

Social Emotional Learning – A summary of Changing the Odds 2016 Learning Conference

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March 2017



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A summary of Changing the Odds 2016 Learning Conference

It is acknowledged in Scotland that there is an attainment gap that exists between young people from different socio-economic backgrounds and that the Scottish Government has made the closing of this gap a policy priority. Whilst this is a complex issue that is affected by a wide range of factors, one of the biggest contributors to this gap lies in the social and emotional wellbeing of young people. Children from less advantaged communities and those growing up in, or close to poverty are more likely to experience negative emotions and poor self-concept. This in turn presents barriers to accessing the curriculum, effective learning and contributes to widening the attainment gap.

Momentous Institute in Dallas, Texas seeks to change outcomes for children from the most disadvantaged backgrounds by creating the conditions in which young people and their families can learn to understand and master their emotions and the actions that stem from them. In this way, young people are more ready to learn and access the curriculum, achieve academically, succeed post school and move towards self-conceptualised success. In October 2016, Momentous hosted a conference entitled 'Changing the Odds' (CTO 2016) which brought together educators, psychologists, neuroscientists, and social scientists to explore the ways in which learning across these disciplines might help change the odds for young people. This paper summarises the learning from this conference and can be used as a starting point, or refresher in Social Emotional Learning (SEL) for educators in Scotland. At the foot of the paper is a bibliography and [suggested further reading](#).

The contributions that are summarised here were made by the following people and you can skip directly to a section by clicking on their name:

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Dacher Keltner – Survival of the Kindest: Toward a Compassionate World

Dacher Keltner, a professor of psychology at the University of California, Berkley whose studies have focused on the social functions of emotion, argues that emotions enable individuals to respond adaptively to the problems and opportunities that define human social living. He is the co-director of the [Greater Good Science Centre](#), a collaboration which draws on research to explore the themes of gratitude, altruism, compassion, empathy, forgiveness, happiness and mindfulness.

During CTO 2016, Professor Keltner reflected upon the history of humanity's need to show compassion for others. The human baby is born very under-developed in comparison to the young of other mammals, many of whom are able to walk within minutes of being born. He argues that earlier in the evolutionary history of mankind, mothers of young infants would have been unable to carry out many of the functions necessary to survive such as gathering food and that this, in turn required cooperation between human individuals. Compassion then may be a trait of the fittest that has survived through our ancestors and become an intrinsic part of humanity. Professor Keltner used the term 'survival of the kindest' to illustrate that it wasn't necessarily the fittest individuals who survived, but the fittest communities of people and that the fittest communities were the most socially cohesive and kindness and compassion are the glue that hold society together.

According to Professor Keltner, compassion is one of the most important of human emotions, it is contagious and spreads through social networks. This theory is at the heart of sayings such as 'a good deed runs round the world' and Gandhi's call to 'be

the change you want to see in the world'. In short says Professor Keltner, compassion is a study of humanity.

In *Born to be Good* (Keltner, 2009) the author describes the role of the vagus nerve in linking physiological processes such as breathing and heart rate to neurological processes such as feeling. He notes that when we feel a sense of compassion for others, we have a physiological reaction coordinated by the vagus nerve which is more active at these times. Given that we know that the interplay between the body and the brain is a two-way relationship (Soussignan, 2002; Larson, Kasimatis and Frey, 1992; and Strack, Martin and Stepper, 1998) then it is possible that physical manipulation of the vagal system, for example by sitting up straight and using some breathing techniques, can affect the way we feel compassion. This is the thinking behind the use of breathing techniques in Momentous Institute School and other schools that embed SEL into their curricula.

There is also a feedback loop associated with the demonstration of compassion. When one person shows compassion to another, oxytocin is released in the giver of compassion meaning that showing compassion to another increases the intrinsic sense of well-being that we feel. This is what Professor Keltner means when he says that compassion is contagious.

There were a number of different definitions of mindfulness used by the different contributors to CTO 2016, and these were by-and-large synonymous. Professor Keltner's definition was that mindfulness was acceptance of who you are and how you feel. He talked about the importance of not stifling, denying or hiding from negative emotions, rather there is a need to recognize them, name them and embrace them. These practices have a calming effect and allow us to begin to overcome the feelings of loss, sadness, anger or frustration. This also allows us to become more adept at spotting these emotions in others and developing the skills of empathy.

Professor Keltner moves beyond psychology and neuroscience and cites studies from anthropology that examine the nature of leadership. When members of a wide range of tribes were asked about the qualities that describe effective tribal leaders, they regularly responded by stating kindness, humility, compassion, empathy, courage,

tact, trustworthy and fairness were key attributes. According to Professor Keltner, leaders who practice loving kindness towards others on a regular basis (at least twice a day), create environments where they and others thrive. The environment we inhabit, and the relationships we practice within these environments are the key factors in determining our propensity for success.

Brené Brown- overcoming vulnerability. The reckoning, the rumble and the revolution.

Brené Brown is a researcher who has spent over a decade investigating vulnerability, courage, worthiness and shame. Her work has been widely acclaimed with large audiences and readership. Over 25 million watched her 2010 TEDx talk and she has three New York Times best sellers to her name.

Her input at the Changing the Odds conference resonated with many leaders working in education and children's services. What are our "rising skills"?- what does it take to get back up? How do we get back to the surface when we are drowning in work and nothing seems to be getting done at the standard we would aspire to?

Brown in her 2010 TED talk offered a saying from social work colleagues "lean into the discomfort." At the Changing the Odds conference she offered more of a framework and solutions to those everyday concerns, overwhelming feelings and challenging positions leaders find themselves in, as opposed to her other works which focus on strength through overcoming vulnerability and shame with worthiness, compassion and authenticity. That said, both the short-term framework and her long term understanding and overcoming of psychological phenomena were closely linked. There were clear 'take aways' that can be used regularly by those leading in education settings.

Brown's starting point focussed on the fact that the brain needs to understand a narrative in any incident or issue that arises. What is happening? Who is good, bad and dangerous? We need a narrative but also need to know that the brain does not always cope well with variables and uncertainty. Our own ideas and emotions can follow too quickly after an event without validation or certainty. After something happens, productive thinking suffers as a result of emotions.

When we do get back up we share one thing in common- learning. Brown spends much of her time with leaders in large corporate organisations but also the military and public sector who are learning more about this area. She works on a three-stage model which she calls the Reckoning the Rumble and the Revolution.

The reckoning comes at the outset of any issue or incident. According to Brown, we need to recognise the emotion and get curious about it. Where traditional thinking would suggest we simply “suck it up” Brown wants for us to feel the emotions and better understand them. In many cases, psychological impulses lead to physical feelings such as ‘that feeling’ in our stomach, tensions and a dry mouth. Her focus at this point is on getting curious whilst breathing and being mindful of the situation. She reflected on the number of CEOs and military leaders she works with who are now considering mindfulness to support their work, taking away the emotion and being in the present.

In ‘the Rumble’ Brown recognises the instinct to create a ‘first draft’ response to any situation whereby we start to form a narrative based on initial information and pre-dated perceptions. Missing points are filled in with fear, perceptions and beliefs. In the absence of robust information and data we make up the story. Unless we have a narrative, we believe we cannot help in the situation, far less understand it. Confabulation often occurs. To overcome this, the rumble is a chance to challenge that first draft. Brown asserted that in her experience 75% of those who are more resilient in situations write down their reflections on events. In the text, we can rumble with what is true? What is not true? And what is missing?

Without it being written down in a neutral manner and reflected on upon, our minds first story becomes reinforced as the truth. In many respects, it is basic psychology practice to write things down, hold reflective journals and try to stop ruminating. We must work to understand the happy, sad and aggravated emotions that sit amongst the many emotions we feel and can become overwhelming.

And whilst in previous education systems we might have said to children “don’t ask questions” that is the key to what we must do to progress in most situations. In order to progress to the revolution phase, we must interrogate the emotion and moreover the story in front of us. Where that story is blurry we lose best parts of the leader: - the positive emotions. According to Brown, we must bring the person back to the centre of the revolution. Brown finished noting “There is no greater threat in world to cynics and critics than getting back up, being brave and dealing with the issue.”

Her presentation gave a simple three stage framework which might support any leader in the various situations that arise as part of our work. Brown's TEDx talks discuss a longer-term stability and way of being settled with oneself. Attributes of worthiness are most prevalent amongst those with a strong sense of love and belonging. She notes a strong sense of courage and ability to tell stories with the whole heart (the Latin word for heart is *cor*). This sits alongside the ability to be imperfect whilst being kind to self. After all, if we are to practice compassion on others, we first need to be able to support our self. Moreover, their worthiness stems from a connectedness with others which stems from authenticity. By letting go of who they thought they should be or the person others thought they should be they were better able to be themselves and connect. Thus, they had either embraced or banished vulnerability thus giving them a strong sense of worthiness.

Daniel Goleman – The role of Emotional Intelligence in Education and Leadership

Dan Goleman is best known for his work on emotional intelligence and its implications for various contexts such as education and leadership. His 1996 book 'Emotional Intelligence: Why it Can Matter More Than IQ' sparked numerous conversations, debates and experiments and Goleman has refined his theories ever since. In 2013, along with Annie McKee and Richard Boyatzis, Goleman authored 'Primal Leadership: Unleashing the Power of Emotional Intelligence' which re-examined leadership styles and traits through the lens of emotional intelligence.

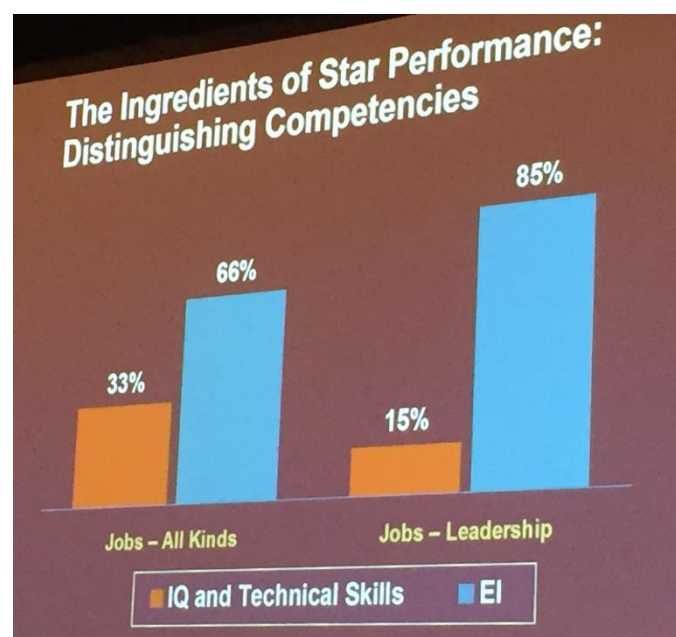
At Changing the Odds 2016, Goleman brought together a number of elements of emotional intelligence theory to illustrate the necessity and potential of social-emotional learning in schools and the impact this can have on pupils and staff. In line with the conference's emergent theme of compassion, he began by citing Darley and Batson's 1973 'Good Samaritan' experiment. In this experiment trainee priests were observed as they hurried from one building to the next in order to deliver a sermon. Between the buildings, in plain sight of the hurrying priests lay a shabby confederate (an actor taking part in the experiment) clearly in need of help. It was found that the main factor on whether a priest stopped to help the confederate was the amount of hurry he was in; priests in more of a hurry were less likely to notice the confederate. Goleman uses this experiment to point out that compassion begins with noticing others. In a world so full of information and increasing hurry, there are more distractions on our attention than ever before and compassion is a potential victim of such busyness.

Goleman argues that we need to teach children to be able to slow down and curb impulsiveness as this will not only help them learn to notice others (and therefore increase the likelihood of demonstrating compassion) but may also have an impact on their academic achievement. Here he referenced the 'Marshmallow Experiments' carried out in Stanford in the 1970s (Mischel, Shoda and Rodriguez, 1989) where 4 year olds were told to sit in front of a marshmallow for a period. They were told they could eat it, or wait and receive an extra marshmallow when the experimenter

returned. The children were tracked longitudinally and the experimenters found that those 4 year olds who could delay gratification demonstrated better scholastic achievement and coped better with frustration and stress in adolescence.

Goleman also discussed the effect of arousal on learning when under-arousal can lead to a 'daze' which manifests as a lack of focus, low concentration and poor engagement in learning. On the other hand, over arousal, which can be caused by overload of information and other additional stress factors such as fear, can lead to 'frazzle'. Frazzle is akin to the 'emotional hijacks' Goleman discusses in his previous works and involves lowering function of the neo cortex and hippocampus regions of the brain.

Finally, Goleman pointed to the need for leaders and potential future leaders to develop social and emotional skills. Through studies in a number of fields, including education, he has identified high performing individuals at various layers of organisations and has quantified the importance of IQ and technical skills and compared these to the importance of skills and competencies related to emotional intelligence. He concludes that IQ and technical skills are important for all professionals, but those relating to emotional intelligence are a better predictor of success. Moreover, this is even more so for those in leadership positions.



Goleman was clear that IQ and technical skills are an absolute must, and that emotional intelligence can not be a substitute for these, but that when these skills are complemented by high degrees of emotional intelligence, including the ability to slow down, notice others and demonstrate compassion, leaders are much more likely to be successful.

Kristin Neff: Self-Compassion to support ourselves and others in a competitive society and education system.

Kristin Neff studied communications at University of California (1998) before taking on her PhD at Berkley on moral development. Her research examined children's moral reasoning. During that time she became interested in Buddhism and has been practicing meditation ever since. She began to focus on self-compassion, a central construct of Buddhist psychology but one that had not, to that point, been examined empirically. Dr Neff's work focussed on defining, measuring, researching and developing interventions to teach self-compassion. Neff's model of self-compassion involves showing kindness to oneself when experiencing suffering; framing one's experience of imperfection in light of the shared human experience; and holding negative thoughts and emotions in mindful awareness. Works on self-compassion during the period have increased greatly over time. Almost 800 peer reviewed journal articles, dissertations and books focus on self-compassion, more than half of which were published after 2013. Her 2013 TEDx Talk has received over 650,000 views and she has developed an 8 week programme to teach self-compassion skills:- Mindful Self- Compassion.

Kristian Neff opens her 2011 publication with a powerful question, "In this incredibly competitive society of ours, how many of us truly feel good about ourselves?" (Neff, 2011) Critics might suggest that this question is a Dale Carnegie type approach of asking questions rather than giving orders (Carnegie, 1936) and is part of the modern day phenomenon of psychology based approaches and self-help books which now pervade leadership and management sections in high street book shops.

However Neff quantified the question at the Changing the Odds Conference presenting the tension between common humanity and isolationism alongside an appreciation that life is imperfect. Furthermore she reassured that difficult experiences are not isolating when they are seen as part of a larger human experience. She then laid out the tension between self-pity and compassion. When we are isolated and when things are less than perfect, we want compassion and do not want pity. So, she argues, can we have self-compassion? However, Neff herself acknowledges many

have lots of misgivings followed up by lots of questions. There are some questions education leaders and aspiring leaders might want to ask and find answers to, not least 'how might this apply to us in stressful leadership situations?'

The findings of Neff might not sit well with psychology sceptics. However, it is worth noting that those often associated with "hard exteriors" have found benefit greatly from the approach. Self-compassion has been a predictor of coping amongst veterans. The findings of Neff et al (2015) in the Journal of Traumatic Stress were that "interventions aimed at increasing mindfulness and self-compassion could potentially decrease functional disability in returning veterans with PTSD symptoms." (http://self-compassion.org/wp-content/uploads/2015/12/Dahm_et_al.pdf) That evidence alone presents an interesting case for self-compassion, mindfulness and the increasing interest in meditation. Neff has published many research papers and a book on self-compassion.

Much of Neff's work has resonance with her own personal experience. Whilst this might be open to critique, the events may well be ones which readers can readily connect and empathise with. She describes herself as a "self-compassion evangelist" (TEDx, 2013). However, her work is backed up with ten years of research work into the mental health benefits of self-compassion and studying how self-compassion interventions help people to become more self-compassionate. The work was evident and perhaps driven by events in her own life. When going through her PhD she went through what she describes as a "messy divorce." In her words, this led to shame, self-judgement and stress. During this time she started meditation. At her first meditation, the woman leading the session talked about compassion for others and for self. The concept of including self with the same kindness as you would treat good friend struck with her. From then on in she became more interested in more compassionate for self.

Another personal reflection of the work and the impact of it was when she faced her greatest challenge; her four year old son was diagnosed with autism. "Incredible grief and shame" were the words she used to describe her feelings towards to situation.

She could not admit this to anyone, least of all herself. She knew that what was needed was to embrace how difficult it was. Once she could embrace own grief, the quicker she could deal with the situation. At the conference she shared a time when her son had thrown a tantrum on trans-Atlantic flight. With everyone looking at him, and her, the only refuge she had was self-compassion. Her focus on 'self-first' got her through a potential break down. During the changing the odds conference the analogy of an airplane proved a striking connective with this experience. The speaker noted that on aircrafts we are clearly instructed in the safety briefing that, in the event of an emergency, secure your own air mask first before coming to the aid of others. This prioritisation of self-help in the context of self-compassion might be useful reflection for those who work in services where care of others often comes to the detriment of the health of the workforce.

Neff's work later led to two years post doctorate study with a leading self-esteem researcher looking at the benefits of self-compassion over self-esteem. "Even super models feel insecure" notes Neff (TEDx 2013) as she asserts developmentally, boys and girl both think they are attractive and demonstrate high self-esteem until 3rd grade. For boys this positive buoyancy continues into middle school, junior high and high school. However, for girls, perceptions of 'how good they look' takes a nose dive after 3rd grade. The statistics in her book are worrying and replicate some of the early mental health data starting to emerge in the past year in Scotland. Neff notes almost 50% of all girls between first and third grade say they want to be thinner, and by 18 years old 80% of girls report they have dieted at some point in their lives. (Neff, 2011 p 175).

And so Neff offers solutions around moving from self-judgment to self-kindness. Moving to treat ourselves with self-care, understanding soothing and comfort rather than harsh judgment. The physiological effects were explored by Neff at the Changing the Odds conference. Criticism taps into reptilian brain, releasing cortisol thus and fight or flight mode starts. Lots of cortisol circulating in turn leads to constant high levels of stress. Eventually the body shuts down physically and depression sets in. In that state we are not in the best position to embark on growth mind-sets and solution

orientated approaches. However, Neff offers a reflection on the fact that we are, of course, mammals. As such we can feel safe by tapping into mammalian care system and oxytocin, what Neff calls “the chemicals of care” (Neff, 2011).

A concluding point might be to focus on why do we criticise ourselves in the first place? Neff believes we are self-critical because we need it to motivate ourselves. We might become self-indulgent and lazy otherwise. This of course explains part of the reasoning but perhaps excludes some cultural norms. Regardless of the source of self-criticism, if it is because of some inner built feeling that this might spark self-motivation, Neff notes that research shows the opposite- self-criticism actually demotivates us. (TEDx 2013) And so when others are criticised we feel compassionate towards them. Neff affirmed at the conference that there is not much difference between the compassion we feel for others and that we feel for ourselves. It is just that we use it more for others. In education the impact of this could be clearly seen as she demonstrated that you do not have to be self-compassionate to be compassionate to others, but you do need to be self-compassionate to sustain it. Her challenge to all in her book and her TED talk is to be more self-compassionate.

Meena Srinivasan: Self Awareness, Social Awareness and Mindfulness

Despite the critics, mindfulness is a growth area. Meena Srinivasan noted her story of being a new immigrant and always looking to the future for a new job, the next promotion and her never being or thinking about the present. She is a student of both the late Professor Ramchandra Gandhi (Mahatma Gandhi's grandson) and Nobel Peace Prize Nominee Thich Nhat Hanh. She is one of the youngest educators to be awarded the prestigious National Board Certification. Her work 'Teach, Breathe, Learn: Mindfulness In and Out of the Classroom' brings mindfulness into the classroom with various strategies for implementation. Across America a number of organisations of mindful schools are springing up with a focus on social and emotional learning.

One such approach model shared at the Changing the Odds Conference was Collaborative for Academic, Social, and Emotional Learning (CASEL) who are operating in research, practice and policy development. Their Social and Emotional framework and competencies include self-awareness and social awareness and might be of interest to those embarking on work linking Health and Wellbeing, and in particular mental wellbeing approaches across the curriculum. The work with CASEL in the States showed an 11% gain in academic results and a 11:1 return on investment (<http://www.casel.org/research/>). Work is ongoing with various districts to continue to develop and refine Social and Emotional competence frameworks. At a national level they continue to push for more research into this area meanwhile at a local level many states are taking on the frameworks to support children's progress and development.

Richard J Davidson: Well-Being is a Skill: Applications to children, families and the Workplace

Richard Davidson is a Professor of Psychology and Psychiatry, Director of the Waisman Laboratory for Brain Imaging and Behavior, and Founder of the Center for Healthy Minds at the Waisman Center, University of Wisconsin-Madison. His research focuses on the neural bases of emotion and emotional style and methods to promote well-being. His studies have included people of all ages and have also included individuals with disorders of emotion such as mood and anxiety disorders and autism, as well as expert meditation practitioners with tens of thousands of hours of experience. His research uses a wide range of methods including different varieties of MRI, positron emission tomography, electroencephalography and modern genetic and epigenetic methods, methods widely used to study mental pathology now turned toward studying positive affect and compassion.

Professor Davidson's contribution at CTO 2016 was focussed on the fact that well-being, including social and emotional wellness consist of skills that can be learnt, and that this has implications for young people and the way that we educate and parent them. Well-regulated teachers and parents who practice well-being behaviours (in the same way we practice physical exercise to become physically fitter), are more equipped to help young people in their own emotional development. Furthermore, young people who are more emotionally regulated are many times more likely to succeed in other aspects of life such as academic achievement in and beyond school.

In his presentation he drew upon the confluence of five themes: Neuroplasticity, Epigenetics, Bidirectional communication, Science of creating and maintaining healthy habits and Innate basic goodness.

Neuroplasticity

Our brains are constantly being shaped. Usually this is a process we are unaware of and not in control of and it is determined by external loci. We can take a more considered approach to how our brain takes shape by cultivating healthy habits of

mind which then support enduring changes in our behaviour, becoming habits that reinforce the desired changes.

Epigenetics

Though we are born with a fixed complement of DNA Base pairs, each gene has a 'volume control' which is very dynamic and controls the extent to which that gene acts. We can be born genetically predisposed for certain characteristics but our genes are controlled through our experiences. For example, the ways in which a mother interacts with a young infant can cause epigenetic changes that effect gene behaviour in life long enduring ways. Research suggests that these changes can be passed down for at least 2 generations. Other behaviours that can affect epigenetic change include contemplative behaviours such as meditation.

Bidirectional communication

This occurs between the brain and the body. It has long been understood that the brain sends signals along nerves which regulate the action of organs and muscles in the body, however this pathway is bidirectional. Manipulating the body can change the ways in which the brain acts. For example, there are neurons in the gut that have been found to have a two-way communication with the brain. Thus, by undertaking certain actions such as breathing exercises, we can influence the brain's activity.

The Science of Creating and Maintaining Healthy Habits

Professor Richardson asserts that mental exercise should become as regularly practiced as physical exercise as part of a lifestyle that promotes well-being. He suggests committing an amount of time each day that you know will be manageable, even if this is just one minute a day, and practicing a mental or contemplative behaviour.

Innate Basic Goodness

Professor Davidson maintains that people have an innate goodness (this links to the work of Dacher Keltner summarised elsewhere in this piece). If, given the choice, and all other things being equal human beings will make the most prosocial choice on the vast majority of occasions.

Professor Davidson then went on to present a summary of some of the constituents of well-being evidenced from research in neuroscience:

Resilience: This is the trait of being able to bounce back after a set-back. Some manage to bounce back more quickly and more often than others and this trait can be learnt and improved over time by reflecting upon our reactions to set-backs and making a conscious effort to overcome in the face of adversity.

Attention/Awareness: Professor Davidson points out that a wandering mind is an unhappy mind. He draws upon a study that found the average adult in the USA spends 47% of their time not paying attention to what they're doing. When we split our attention between different tasks, we perform neither one well and experience increased levels of stress.

Positive Outlook: By savouring positive experiences and expecting positive things to happen, we are more likely to benefit from positive experiences and mitigate the effect of negative experiences.

Generosity: When we are generous to others, circuits within the brain promote inner well-being, thus altruism leads to well-being.

Self-control – The ability to delay gratification and demonstrate self-control in young children has been linked to success in other aspects of life in later years such as academic achievement.

Professor Davidson summed up his input by reminding us that if such traits are beneficial and that they can be learnt, then there is a moral case for their inclusion on school curricula. Moreover he pointed to research that showed gains in cognitive ability and academic output in young people who were systematically taught elements of

social and emotional learning. Though all children showed gains in this study, the gains were largest in children from low income households.

Research underpinning these conclusions can be found online at the [Centre for Healthy Minds](#)

Mary Helen Immordino-Yang: Embodied Brains, Social Minds, Cultural Meaning: Exploring the Neuroscience of Compassionate Learning

Mary Helen Immordino-Yang is an associate professor of neuroscience at the University of Southern California who studies the neural, psychophysiological and psychological bases of social emotion, self-awareness and culture and their implications for learning, development and schools. In her [TED Talk](#) from 2011, Professor Immordino-Yang defined Social emotions as the emotions we feel about ourselves and other people and they shape the way we learn and the way we use what we learn in the world so we can be successful and socially responsible adults.

During her input to CTO 2016 Professor Immordino-Yang highlighted the way our understanding of the role of emotions in learning has changed over the past two decades. It used to be thought that emotions interfered with learning, yet we now know that emotion and cognition are supported by interdependent neural processes. In short, we need to be emotionally interested in a subject to learn it effectively. In order to effectively engage students with content, we need to help ensure that their emotional brain, as well as their cognitive brain are engaged but this is also a two-way process; the level of emotional engagement we have affects our interaction with subject and the subject affects our level emotional engagement. Professor Immordino-Yang highlighted this by referencing a study of a science camp where children learned about the nature of science and scientists before they engaged in the subject matter. This teaching brought about a greater sense of emotional connection to the subject of science and thus greater engagement.

Education, points out Professor Immordino-Yang, has a role in shaping cognition, but also in the development of self that happens in young people as they grow. The purpose of education, she argues, is to support young people and teachers to build a connection between the learning and the self. Moreover, we are constantly co-creating ourselves and our neural networks through the relationships we have with one another and the interdependence of culture is formative. In the absence of adequate social stimulation, we fail to thrive and so the relationships and emotional

climates that exist within classrooms and schools are vital for the development of young people's emotional and cognitive development.

Within education we should be helping young people to feel, name and understand emotions and to examine the way they feel about maths, the lunch queue, the playground and through these open up learning experiences around the emotions of ethics, curiosity, hope and interest. Emotions are the bases upon which we build thought. Human interaction, the engagements that occur between two people shape the neural development of these two people and this can even occur vicariously, when we watch two other people interact, this can affect our own development of thought; we relate to others and meaningful learning always involves emotion.

“Emotions, like cognition, develop with maturity and experience. In this sense, emotions are skills — organized patterns of thoughts and behaviors that we actively construct in the moment and across our lifespans to adaptively accommodate various kinds of circumstances, including academic demands. The emotions of a preschooler are not the same as those of a fifth-grader, a teenager, a young or an older adult. The emotions of a new teacher are not the same as those of a veteran teacher. And even two people in the same developmental stage could construct different reactions to the same situation, sometimes substantially” (Immordino-Yang, 2016)

When we feel empathy, and demonstrate compassion toward others, the parts of the brain that are stimulated are the same parts that keep us alive, from the vagus system that regulates breathing and heart rate to the limbic system that interprets threat. Thus, learning and emotion are so interwoven and what we learn is critical to who we become – our thoughts create the context for our lives. In studies carried out by Professor Immordino-Yang and colleagues, young people who were more adept at displaying empathy for others also showed advanced brain development and this correlation was even stronger in young people from lower socio-economic backgrounds.

Professor Immordino-Yang's research can be accessed via her [University of Southern California Faculty Page](#).

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