEL with values education helps to ensure that young people develop both the attitudes and skills needed for responsible and ethical citizenship (Elias et al., 2018). Linking civics and SEL affords opportunities to explore personal, social and cultural identities as part of social and emotional development, and supports local contextualisation of SEL. Some examples of efforts to build cultural dimensions into SEL include Bhutan's focus on education for Gross National Happiness (Drupka & Brien, 2013; Krogh & Giri, 2013), infusing the philosophy of Ubuntu in schools in South Africa (Maphalala, 2017) and the incorporation of traditional knowledge concepts into SEL teaching in New Zealand and the Pacific Islands (Hecht & Shin, 2015; Lagi & Armstrong, 2017; Macfarlane et al., 2017).

Notwithstanding the evident synergy with values and civics education, it is vital not to reduce the emotional and relational dimensions of SEL to a focus on social or cultural values (Cefai et al., 2018). Rather, ethical values should inform the development of critical social and emotional skills. Singapore's Framework for 21st Century Competencies and Student Outcomes integrates social and cultural values as core foundations for SEL skill development. SEL underpins the development of 21st century competencies for: civic literacy, global awareness and cross-cultural skills; critical and inventive thinking; and communication, collaboration and information skills (Liem et al., 2017; Singapore Ministry of Education, 2018).
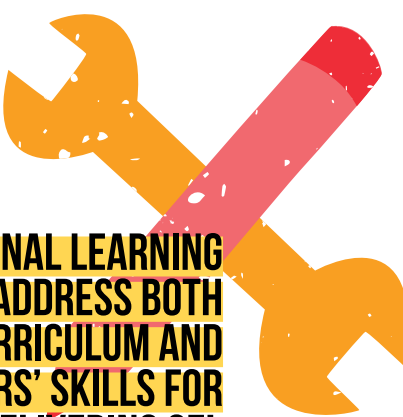
Policy settings outline a direction and impetus for embedding SEL into educational initiatives, but policy alone is not enough to ensure outcomes. Robust, well-articulated policies are essential for leading "efforts to support the whole learner from the periphery to the mainstream … and from the realm of ideas to implementation" (Bridgeland et al., 2018). A holistic approach to policy and implementation requires integration and collaboration across sectors including, education, health, community and social services. It addresses the social determinants of health and well-

being, and involves multiple stakeholders, including students, teachers and parents in shaping policy and practice (Cefai et al., 2018).

NATIONAL CURRICULA: SETTING STANDARDS FOR SEL

Curriculum frameworks set the parameters for what is to be learned as students progress through their education. National curricula help to translate policy into practice by defining the broad skills and competencies that children need to develop to become effective and productive members of society. In most jurisdictions, this is pursued through discrete curriculum areas such as health and physical education, civics and citizenship education, or education in ethics and religion. In some instances, SEL skills have been embedded in dedicated subject areas.

A curriculum focus encourages teachers to implement SEL teaching strategies rather than seeing them as unrelated to their academic work. However, providing broad curriculum guidelines is insufficient to ensure that most teachers can confidently and competently teach social and emotional skills (Brackett et al., 2012; Collie et al., 2015). As discussed in Chapter 5, sufficient depth and frequency of teacher professional learning is necessary to support implementation effectiveness (Askell-Williams & Lawson, 2013; Iizuka et al., 2014). Professional learning should address both the curriculum and teachers' skills for delivering SEL.

PROFESSIONAL LEARNING SHOULD ADDRESS BOTH THE CURRICULUM AND TEACHERS' SKILLS FOR DELIVERING SEL

Explicit identification and embedding of social and emotional competencies (SEC) in the curriculum at a national or subnational level helps to prioritise educational efforts and accountability for outcomes (Dusenbury et al., 2015). Curriculum guidelines for SEL elaborate learning goals relevant to key competencies for different educational stages. Effective learning goals are sequenced progressively using a recursive approach that enables skills to develop over time. Indicators define the outcomes expected at each stage of learning and development.

A number of jurisdictions internationally, including Ireland, Malta, British Columbia and Mexico, have developed comprehensive curricula for SEL (Cefai et al., 2018; Hymel et al., 2017). In the US, several states have followed the lead of Illinois and joined a Collaborative for Academic, Social, and Emotional Learning (CASEL) initiative to develop formal standards for implementing SEL (Dusenbury & Weissberg, 2018). A recent European review recommended "strengthening social and emotional education as a core curricular area across the EU" (Cefai et al., 2018).

Although the development of shared curriculum standards promises benefits for the quality of SEL implementation, overly prescriptive specification of curriculum outcomes can lead to deficit views and negative stereotyping of children whose development does not follow predetermined norms (Cefai et al., 2018; Ecclestone & Hayes, 2019). Uneven developmental trajectories, cultural and contextual differences, as well as individual temperaments, mean that rates of social and emotional development, forms of emotional expression, behavioural norms and capacities for self-regulation are highly variable (Acar et al., 2018; Huynh et al., 2018; Malti et al., 2016). Curriculum guidelines should provide scope for adaptation to the needs of students, and enable tracking and evaluation of implementation impacts.

By articulating the links between SEL and other curriculum components, system-wide curricula may help to integrate efforts across several related initiatives (Elias et al., 2015). The Australian curriculum has been formulated to incorporate personal and social capability, ethical understanding and inter-cultural understanding across all curriculum areas (Australian Curriculum Assessment and Reporting Authority (2019). Singapore's 21st Century curriculum provides a similar emphasis on interrelated competencies. The incorporation of SEL skills within UNESCO's Education 2030 curriculum underlines the importance of aligning social and emotional capabilities with education for peace and sustainable development, so as

EDUCATION

THE INCORPORATION OF SEL SKILLS WITHIN UNESCO'S EDUCATION 2030 CURRICULUM UNDERLINES THE IMPORTANCE OF ALIGNING SOCIAL AND EMOTIONAL CAPABILITIES WITH EDUCATION FOR PEACE AND SUSTAINABLE DEVELOPMENT

to help prepare young people to meet major environmental, economic and social challenges (Mahatma Gandhi Institute of Education for Peace and Sustainable Development, 2017; OECD, 2018; UNESCO, 2017).

SPECIFIC SEL PROGRAMMES

Over the last 25 years, CASEL has spearheaded a programme of systematic development and evaluation of a multitude of classroom-based SEL programmes led by experts in child development and learning. A meta-analysis of foundational work in the field confirmed the value of a set of core practice guidelines for identifying high-quality programmes with implementation processes that were most likely to be effective (Durlak et al., 2011). These practices, known by the acronym 'SAFE', are presented in the following table.

Table 6.2: SAFE Practices Associated with High-quality Implementation and Positive SEL Outcomes

S **A** **F** **E**

Sequenced – applies a planned set of activities to develop skills sequentially in a step-by-step approach

Active – uses active forms of learning such as role play to help youth learn new skills

Focused – devotes sufficient time exclusively to the development of social and emotional skills

Explicit – targets specific social and emotional skills

Step-by-step sequencing of SEL enables children to practise basic skills and progressively build more complex skills. The use of active, experiential methods is essential for developing new capacities, allowing children themselves to try out the practices being presented to them, to explore how they work and directly experience their benefits. A focused approach to teaching that explicitly targets social and emotional skills ensures that the particular skills being taught are clearly identified and practised, that the steps involved are well understood and that children have the opportunity to consolidate their learning of both the skills and the contexts for their use.

Concurrent with research confirming the importance of SAFE practices, an independent meta-analysis of studies on school-based mental health promotion identified similar indicators of implementation quality (Weare & Nind, 2011). High-quality implementation was associated with: a) a sound theoretical base with explicit definition and communication of goals and rationale, and staff training that was clearly linked to intervention components; b) a "direct, intense and explicit focus on the desired outcome"; c) explicit guidelines, reinforced through training and clear specification of individual responsibilities; and iv) they provided complete and accurate implementation to achieve specified programme goals (Weare & Nind, 2011).

QUESTION OF CULTURAL TRANSFERABILITY

Varying degrees of success have been reported for SEL programmes that have been adopted cross-culturally (Humphrey, 2018; Wigelsworth et al., 2016). While a number of factors, including the need for adequate preparation and implementation support, may, in part, account for these findings, careful consideration should be given to the question of cultural transferability. Many prominent SEL programmes have been developed for English-speaking populations, but implementation in different cultural contexts requires more than simple translation. Consideration must always be given to assessing the relevance and cultural fit of any programme that is

intended for implementation with different populations. Contextual factors to be taken into account have to do with cultural values and norms for regulating and expressing emotions, as well as rules of social behaviour (Dobia & Roffey, 2017; Hecht & Shin, 2015; Huynh et al., 2018).

The emphasis on sequenced, active, focused and explicit practices tends to favour approaches that are manualised and highly structured. Developmentally, this approach is most effective with younger children, for whom the evidence for SEL programme effectiveness is stronger. For adolescents, direct skill-based instruction has been found to be less effective (Lendrum et al., 2013). More developmentally appropriate and engaging pedagogies support autonomy and mutual respect in adolescents. This can be facilitated, for example, by involving young people in determining and exploring issues that are of concern to them and supporting them to think through the ways that different values and social norms are enacted in classrooms and in their relationships (Yeager, 2017).

The development of effective SEL skills requires that SEL practices are embedded throughout everyday learning and relationships. While a consistent and developmentally sequenced approach is important, highly prescribed programmes may not reflect student experiences and, therefore, may not generalise well to everyday settings in the classroom and beyond. Similarly, highly scripted and sequenced SEL programmes may not provide sufficient opportunity to build on the contextualised knowledge and expertise of teachers and their capacity to be creative and responsive to their students' needs.

One suggested alternative is to offer teachers a continuum of evidence-informed strategies and practices that are developmentally sequenced, flexible and responsive to student needs. A strategy-based approach to SEL seeks to provide teachers with customisable tools that can be contextualised and embedded throughout their teaching (Bailey et al., 2019). This model entails a shift in focus from curriculum to pedagogy.

> Extending the emphasis on flexibility and responsiveness to include student voice and collective learning, Roffey (2017) highlights the importance of the principles of agency, safety, positivity, inclusion, respect and equity for teaching and learning SEL. This pedagogical approach has particular relevance for breaking down stereotypes and cultivating collaboration, compassion and a sense of shared humanity.

WHOLE SCHOOL APPROACHES

Whole school approaches broaden the focus of school-based interventions beyond the explicit curriculum to include the people and contexts that support children's learning and development. Much of the international work into developing whole school practice models has been informed

by the World Health Organization's Health Promoting Schools (HPS) initiative (WHO, 1996). HPS integrates a tiered approach to mental health promotion, prevention and intervention with a social-ecological orientation that lays emphasis on the cooperative engagement of people and contexts in support of children's learning and development.

A whole school approach recognises that the contexts in which children learn and interact are vitally influential for their social and emotional development. Accordingly, multiple components and strategies are employed in order to build nurturing and responsive relationships, systems, policies and practices. The HPS framework promotes a strategic focus on three core overlapping domains: curriculum, teaching and learning; school ethos and environment; and family and community partnerships. This approach has guided many whole school and whole system SEL initiatives throughout Europe, North America and the Asia-Pacific (Cefai et al., 2018; Goldberg et al., 2018; Samdal et al., 2013; Sheinman & Hadar, 2017; Weare & Nind, 2011). Figure 6.1 presents the core domains of the whole school model, along with key examples of recommended strategies for each domain.

Figure 6.1: Whole School Approach for SEL – Core Domains and Strategies

Consistent with a social-ecological approach, Figure 6.1 places young people at the centre. The surrounding middle sphere includes actions and implementation strategies that schools can undertake as part of their everyday practice. The outer sphere shows the kinds of enabling inputs from the education and community sectors that are needed to strengthen school-based implementation in each of the core domains. Implementation is led by a school-based team that provides crucial planning and monitoring functions, and instigates collaborative school-wide systems and practices.

CLIMATE/ETHOS

School climate refers to the overall relational quality of a school, which is reflected in the ways that norms, goals and values are embedded and expressed. Studies of school climate have identified five key dimensions: safety; relationships; teaching and learning; school environment; and processes for school improvement (Thapa et al., 2013). Building a positive school climate involves engaging all members of the school community in a meaningful process of establishing and enacting a shared vision based on ethical and democratic values (Cohen, 2014).

A caring and inclusive school climate is underpinned by policies and practices that uphold principles of fairness and equity, as well as proactive strategies for including students and families with diverse needs and cultural backgrounds. Rather than taking a punitive orientation, discipline policies and practices promote the development of SEL skills such as perspective taking, responsible decision making and conflict resolution. Opportunities for meaningful participation and leadership enhance students' connectedness, as well as their skill development. Respectful and collaborative relationships are cultivated among staff members and between staff and students. Support is available to students and staff for academic, professional and personal development (Weare, 2015).

CURRICULUM TEACHING AND LEARNING

In addition to the curriculum and programme considerations discussed in previous sections, a whole school focus on curriculum teaching and learning adds particular emphasis to school-wide integration of SEL. Applying a whole school perspective enables and enhances the implementation of a staged, developmentally appropriate SEL curriculum and encourages the extension

STUDENT VOICE AND AGENCY IN THE PLANNING AND DELIVERY OF SEL IS ALSO STRONGLY ADVOCATED AS PART OF A WHOLE SCHOOL APPROACH

of teaching and learning beyond the classroom into everyday interactions in all school settings. A whole school approach also facilitates the provision of targeted SEL interventions for students with identified needs.

By emphasising the whole school community and promoting staff collaboration and ownership, the HPS approach encourages schools to make the link between classroom teaching and school-wide policies and practices. Benefits of school-wide programming for SEL include continuity and consistency in teaching and practical application, greater integration of social and emotional competencies with academic skill development, better school relationships and systemic, school-wide promotion of prosocial norms and school culture (Jones & Bouffard, 2012). Student voice and agency in the planning and delivery of SEL is also strongly advocated as part of a whole school approach (Barry et al., 2017; Cefai et al., 2018). Teaching and learning effectiveness is enhanced through professional learning and expert consultation.

The HPS framework advocates a tiered model of intervention that distinguishes strategies for providing a classroom-based SEL curriculum for all students, targeted small group interventions for students requiring more intensive or more tailored SEL, and early intervention strategies that provide individualised support for students with complex needs (Cefai et al., 2018; WHO, 1996). When well implemented, universal classroom-based SEL has been shown to have long-term benefits for many students, including those experiencing emotional or behavioural difficulties (Domitrovich et al., 2017; Taylor et al., 2017). Additionally, well-designed targeted programmes have specific benefits for young people experiencing particular mental health or social challenges (Iizuka et al., 2014; Werner-Seidler et al., 2017; Wilson & Lipsey, 2007).

FAMILY AND COMMUNITY PARTNERSHIPS

Locating family and community partnerships at the core of a whole school approach acknowledges that the responsibility for children's social and emotional development is shared with parents and caregivers, and supported by the wider community.

Children's prosocial learning is enhanced when educators work closely with families to support children's social and emotional learning (Slee et al., 2012). Effective engagement of parents and caregivers benefits student learning and supports parents in their parenting role. Activities that promote shared

CHILDREN'S PROSOCIAL LEARNING IS ENHANCED WHEN EDUCATORS WORK CLOSELY WITH FAMILIES TO SUPPORT CHILDREN'S SOCIAL AND EMOTIONAL LEARNING
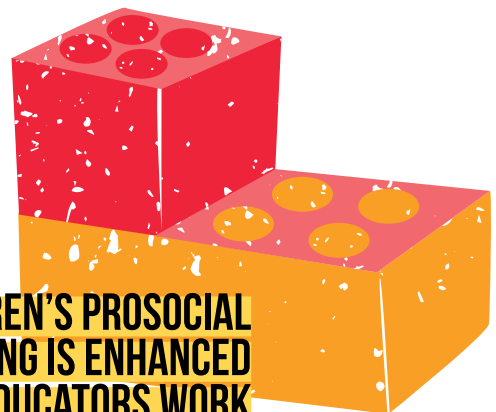
responsibility for promoting children's social and emotional development, and link parents and caregivers to sources of support at school or in the community succeed on the basis of open communication, respect and trust (Garbacz et al., 2015).

The development of active partnerships with parents and caregivers requires a willingness on the part of school staff to learn about parents' needs and views as a basis for cultivating meaningful collaboration (Bartolo & Cefai, 2017). Fostering supportive engagement with parents of children who exhibit emotional and behavioural difficulties, and decreasing the risk of stigma is critical for the success of targeted interventions (Aasheim et al., 2018; Herman & Reinke, 2017).

At the targeted level, some parenting programmes may provide support for the development of parental social and emotional competence (Miller et al., 2018). Parenting programmes that take an emotion coaching focus appear particularly well suited to the goals of SEL. Emotion-focused programmes help parents to build children's emotional awareness and acknowledge the validity of emotions and improve relationships, enhancing parents' SEC at the same time (Lee & Kim, 2019; Wilson et al., 2012).

Active community partnerships provide schools with additional support from community-based agencies and specialist practitioners. Community partners may be involved in providing a variety of co-curricular activities for children, offering information and support to parents, contributing expertise to the implementation of programmes, or providing specialist assessment and referral for children and families who require targeted interventions. In a recent meta-analysis of whole school interventions, school-community partnerships were found to lead to better outcomes for children (Goldberg et al., 2018). Enabling schools to link with support in the community is seen as central to the social-ecological framework of the HPS approach.

> "Research indicates that interventions yield most successful outcomes when they are integrated into daily practice and school culture, seek to engage all staff, reinforce skills outside of the classroom such as hallways and playgrounds, support parental engagement, and coordinate work with outside agencies. Together, these characteristics point to the importance of adopting a whole school approach to enhancing children and young people's social and emotional skill development" (Goldberg et al., 2018).

Whole school implementation involves a multi-component approach that is developed in stages, and requires guidance and support. While more complex than programme-based approaches, it seeks to embed support for social and emotional well-being through enhancing relationships, extending opportunities to develop and practise SEL competencies, and ensuring greater consistency and continuity between school and home settings. Multiple components require a coordinated and whole school focus. Effective shared leadership is essential (Samdal et al., 2013).

REQUIREMENTS FOR EFFECTIVE IMPLEMENTATION

Despite clear overall evidence of the efficacy of SEL, there is still considerable variability in its effectiveness when programmes that may have been successful at the pilot stage are transferred to 'real world' settings (Jones & Bouffard, 2012; Wigelsworth et al., 2016). These discrepancies are frequently associated with implementation factors (Humphrey, 2018).

Without adequate planning for implementation, the benefits of an otherwise promising programme or initiative may not be achieved. Better outcomes have consistently been related to the quality of implementation (Durlak & DuPre, 2008; Meyers et al., 2012). This requires attention to the provision of effective support and monitoring of implementation processes over a sufficient duration throughout preparation, professional development, initiation and ongoing maintenance of the initiative (Durlak & DuPre, 2008; Fixsen et al., 2013).

WITHOUT ADEQUATE PLANNING FOR IMPLEMENTATION, THE BENEFITS OF AN OTHERWISE PROMISING PROGRAMME OR INITIATIVE MAY NOT BE ACHIEVED

With a focus on the translation of research evidence into practice, the field of implementation science has identified the importance of fidelity, adequate dosage, quality, participant responsiveness and programme differentiation as key elements associated with effective implementation. Also highlighted is the need to monitor progress, as well as issues of programme reach and adaptation when evaluating programme implementation (Durlak, 2016; Durlak & DuPre, 2008).

Table 6.3: Key Factors for Implementation Effectiveness

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?

*[Source: Durlak, 2016; Humphrey, 2018]*

SEL programmes delivered with adherence to programme guidelines have been found to be more likely to show the desired impacts for student academic and behavioural outcomes. In order to promote fidelity, many programmes, especially those originating in North America, provide highly structured and detailed lesson plans and implementation guides, as well as professional learning and support.

At the same time, effective implementation requires adaptation to suit the specific context in which an SEL initiative is being undertaken (Meyers et al., 2012). If school leaders and staff are not convinced of the benefits of SEL or are not committed to the implementation process, effectiveness will be compromised. Taking time to adapt the initiative to their needs and context is key to securing initial buy-in and ongoing involvement in the process of implementation (Flaspohler et al., 2012).

Adaptation may be necessary to ensure a given programme is responsive to cultural differences in the development of social and emotional competence (Brown et al., 2018; Dobia & Roffey, 2017; Huynh et al., 2018). Cultural adaptation may also be an important determinant of effectiveness when SEL programmes are transferred from one country to another. For example, educators and researchers in the UK and Europe have noted a preference for a 'bottom up' flexible approach to implementation that provides scope for teachers to determine content and teaching methods.

EFFECTIVE IMPLEMENTATION REQUIRES ADAPTATION TO SUIT THE SPECIFIC CONTEXT IN WHICH A SEL INITIATIVE IS BEING UNDERTAKEN

Adaptability was an intentional design feature of the UK's Social and Emotional Aspects of Learning (SEAL) initiative. However, the secondary-level SEAL evaluation suggested that excessive flexibility and limited resources contributed to diluted implementation, which resulted in poor outcomes. The research findings also identified problems with dosage, responsiveness and programme differentiation. These issues were attributed to the perception of an 'anything goes' approach to implementation (Humphrey et al., 2013). Further reasons why educators may prefer adaptation over programme adherence include school context, demands, lack of resources and the conviction that schools know their students' needs better than programme developers (Skrzypiec & Slee, 2017).

Since both adaptation and fidelity contribute to effective implementation, it is essential to strike a productive balance between these two dimensions. To this end, programme developers should clearly designate core components and underlying principles that must be preserved in order to maintain the integrity of the initiative and, at the same time, identify components that can be modified for contextual fit (Fixsen et al., 2005; Meyers et al., 2012).
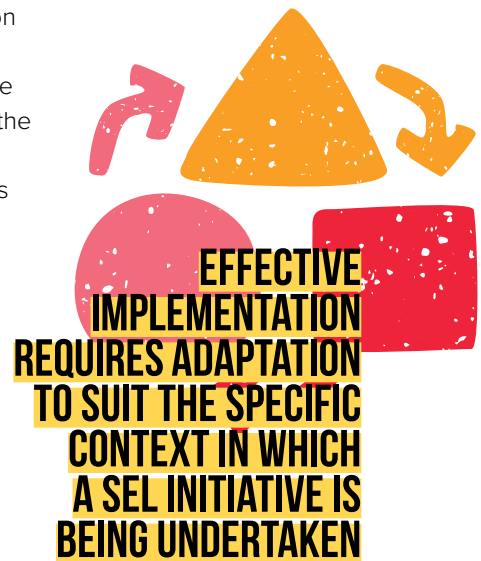
A focus on strategic and pedagogic approaches aims to enable teachers to infuse SEL into their teaching with a greater sense of autonomy, knowledge and competence. This emphasis on flexibility reduces the need for strict fidelity when implementing predetermined programmes and highlights the importance of quality of implementation and processes of quality assurance to support effectiveness (Barry et al., 2017).

Quality of implementation refers to how well a programme or practice is taught. Implementation quality in SEL relates to teachers' SEC, including effective engagement, sensitivity and responsiveness, as well as preparedness, and skill in lesson delivery and in integrating SEL concepts and skills into daily interactions and activities (Lendrum et al., 2016). An emphasis on quality assurance for implementing flexible SEL practices requires investment of resources in professional development and support, with a focus on building understanding of the purpose, principles and pedagogies of SEL, as well as enabling teachers' SEC (see Chapter 5).

Researchers in the field of implementation science have identified a number of ways that SEL implementation is weakened (Jones & Bouffard, 2012). These include:

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.

Fragmentation and marginalisation – This occurs when SEL is not seen as core curriculum and is consequently given a low priority. Inconsistency of teaching undermines learning outcomes.

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.

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.

WHOLE SCHOOL IMPLEMENTATION

While many established SEL programmes offer some form of implementation support, systemic and sustained implementation is enabled by policy settings, standards and support structures that can direct resources and expert guidance to schools. Effective whole school implementation follows a carefully planned and sequenced process. This should begin with a phase of preparation and developing readiness, leading to the establishment of structures

for effective implementation, including forming a team and devising an implementation plan. Specific professional learning is critical prior to commencing implementation. Active implementation includes attention to fidelity, dosage, quality and engagement. To ensure effectiveness and sustainability, monitoring and evaluation should be undertaken for both process and outcomes (Fixsen et al., 2013; Meyers et al., 2012).

Evaluation of the KidsMatter initiative in Australia led researchers to propose a framework for quality assurance in implementing whole school social-emotional well-being programmes. The emphasis is on supporting the engagement of all stakeholders in an ongoing process of planning, action and reflection (Askell-Williams et al., 2013). CASEL's online *Guide for School-Wide Social and Emotional Learning* provides extensive tools and resources to support systematic implementation of evidence-based SEL programmes. Its *School Theory of Action* elaborates six sequential steps intended to systematically build the capacity of schools for SEL implementation (Meyers et al., 2015, 2019).

EFFECTIVE WHOLE SCHOOL IMPLEMENTATION FOLLOWS A CAREFULLY PLANNED AND SEQUENCED PROCESS

Implementation frameworks need to be adapted to cultural and educational contexts in different countries. Key considerations identified from the literature are presented below.

PREPARATION

Preparation involves engagement of stakeholders and undertaking thorough planning to ensure that the school is ready for, and has the resources needed, to take on the SEL initiative. This requires investigation of the needs of the school and the resources available to support implementation (Flaspohler et al., 2012). At this stage, an implementation team should be formed with the responsibility to lead the initiative and engage staff, students and parents.

In order to build interest and procure buy-in across the school community, it is important to learn and share what SEL is to discuss how and why SEL might be of benefit, as well as to hear and address any concerns. Taking time at the outset to establish interest and commitment will help to develop a sense of shared mission and will support consistency and quality of implementation.

Selection of the SEL programme or approach to be taken should be based on a thorough investigation of the specific aims and objectives of the programme, and what is entailed in implementation in light of the needs, context and capacity of the school and its community as well as the resources available to support it. Any needs for programme adaptation should also be carefully considered.

Planning for implementation involves developing action plans to prioritise and address key areas that require attention. It should consider processes for engagement of staff and community members, professional learning needs, curriculum integration and timetabling of lessons, as well as policy and practice implications and processes for monitoring and feedback. This work is ongoing and requires significant coordination. The time, effort, skill and support required must therefore be recognised and included in resource planning at school and education system levels.

PROFESSIONAL LEARNING

Teachers' 'will and skill' have been identified as critical factors in determining quality of SEL implementation and positive outcomes for students (Lendrum et al., 2013). As previously indicated, the quality of implementation depends largely on the quality of teaching. Since few teachers receive specific training in SEL principles or pedagogies in their pre-service learning, it is essential to provide high-quality professional learning prior to implementing SEL, as well as ongoing guidance and support during implementation (Schonert-Reichel et al., 2015).

QUALITY OF IMPLEMENTATION DEPENDS LARGELY ON QUALITY OF TEACHING
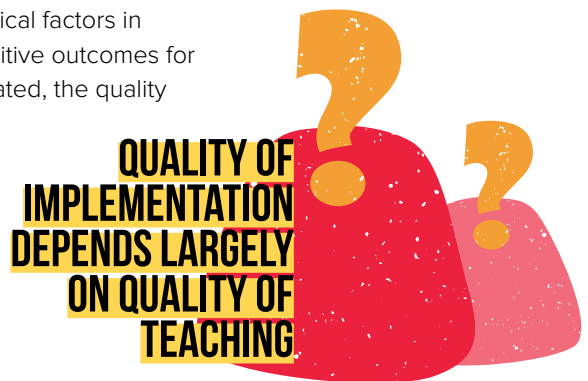
In addition to personal SEC, characteristics needed for effective SEL teaching include having an authoritative teaching style, good teaching skills, an extroverted interpersonal style and strong group leadership skills. Implementation quality will be enhanced when teachers are motivated to teach SEL, have a positive opinion of the programme and have the self-efficacy to deliver it well (Durlak & DuPre, 2008). Effective professional learning should therefore aim to promote these skills and dispositions.

The process of whole school implementation is complex and requires additional skills for leadership, peer mentoring and collaborative engagement with parents, caregivers and community stakeholders. Professional learning and guidance to support implementation, including appropriate adaptation and monitoring of SEL programmes, is therefore also essential to build organisational capacity for successful whole school SEL implementation (Goldberg et al., 2018).

IMPLEMENTATION PHASE

Implementation of a whole school approach must be adapted to local circumstances, with contextualising programme aims and methods for the particular school community as an ongoing focus. This requires systematic definition and prioritisation of goals and targets, and reflexive and regular progress monitoring, adjustment and review.

Adoption of developmentally sequenced evidence-based programmes helps to guide and enable classroom teaching and learning and supports programme fidelity. In addition, SEL practices are extended to non-classroom settings and effectively diffused through the broader curriculum, as well as informing school policies and practices (Iizuka et al., 2014).

The commitment of school leadership in support of a team-based approach is critical to enabling effective implementation (Askell-Williams, 2017). Ongoing guidance provided by specialist support staff is also crucial (Meyers et al., 2019; Slee et al., 2009). The provision of both universal and targeted interventions is recommended to ensure that more intensive support options are available for students who may benefit from them (Werner-Seidler et al., 2017). Planning and delivery of targeted interventions should be undertaken in consultation with specialist staff and community experts careful monitoring of implementation processes and effects should be incorporated (Evans et al., 2015).

THE COMMITMENT OF SCHOOL LEADERSHIP IN SUPPORT OF A TEAM-BASED APPROACH IS CRITICAL TO ENABLING EFFECTIVE IMPLEMENTATION

The cultivation of genuine partnerships with parents and caregivers involves collaborating in accessible and meaningful ways on the basis of sharing responsibility for children's development. Working with parents and caregivers in this way is often challenging for schools, but has significant benefits for children's development and academic achievement (Bartolo & Cefai, 2017; Garbacz et al., 2015).

CASEL's *Guide for School-Wide Social and Emotional Learning* provides a useful overview summarising ten indicators for schoolwide SEL implementation.

Figure 6.2: Indicators of School-wide SEL as outlined by CASEL
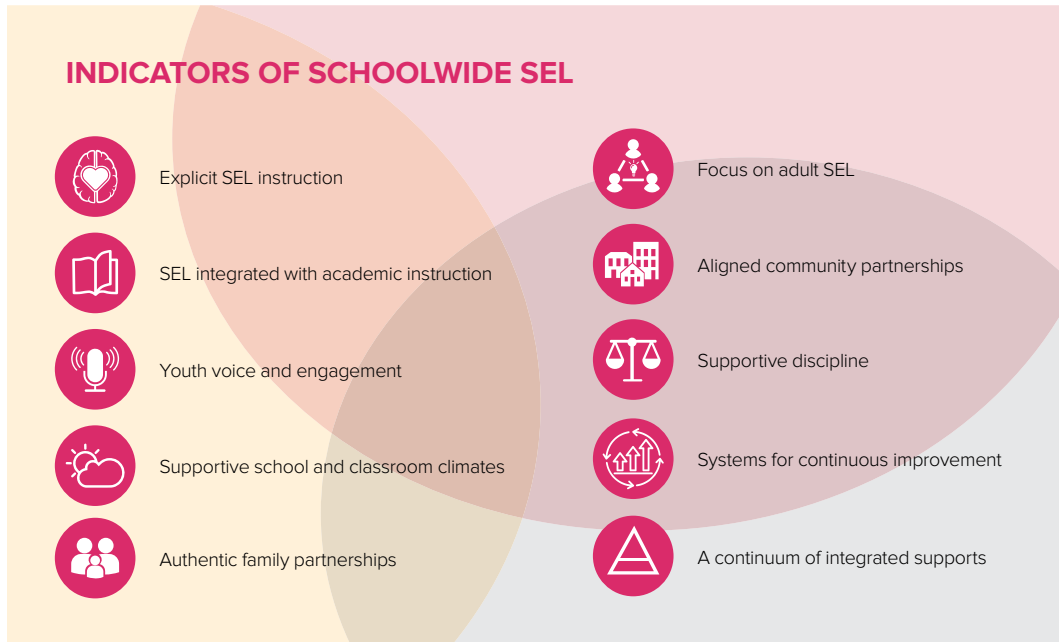
[Source: CASEL, ©2019. All rights reserved. https://schoolguide.casel.org/what-is-sel/indicators-of-schoolwide-sel/]

SUSTAINABILITY

Whole school SEL seeks to promote and enable a school culture oriented towards an ethic of care and development of the whole child. Schools' capacity for meeting this agenda is central to achieving the 21st century goals of education for peace and sustainable development. A major challenge for implementing and sustaining whole school SEL is to embed it thoroughly so that quality relationships and social, emotional and citizenship development become focal to the ways that schools operate.

Unfortunately, even successful programmes lose impetus through insufficient attention to maintenance and renewal. Major challenges to sustainability of educational initiatives include competing priorities, overcrowded curricula, innovation fatigue and staff turnover. Educational structures, particularly those of high schools, and a narrow focus on academic achievement and competitive ranking, are further challenges to embedding and sustaining SEL initiatives (Collie et al., 2015).

A number of the factors that underpin effective implementation of SEL are also important for ongoing sustainability. These include effective leadership, ongoing consultation and professional learning, whole school implementation, deep involvement of teaching teams who model the required competencies, school-level curriculum integration and financial resourcing (Elias, 2010). A systematic review in the US identified four kinds of characteristics that predicted programme sustainability: organisational support and readiness; programme fit; implementer characteristics including knowledge, skill and motivation; and sustainability planning (Cooper et al., 2015).

Those involved in implementation of SEL initiatives have identified the need to plan for sustainability through providing ongoing professional learning and consultation. This is particularly important for addressing issues associated with staff turnover, which in some instances can leave newer staff assuming leadership for implementing an initiative without having received the requisite professional learning (Askell-Williams, 2017).

MAJOR CHALLENGES TO SUSTAINABILITY OF EDUCATIONAL INITIATIVES INCLUDE COMPETING PRIORITIES, OVERCROWDED CURRICULA, INNOVATION FATIGUE AND STAFF TURNOVER

Planning for sustainability is not primarily a responsibility of schools alone; it also involves policy makers and funding bodies. A significant body of research has identified that there "there is no 'one-size-fits-all' when it comes to school-based prevention" (Humphrey et al., 2013) and, therefore, it is not simply a matter of 'plugging in' a ready-made programme and expecting to achieve outcomes. The clear benefits of SEL are only achieved when it is well implemented (Durlak, 2016).

Effective implementation is systemic, employs a school-wide focus and is backed up with clear policy, curriculum standards and appropriate resourcing. Most importantly for policy makers, quality implementation of SEL requires ongoing professional learning and implementation support. Both are essential for maintaining effectiveness and delivering desired outcomes. This requires sustained prioritisation and investment.

KEY CHALLENGES

6.1   International implementation of specific programmes has shown variable outcomes. Relevance and cultural fit of pre-existing programmes is necessary. Further research to distinguish implementation factors in diverse cultural settings is required.

6.2   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.

KEY RECOMMENDATIONS

6.1   Enable systemic and sustained implementation through the development of consistent policy settings, curriculum standards and effective implementation support, including expert guidance for schools.

6.2   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 particular school communities.

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SOCIAL AND EMOTIONAL LEARNING

THE COSTS OF INACTION

ANANTHA K. DURAIAPPAH
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CH // 07

ANANTHA K. DURAIAPPAH AND SANCHIT SETHI

ABSTRACT

There has been a recent surge in the demand for including Social and Emotional Learning (SEL) in schools. Most of the demand has come from the private sector, which sees SEL as low-hanging fruit to increase productivity. The potential of SEL to decrease adolescent deviant behaviour and substance abuse, and improve self-esteem is a real and significant benefit for society. However, as in any demand for policy intervention at the scale SEL warrants, the costs and benefits of such policies must be evaluated. Although a majority of the existing cost-benefit studies on SEL interventions have primarily been in developed countries and at project levels, the lessons learnt can be useful in projecting the macroeconomic potentials of such interventions.

THE POTENTIAL OF SEL TO DECREASE ADOLESCENT DEVIANT BEHAVIOUR AND SUBSTANCE ABUSE, AND IMPROVE SELF-ESTEEM IS A REAL AND SIGNIFICANT BENEFIT FOR SOCIETY

In this study, project level cost-benefit studies have been used to estimate macroeconomic impacts that would accrue from SEL interventions on the Gross Domestic Product (GDP). A combination of benefit transfer methodology and typical production function estimation model have been used to get some preliminary results.

KEY MESSAGES

7.1   The main economic benefits of SEL interventions, computed in a majority of current studies, come in the form of academic success leading to increases in labour productivity. Decreases in deviant behaviour and unwarranted negative societal outcomes arising from reduction in anxiety and depression can potentially be much larger. Lack of data, however, makes it difficult to compute the true economic benefits of the positive social impacts of SEL.

7.2   The benefit-cost ratio of SEL interventions at the project level can range from about 3.5 (for reducing delinquency) to 10 (improved academic success) to 14 (reducing substance abuse) with an average of about 11.

7.3   The macroeconomic costs of potential losses in economic productivity from not including SEL in education systems across our sample countries is, on an average, 29% of Gross National Income (GNI). This amount can be expected to be much higher if we consider Disability Adjusted Life Years (DALY) while estimating GNI.
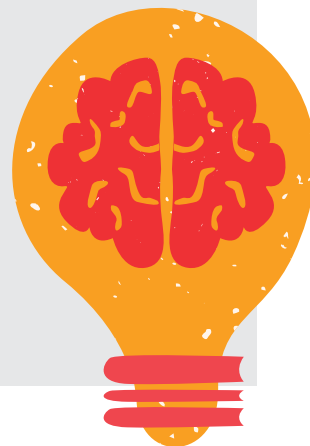
INTRODUCTION

There has been a recent surge in the integration of SEL in school education systems across many countries (Allen, 2011; Cooper, 2013; Deshpande, 2019; Kidger et al., 2012). Increased incidences of child depression, anxiety (WHO, 2015), bullying, aggression and violence EENet, 2016; Government of Canada, 2006) have been the primary drivers for the increased popularity of SEL.

The marked trend towards deteriorating mental health is accompanied by the push for increasing labour productivity to increase economic output. "Coupled with mastery of traditional skills, social and emotional proficiency will equip students to succeed in the swiftly evolving digital economy" is a key message that emerges from the influential World Economic Forum (WEF) report, "New Vision for Education: Fostering Social and Emotional learning through Technology (WEF 2016). The focus, undoubtedly, would be on challenges in a digital economy and not the broader

digital society. As technology grows at an exponential rate, the demand for more highly skilled labour, along with a labour force that is ready for the challenges of the 21st century, would be increasingly heard in influential global economic forums such as the World Economic Forum and the Organisation for Economic and Co-operative Development (WEF 2017; OECD 2017).

The double dividend from SEL is supported by many recent studies in the cognitive and neuro sciences, which show how mental health, academic performance, and labour productivity can increase if individuals improve their pro-social behaviours (Durlak et al., 2011; Felver et al., 2015; Langer et al., 2015; SKlad et al., 2012). More importantly, SEL not only improves academic and labour productivity but also leads to increased self-esteem, better citizens, and reduce violence and deviant behaviour (Clarke et al., 2015; Diekstra & Gravesteijn, 2008; Felver et al., 2015; Payton et al., 2008; Weare & Nind, 2011).

Incorporating SEL, however, will have an associated cost and this cost has to be weighed against the benefits that accrue from incorporating SEL. A key question that policymakers ask when a new policy or activity is proposed is, "What are the net returns or benefits from the investment?"

INVESTMENT IN SOCIAL EMOTIONAL LEARNING WILL JUST NOT IMPROVE ACADEMIC AND LABOUR PRODUCTIVITY BUT WILL ALSO LEAD TO INCREASED SELF-ESTEEM, BETTER CITIZENS, REDUCE VIOLENCE AND DEVIANT BEHAVIOUR

Securing investments for SEL, therefore, will have challenges at two levels. First, education systems are already facing funding constraints. Education ministries must compete with the defence, infrastructure, health and a host of other sectors for resources within a fixed budget.

Second, within the education budget, SEL will compete for resources with traditional demands for improving literacy and numeracy. We must not forget that the main goal of present education systems is to increase the human capital of a country. This, in turn, is influenced heavily by the literacy rate, which is calculated by determining the enrollment and graduation rate of learners in schools (Jorgenson & Fraumeni, 1989; UNU-IHDP, 2014).

Therefore, at least in the short run, any exercise to introduce SEL into the education system must demonstrate how it can improve any one of the parameters that increases human capital in the country. This is unfortunate; nevertheless, while policymakers remain fixated with the assumption that income or economic growth lead to the prosperity and well-being of its citizens, we will need to demonstrate that investments in SEL will increase the income of a country. The social

benefits of SEL – such as improvement in mental health and human flourishing – are difficult to monetise and, for the time being, have to be treated as intangible positive outcomes of SEL interventions.

The aim of this chapter is to evaluate the economic benefits that might accrue from SEL interventions through the improvement of labour productivity. The study will build on the seminal Belfield study (Belfield, 2015), which evaluated seven SEL interventions at the micro level. Results from these micro studies will then be used to estimate the impact of SEL interventions at the macro level through impacts on GNI.

SEL INTERVENTION PATHWAYS ARE NOT MUTUALLY EXCLUSIVE AND IMPROVEMENTS IN ONE PATHWAY CAN BE A MULTIPLIER FOR OTHER PATHWAYS LEADING TO OVERALL IMPROVEMENTS IN PERSONAL AND SOCIETAL OUTCOMES

The chapter is structured as follows. The next section provides a short overview of SEL and its main contributions to human capital. This is followed by an economic analysis and includes preliminary results of projecting the Belfield study's evaluations to the national level to get an idea of its impact on human capital. The fourth and final section will provide some general conclusions from this economic analysis of SEL interventions.

SEL'S CONTRIBUTIONS TO SOCIETY

SEL can contribute to society emerge in multiple ways. The first is the direct contribution to improvements in academic success, leading to increased economic productivity and higher lifelong earnings (Duckworth et al., 2012; Farrington et al., 2012; Murnane et al., 1995; Seibert & Kramer, 2001). Another contribution that is increasingly being studied and demonstrated is the increase in social and emotional competencies (SEC) such as impulse control, emotion regulation and cooperation, leading to reduced crime rates, delinquent behaviour and teen pregnancy, among many others (Almlund et al., 2011; Gupta et al., 2019). A third contribution highlighted by emerging studies within the field of economics and decision-making is that SEL has significant impacts on economic decision-making (Manski, 2000; Mobius & Rosenblat, 2014).

However, many studies acknowledge that these pathways are not mutually exclusive, and in most instances, improvements in one pathway lead to improvements in others, leading finally to improved economic and societal outcomes (Diekstra & Gravesteijn, 2008; Durlak et al., 2011; Payton et al., 2008; Sarcassani et al., 2015; Sklad et al., 2012; Weare & Nind, 2011; Waters, 2011).

In this chapter, we will draw upon current literature for data and actual monetised numbers that can provide us quantifiable results on how SEL interventions have contributed to the betterment of individuals and society. We have narrowed our attention to studies that have concrete numbers that can be used in an economic evaluation exercise to determine if investments in SEL make economic and societal sense.

THE SOCIAL COSTS AND BENEFITS OF SEL

The economics of SEL is presented in two sections. The first will focus on the microeconomics of SEL interventions, where we will review the many interventions that have been adopted in schools and other educational settings. Here, we will also evaluate the costs and benefits of such interventions.

The second part will focus on the macroeconomics of SEL interventions. In this section, we shall use micro-level estimates from the previous section and attempt to explore the macroeconomic implications of SEL interventions; specifically, we shall estimate GNI using regression techniques and discuss the implications of SEL interventions or their absence on GNI.

THE MICROECONOMICS OF SEL INTERVENTIONS

In this section, we shall provide an overview of some cost-benefit estimates emerging from SEL interventions at the project level. We make a distinction here between a standard cost-benefit analysis and a social cost-benefit analysis. While the former primarily looks at the direct economic benefits to the user, a social cost benefit analysis (SCBA) includes the benefits that accrue to society at large. In economic jargon, an SCBA includes the positive and negative externalities that might accrue from the project. Externalities, in turn, are defined as an unintended output of a project that might either add costs or benefits to society at large. An example is the pollution (negative) caused by an industrial project or the pollination (positive) caused by bee farming. In education, this might be the drop-in delinquency (positive) that emerged because of SEL interventions targeted at improving academic performances. A typical economic cost-benefit would limit its analysis only to the benefits from improvements in academic performance to the individual but not to society.

SOCIAL COST BENEFIT ANALYSIS (SCBA) FOR SEL IS NECESSARY AND URGENT

The studies informing the microeconomics of SEL fall under the category of SCBA. The social benefits of project interventions have been computed in addition to the direct impacts. In the SCBAs reviewed in this chapter, we separate the effects of an SEL intervention into two main groups – direct and indirect effects. The former includes benefits that can be directly linked to the target groups of the SEL interventions. This usually involves estimating the impact an SEL intervention has on academic success; that causality is extrapolated to measure the marginal increase in a subject's life earnings.

The indirect effects, on the other hand, include what we shall call the externalities generated by the intervention; these can be either positive or negative. In the case of SEL, these externalities are usually perceived to be positive and occur in the form of reduced crime, teenage pregnancy and drug use, and most importantly, an improvement in mental health and reduction in depression and anxiety. The impacts that might emerge from these externalities are experienced not only by the participants but by society at large.

A key challenge in conducting an SCBA is the monetisation of the indirect benefits. Many of the benefits do not have market prices and therefore they have to be monetised using shadow prices, also called social prices.

Estimating shadow prices is a non-trivial task. Economists use a suite of approaches to compute shadow prices. The first, called contingent valuation, attempts to estimate the willingness to pay (WTP), a shadow price determined by asking consumers how much they are willing to pay for a service or commodity. This is usually done through surveys. A corollary to the WTP is the willingness to accept (WTA), which tries to determine how much consumers are willing to accept to forego a service or good. The second method, called revealed preferences, uses actual market prices as proxies for the values for the intangible good or service. The third approach is hedonic pricing, which uses regression techniques to filter out the various factors that might determine the value of the service or good.

INDIRECT EFFECTS OF SEL INTERVENTIONS INCLUDE REDUCED CRIME RATES, REDUCED DRUG USE AND IMPROVEMENT IN MENTAL HEALTH

The common method, used in particular to estimate the benefits from SEL interventions, is the cost avoided by using the intervention. For example, the cost of illness computed by determining what the illness might cost to the individual and to society is assumed to be the value individuals would be WTP to prevent that illness. The majority of the valuation studies on SEL interventions use the cost of inaction as the benefits accruing from SEL interventions.

The Belfield study undertook an intensive SCBA of SEL across six SEL interventions. Table 7.1 provides an overview for each study, the main benefits addressed and the approach used to value shadow prices for the various benefits observed through the interventions. Each of the SEL programmes had multiple benefits but benefits reported in Table 7.1 are only those that could be monetised. The ensuing net benefits that emerged from these studies are, at best, conservative estimates and the probability of actual benefits being higher is strong.

Table 7.1. Economic Value of Benefits of SEL Programmes

Study Name	Benefits for which Shadow Prices were Computed	Valuation Method Used	Studies Used	Present Value of Total Benefits per Student	Net Present Value Benefits per Student	Bene-fit-Cost Ratio (B\C) per Student
4R	1. ADHD-Attention Skills 2. Social Competence (SC) 3. Reduced Aggression (RA)	Cost of Illness[1]	1. ADHD – Jones et.al 2009 2. SC and RA – Foster et.al 2005	1. ADHD -$2,490 2. SC -$1,360 3. RA -$4,470 Total = $8320	$7,640	12
Positive Action	Bullying Reduction (BR)	WTP for a day of schooling	Belfield et.al 2015	$2,580	$2,070	5.1
Life Skills Training	Lower Delinquency	Cost avoided due to drop in delinquency	Botvin et al., 2006)	$450	$320	3.5
Second Step	Reduced Aggression		1. Espelage et al., 2013 2. Foster et al., 2005 3. Cohen and Piquero (2009)	$4,320	$3,880	9.8
Responsive Classroom	Improved Academic Performance	Labour market earning potential	Rimm-Kaufman (2014)	$8,920	$8,020	10
Social Emotional Training	Reduction in Substance Abuse	WTP to avoid costs of drug abuse impacts	Nilsson and Wadeskog (2008)	$7,510	$6,970	14

Some interesting observations emerge from the six studies illustrated above. Reducing aggression, which requires building competencies of self-regulation, impulse control and empathy, are highly valued by society. They lie in the $4,000 per student level. More importantly, the cost of reducing aggression is low and the benefit-cost ratio is approximately 10. The value of benefits from efforts to reduce substance dependence is about $7,510 with a benefit-cost ratio of 14. The weighted average benefit-cost ratio across all six studies is approximately 11 (Belfield et al., 2015).

A key point to make at this juncture is that the estimates used in the studies cited are conservative and, in all probability, the benefits are much larger than indicated. Second, the inter-dependency among the benefits also suggests that a programme to reduce delinquency and aggression will likely improve academic performance, as indicated in the Belfield study.

Time plays a key role in SEL interventions because of their nature. The Belfield study identifies three time periods where benefits materialise – early childhood, youth and adulthood (see Figure 7.1).

Figure 7.1. Time Effects of SEL Interventions

| C Cost of intervention | B_{Di} Benefits during intervention | B_{Yi} Benefits (youth) after intervention | B_{Ai} Benefits (youth) after intervention | Net Present Value = B–C Benefit–Cost Ratio = B/C |

Ratchet $_{ri}$ Fade-out $_{fi}$
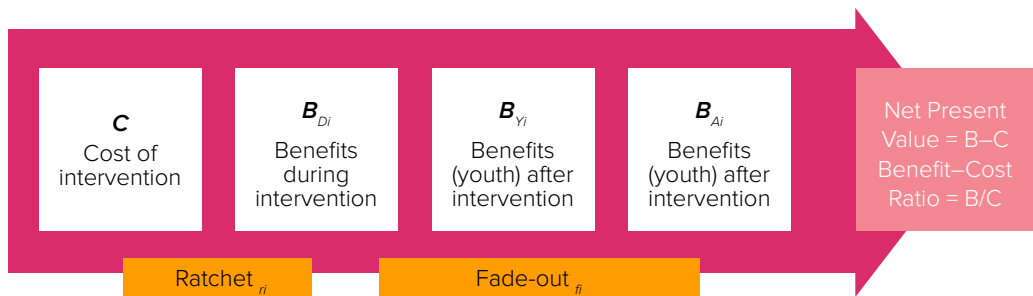
[Source: Belfield et al., 2015]

It is relatively easy to measure the benefits during the intervention. However, it becomes more difficult to track and measure the benefits that come during youth and adulthood. The timing of the costs and the benefits accrued can make or break a project intervention.

Another key factor in counting the time value[1] of project interventions and their expected benefits is the discount rate. A discount rate, in many ways, reflects the risk attitude of the policymaker. The higher it is, the more myopic the decision maker and the faster they want to see returns on the initial investment. The discount rate used in the studies reviewed by Belfield is a conservative 3.5 per cent.

The final results of this and the social cost-benefit method depend on the shadow prices of the benefits that are produced but not yet monetised because of their intangible nature and the lack of markets that may allocate a price to these.

We now know with considerable certainty that SEL interventions are cost effective and the returns to investment are high. While these are at the project level, they indicate that investment must be allocated to education budgets to mainstream and embed SEL in curricula. An important lesson we can learn from climate change policy is to make a strong case for the cost of inaction to society. In other words, what is the cost to the national economy if SEL interventions are not implemented in schools and other educational organisations? This is the topic of the next section.

INVESTMENTS FOR SEL INTERVENTIONS ARE COST EFFECTIVE AND YIELD HIGH RETURNS MAKING THEM IDEAL CANDIDATES IN TIGHT EDUCATION BUDGETS

SEL AND MACROECONOMICS

In this section, we draw upon micro studies and take a representative value of the costs and benefits that were reported. We then use these to estimate a GNI function to get a macroeconomic perspective on the impact SEL interventions might have on the overall economic health of a country. This impact may be seen in two ways. The first entails the new expenditure caused by SEL interventions and the second entails the increase in productivity after SEL interventions are implemented. This will be the benefit valuation we get from the micro studies presented in the previous section.

We will determine this through a two-part process.

PART I:
LINKING DALY AND INCOME

PART II:
ESTIMATING IMPACT OF SEL INTERVENTION ON PCI

PART I: LINKING DALY AND INCOME

1. EMPIRICAL MODEL

To establish a link between mental health and income, the starting point of the analysis is a classic production function with two inputs – human-made capital (also called manufactured or built) (HMK), and human capital (HK).

Y = f (HMK, HK)

The need for considering human ability as a kind of capital was not recognised until the end of the 1950s. When it was realised that traditional man-made capital, combined with other inputs, was inadequate in explaining the enormous difference between income and output across countries, economists began incorporating HK into their work. Some economists contended that investment in HK was probably a crucial explanation for variations in output (e.g., Schultz, 1961).

While most studies on HK have centred on education and its impact on income via improvement in productivity, we extend the analysis to encompass health (specifically mental health).

HK = f (Labour Productivity, Health, Education)

In this model, we take accumulation of human-made capital as a function of investment.

HMK = f (Investment)

A considerable proportion of educational expenditure comes from the public sector and this share has been increasing over the years. In 2008, OECD economies allocated around 13 per cent of total public expenditure on education. This share has been rising in most countries since 1994. Hence, education expenditure by countries serves as a good proxy for educational investment. Similarly, the impact of deteriorating mental health is captured by DALY. To capture investment in the model, data on Gross Fixed Capital Formation (GFCF) is used.

A linear model has been used to establish the relationship between per capita income (PCI) and DALY. A key component of DALY is associated with Depression and Anxiety (Vigo et al., 2016).

$$PCI_i = \beta_0 + \beta_1 DALY_i + \beta_2 State\ Education\ Expenditure_i + \beta_3 Labour\ Producticity_i + \beta_4 Fixed\ Capital\ formation_i + \beta_5 Employment_i + \varepsilon_i$$

(Equation 1)

Similar to Knowles and Owen, 1995; Managi and Kumar, 2018; and UNU-IHDP 2014, the model explicitly incorporates health and education aspects of human capital. To choose the best model, the Akaike Information Criterion (AIC) was used. The model selected had the minimum AIC and highest adjusted R^2 square among all models (Bozdogan, 1987; Yamashita, Yamashita, & Kamimura, 2007). For robustness check, other variables that could have affected PCI were included in the model including, exports, real exchange rate, migration, growth of credit and external debt. Most of these variables turned out to be insignificant in our model.

2. DATA SOURCES

The data has been collected from a variety of sources:

- Data on employment and labour productivity was acquired from The Conference Board Total Economy Database.
- Education expenditure data by the government was obtained from UNESCO Institute for Statistics.
- DALY associated with Depression and Anxiety has been procured from the World Health Organization (WHO) health statistics and information systems website.
- Data on GFCF has been downloaded from World Development Indicators.
- Lastly, data on population was gathered from the UN data retrieval system.

The analysis was done for 68 countries for which all the above data was available.

3. ISSUES

White test revealed violation of assumption of homoskedasticity. All other assumptions of the Classical Linear Regression Model (CLRM) were satisfied. This implies that while the Ordinary Least Squares (OLS) coefficients remain unbiased, they cannot be termed the 'best' because they do not promise minimum error. Thus, in the absence of homoskedasticity, the statistical inference would be biased, and t and F-statistics are incorrect.

Hence, to correct for the same heteroskedasticity, consistent standard errors have been calculated and reported. Standard errors based on this procedure are called robust standard errors/sandwich estimator of

DATA QUALITY IS KEY TO ANY STATISTICAL ESTIMATION AND A CALL FOR BETTER DATA COLLECTION ON SEL INTERVENTIONS AND THEIR IMPACTS MUST BE MADE A PRIORITY IN EDUCATION SYSTEMS.

variance. This procedure is reliable even without imposing any assumption on the structure of heteroskedasticity.

4. LIMITATIONS

- Pooled cross-sectional or panel data could not be used. This is because the practice of calculation of DALY is not consistent across the years.
- State expenditure on education has been used in the analysis. The figures for private expenditure on education (which would have been more relevant) are not available, especially for developing countries.

5. CORE RESULTS

Variables	Per Capita Income
DALY	-9.979***
	(3.326)
Education Expenditure (PPP)	-0.0194
	(0.0498)
Employment	0.245**
	(0.107)
GFCF	-2.90e-09
	(1.44e-08)
Labour Productivity	0.498***
	(0.0429)
Constant	-3,361*
	(1,689)
Observations	68
R-squared	0.939

Robust standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1*

The Anxiety and Depression DALY mean for all 68 observations was 341.3, with standard deviation of 483.72. In the above model, the estimated coefficient of combined DALY of Anxiety and Depression turned out to be -9.97, with confidence interval of -18.30 to -1.64. The variable was significantly different from zero (even at 1 per cent) as indicated by p-value. The interpretation of our variable of interest is the following:

Keeping other variables constant, a 1-year increase in Anxiety and Depression DALY will reduce per capita income by $9.79. This indicates that a large chunk of income is being drained due to presence of high DALY. The total loss to an economy of one increase in DALY can be calculated by multiplying the DALY coefficient with the total population of the country.

The R-squared, which can be calculated as the ratio of variation explained by the model by total variation, was high (93%) indicating that our model fits well with the data.

The nexus between PCI and DALY associated with Depression and Anxiety is also examined by varying the model specification. These models are reported in Appendix 2.

The second model specification incorporates DALY owing to all health issues (not just Depression and Anxiety). This variable came out to be insignificant. The third specification is a log-linear model. The fourth model is another log-linear model with a crucial difference – log of Depression and Anxiety DALY has replaced DALY associated with Depression and Anxiety. Lastly, a log-log model specification has been investigated.

The coefficient of DALY associated with Depression and Anxiety and/or log of DALY turned out to be negative and significant in all models. The reason for the negative coefficients for educational expenditure and gross fixed capital formation is the inclusion of one-time expenditure in these two accounts. Revised model formulations to include lagged investment resulted in the lagged terms to return positive coefficients, suggesting that the impacts of these investments over time were positive on per capita income. However, we have not reported these findings in this paper due to some concerns on the statistical properties of these additional variables and it is left for further investigation.

PART II: ESTIMATING IMPACT OF SEL INTERVENTION ON PCI

This section is an attempt to figure out how the PCI will be affected with the introduction of SEL programmes. In our model, the commencement of SEL programmes will affect DALY, productivity as well as cost incurred on education. To evaluate the SEL programmes at the macro level, data that links the magnitude of change of DALY with respect to SEL interventions is necessary. Unfortunately, this is not available. Nonetheless, we conservatively estimate the change in income by making appropriate adjustments to labour productivity and state expenditure on education for all countries.

IN OUR MODEL, THE COMMENCEMENT OF SEL PROGRAMMES WILL AFFECT DALY, PRODUCTIVITY AS WELL AS COST INCURRED ON EDUCATION

This is done in two parts:

First, the benefit transfer has been used to make appropriate adjustments to labour productivity and state expenditure. Second, the regression model in Part 1 is used to estimate change in PCI owing to SEL interventions with the revised valuation of SEL programmes using the benefit transfer values across the set of countries used in this study.

Unfortunately, in contrast to Part 1, actual estimates of change in costs as well as productivity owing to SEL interventions were not available for all countries. Given that putting these interventions into practice requires considerable time and money, the benefit transfer valuation method has been employed. This enables generalising a narrowly focused study to a substitute region, therefore preventing costly replication of the original study (Feather & Hellerstein, 1997).

1. BENEFIT TRANSFER

Benefit transfer is frequently employed in the context of welfare estimation of sites where primary surveys cannot be done. The scope of benefit transfer can be widened to examine the impact of social programmes such as SEL interventions.

While application of high-standard primary research to estimate benefits is preferred in most cases (Allen & Loomis, 2008), benefit transfer is extensively used in the real world, particularly in policy analyses. Given the time and budget constraints, benefit transfer serves as a core module

of all large-scale cost benefit analysis (Griffiths & Wheeler, 2005; Iovanna & Griffiths, 2006; Johnston & Rosenberger, 2010; Smith et al., 2002).

Historically, there have been several categorisations of the benefit transfer methodology. However, recently, these methodologies were enveloped in two approaches, commonly known as 'unit value' transfers and 'benefit function' transfers (Johnston & Rosenberger, 2010).

The 'unit value' approach involves the transfer of a set of estimates from existing primary research. In other words, the estimates transferred are either on an 'as is' basis or are modified using various ways for variation in output or population, etc. On the other hand, the 'benefit function' approach involves derivation of a parametric function from primary literature to obtain final estimates for the variable under consideration.

BENEFIT TRANSFER IS FREQUENTLY EMPLOYED IN THE CONTEXT OF WELFARE ESTIMATION OF SITES WHERE PRIMARY SURVEYS CANNOT BE DONE. THE SCOPE OF BENEFIT TRANSFER CAN BE WIDENED TO EXAMINE THE IMPACT OF SOCIAL PROGRAMMES SUCH AS SEL INTERVENTIONS

Generally, benefit function transfers outperform value transfers but this is not always the case (Brouwer, 2000; Brouwer & Bateman, 2005; Ready et al., 2004). Literature is yet to reveal which of the above approaches is superior (Johnston & Rosenberger, 2010). In case of benefit transfer, increasing the complexity of the method does not lead to increased precision in estimates.

The choice between the two approaches depends on numerous factors, including the kind of data available for the study site, similarity between study and policy sites, time and resources available to develop complicated transfer methods and the context (Bergstrom & De Civita, 1999; Navrud & Pruckner, 1997). If the policy intervention under consideration is almost identical between policy and study site, unit value transfers can perform reasonably well (Bateman et al., 2011).

In this study, we use the unit value methodology due to data restrictions. We assume that y_{BT} represents the benefits to be transferred. Generally, y_{BT} is the WTP for a non-market good obtained by a primary study at the policy site. When this estimate is to be transferred to the study site, y_{BT} needs to be adjusted; it needs to be scaled up or down by considering the

existing differences between policy and study sites. This is done be attaching weights to y_{BT}. An aggregate transferred benefit estimate is then given as

$W * y_{BT}$

The primary advantages of unit value transfers are ease of implementation and minimal data requirements. For macro-level estimates of the variables mentioned above, the benefits and cost of SEL programmes have been extrapolated from the Cost Benefit Analysis (CBA) done by Belfield (2015). Belfield (2015) conducted CBA for six SEL interventions. These interventions are heterogeneous and cover different student groups. Of these, the social and emotional training intervention conducted in Sweden was a holistic programme that focused on all students; we have therefore used it as the basis for our analysis.

The weights attached in this study for costs of SEL interventions is ratio of government expenditure on education in, let's say, country A to government expenditure on education in the country where policy has already been implemented. Similarly, for productivity changes induced by SEL interventions, the weights introduced is ratio of population actually benefitting from such programme (the target population of such a programme ages less than 24) to total employment in the country. A weighted average of labour productivity is then estimated.

IN THE ABSENCE OF COUNTRY SPECIFIC DATA, THE ESTIMATE OF SEL EXPENDITURE WILL BE SHAPED/DETERMINED BY THE REFERENCE COUNTRY BENCHMARK

The macro-level cost has been extrapolated to different countries according to the following formula—

$$\textit{SEL Expenditure on Education by Country A} = \textit{Cost of SEL programme for Sweden} * \frac{\textit{Education expenditure by A}}{\textit{Education expenditure by Sweden}}$$

Similarly, assuming that SEL interventions are targeting people in the 0-24 age group, the macro-level benefits have been calculated by taking a weighted average of labour productivity.

Following Barro and Lee (2013), a forward extrapolation method has been employed. According to this method, educational attainment distribution of people in the 0-24 age group gets translated into productivity distribution for these people when they enter the workforce.

$$New\ productivity\ (for\ 0\text{-}24\ age\ bracket)$$
$$= Original\ Labor\ productivity$$
$$+\ Increase\ in\ productivity\ owing\ to\ SEL\ interventions$$

Assuming retirement age to be 60, taking a lag of 25 years (when all people in the 0-24 age group have entered the workforce), the remaining workforce will be between the ages of 24 and 35. This age bracket has not been acquainted with SEL interventions. Hence, their productivity is unchanged.

Taking a weighted average to arrive at new labour productivity for country A,

$$New\ labor\ productivity\ \ for\ country\ A$$
$$=\ New\ Productivity * \frac{Population\ between\ 0\text{-}24}{Total\ Employment}$$

$$+Original\ labor\ Productivity * \frac{Population\ between\ 24\text{-}35}{Total\ Employment}$$

By using this method, we avoid making any explicit assumptions about population growth rate or total employment.

Once the education expenditure and labour productivity owing to SEL interventions are transferred, the regression coefficients of equation 1 are multiplied by new state education expenditure, new labour productivity and all other remaining variables to obtain estimates of PCI for each country. For facilitating comparison, average change in PCI is reported in Table 7.2.

2. RESULTS AND SENSITIVITY ANALYSIS

The regression equation is now:

$$PCI_i = \beta_0 + \beta_1 DALY_i + \beta_2 (New)\ State\ Education\ Expenditure_i \\ + \beta_3(New)Labour\ Producticity_i + \beta_4 Fixed\ Capital\ formation_i \\ + \beta_5 Employment_i + \varepsilon_i$$

(Equation 2)

The betas have already been estimated in Part 1. The new benefits and costs have been put in the regression models to obtain new estimates of PCI. Average PCI is reported in Table 7.2.

Table 7.2. Impact of SEL interventions on Per Capita Income (PCI)

	Original PCI	PCI with SEL interventions
Average (over all countries)	23990.87	31166.964
% change from Original PCI	-	29.91

The preliminary results from the regression exercise suggest a 29.91 per cent increase in per capita income with SEL interventions. Therefore, the marginal change in PCI caused by increased expenditure from SEL interventions was significantly smaller than the positive marginal change in PCI caused by increased productivity observed from those SEL interventions. Another way of seeing this is that the cost of inaction is approximately 30 per cent. This seems, at first glance, a suspiciously high number. However, these magnitudes match the high value human capital constitutes in a country's Inclusive Wealth (IW). The Inclusive Wealth report from the United Nations University states that, on average, human capital constitutes 60 per cent of a country's inclusive wealth (UNU-IHDP 2012). As in the case of the IW, we know that most of the benefits that come from SEL interventions do not have markets and are therefore not valued in standard economic transactions. This is a hidden cost to economy and demonstrates some low-hanging fruits that we can adopt to increase productivity, and hence, per capita income.

THE PRELIMINARY RESULTS FROM THE REGRESSION EXERCISE SUGGEST A 30% INCREASE IN PER CAPITA INCOME WITH SEL INTERVENTIONS
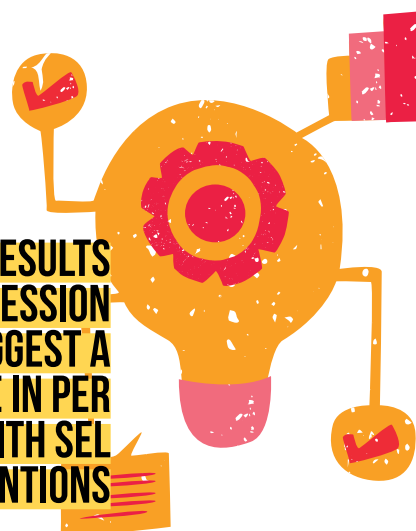
In order to test the robustness of the results, sensitivity analysis was also undertaken. Its aim was to assess uncertainty associated with the valuation estimates. This entailed changing certain assumptions that were earlier made regarding computing benefits so as to consider valuation variability (thus, a range of estimates are determined).

To accomplish this, we conducted step-by-step decrements of 10 per cent in benefits that can be attributed to SEL intervention. This was done to identify the break-even point where costs (if kept constant) would be equal to benefits arising out of SEL interventions.

The rationale is the following – the benefits owing to SEL interventions are contingent on other economic and social aspects as well. Translation of SEL interventions to actual gains in productivity requires a well-functioning labour market with adequate employment opportunities, proper implementation of SEL interventions, etc. Hence, keeping the cost of SEL interventions fixed, the benefits derived from these programmes were scaled down. The results are shown in Table 7.3.

Table 7.3. Translation of SEL Interventions to Actual Gain in Productivity

	PCI with SEL interventions	PCI with SEL intervention at 0.9 times benefits	PCI with SEL intervention at 0.8 times benefits	PCI with SEL intervention at 0.75 times benefits
Average (over all countries)	31166.964	27624.32	24081.67	22310.34
% change from Original PCI	29.91	15.14	0.37	-0.70

The results of the sensitivity analysis show that the percentage change in PCI becomes negative if the estimated benefit valuation falls below 80 per cent of the original estimate. If the benefits accruing to SEL programmes exceed 80 per cent, while keeping costs fixed, the interventions will be Pareto improving; this is to say that expenditure in SEL will harm no one and at the very least helps one individual. We would like to emphasise here that the valuation estimates used in this study are conservative and, in many cases, ignore many of the intangible benefits that might accrue from SEL interventions.

Despite the fact that the above analysis cannot be used to assess the precise gains of SEL interventions, it does furnish preliminary evidence that the benefits of intervention at a macro level are substantial, and the cost of inaction is high and detrimental to societal well-being. Specifically, if such an intervention is implemented, even without accounting for changes in DALY and other positive externalities created in the long run, it will improve per capita income.

Unfortunately, due to lack of data, the link between SEL interventions directly targeting DALY through impacts on Depression and Anxiety were not accounted in this exercise. Given that DALY

has a huge impact on PCI (refer Part 1), the cost of inaction is bound to be greater than what is indicated in this section.

CONCLUSION

A key message emerging from SEL interventions is the high benefit-cost ratio, ranging from a low of 3.5 to a high of 14, with an average of 11. The macroeconomic impacts of SEL interventions indicate a 30 per cent increase in PCI. These are considered conservative estimates because many of the intangible benefits of SEL interventions are not considered due to a lack of data on the economic value of these benefits.

A key factor in the economic analysis of SEL interventions is the computation of shadow prices for many of the benefits that accrue from SEL interventions. A conceptual framework similar to the valuation frameworks that are used in valuing environmental resources might be useful in providing more systematic and accurate values of direct and indirect benefits of SEL interventions.

Economic valuations of these non-market benefits are costly and are primarily available in developed countries. Therefore, benefit-transfer methodologies had to be used to evaluate the potential SEL benefits that might be experienced in other countries where such data is missing. We acknowledge that there is a strong assumption but sensitivity analysis helps us get an understanding of the range over which these benefits might be experienced, based on the various shadow prices used.

A KEY FACTOR IN THE ECONOMIC ANALYSIS OF SEL INTERVENTIONS IS THE COMPUTATION OF SHADOW PRICES FOR MANY OF THE BENEFITS THAT ACCRUE FROM SEL INTERVENTIONS BUT DO NOT HAVE DIRECT MARKET PRICES

A major challenge that we faced in this study and which might need more future research is a mapping of the various benefits that might emerge from SEL interventions. Another challenge is to develop a method that minimises double counting of benefits. A clear mapping of these benefits is essential for the correct valuation of the total benefits.

The study clearly highlights the value of SEL interventions. Our preliminary results should be used with caution as these are founded on some strong underlying assumptions. Nevertheless, the overall key message that emerges from the study is the high utility of SEL interventions and a key recommendation that policy makers might explore is the mainstreaming of SEL curricula in school education systems.

APPENDIX 1.

COMPARISON OF ALTERNATE MODELS (OTHER MODEL SPECIFICATIONS)

VARIABLES	(1) PCI	(2) PCI	(3) Log PCI	(4) Log PCI	(5) Log PCI
State Education Expenditure	-0.00260 (0.0527)	-0.0142 (0.0558)	1.03e-05*** (2.55e-06)	7.54e-06** (2.97e-06)	. .
Employment	0.185** (0.0750)	0.207** (0.0970)	1.05e-05** (4.31e-06)	3.95e-06 (3.04e-06)	. .
GFCF	2.18e-09 (1.34e-08)	3.81e-09 (1.26e-08)	-0*** (0)	-0* (0)	. .
Labour Productivity	0.460*** (0.0157)	0.459*** (0.0157)	2.95e-05*** (3.05e-06)	2.84e-05*** (2.97e-06)	. .
Depression and Anxiety DALY	-9.437*** (2.893)	-8.703** (3.861)	-0.000587*** (0.000210)	. .	. .
Total DALY	. .	-0.0344 (0.0822)	. .	. .	. .
Log Depression and Anxiety DALY	. .	. .	. .	-0.119** (0.0497)	-0.422*** (0.0738)
Log GFCF	. .	. .	. .	. .	0.142** (0.0602)
Log Employment	. .	. .	. .	. .	0.305*** (0.114)
Log State Education Expenditure	. .	. .	. .	. .	-0.0276 (0.0847)
Log Labour productivity	. .	. .	. .	. .	0.966*** (0.0732)
Constant	-1,820*** (618.5)	-1,706*** (593.3)	7.966*** (0.178)	8.519*** (0.281)	-4.305*** (1.039)
R-squared	0.966	0.966	0.865	0.866	0.990

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

APPENDIX 2.

COUNTRY DATA (DATA WITH BENEFIT TRANSFER AND SENSITIVITY ANALYSIS)

Country Code	Actual	New estimates	Sensitivity analysis				
ISO	GDP per capita PPP constant 20	PCI	PCI (0.25)	PCI (0.5)	PCI (0.75)	PCI (0.8)	PCI (0.9)
ALB	10969.99	25975.868	3969.096	11304.69	18640.28	20107.4	23041.63
ARG	19116.91	28447.826	3352.193	11717.4	20082.61	21755.66	25101.74
ARM	8195.934	16956.791	1727.893	6804.193	11880.49	12895.75	14926.27
AUS	43923.26	50686.409	8096.99	22293.46	36489.94	39329.23	45007.82
AUT	44304.97	43050.921	7789.958	19543.61	31297.27	33648	38349.46
BEL	41708.21	64086.701	12550.57	29729.28	46907.99	50343.73	57215.22
BFA	1596.335	1506.3434	-1695.49	-628.209	439.0671	652.5224	1079.433
BHR	43926.47	50922.716	10187.9	23766.17	37344.44	40060.1	45491.41
BLR	17219.12	18689.551	2040.28	7590.037	13139.79	14249.75	16469.65
BRA	14702.59	8375.9565	-8230.59	-2695.08	2840.44	3947.543	6161.75
CHE	57264.16	38449.265	6513.411	17158.7	27803.98	29933.04	34191.15
CHL	22516.61	32972.433	5025.64	14341.24	23656.84	25519.95	29246.19
CIV	3241.612	11607.482	510.7822	4209.682	7908.582	8648.362	10127.92
CMR	3289.065	4586.396	-753.199	1026.666	2806.531	3162.504	3874.45
COD	812.4034	7.2531811	-1994.87	-1327.49	-660.12	-526.646	-259.696
COL	12922.04	21386.918	3871.888	9710.231	15548.57	16716.24	19051.58
CRI	14738.61	27338.314	4286.139	11970.2	19654.26	21191.07	24264.69
CYP	30549.3	72855.824	15657.23	34723.43	53789.63	57602.87	65229.34
CZE	30605.42	30617.736	4963.118	13514.66	22066.2	23776.5	27197.12
DEU	43937.95	28986.224	-58.3198	9623.195	19304.71	21241.01	25113.62
ECU	10749.13	18817.673	2218.185	7751.348	13284.51	14391.14	16604.41

Country Code	Actual	New estimates	Sensitivity analysis				
ISO	GDP per capita PPP constant 20	PCI	PCI (0.25)	PCI (0.5)	PCI (0.75)	PCI (0.8)	PCI (0.9)
ESP	32291.16	45813.275	6530.415	19624.7	32718.99	35337.85	40575.56
EST	27549.58	29473.593	4814.513	13034.21	21253.9	22897.84	26185.72
FIN	38941.76	46128.789	8620.392	21123.19	33625.99	36126.55	41127.67
FRA	37766.37	51435.812	4958.321	20450.82	35943.32	39041.81	45238.81
GBR	38839.17	40323.075	3723.802	15923.56	28123.32	30563.27	35443.17
GHA	3823.534	4895.3884	-378.025	1379.779	3137.584	3489.145	4192.267
GTM	7292.711	19615.959	2549.434	8238.276	13927.12	15064.89	17340.42
HUN	25034.45	31939.949	5326.797	14197.85	23068.9	24843.11	28391.53
IDN	10367.7	21628.347	5928.047	11161.48	16394.91	17441.6	19534.97
IRL	60818.05	88088.165	19128.29	42114.92	65101.54	69698.87	78893.52
IRN	16500.9	71095.532	8742.169	29526.62	50311.08	54467.97	62781.75
ISL	43048.13	44472.675	8579.902	20544.16	32508.42	34901.27	39686.97
ISR	32024.35	49465.08	9593.131	22883.78	36174.43	38832.56	44148.82
ITA	34302.04	40942.701	4554.965	16684.21	28813.46	31239.3	36091
JAM	8100.571	15847.659	1434.05	6238.587	11043.12	12004.03	13925.84
KAZ	23524.06	33897.812	6157.947	15404.57	24651.19	26500.51	30199.16
KEN	2835.894	6234.6279	-202.098	1943.477	4089.053	4518.168	5376.398
KGZ	3237.603	5519.533	-1038.49	1147.52	3333.527	3770.728	4645.13
KOR	34177.65	30298.733	3165.008	12209.58	21254.16	23063.07	26680.9
LKA	11079.71	21038.183	2785.7	8869.861	14954.02	16170.85	18604.52
LTU	27045.6	30442.422	5011.331	13488.36	21965.39	23660.8	27051.61
LUX	94088.59	50688.874	10122.71	23644.76	37166.82	39871.23	45280.05
LVA	23018.69	27180.573	4237.006	11884.86	19532.72	21062.29	24121.43
MDG	1377.168	319.5297	-1674.31	-1009.7	-345.085	-212.162	53.68387

Country Code	Actual	New estimates	Sensitivity analysis				
ISO	GDP per capita PPP constant 20	PCI	PCI (0.25)	PCI (0.5)	PCI (0.75)	PCI (0.8)	PCI (0.9)
MEX	16934.73	36544.099	5194.691	15644.49	26094.3	28184.26	32364.18
MLI	1919.228	5154.6334	-934.457	1095.24	3124.937	3530.876	4342.755
MLT	34079.69	47091.136	9236.086	21854.44	34472.79	36996.46	42043.8
MWI	1088.702	-161.3438	-1897.24	-1318.6	-739.974	-624.248	-392.796
MYS	25016.73	47863.274	8944.557	21917.46	34890.37	37484.95	42674.11
NER	908.1739	155.12724	-2017.52	-1293.3	-569.088	-424.245	-134.559
NLD	46494.36	42452.749	6949.729	18784.07	30618.41	32985.28	37719.01
NOR	64008.29	63335.112	12773.41	29627.31	46481.21	49851.99	56593.55
NZL	35309.82	37335.567	6539.916	16805.13	27070.35	29123.39	33229.48
PAK	4695.7	18223.706	597.3269	6472.787	12348.25	13523.34	15873.52
PER	11770.03	16049.351	2262.254	6857.953	11453.65	12372.79	14211.07
POL	25307.25	36983.385	6384.821	16584.34	26783.86	28823.77	32903.58
PRT	26607.83	29883.087	4396.024	12891.71	21387.4	23086.54	26484.81
ROU	20665.56	26104.88	4063.096	11410.36	18757.62	20227.07	23165.98
RUS	24516.55	26452.676	2058.409	10189.83	18321.25	19947.54	23200.11
SEN	2921.947	7760.9465	-408.519	2314.636	5037.791	5582.422	6671.684
SVK	28308.88	44104.836	8434.752	20324.78	32214.81	34592.81	39348.83
SVN	29037.74	32879.854	5659.581	14733.01	23806.43	25621.11	29250.48
SWE	45679.28	48861.139	8794.202	22149.85	35505.49	38176.62	43518.88
TUR	23388.47	66665.727	10399.61	29154.98	47910.36	51661.43	59163.58
UGA	1665.95	6450.7941	-1314.55	1273.9	3862.347	4380.036	5415.415
UZB	5700.236	11155.574	874.6322	4301.613	7728.594	8413.99	9784.782
ZAF	12377.66	47627.561	7566.542	20920.21	34273.89	36944.62	42286.09

KEY CHALLENGES

7.1   The present pool of studies is small, using different methods and tools that make it difficult to ensure consistency in analysis and evaluation. Moreover, there is no longitudinal data to demonstrate the benefits of the SEL interventions over time. It is therefore difficult to track the behavioural changes accruing from the SEL intervention as children move from one grade to the next.

KEY RECOMMENDATIONS

7.1   School budgets should be revised to allow for SEL interventions to be integrated into classrooms and this should be done Grade 1 onwards. Continuous investment in this should be an integral part of all education budgets.

7.2   Teacher training budgets should be revised to allow for continuous SEL training.

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LEVERAGING TECHNOLOGY FOR SEL PROGRAMMES

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LEVERAGING TECHNOLOGY FOR SEL PROGRAMMES

CH // 08

MATTHEW FARBER AND SUSAN E. RIVERS

ABSTRACT

A traditional view of digital tools is that they transmit knowledge to human recipients or that humans receive knowledge or develop skills when they interact with a digital tool. and practice actions or thinking strategies. In this chapter, we review key research about digital tools and learning. We discuss how powerful digital tools, used under the appropriate conditions, can drive practices that develop and strengthen social and emotional competencies, including self-awareness, self-management, social awareness, relationship skills and responsible decision-making. We conclude with recommendations for digital tools that can be used to support social and emotional growth.
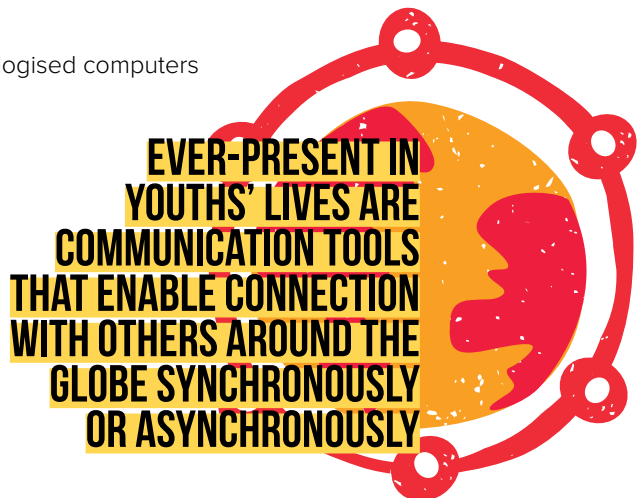
DIGITAL TOOLS CAN STRENGTHEN SOCIAL AND EMOTIONAL COMPETENCIES

KEY MESSAGES

8.1 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.

8.2 Games themselves cannot be responsible for the learning. Having supportive others available during gameplay is crucial.

8.3 In addition to digital tools, educators need to incorporate activities for student reflection, classroom discussions, and other projects to deepen learning.

8.4 Time is needed to design compelling, effective units that embed SEL and digital tools.

8.5 A strong pedagogical approach for marrying SEL with academic content and a digital tool is essential. Choice of the tool is dependent upon the learning objectives for the unit. A 'cool game' or a 'novel tool' should not drive the decision to use tech in the classroom.

8.6 Students should move between the digital tool, face-to-face interaction with peers and adults and individual work (self-reflecting, writing, creating) across the unit.

8.7 Activities should make use of the games and provide relevant opportunities for students to practice their social and emotional skills through a variety of means.

INTRODUCTION

Apple co-founder Steve Jobs once analogised computers as a bicycle for the human mind. His observation came after he read a study published in *Scientific American* about the efficiency of locomotion for different living species. The study placed condors at the top of the list and humans near the bottom. But with the aid of a bicycle, humans topped the list, soaring past the condor in locomotive efficiency (Jobs as quoted by Elmer-Dewitt, 2011).

EVER-PRESENT IN YOUTHS' LIVES ARE COMMUNICATION TOOLS THAT ENABLE CONNECTION WITH OTHERS AROUND THE GLOBE SYNCHRONOUSLY OR ASYNCHRONOUSLY

Just as bicycles can increase human locomotive efficiency, digital technologies can support people's social and emotional learning, including their ability to develop self-awareness, empathy, compassion and connectedness with others. This may be especially true for the youth, who interact constantly with digital technology when they navigate their daily lives. They have ready access to powerful digital tools such as news aggregation websites (e.g., Apple News), social media applications (e.g., Twitter, Snapchat, Instagram, TikTok), and communication technologies (e.g., WhatsApp, Telegram, WeChat). Youth connect via massively multiplayer online (MMO) games such as *Minecraft*, *Fortnite*, *PUBG*, and *World of Warcraft*, as well as on games-focused communication platforms (e.g., Discord). Ever-present in youths' lives are communication tools that enable connection with others around the globe synchronously (e.g., video conferencing mobile applications such as Skype or Houseparty) or asynchronously (e.g., Facebook). Access to and use of these digital technologies can play important roles in developing and practising perspective-taking, empathy, bias reduction, self-awareness and compassion.

While pervasive in youths' lives, digital technologies alone cannot build social and emotional skills. The potential of digital technologies to support the social and emotional growth of young people (and even the adults around them) depends, in large part, upon the design of the environments wherein those digital tools are deployed and used.

DIGITAL TOOLS AS TRANSFORMATIVE TO LEARNING

A traditional view of digital tools is that they transmit knowledge to human recipients or that humans receive knowledge or develop skills when they interact with a digital tool and practice actions or thinking strategies. However, digital tools such as *Minecraft* can be more than transmissive or transactional. We argue that they can, in fact, be transformational to the human experience. They have the potential to transform how humans see and understand the world, how humans respond to the world emotionally, and how humans interact with other people as well as with physical objects and spaces. For our purposes here, we focus on how digital tools support youth in practising and advancing their social and emotional skills.

WHEN YOUTH LEARN BY CREATING AND SHARING THOSE CREATIONS WITH OTHERS, THEY ARE PRACTISING THINKING ABOUT THEIR THINKING AND KNOWING HOW THEIR THOUGHTS INFLUENCE THEIR BEHAVIOUR—ESSENTIAL COMPONENTS OF SELF-AWARENESS

Let's look at the game *Minecraft* closely. This game is playable in two distinct modes: Survival Mode, where players collect and manage resources with the goal of surviving in a virtual world that is sometimes dangerous, and Creative Mode, in which players are afforded unlimited resources with which to build and create almost anything they can imagine. As players attempt to build new structures and tackle engineering challenges in the game, they inevitably experience failures and successes, causing a range of emotions, from frustration to stress to embarrassment to satisfaction to joy. Practising the management of these emotions is part of the gameplay. Further, both game modes engage players' creativity, innovative thinking, and problem-solving abilities, which is where the possibility for transformation may happen. Affording youth the opportunity to create something new extends and deepens learning in the same ways good project-based learning experiences do. *Minecraft* offers the opportunity, through play, for youth to make sense of complex systems, including their own systems of thinking.

When youth learn by creating and sharing those creations with others, they are practising thinking about their thinking and knowing how their thoughts influence their behaviour–essential components of self-awareness.

Thinking about thinking is the tenet that undergirds constructionism. Educational theorist Seymour Papert envisioned computers as not directly teaching youth; rather, he observed that youth learn through teaching (i.e., programming) computers. Instead of the traditional 'broadcast approach' to education (Resnick, 2017, p. 7) – where information is transmitted from teacher to student through lecture – learners in constructionist environments actively construct knowledge through processes of building, making and designing. Constructionism suggests that learners are "likely to make new ideas when they are actively engaged in making some type of external artefact – be it a robot, a poem, a sand castle, or a computer programme–which they can reflect upon and share with others" (Kafai & Resnick, 1996, p. 1).

Using a digital tool like *Minecraft* in the classroom offers opportunities for youth to be creative, build new worlds, solve engineering problems, explore properties of physics, collaborate with peers and more. *Minecraft* can be integrated not only into STEM subjects but also into discussions about problem-solving approaches, allowing students to explore differences and similarities in how individuals uniquely approach a given challenge within the *Minecraft* world. What's exciting about using a tool like *Minecraft* is that it allows students to show and describe to each other in concrete ways how they solved an issue. This is an example of constructionist project-based learning, a valued pedagogical approach that embeds a digital tool to foster deep engagement and fun.

Fun is critical to all kinds of learning, and many digital tools – especially games, but other forms of media as well – create opportunities for play that promotes social and emotional growth.

DIGITAL PLAY AND JOINT MEDIA ENGAGEMENT

Digital play describes how tools teach through playful construction (Shapiro, 2018). Digital play tool sets include games and also podcasting and video production applications, as well as coding technologies such as MIT's *Scratch*.

Digital play should always encourage kids to perceive the technologies of a connected world as instruments they can command — not boxes which distribute content to be consumed, or rigid systems that confine the shape of their communications. Children need to learn that the computer is a tool for creative self-expression, an opportunity to articulate a narrative of the self (Shapiro, 2018, p. 11).

FUN IS CRITICAL TO ALL KINDS OF LEARNING, AND MANY DIGITAL TOOLS — ESPECIALLY GAMES, BUT OTHER FORMS OF MEDIA AS WELL — CREATE OPPORTUNITIES FOR PLAY THAT PROMOTES SOCIAL AND EMOTIONAL GROWTH

'Life's Little Lessons' is a social and emotional learning (SEL) curriculum driven by tenets of digital play. Told through a series of mobile applications (apps) around the character Daniel Tiger and published by the Public Broadcast System (PBS), it offers a variety of SEL lessons to young children. For example, in the app *Daniel Tiger's Grr-ific Feelings* (https://pbskids.org/apps/daniel-tigers-grr-ific-feelings.html), children can play mini-games about feelings, sing along to songs about emotions, and use a digital photo booth to express themselves through self-portraiture (see Figure 8.1). (Fun fact: The character Daniel Tiger originated on the long-running PBS show, *Mister Rogers' Neighborhood*, hosted by the late Fred Rogers, an early proponent of play and what we now call SEL.)

Figure 8.1. The Feelings Photobooth in Daniel Tiger's Grr-ific Feelings

[Source: Retrieved from https://play.google.com/store/apps/details?id=org.pbskids.dtgrrificfeelings&hl=en]

The 'Life's Little Lessons' curriculum espouses a model of "*watch* (watching video), *play* (playing games), *explore* (engaging in group activities), and *share* (communicating with families)" (Life's Little Lessons, 2019). This model leverages the power of *co-viewing*, an idea dating back to the early 1970s, a time when screens meant television – not handheld devices – and when television programmes aimed at children, such as *Mister Rogers' Neighborhood* and *Sesame Street* were nascent (Stevens & Takeuchi, 2011). Co-viewing meant that parents and caregivers did not expect educational television to teach their children; instead, parents and caregivers were advised to watch and discuss television together with their children, and then facilitate connections from the screen to the child, the family and the wider world.

As children's media became more ubiquitous on platforms and devices, the language around co-viewing expanded. Now known as *joint media engagement* (Stevens & Takeuchi, 2011), the concept encompasses digital media such as electronic books, mobile apps, streamed video, and games. The 'Life's Little Lessons' curriculum is an example of a joint media engagement experience. Joint media engagement is defined as: The spontaneous and designed experiences of people using media together

Joint media engagement can happen anywhere and at any time when there are multiple people interacting together with media. Modes of joint media engagement include viewing, playing, searching, reading, contributing, and creating with either digital or traditional media. Joint media engagement can support learning by providing resources for making sense and making meaning of a particular situation, as well as for future situations (Stevens & Takeuchi, 2011, p. 9).

In 2017, The Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College and the Technology in Early Childhood (TEC) Center at Erikson Institute published the report, *Technology and Interactive Media for Young Children: A Whole Child Approach Connecting the Vision of Fred Rogers with Research and Practice* (Paciga & Donohue, 2017). Its purpose was to update and make recommendations based on research at the intersection of technologies relevant to parents and caregivers of children aged 0-8 years. The report was aligned to the five SEL competencies in the Collaborative for Academic, Social, and Emotional Learning (CASEL) framework, as well as to Fred Rogers' *Six Principles of Learning Readiness*, outlined during his tenure in educational television at PBS, which are:

- A sense of self-worth
- A sense of trust
- Curiosity
- Capacity to look and listen carefully
- Capacity to play
- Times of solitude (Rogers as cited in Paciga & Donohue, 2017)

This report found that "playing, creating, imagining, wondering, and reflecting undergirded the majority of the children's actions identified as including technology or media and providing evidence of supporting children's social and emotional development or learning readiness" (Paciga & Donohue, 2017, p. 56). Recommendations included an increased focus on children's interaction with media and technology as it pertains to their relationship to their self, to others, and to the larger world, the community and the environment (Paciga & Donohue, 2017). In other words, while digital technology is not and cannot be the sole teacher, it can inspire further exploration and play for building and advancing social and emotional skills.

Parents, caregivers and teachers may need support to effectively guide youth in transferring their learning from screens to the real world. A case study shared by the

DIGITAL TECHNOLOGY IS NOT AND CANNOT BE THE SOLE TEACHER, IT CAN INSPIRE FURTHER EXPLORATION AND PLAY FOR BUILDING AND ADVANCING SOCIAL AND EMOTIONAL SKILLS

Joan Ganz Cooney Center at Sesame Workshop, in its joint media engagement report, found that parents who followed on-screen conversation prompts on digital media were "significantly more likely to make comments about characters' emotions, connect on-screen events to the children's own lives, encourage viewer participation with on-screen games and activities, and somewhat more likely to ask children to evaluate characters' actions" (Fisch as cited in Stevens & Takeuchi, 2011, p. 35). In cases where these prompts are not provided by the digital media itself, educators should be thoughtful about what additional supports should be put in place to maximise youths' transfer of learning to real-world, personally meaningful situations.

The next section focuses on how games, as digital tools, can boost social and emotional skill development in youth.

GAMES AND SEL

As a form of playful digital media, video games are played in approximately 64 per cent of all households in the United States (Entertainment Software Association, 2018). As digital tools, games are experiential and can be transformational, not simply transactional or purely didactic. More than half (55 per cent) of frequent game players, for example, reported that games helped them connect with friends and other people (Entertainment Software Association, 2018).

When integrated into learning settings, games can provide a ripe opportunity for social and emotional skill development. 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, *Crystals of Kaydor*, a game developed by researchers from the Center for Healthy Minds at the University of Wisconsin-Madison (not commercially available), was used to analyse adolescent player empathy and self-regulation using functional magnetic resonance imaging (fMRI) scans, an instrument used to measure brain activity. Set on the fictitious planet *Kaydor*, players communicate by analysing the virtual facial expressions and body language of an alien species. Findings suggested that playing the game boosted players' ability to take others' perspectives as demonstrated by strengthened neural connections in the brain (Kral et al., 2018, p. 7) (see Figure 8.2).

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

Figure 8.2. Screenshots from the Empathy Training Game, Crystals of Kaydor

[Source: Retrieved from https://www.nature.com/articles/s41539-018-0029-6/figures/1]

Games offer 'hard fun,' encouraging effort and persistence that feels rewarding and often delightful (e.g., Lazarro, 2004; Papert, 2002). Games allow players to experience and manage a wider range of emotions than many other mediums – players feel pride, frustration, gratitude, betrayal, forgiveness, complicity, fear and the sense of triumph that comes from hard-won accomplishment (Isbister, 2016; McGonigal, 2011). In games, players have choices and are free to experiment and express themselves. Cooperative or multiplayer gameplay allows players to feel and manage these emotions in a social context.

It is important to understand that digital games are widely varied in their style and do not fit one mould. Just like books and film, digital games have genres and are nuanced. Within the broad genre categories of action, adventure, strategy, role playing, sports, and puzzle, are more refined subgenres such as platformer, simulation, shooter, survival and creative. 'Walking simulators,' for example, are narrative games that reveal stories through game mechanics (i.e., as players take specific actions). In walking simulators the goal often is not to master game mechanics; instead, player actions help drive narrative. Walking simulators may not be a clear "win-state" or point system, instead they offer narrative experiences with gameful elements. *What Remains of Edith Finch* is an example of an award-winning walking simulator and the centrepiece of SEL curriculum described in this chapter.

> **IN WALKING SIMULATORS THE GOAL OFTEN IS NOT TO MASTER GAME MECHANICS; INSTEAD, PLAYER ACTIONS HELP DRIVE NARRATIVE**

Take the simulator game *The Sims 3 f*or example. In this game, you build an avatar (digital representations of yourself, also called a 'Sim'), create a home, and interact with other Sims (AI-controlled, non-playable characters or NPCs). Across the course of interactions, you receive feedback about what your avatar needs, including social time with other Sims. The game prompts you to engage with NPCs and provides feedback on how you are perceived when you interact. One blogger, in reflecting on her experience playing *The Sims 3,* wrote, of her Sim Victoria throwing her first party:

"When Sims of all shapes and sizes strolled through the front door and started making themselves comfortable in Victoria's house, my heart actually started beating a little faster. In real life, I hate throwing parties. The pressure to have fun and *be* fun is sometimes too much for this introverted homebody. So, my Sim guests put me a little on edge. Sure, they were just NPCs [non-playable characters], but I felt almost the same urgent need to impress and entertain them as I might in real life."

"I greeted a Sim named Tom and was taken aback when a bright red minus sign lit up over his head, indicating that I had said something he didn't like. 'Tom thinks Victoria is being boring,' a notification informed me. And, after another attempt, 'Tom thinks Victoria is being awkward.'" (Bertoli, *I Haven't Leveled Up Yet: Growth Mindset in Games,* 2017).

Feeling over her head in the situation, she asked for real help from a more experienced player, who suggested she, as Victoria, engage in small talk and try complimenting the other players. "He patiently showed me the dialogue options with the best chances of success, and soon I had triggered enough plus signs to get feedback like 'friendly' and 'amusing.' Aha! I could grow my social skills here, little by little. First impressions didn't mean everything. After several interactions, Tom became my friend." (Bertoli, *I Haven't Leveled Up Yet: Growth Mindset in Games,* 2017).

Games create a safe space for practising, failing, and trying again, as this example shows. What's more, having others support you during gameplay is crucial, as the Cooney report also notes.

GAMES IN THE CLASSROOM

SEL – and character development in general – are not standalone subjects (Mirra, 2018). Educators should not carve out class time solely for empathy lessons, nor should they create high-stakes tests to quantifiably assess growth in social and emotional skills (Mirra, 2018). Instead, to be effective, SEL must be embedded across classes and situated in student learning experiences throughout the school day.

In school, games need to be used intentionally, embedded within a larger set of curricular goals and learning objectives, as well as surrounded by a variety of activities to foster deeper learning. Games are far more than a reward for good behaviour when used thoughtfully and fully integrated into a pedagogical approach.

The *Museum of Me* curriculum uses the game, *What Remains of Edith Finch,* developed by Giant Sparrow, similar to the ways in which teachers design lessons using novels–in this case, using a digital game as an 'interactive text' in high school English language arts and media studies courses. The game, *What Remains of Edith Finch* invites players to interact with a narrative told by an 18-year-old girl while

GAMES NEED TO BE USED INTENTIONALLY, EMBEDDED WITHIN A LARGER SET OF CURRICULAR GOALS AND LEARNING OBJECTIVES, AS WELL AS SURROUNDED BY A VARIETY OF ACTIVITIES TO FOSTER DEEPER LEARNING

exploring her childhood home, which has become a museum preserving the identities of her family members who have passed away.

Farber and Rivers (the authors of this chapter) designed a curriculum around the SEL competency of identity formation. Called Museum of Me, this curriculum uses What Remains of Edith Finch as a core, or central text. Published by iThrive Games Foundation, Farber and Rivers developed Museum of Me with Paul Darvasi, a high school teacher at Royal St. George's College in Toronto, to meet SEL standards along with standards and learning objectives for the core academic subject. Combined, those objectives guided the focus and activities of the curriculum which was guided by the game. Students moved between gameplay, self-reflection, discussion, and creating artefacts representing their own identities, as well as those of the characters in the game. Throughout the curriculum, students explored the differences between private and public identities, the extent to, which personal objects reflect one's identity, and how the stories others may tell of us may not truly reflect who we are. These topics are especially relevant for adolescents who are, developmentally, working to understand who they are and how they present themselves to others. Using a game as a core part of an SEL curriculum within the standard academic curriculum provided students multi-sensorial experiences that were joyful, challenging, deeply social, agentic, relevant and engaging. The *Museum of Me* curriculum includes myriad activities – both in class and take-home projects – that help students transfer learning from the gameplay experience to their own lives and their understanding of English Language Arts (ELA) competencies.

Games, including titles such as *What Remains of Edith Finch,* are increasingly tackling substantial and meaningful themes such as empathy, acceptance, loss and social justice (Burak & Parker, 2017), planting the seeds that can transform attitudes, knowledge and skills in a socially and politically complex time. Games themselves cannot be responsible for the learning, however. After an extensive literature review of existing frameworks and digital games about ethics, Schrier (2015) proposed the Ethics, Practice, and Implementation Categorization (EPIC) Framework, which included educational goals and strategies for meeting those goals. For instance, while ethics in games can help players cultivate social and emotional skills and practice self-care, Schrier recommended also including open-ended activities and assessments such as student reflections to help promote the transfer of learning from the game to real-world contexts (Schrier, 2015).

The next section provides a road map for using digital tools for social and emotional skill development. It also includes some specific games and tools tied to the CASEL Framework.

SELECTING THE RIGHT DIGITAL TOOLS

Similar to literature, poems and films, games and other digital tools cannot do the teaching themselves. Educators need to establish the learning objectives, integrate the digital tool meaningfully into the learning activities and engage with students around learning.

Understanding others' lived experiences is part of social studies curricular goals and involves the social and emotional skills of self-awareness, social awareness and self-management. Digital tools can provide incredibly useful, multisensorial pathways to support learning and discovery here. The BBC's playable blog, 'Syrian Journey: Choose Your Own Escape Route' (https://www.bbc.com/news/world-middle-east-32057601), for example, supports learning about the plight of Syrian refugees, providing an interactive experience for students and creating a richer, more human-centred understanding than reading a news article or a text.

EDUCATORS NEED TO ESTABLISH THE LEARNING OBJECTIVES, INTEGRATE THE DIGITAL TOOL MEANINGFULLY INTO THE LEARNING ACTIVITIES AND ENGAGE WITH STUDENTS AROUND LEARNING

However, in isolation, a digital tool is not an effective way to convey a sense of historical or cultural empathy. The role of the teacher is especially critical in tackling difficult subject matter, and teachers must serve as guides to the experience that the digital tool offers. That may mean engaging students in discussion about the content or perhaps even the limitations of a particular piece in creating empathy for others or in understanding the nuances of certain cultural issues. What does the game miss about the experience? What is the game able to capture visually and interactively that a standard text may overlook? Games and other digital tools should be considered one component of a holistic pedagogical approach and educators need to incorporate activities for student reflection, classroom discussions and other projects to deepen learning.

A WORD OF CAUTION

Before integrating any game or digital tool into the curriculum, it is critical to evaluate the content of the game. Some games that appear to address relevant content areas or offer opportunities to practise social and emotional skills have unintended consequences.

For instance, the text-based poverty simulator *SPENT* tried to make the case that it is difficult to dig oneself out of being poor. However, Roussos and Dovidio (2016) found that some players became *less* empathic towards poor people after playing, particularly those who had predispositions about meritocracies. *SPENT* offers players choices, so the game indicated to some players that people remain in poverty *because* poor people are making bad choices. "[Since] playing a game about poverty (and thus having control over one's outcomes) led participants to believe that poverty is personally controllable, it did not positively influence attitudes toward the poor" (Roussos & Dovidio, 2016, p. 14). The game neglected to model the real systemic influences on poverty that are out of a person's control (Farber & Schrier, 2017; Roussos & Dovidio, 2016).

IT IS CRITICAL TO EVALUATE THE CONTENT OF THE GAME. SOME GAMES HAVE UNINTENDED CONSEQUENCES

Some games also raise concerns around cultural appropriation and appropriateness. In the educational game *Mission US: For Crown or Colony?*, set in Boston at the onset of the American Revolution, players take on the role of Nat Wheeler and make decisions on his behalf. Playing it may encourage youth to have historical empathy for game characters and situations (Schrier, Diamond & Langendoen, 2010). However, in its sequel, *Mission US: Flight to Freedom*, players role-played as Lucy, an African American slave at the time of the American Civil War and this caused unease for some educators. US-based teacher Rafranz Davis wrote, "The slave mission was built on the idea that users could 'understand what a real slave felt' while walking around in Lucy's shoes. Unfortunately, this is also where the game failed because one cannot simulate the emotional scars of slavery" (Davis, 2015, para. 7).

WHERE TO START

Using digital tools effectively in classrooms to support students' social and emotional development requires a thoughtful pedagogical approach. We identified five steps to guide the process (see Figure 8.3).

Figure 8.3. Five Steps that Guide the Process of Thoughtful SEL Pedagogy

1 Think about yor students. Keep them at the centre, always.

2 Identify social and emotional learning goals and subject matter learning goals.

3 Brainstorm games that connect in some way to the identified learning goals.

4 State learning objectives: Students will be able to do _____ by the end of the unit.

5 Sketch activities that will comprise each lesson in the unit.

First, know your students. Where are they developmentally? What is interesting to them, socially, personally, in current events, or in their community? What social and emotional skills are most pertinent and compelling for them? For example, teenagers want their parents/guardians to understand and empathise with them, but also to give them space. How can they maintain closeness with their parents and also communicate their need for independence? This is one of many developmentally salient topics that teens might find compelling.

Second, identify the learning objectives – both for SEL and the subject matter – that will drive the curriculum. There is likely to be an overlap between the SEL goals and those for the subject area. Those objectives, equally, should guide all decisions for the design of the curriculum. In addition, they should be connected intentionally to the needs and interests of your students.

Third, brainstorm a list of possible digital tools to integrate into the curriculum. We offer some suggestions in the next section. Also, check out the curated list from #ArmMeWithGames (https://www.literarysafari.com/armmewithgames). Whichever tools you choose, schedule ample time to familiarise yourself with them, read up on how they are used and, in the case of a game, play through it yourself. Many digital games are available to watch via playthroughs online. While we highly encourage you to play the games you choose to use with your students, the playthroughs are a great resource for re-watching sections of the game you might choose to create curriculum around. (Also check out this guide for using games in your classroom: http://ithrivegames.org/wp-content/uploads/2018/12/gamesineducation.pdf).

Fourth, design activities that use and extend the digital tool to deepen student learning as you align with the learning objectives (see Figure 8.4). We rely on the principles of Universal Design for Learning (http://www.cast.org/our-work/about-udl.html). Activities should be emotionally stimulating, while motivating students to engage. Information across the curriculum, including the activities, should be presented in various ways such as text, images and audio (which is why

digital tools can be a great choice). Finally, provide students with a variety of options to express their understanding of the content, such as through writing, drawing, song writing, or creating a model.
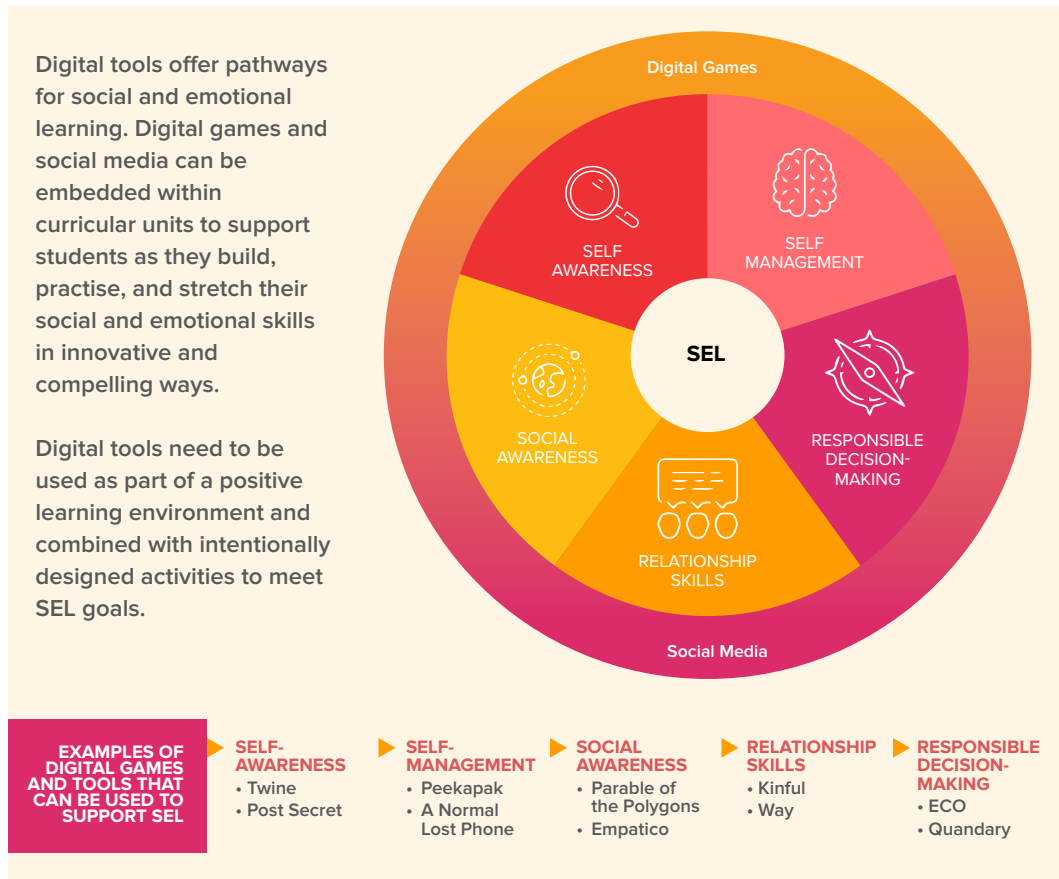
Figure 8.4. Best Practices in Designing SEL Curriculum with Embedded Digital Tools
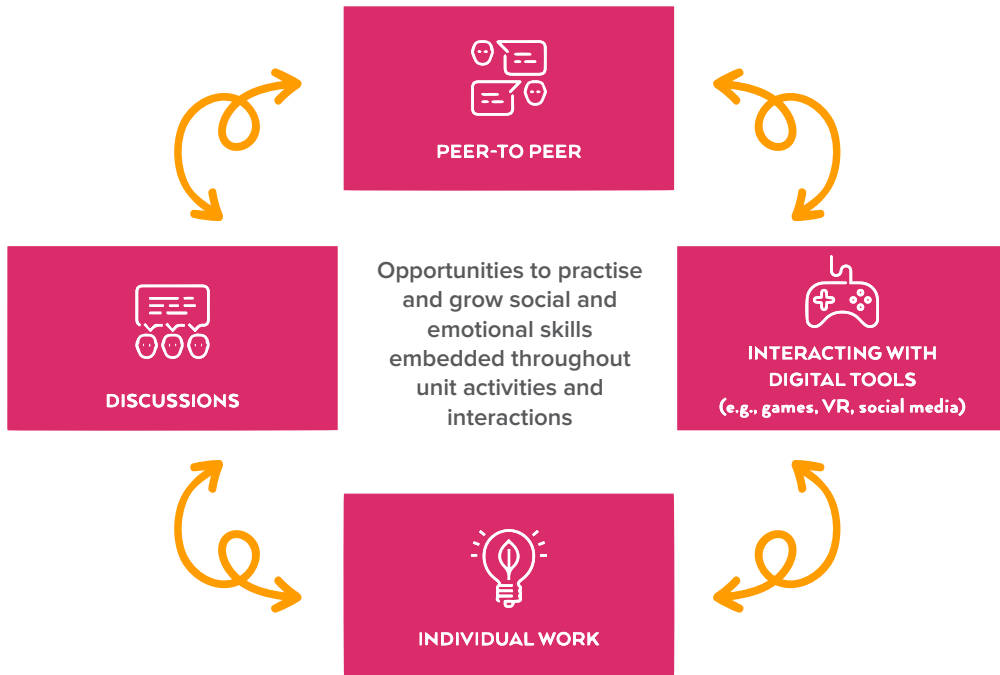
IDEAS FOR DIGITAL TOOLS

In the next section, we provide some examples, organised around the CASEL Framework, of digital tools that engage students in social and emotional skill development (see Figure 8.5). Digital tools with opportunities for student voice, self-expression and connectedness may align to one or more SEL competencies.

Figure 8.5. Digital Tools Organised around the CASEL Framework

Digital tools offer pathways for social and emotional learning. Digital games and social media can be embedded within curricular units to support students as they build, practise, and stretch their social and emotional skills in innovative and compelling ways.

Digital tools need to be used as part of a positive learning environment and combined with intentionally designed activities to meet SEL goals.

EXAMPLES OF DIGITAL GAMES AND TOOLS THAT CAN BE USED TO SUPPORT SEL	SELF-AWARENESS	SELF-MANAGEMENT	SOCIAL AWARENESS	RELATIONSHIP SKILLS	RESPONSIBLE DECISION-MAKING
	• Twine • Post Secret	• Peekapak • A Normal Lost Phone	• Parable of the Polygons • Empatico	• Kinful • Way	• ECO • Quandary

(A) SELF-AWARENESS

PostSecret (https://postsecret.com) is a living art project comprising digital and paper postcards that are shared globally. Often inscribed on postcards are personal and intimate messages, and they are shared anonymously. Teachers can support students in thinking about why this site exists, the weight of carrying a secret, including the impacts on one's life, and what motivates people to send in their secrets. They can discuss how PostSecret functions differently than other forms of social media, and perhaps try out authoring their own anonymous postcards. The website includes some sensitive content. *Age recommendation: 14+.*

Daniel Tiger's Grr-ific Feelings (https://pbskids.org/apps/daniel-tigers-grr-ific-feelings.html) is a mobile app for pre-schoolers, featuring the cartoon character Daniel Tiger. It includes mini-games

as well as a camera interaction where children express their emotions through selfies. Children can also draw and decorate on a virtual easel, as well as sing along with Daniel Tiger to songs about emotions. *Age recommendation: 3-5 years.*

#SelfCare (http://truluv.ai/selfcare) is a mobile meditation app. Its narrative centres around a person who decides to stay home for a 'mental health day.' The game uses evidence-based meditative practices to promote personal growth and self-care by having the player help the character in the game do things such as breathing exercises and dragging and dropping letters into place to form words. Through these meditative actions, players are able to slow down and experience feelings of comfort, peace, and joy. *Age recommendation: 13+.*

Twine (http://twinery.org/) is a tool used to create text-based, interactive, branched stories. (*Depression Quest*, described further below, was authored using Twine.) Twine stories can be written in the second-person voice ('you'), as the reader is the player and controls the outcome of the story, within the constraints the author has created. *Age recommendation: 13+.*

(B) SELF-MANAGEMENT

Gone Home (https://gonehome.game/) is a game that deals with issues of adolescent identity as it relates to parental conflict. Set in an abandoned house, seemingly frozen in time with all family members nowhere to be found, what follows is a deep exploration of the house and the family who lived there. Canadian educator Paul Darvasi wrote a blog describing how he used this game in his literature course (http://www.ludiclearning.org/2014/03/05/gone-home-in-education/). As with a book, Darvasi had students take notes during gameplay, collect screenshots of events, and then construct presentations on themes that emerged. *Age recommendation: 15+.*

A Normal Lost Phone (https://anormallostphone.com/) is a game in which players search the phone of a missing person, reading the individual's text messages, looking through their photos, checking their emails, and more, to learn what might have happened to the person. This game invites players to consider the ways in which devices threaten our privacy, the (im)morality of invading someone else's privacy, and issues surrounding teens and social media. *Age recommendation: 18+.*

Peekapak (https://www.peekapak.com/) is an early childhood literacy platform that uses narrative in children's books as a foundation to develop young children's social and emotional skills. Using Peekapak, young children create avatars and report their feelings using Mood Boards (see Figure 8.6). Peekapak also offers a suite of games to help parents and teachers reinforce concepts presented in the stories. This programme is being piloted in several US school districts. *Age recommendation: 3-8 years.*

Figure 8.6. Peekapak Mood Board
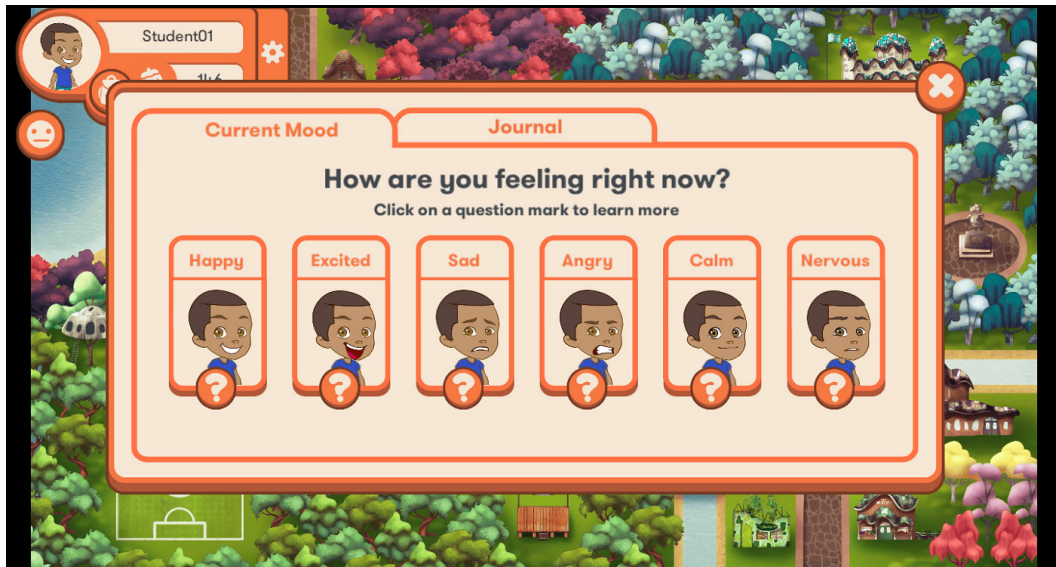
[Source: Retrieved from https://www.peekapak.com/images/checkin_01.png]

What Remains of Edith Finch (http://edithfinch.com/) is an award-winning narrative game that tells the story of an 18-year-old girl, Edith, and her ostensibly cursed family history. Told through the game mechanic of exploration, players search her childhood home, which has become a museum preserving the identities of her family members, most of whom have succumbed to tragic fates. There are no scoring systems or win-loss conditions; rather, like a novel or film, this is an interactive experience told *through* game mechanics. iThrive Games Foundation's *Museum of Me* curriculum on identity integrates this game (see Call Out Box) *Age recommendation: 13+.*

(C) SOCIAL AWARENESS

Depression Quest (http://www.depressionquest.com/) is a text-based autobiographical game about the designer's lived experience with depression and social anxiety. Players sometimes see 'choices' as crossed out, illustrating how some people feel limited agency in life when struggling with mood disorders. *Age recommendation: 16+.*

FlipGrid (https://flipgrid.com/) is an asynchronous tool that can amplify student voice through short-form videos (typically 90-seconds) that answer a prompt from a teacher. #GridPals is a programme on FlipGrid's web portal that connects classrooms together. The website includes lessons that promote student choice and social learning, and can be used between classrooms connected by Empatico (https://empatico.org/), a non-profit that connects classrooms around the world and enables youth to practice social skills. *Age recommendation: 6+.*

***Life is Strange*** (https://lifeisstrange.square-enix-games.com/en-us/games/life-is-strange) is a narrative-driven game set in a private art school. Players control Max Caulfield, a young photography student with the power to rewind time. *Life is Strange* covers themes of school bullying, suicide and fleeting friendships. In 2016, game publisher Square Enix partnered with the Parent Advocacy Coalition for Educational Rights (PACER) on an anti-bullying campaign (hashtag #EverydayHeroes, referencing a photography contest in the game). *Age recommendation: 16+.*

That Dragon, Cancer (http://www.thatdragoncancer.com/) is an autobiographical game about a family who lost a child to cancer. Recommended for high-school aged players, this game often limits player choice or agency over outcomes. Sometimes players view vignettes as the father, while other times as an anonymous other, observing events as they take place. Players learn about grief, and through taking multiple perspectives around the event, they can consider the complexity of empathy. *Age recommendation: 16+.*

(D) RELATIONSHIP SKILLS

Florence (http://www.florencegame.com/) is an interactive app that uses game mechanics to share an emotional story arc about a young woman's first love (see Figure 8.7). At times heartbreaking to play, *Florence* captures the range of emotions that accompanies the start, and end, of romantic relationships. To learn more about this game or ways to adapt it to your classroom, contact UNESCO MGIEP as they recently developed SEL curricular materials that incorporate this interactive game. *Age recommendation: 12+.*

Figure 8.7. Screenshots of Florence

[Source: Retrieved from http://www.florencegame.com/]
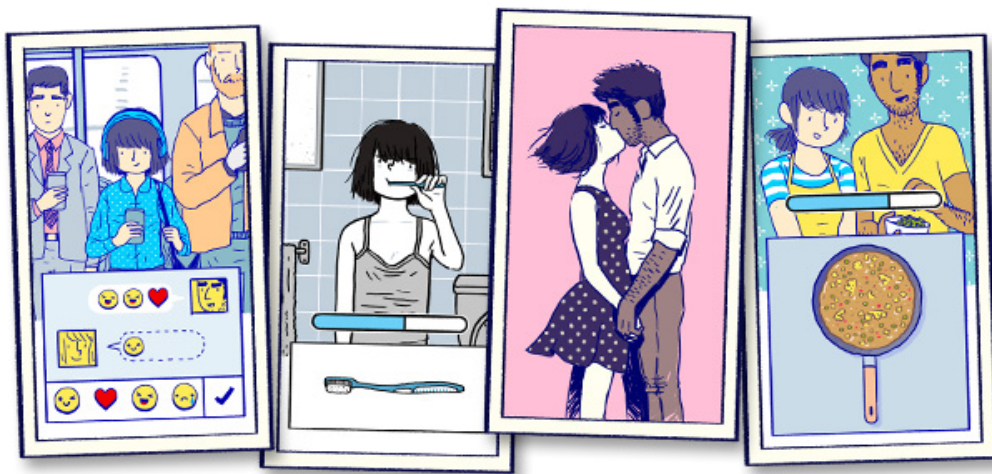
Kinful (https://www.kinful.org/) is a curriculum designed for social and emotional skill development. It is unique in that it leverages the power of virtual reality (VR) to help students connect in meaningful and empathy-building ways, no matter where they are in the world. Students in *Kinful* classrooms create 360-degree videos that share their daily activities, interests, feelings and more. There are also various workstations that take place in the classroom, with some students utilising VR-related activities while others engage in teamwork games and group reflections. *Age recommendation: 6-18.*

Parable of the Polygons (http://ncase.me/polygons) is a blog post from Nicky Case and Vi Hart that includes both text (based on Nobel Prize-winning Thomas Schelling's work) and interactive elements. As readers scroll through the text, they can experiment with drag and drop mini-games to learn about institutional biases and their relationship to segregation. *Age recommendation: 14+.*

Way (https://makeourway.com/) is a two-player game where players need to solve puzzles cooperatively using only non-verbal communication. In this game, players practice and establish relational trust (Schrier & Shaenfield, 2016). *Age recommendation: 11+.*

(E) RESPONSIBLE DECISION-MAKING

Quandary (https://www.quandarygame.org/) is a free digital game about responsible decision-making. It has been developed by the Learning Games Network at the Massachusetts Institute of Technology (MIT). In the game, players colonise an uninhabited planet, and then make decisions about the redistribution of income, eminent domain, water scarcity and privacy versus security. These are situations most youth would not encounter without digital games as teaching tools. Further, as a digital game, *Quandary* gives players immediate feedback, thus enabling students to see the consequences of actions in a direct and concrete way. *Age recommendation: 12+.*

ECO (https://www.strangeloopgames.com/eco/) is an online multiplayer game that promotes responsible decision-making among players as they determine what should take precedence – individual wants or the group's collective needs. Each player starts by creating a civilisation and as the game progresses, the player is able to see how their world interacts with the ecosystem around it. Every choice they make either helps or hurts the environment. Read this blog to see how ECO incorporates SEL – http://ithrivegames.org/2017/04/21/john-krajewski-eco-developer-on-play-that-saves-the-world/. *Age recommendation: 11+.*
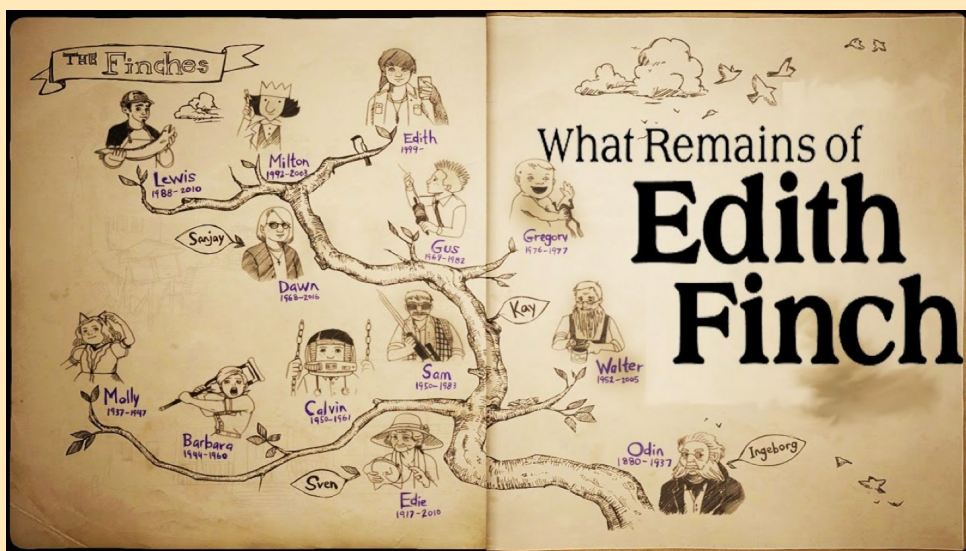
Zoo U (https://www.centervention.com/zoo-u/), a game designed by therapists and psychologists, takes place in a school created for young zookeepers. During gameplay, students navigate various social situations that are similar to the ones they would face in their own lives. The goal of the game is to help players build social and emotional skills through adaptive gameplay. Zoo U was designed for classroom use and features a complete teacher interface. *Age recommendation: 7-9 years.*

MUSEUM OF ME

The *Museum of Me* is a curriculum designed to meet learning objectives for SEL and English language arts. It includes a set of constructionist lessons that integrate *What Remains of Edith Finch* as a core text (see Figure 8.8), much like how a teacher might use traditional materials such as a novel to be the basis of curriculum. Developed with iThrive Games Foundation, these lessons engage teens in building media literacy skills through digital play, as well as developing social and emotional competencies, including self-awareness social awareness, and identity (more here: http://ithrivegames.org/museum-of-me/).

The range of character vignettes in the game provides an opening to discuss various aspects of identity – how objects can be used to define and perform identity; self-expression on social media; healthy and unhealthy coping mechanisms and the labels associated with them; family and social influences on identity formation; questions of diversity and sociocultural differences in understandings and expressions of identity; the impact of choices on identity and questions of fixed versus malleable traits; and more.

Figure 8.8. Screenshot of the Finch Family Tree from the Game What Remains of Edith Finch

[Source: Retrieved from http://www.giantsparrow.com/games/finch/ ; http://annapurna.pictures/interactive/]

Figure 8.9. Students Use the Narrative of What Remains of Edith Finch in the Museum of Me Curriculum to Explore Key Issues Related to Identity

[Source: Retrieved from http://ithrivegames.org/museum-of-me/]

The lessons focus on personal stories that can help teens think about their own stories and how they might be 'written' or 'rewritten.' For instance, after viewing the Walter family 'secret' vignette (viewable here: https://youtu.be/IGOe173pRm4), students discuss why people keep secrets, both personal and family. The teacher then introduces the PostSecret website (linked and described earlier in Social Awareness under Selecting the Right Tools). There, students may share personal stories (see Figure 8.9).

The *Museum of Me* lessons were designed to support teens in a deep exploration of their own identities and reflect on what they choose to share about their identities with others – both consciously and unintentionally – and why. Students are summatively assessed on artefacts they produce from several multimedia options (e.g., digital tools such as Twine, postcards, short essays) to express aspects of their own identities as well as those of the Finch characters. Throughout, they have opportunities to enhance their resilience in ways that respect and meet their developmental needs at this stage in life.

SUMMARY

Digital tools, including video games, are an increasingly rich and varied space for personal transformation that can be integrated into classroom instruction to support the positive social and emotional development of youth. Games can propel this growth by offering deep, experiential learning opportunities that draw on students' active and creative engagement. Approaches to integrating digital tools should consider the learning goals and interests of students and the alignment between those goals and the tool in question. Educators who are exploring the use of digital tools to support social and emotional growth among students should plan to join students in their immersion into the experience the digital tool offers, serving as a guide who contextualises and helps to transfer the learning from virtual spaces into the real world and lives of students.

The resources provided in this chapter serve as a road map for exploring how using digital tools can deepen and extend learning in your classroom. Digital tools are one part of curricular design and should be considered part of a meaningful learning environment. They offer a rich opportunity for experiential learning, providing space for play, agency, interaction, and experiencing and managing a wide range of emotions. We encourage educators to choose tools that align with students' interests and that map onto learning goals, including social and emotional development and mastery of core academic subject matter.

EDUCATORS MUST ENGAGE WITH DIGITAL TOOLS ALONGSIDE THEIR STUDENTS FOR TRANSFORMATIVE LEARNING TO OCCUR. EDUCATORS NEED TO SUPPORT STUDENTS IN USING DIGITAL TOOLS

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.

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.

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.

KEY CHALLENGES

8.1   Access to reliable technology is inconsistent across schools and students' homes, presenting challenges to the equitable deployment of technology-supported SEL.

8.2   The fact that successful implementation of technology-supported SEL efforts requires a significant time investment on the part of already taxed educators remains a significant barrier to adoption.

KEY RECOMMENDATIONS

8.1   Investments should be made in professional development opportunities for educators that support them to design and implement high-quality instruction that fully integrates SEL with digital tools and academic content.

8.2   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.

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RESOURCES

#ArmMeWithGames curated games list: https://www.literarysafari.com/armmewithgames

Common Sense Education SEL Educator Toolkit: https://www.commonsense.org/education/toolkit/social-emotional-learning

Digital Play for Global Citizens: https://joanganzcooneycenter.org/wp-content/uploads/2018/03/jgcc_digitalplayforglobalcitizens.pdf

Edutopia's SEL Resource Library: https://www.edutopia.org/social-emotional-learning

iThrive Games' Curated Games: http://ithrivegames.org/curatedgames/

iThrive Games' Museum of Me Curriculum: http://ithrivegames.org/museum-of-me/

The New Coviewing: Investigating and Designing for Joint Media Engagement: http://joanganzcooneycenter.org/wp-content/uploads/2011/12/jgc_coviewing_desktop.pdf

Games for Change: http://www.gamesforchange.org/games/

Life's Little Lessons: https://pbskids.org/learn/lifes-little-lessons/

Technology and Interactive Media for Young Children: A Whole Child Approach Connecting the Vision of Fred Rogers with Research and Practice: http://teccenter.erikson.edu/wp-content/uploads/2017/06/FRC-Report-2-1.pdf

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This publication titled
'**Rethinking Learning: A Review of Social and Emotional Learning for Education Systems**', published by the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) reviews the latest research on Social and Emotional Learning (SEL), its impact on student health and school climate and its transformative role in building happier classrooms. It seeks to inform and impress upon Member States the urgent need to mainstream social and emotional learning in education systems.

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