



Principles to enhance social-emotional outcomes in adolescents: informing implementation

Authors: Valentina Brailovskaya, Heather
Lanthorn (with support from [Michael McGarrah](#))

IDinsight

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Introduction

Adolescents¹ differ greatly from children and intervention approaches effective for children may not work for adolescents — and, in some cases, may backfire. This stems from differing ways of processing information at different ages, as childrens' and adolescents' brains activate differently in response to the same stimuli. Children seek and respond well to direct instructions; adolescents do not. To illustrate, in one study researchers showed adolescents a clip of their mothers telling them to change their behaviour. In response, adolescent brains light up fMRI scans in regions relevant to anger but not to information processing. This literally highlights adolescents' aversion to receiving direct instructions (Kyung Hwa Lee et al., 2014). With this in mind, it is critical to craft SEL interventions, and broader teaching practices, in ways appropriate and effective for adolescents.

In this document, we consider what the literature says is appropriate and effective for adolescents to change behavior and socio-emotional outcomes. Specifically, we develop practices for organizations to incorporate and to avoid when designing and delivering SEL interventions.

To incorporate:

- **Interventions:**
 - Given the developmental stage of adolescents, **SEL interventions should create opportunities for learning through self-persuasion**
 - Offer a **purpose larger than self**
 - Ensure that the interventions contains a **growth mindset component**
 - Co-design the curriculum which allows teachers to improve buy-in. Allow for implementation of **learning activities flexibility** and give teachers choices on **"how"/"when"** to teach SEL skills. Practically speaking this can be introduced in a form of bite-size exercises that teachers are equipped with during lessons, in addition to official SEL lessons.
- **Environments:**
 - SE skills are not learned in isolation. Given the importance of positive learning environments, it's crucial that students are surrounded by **conditions which are conducive to development of SE skills**
 - Ensure teachers/staff actually, consistently display the behaviour that adolescents are taught, all the time and not just during the SEL block
 - Invest in **professional development** of teachers of SE skills; *some* light-touch interventions can be effective if done right but many involve more intense training
 - Change disciplinary practices; stay away from punitive actions
 - Foster positive and respectful learning environments by providing **emotional support** to students
 - Change is impossible without commitment from principals and teachers. Given the role other people play in SE development, ensure that the majority of school staff believes in the importance of this work
 - Encourage and support **champions for change** in each school, who will be the subject matter expert(s).

¹ "Adolescence is the stage of development which begins with puberty and ends with economic and social independence of a young person from his or her parents." Steinberg, L. (2014). Age of opportunity: Lessons from the new science of adolescence. Houghton Mifflin Harcourt.

- Create a **peer leader** in addition to the change champion, who will be able to reinforce the message among students.

To avoid:

- **Interventions:**
 - Avoid didactic, directive teaching approaches
 - Avoid instruction or direct persuasion about what constitutes good and bad behavior
 - Avoid purely information or theory sessions
 - Avoid incorporating scare tactics
- **Environments:**
 - Avoid punitive disciplinary actions
 - Do not neglect teacher's professional development trainings to foster SE skills
 - Do not underestimate importance of buy-in from school leadership to foster change

For each of these, we more clearly define and motivate each principle, then discuss available literature (most is from the United States), why it has/not worked and how it may/not apply to implementation. We draw heavily from David Yeager's comprehensive "[The Future of Children](#)," but incorporate other relevant readings as well.

Principles to incorporate

1. SEL interventions should respect developmental stages of adolescents

Adolescence is defined by a number of changes in hormonal composition, which creates changes in emotional functioning and information processing. Self-determination theory makes explicit three needs adolescents have as they undergo these biologic changes:

- **Competence** - feeling that one can successfully achieve desired outcomes;
- **Relatedness** - feeling connected with those who are important to them;
- **Autonomy**² - perception that one's activities are in line with the sense of self.

To meet adolescent needs, program design and teaching practices (including those in SEL) should **respect autonomy** and be oriented around **self-persuasion**,³ with interventions guiding adolescents to knowledge, rather than providing it to them. Self-persuasion, by allowing adolescents to convince themselves on matters, leads to larger and longer lasting change (Aronson 1999). Two well-studied, successful programs in the United States demonstrate this. First, "[Becoming a Man \(BAM\)](#)" aims to reduce youth violence and improve academic outcomes. Rather than directly teach men how to behave in situations and what is right/wrong, the program uses open-ended group discussion to lead participants to *interpret* situations differently, act with integrity and be accountable to the community. This approach leads to reduction in violence and higher graduation rates (Nuria *et al.* 2012). A second successful program is the [Truth](#) campaign, which aimed to reduce smoking by allowing

² In a study with young children in India, Chao *et al.* 2017 find that growth mindset interventions only work when there was an incentive system fostered autonomy.

³ Self-persuasion is indirect and entails placing people in situations where they are motivated to persuade themselves to change their own attitudes or behavior (Aronson 1999).

students to make up their own mind about nicotine use. Rather than using scare tactics and direct anti-smoking messaging, Truth exposed adolescents to tobacco companies' strategies to advertise to and hook children (Farrelly *et al.* 2005). Those programs were more successful at reducing smoking compared to direct anti-smoking campaign messaging.

Furthermore, programs should incorporate educational practices that support adolescents' needs for a strong sense of **relatedness** and feelings of **competence**. Providing adolescents with opportunities to autonomously build and gain status amongst their peers and respected adults--within an educational environment that enables adolescents to display their incremental mastery of academic, social, and emotional skills--strongly and positively influences their attention and motivation for *any* learning (Yeager, Lee and Dahl 2017). This suggests that the programs should (a) be taught at the right level⁴, such that adolescents can develop a sense of proficiency and (b) be framed in a positive, growth-oriented way, wherein lack of progress, or even failure, is not viewed as a lack of intellectual ability, but rather as an opportunity to learn, thereby fostering a growth mindset. Secondly, programs can be designed to satisfy adolescents' normative and healthy desire for social status by providing students with opportunities to demonstrate their "social value". This can be accomplished through, for example, group exercises and presentations in front of peers, family and community members. In doing so, this latter practice can generate enhanced engagement on the part of adolescents . Such exercises have been shown to be effective in the Indian context, as demonstrated, for example, by a highly-successful anti-tobacco use initiative that was purposefully designed to be led by adolescents themselves (Baitea *et al.* 2012).

⁴ This is generally consistent with teaching at the right level practices for generating sustained learning. [Banerjee et al. 2016](#)

Implementer takeaways:

Delivery of interventions can be tweaked to ensure they meet adolescents at their developmental stage. Below is the summary of themes that have emerged from the review and can be applied to implementation:

- Teachers and school leaders should foster desired attitudes and skills in a **non-directive** way to respect adolescents' **sense of autonomy, oriented around self-persuasion**
 - In practice, this means creating activities that guide the adolescent through the journey, rather than teaching them the "right" answer.
- Interventions should **evoke unique student experiences** via asking students to apply learned concepts to their own lives. This strategy will help students better internalize the message *e.g.*,
 - Instead of teachers telling students why an inclusive school environment is important, it's better for students to brainstorm their own reasons for why an inclusive school environment matters.
 - Facilitator can ask students to choose a skill, describe how *they find* they can best practice that skill, identify when they were challenged and found it difficult to practice the skill
- Interventions should incorporate adolescents' need to feel **competence** and **relatedness**
 - Specifically, programs should avoid framing any lack of learning progress as lack in intellectual ability to promote growth mindset
 - Programs should give adolescents opportunities to demonstrate social value via creating group exercises, encouraging class/peer presentations of learned materials.
- Interventions should be designed with **contextual factors in mind for the specific population**, and taught at the right level.
 - Exercises and delivery should match "vocabulary, sophistication and interest of the targeted population" (Yeager *et al.* 2016). In practice, this means that materials a) should be written in language that is most familiar to adolescents, b) provided examples are relatable to their own experiences, c) content should evoke interest and be engaging. This can be done with early piloting (A/B testing) of the content materials, and gathering feedback.

2. SEL interventions should be accompanied by positive & respectful learning environments, which include incorporating emotional support into teaching practices

Teachers, school leaders, and peers contribute to adolescents' socio-emotional development through two channels: directly, through individual interactions (in and outside Health & Wellness classes) and, indirectly, through setting a classroom and school tone. This environment is shaped largely by teachers, through the way they interact with students and the rules and actions they maintain in the classroom. Classroom and school tone influences students' beliefs about themselves and either stimulates or suppresses their practicing and using new socio-emotional skills (Pianta *et al.* 2018). For example, growth mindset interventions have only proven effective when delivered in schools that also fostered supportive environments (Yeager *et al.* 2019).

Creating a positive school and classroom climate is a goal of many SEL interventions— but what does an environment conducive to developing socio-emotional skills actually entail? The measurement framework CLASS-S⁵ can help describe and define components of student-teacher interactions that promote learning and the development of SEL skills. CLASS-S divides the classroom experience into three broad categories: support, classroom organization and instructional support. For the purposes of this document, we focus on 'emotional support,' as it most **directly contributes to improvement in SEL among students**⁶. In the CLASS-S framework, emotional support is further subdivided into three categories: teacher sensitivity, positive climate, and regard for the student perspective.

Dimension	Description
Teacher sensitivity	The teachers' responsiveness to academic and socio-emotional needs of students
Positive climate	The emotional tone of the classroom/ warmth of the connection between teachers and students
Regard for adolescent perspective	The extent to which the teacher offers leadership, autonomy and relevant content relevant to students

Below, we offer a few examples from the literature that demonstrate successful application of each of these components of emotional support. These may be incorporated into interventions directly or be used as measurement of intermediate outcomes that lead to socio-emotional gains.

⁵ [CLASS - Classroom assessment scoring system](#), developed by University of Virginia

⁶Higher emotional support scores were associated with 1) reductions in aggression among 3rd-5th graders ([Portnow et al. 2018](#)), 2) increases in mathematics performance in elementary school ([McCormick et al., 2015](#)), 3) positive student behavioral engagement in the classroom, as well as with student emotional engagement in the classroom, each of which encompass positive social and emotional skills such as collaboration with peers and positive mindsets ([Mckellar et al., 2020](#)), 4) greater student well-being, motivation, and academic performance in adolescence ([Suldo et al. 2019](#), [Wentzel et al. 2016](#), [Ruzek et al. 2016](#)).

Teacher sensitivity

Teacher sensitivity is one of the most important components in creating positive outcomes for students. It's associated with greater engagement and it encourages feelings of safety and freedom to explore. When teachers form personal connections with students, students' motivation to learn increase, emotional health outside of the classroom improves, and disruptive behaviour decreases (Roeser, Eccles, & Sameroff, 1998, Skinner, Zimmer-Gembeck, & Connell, 1998, Mashburn et al., 2008; in Pianta *et al.* 2012). This, in turn, improves engagement and any learning (including learning about SEL).

Fortunately, Okonofua and colleagues (2016) have demonstrated that teacher sensitivity/approach to interacting with students *can* be changed through relatively light-touch training. In their experiment, they provided a two-session online teaching training on teaching practices with empathetic mindsets. The results showed that teachers who underwent the training created an environment that was less conducive to misbehaviour. This implied that the training improved teacher-student relationships and fostered a greater engagement with learning. Furthermore, displaying empathetic responses in classrooms reinforces SEL skills indirectly through teachers' modeling of the desired behaviours.

Positive climate

The Okonofua study touches upon another important aspect of successful pedagogical practices: creating positive, respectful climates. A component of a positive, respectful climate is having a system of restorative rather than punitive justice (Heekes et al. 2020, Gershoff 2017). In seminal work in the 1930s, Lewin demonstrated the importance and consequences of respectful leadership for classroom management⁷. He showed, experimentally, that adolescent boys were more aggressive if supervised by someone who maintained order with threats as compared to their behavior under a leader who democratically built consensus and reshaped group norms. More recently, Okonofua *et al.* 2012 showed how different teachers' responses directly contribute to students' perception of the teacher and influence learning climate. In their experiment, university-age students received a hypothetical scenario of a middle-school student disrupting classroom activities by walking around and throwing trash. Next, they were given two possible responses from teachers: one teacher assigns detention (punitive action) and another reacts empathetically, asking the student about the origin of their misbehaviour, first, and then proceeding to moving the trashcan closer to the student's desk. The surveyed students were almost twice as likely to report that the second teacher deserves respect and also reported higher motivation to behave well in their own classrooms.

Building on this insight, the authors of a recent literature on school climate document that a fair and well-structured discipline practice is correlated with lower instances of behavioural problems (Thapa *et al.* 2013). In contrast, punitive measures such as corporal punishment⁸ are associated with mental health issues and disciplinary problems as well as with impeded learning (Heekes *et al.* 2020, Gershoff 2017). This suggests that punitive disciplinary actions may not produce desired results and instead backfire with adolescents, which, in turn, will undermine the progress toward improvement of SEL skills.

⁷ Has been defined in the literature by 12 items, including interest in opinions, politeness, honesty, fairness of treatment.

⁸ In India, over 70% students report experiencing corporal punishment (Gershoff 2017)

In addition to responding better to respectful rather than punitive leadership, adolescents have a heightened sense of unfairness and rebel against rules that exhibit it, even if they are not disadvantaged themselves. For example, when minority students are more likely to be disciplined, all students will be less likely to comply with disciplinary rules since it signals that the system is biased and disrespectful. Addressing the underlying problem — unfairness in the system — will likely yield better results than simply teaching individual students self-control⁹ or punishing students for voicing their opinions. (Purdie-Vaughns *et al.* 2008; Spencer *et al.* 2007; Tyler *et al.* 2003). This aspect is directly relevant to SEL programs, since establishing a respectful, consistent system of discipline that students feel is fair may be a powerful mechanism for building self-regulation and self-control by providing adolescents with a clear system of rules and expectations that they can refer to, mentally when faced with a challenging situation.

Lastly, Jennings *et al.* 2009 summarize a deep literature on teacher social-emotional competency and document that teacher modeling of SE skills produced positive student socio-emotional improvements. Positive learning environments necessitate that teachers and school staff actually model behaviors and attitudes that the school community hopes to instill in their students, explicitly creating positive learning environments and cultivating SEL change. Therefore, including a professional development component to help teachers display and foster SE competencies should be an integral part of the interventions. We cover the importance of professional development in the “Implementation of New programs” section.

Regard for adolescent perspective

Students exhibit higher engagement in *any* learning (including socio-emotional learning) activities and have more motivation when the classroom environments support autonomy and choices over their own learning. Classroom environment and teacher/student interactions should ultimately be focused on interests/motivations of the students, which in some cases means that teachers are allowed to deviate from scripted learning plans in response to students’ needs. Effective learning environments give students a formative role in shaping learning experiences and give students opportunities to express their own ideas and thoughts (Pianta *et al.* 2012).

⁹ Though, there is merit in directly teaching emotional regulation/self-regulation strategies. Some of this involves simply providing space to discuss emotional situations, and how students handle those situations, and direct teaching about emotions to increase emotion knowledge, emotion recognition, and emotion management strategies. For example, school-based interventions on emotion regulation have proven effective at reducing problem behaviors in adolescents (*e.g.*, Houck *et al.* 2018, Houck *et al.* 2018). Some mindfulness interventions have also been shown to be effective in increasing emotion regulation abilities in adolescents (*e.g.*, Metz *et al.* 2013). GirlsFirst Resilience Curriculum in India with adolescent girls improved wellbeing (Leventhal *et al.*, 2015).

Implementer takeaways:

While completely retraining teachers and school staff may be beyond the scope of many interventions, it is clear that teacher and school leader behavior and the climate they foster is crucial for adolescents to develop socio-emotional skills. The following tips for teachers' behaviors are offered in the literature/consultation with experts and can be adopted in SEL training.

Teacher Sensitivity

- Greeting everyone with positive attitude regardless of what happened the day before
- Teachers should respond to adolescents' needs and behaviours with empathy, as they would themselves like to be treated
- Teachers should engage in thoughtful discussions with adolescents about what social and emotional experiences they are having and give them a **safe platform** to express themselves
- Teachers should work under the assumption that **students are "thoughtful/responsible/respectful** people who care about their classroom community"¹⁰.
 - Specifically, teachers should explicitly acknowledge positive student behaviors (such as participating in class discussions, exhibiting comradery and helping other students overcome academic/non-academic difficulties, preventing other students from engaging in bullying/other unhealthy behaviours)
 - Teachers should continuously foster a growth mindset in students by praising efforts, rather than results. Development of positive self-beliefs improves students' resilience and reduces stress (Yaeger, Scott & Dweck 2012)
 - Negative events should be reframed as opportunities to reflect on something that went wrong and possible alternative strategies for the future. In this way, students are not as focused on extrinsic reward-seeking nor are they focused as much on avoiding punishment, but rather it's made explicit that positive behavior is valued and negative behavior can be improved.
 - For example, if a student is misbehaving, teachers should try to have a conversation with the student and inquire about the reason for misbehaviour; remind the student of classroom conduct rules (that were established and agreed upon by all students); explain the consequences of behaviour on other students and brainstorm on strategies to behave differently in the future
 - Teachers should **answer students' questions thoughtfully** regardless of academic history. While students in classrooms may not exhibit participatory behaviour immediately, they may be encouraged to do so in the future if their initial participation is welcomed by the teacher.
 - Light-touch interventions may include reminders to students that there are no "bad questions" and "bad answers", rather questions and answers merely reflect where someone is on their path to

¹⁰ <https://www.ucds.org/non-directive-classroom/>

learning and understanding of the material. In any classroom, students may sometimes respond inappropriately. In those cases an individual student-teacher discussion may be needed, followed by a clear communication that classroom discussion should be productive rather than destructive.

Positive Climate

- Teachers and school leaders should **embody the behaviours they want adolescents to display**
 - Teacher training should be a necessary component of SEL transformation. Some goals can be achieved via light-touch training as shown in Okonofua et al. 2016, however, an extensive professional development component is necessary to shift some of the deeply ingrained counterproductive practices
- All participants should view the school community as **fair, just and supportive**. This involves creating a disciplinary plan that exhibits **empathetic rather than punitive practices**.
 - Teachers should **adopt rule systems that students perceive as fair**, and consistently apply it. This involves soliciting student feedback directly on their perceptions of the classroom climate and the norms of behavior that they believe should be accepted in their classroom and school. This reframes compliance with classroom rules from reward-seeking to intrinsic desire to be “great.”
 - A light touch intervention which involves students and teachers to create a system of conduct may be a successful way to directly involve adolescents in creating systems that are perceived as “fair”. While experimental evidence on this topic is scarce, it’s increasingly becoming part of SEL curricula¹¹
 - Discipline and classroom management needs to be done with a **firm but warm intent**, whereby students are acknowledged as valuable members of the community who are competent and cared for, and who, therefore, must adhere to the norms of the group and engage in practices to make amends for any misbehavior and do their best to strive for the good of the group.

Regard for adolescent perspective

- Curriculum designers should build in components that provide room for **students to take ownership of the activities** and introduce their own ideas, providing a degree of control of the learning process. This approach will generate greater engagement.
 - a. This can be done by a) giving choices of *how* to learn a particular concept and, b) providing opportunities to give feedback on the content/learning process itself.

¹¹ <https://www.positivediscipline.com/articles/involve-students-creating-class-guidelines>, [Establishing Classroom Rules and Consequences](#), [Classroom of Choice](#) by Jonathan C. Erwin

3. Offer purpose that is larger than self

Adolescents are sometimes described as selfish and self-concerned but they actually often are or can be motivated by the world beyond themselves (Damon *et al.* 2003). This is evidenced by their heightened attention to hypocrisy and involvement in social movements (Robinson *et al.* 2010). This suggests that bringing attention to how certain skills can serve a larger purpose can motivate students to acquire those skills. Empirically, we see this for academic success: there is a positive correlation between academic success and believing that learning serves a higher purpose of improving the world. One possible mechanism is that purpose can contextualize academic learning, making connections between seemingly abstract work (*e.g.*, history, science, math) and outcomes that adolescents care about (*e.g.*, greater equality, technologies that adolescents like using etc.).

A similar logic holds for adolescent interest in and development of SE skills; by enhancing the relevance of socio-emotional skills to the pursuit of higher purposes, we may expect SE interventions to become more effective. Seeking local and global social justice requires self-awareness, perspective-taking and empathy, and taking initiative. Thus, adolescents can develop these skills by pursuing justice aims, and the desire to pursue justice aims can reinforce the importance of building these skills.

In the literature, we find three guiding examples of creating a larger purpose and connecting self-growth (whether academic or related to socio-emotional learning) to fulfilling that purpose. First, experiments by Yeager *et al.* 2009 and Paunesku *et al.* 2015 aimed at improving students' engagement by creating a connection to a larger purpose through self-reflection and self-persuasion. To begin, the facilitator asked adolescents to reflect (via discussion or writing) on social issues that matter to them and/or to people that they care about. Next, the facilitator presented motivation for learning via statements such as "other students 'like them' want to learn, in order to improve the world in some way". Finally, students were asked to write a letter reflecting on how learning in school can be used to achieve beyond-self goals¹². By going through this process, students themselves became more convinced of the importance of learning. This approach yielded especially high returns in grades among students with lower academic achievement. From this we can take away that creating a larger purpose for learning improves engagement with the learning process.

Our second example harkens back to the Truth campaign about tobacco and nicotine. In this case, researchers exposed adolescents to information on how food manufacturing corporations conduct experiments to make junk food more addictive and to make their marketing strategies more compelling to young children. In addition, they told adolescents how executives at these corporations did not feed junk food to their own children. This intervention activated a deep sense of unfairness in students, which in turn led to behavior change (reduced junk food in-take, heightened respect for healthy eating) (Bryan *et al.* 2016). Rather than directly instructing students to avoid junk food, the intervention played on a larger sense of fairness and a violation of autonomy to effectively bring about positive attitude and behavior change.¹³ Similar approaches to behaviour change have been attempted in India. A MYTRI study aimed at reducing smoking among adolescents included

¹² The letter can be addressed to a younger student who's struggling with motivation.

¹³ Also 2) activated a sense of deep unfairness and 3) it created an environment where healthy eating had a larger purpose of fighting hypocrisy 4) made healthy eating more respected and aspired to.

activities where students practiced advocating against tobacco use; qualitative findings show that advocacy was a significant factor in changing attitudes towards tobacco (Baitea et al. 2012). What we draw from this specifically for SE skills, is that creating larger motivation for behaviour change is an effective strategy to elicit behaviour change.

Our third example is a well-researched, comprehensive curriculum — [Facing History and Ourselves](#) — that teaches (United States) history through the lens of understanding human nature. The curriculum designers worked to situate students in a historical narrative, with a goal of shifting a number of socio-emotional outcomes. In action, the curriculum begins with schools putting up posters that include positive messages from civil rights leaders, such as Martin Luther King, Jr. and Rosa Parks. Then, teachers provide students opportunities to express their own vision for a more just and equal society, attuning them to the social and emotional needs of their community and their peers. All of this cultivates an environment in which students and teachers value respect and clear communication, and a classroom that contextualizes schoolwork by connecting new knowledge and skills to an opportunity to improve society. While this example is particular to history lessons, the main takeaway is that creating grander motivation for the skills taught in school fosters motivation in learning, improves engagement and, in the end, may be more impactful at achieving desired outcomes. Further, by triggering adolescents' keen interest in social justice and collective action, this curriculum leads to simultaneous improvement in school climate and socio-emotional outcomes¹⁴.

¹⁴ Study results summarized [here](#).

Implementer takeaways:

Designers and implementers may consider how to create and nurture socially oriented motivation to improve socio-emotional skills. This also provides a key opportunity to deeply contextualize the program for the particular context with its own unique history, resources, and challenges. To involve all students in thinking beyond themselves, implementers may further consider:

- Asking students to reflect about their long term goals and asking them to reflect on how socio-emotional competencies can help them achieve those goals.
- Consider restructuring non-SEL lessons. Discussion- and reflection-based teaching of history, the arts, and literature will give students opportunities to practice SEL skills. A student-oriented teaching approach in which students are an integral part of the discussion will directly promote SEL skills targeted. Discussion-based classrooms will foster critical thinking, self-regulation, emotional intelligence, and interpersonal communication skills. By providing students with opportunities to take initiative and engage in classroom discussions, student-teacher and peer relationships are strengthened through the creation of a space in which the respectful and constructive exchange of ideas is the norm. Secondly, connecting academic content to the implications it has for the world at large will give greater meaning to academic subjects and activate adolescents' interest in applying their academic, social, and emotional skills to the social realm and link lessons and the purpose of learning to grander goals, including the pursuit of productive and meaningful careers and the betterment of society.
- Engaging students in efforts to build a wider school community through:
 - Building a strong sense of school community, including through Bal Sansads
 - Organizing important cultural/social/academic events
 - Creating an infrastructure to help struggling students

4. Include an explicit Growth Mindset intervention

Growth mindset (the belief in potential improvement of your own abilities) correlates with academic motivation, learning and achievement (Dweck 2006). Fostering a growth mindset is a key goal of many socio-emotional interventions, and a growth mindset can in turn support the development of additional socio-emotional skills. Growth mindset can extend beyond academic performance to social and emotional development since growth mindset interventions aim to change *how* one thinks about *any* learning (Yeager & Dweck 2012).

Any change in behaviour has to be preceded by a belief that change is possible and worth trying. Moreover, mindsets *can* be changed with effective interventions, especially for groups from lower SES and students at-risk of negative outcomes (meta-analysis Sisk *et al.* 2018). Research on adolescents has shown positive impacts on mindsets if the interventions are delivered in the appropriate manner (Burnette *et al.* 2018). Below we outline the evidence and a few practical considerations for designing and delivering effective growth mindset interventions. Specifically, we consider the content, the delivery, the duration, and the timing of the growth mindset component of a larger whole child development intervention, drawing heavily on the work outlined in Sisk *et al.* 2018, Yeager & Walton 2011 and Yeager *et al.* 2016.

Content

Growth mindset interventions should include two major components (1) informational session and (2) self-reflection exercises. The information sessions should cover the biology underlying a growth mindset, such as the malleability and plasticity of the brain. The informational session may also include a motivational section that is designed to appeal specifically to adolescents as described in (*Framing and Motivation* section below). Informational sessions could be lectures or passages that students are asked to write. The informational sessions alone, with a focus on theory are not sufficient (Yeager *et al.* 2014). Echoing messages throughout this document about developing socio-emotional skills, growth mindset is fostered through engagement in discussions and/or personal-discovery activities (such as reflective writing). Therefore, the informational sessions should be followed by self-reflection exercises i.e. class discussions and/or individual exercises. Self-reflection exercises will open up opportunities for active reflection/self-persuasion and, possibly, practice. These opportunities will activate deep processing and help with internalizing the message.¹⁵ These approaches to creating a growth mindset intervention have been successfully replicated in India (Wasil *et al.* 2020) and a randomized controlled trial is currently in progress to measure the effectiveness of the intervention.

Framing and Motivation

Yeager *et al.* 2016 experimented with various framing of growth mindset interventions and provided specific ways of framing the growth mindset intervention to maximize its effectiveness. Each component might only produce small impacts individually, but would be more important in aggregation. We outline identified themes below.

1. Framing the growth mindset intervention as **valuable to others** (such as other students) is more impactful than framing that it's valuable to self. This appeals to prosocial and beyond-self motivations.¹⁶

¹⁵ One example to encourage this kind of processing is to have adolescents write a letter to younger students who may be struggling in school and don't feel smart (J. Aronson *et al.*, 2002; Walton & Cohen, 2007; 2011 Hulleman & Harackiewicz, 2009).

¹⁶Specifically, the two passages were compared, with the first one showing greater impacts of growth mindset: 1) ""Students often do a great job explaining ideas to their peers because they see the world in similar ways. On the following pages, you will read some scientific findings about the human brain. . . . We would like your help to explain this information in more personal ways that students will be able to understand. We'll use what we learn to help us improve the way we talk about these ideas with students in the future." 2) "Why does getting smarter matter?"

2. Refuting a fixed mindset in the framing is successful only when the **focus is on within-person** comparisons (rather than across).^{17 18}
3. Including true stories about famous and **successful people who exhibit or value growth mindset** is impactful¹⁹.

Furthermore, Yeager and colleagues provide a few more design considerations that are guided by theory. The following recommendation can be applied to the information session explaining and motivating growth mindset. It can either be included in a written form or given to teachers to read out loud. We outline the recommendations from the literature below:

- Emphasizing the importance of hard work alone is insufficient as effort and learning strategies can be ineffective. Instead, interventions should **encourage hard work and emphasize the importance of seeking support** when needed. This framing may help students not only to know that they *can* learn if they want to but also destigmatize asking for help, and provide them with strategies on *how* to learn effectively.
- Appealing to adolescents' desire to conform to **peer norms** and present growth mindset intervention as something that everybody strives to achieve may be impactful. For example, this can be done by scripting language in the motivation section (or providing scripts to teachers to read) that draws on this impulse. In Yeager et al. 2016, the specific language that showed to be more impactful (compared to other framings) stated "people everywhere are working to become smarter. They are starting to understand that struggling and learning are what put them on a path to where they want to go."
- Leveraging **activation of reactance** (the desire to reject mainstream ideas that is generally popular with adolescents²⁰) may improve the intervention. For example, the growth mindset intervention introduction may contain passages from an upper year student that challenges conventional labels and may say "I hated how people put you in a box and say 'you're smart at this' or 'not smart at that.' After this program, I realized the truth about labels: they're made up... Now I do not let other people box me in... It's up to me to put in the work to strengthen my brain."

Delivery

Growth mindset components of larger socio-emotional interventions should be **stealthy**. That is, teachers and facilitators should not directly persuade students to change their attitudes about mindsets, rather students are led on a learning journey in which they are gently educated on growth mindset and through self-persuasion get convinced that the brain is malleable. Adolescents are especially interested in achieving autonomy, social status, respect, etc., and so didactic, patronizing delivery of SE materials can cause adolescents to react with anger, shut down, and feel that the work is just another attempt by adults to control them and communicate that they don't know how to act as adults. (Yeager & Walton 2011).

Because when people get smarter, they become more capable of doing the things they care about. Not only can they earn higher grades and get better jobs, they can have a bigger impact on the world and on the people they care about . . . In this program, you'll learn what science says about the brain and about making it smarter."

¹⁷ Two passages were compared, with the first one shown to be superior (1) "How come school is so easy for them, but I have to work hard? Are they smarter than me?" . . . They key is not to focus on whether you're smarter than other people. Instead, focus on whether you're smarter today than you were yesterday and how you can get smarter tomorrow than you are today." (2) Some people seem to learn more quickly than others, for example, in math. You may think, "Oh, they're just smarter." But you don't realize that they may be working really hard at it (harder than you think).

¹⁸ The authors included the following passage to emphasize pro-sociality "People tell us that they are excited to learn about a growth mindset because it helps them achieve the goals that matter to them and to people they care about. They use the mindset to learn in school so they can give back to the community and make a difference in the world later. "

¹⁹ Yeager et al. describes the following in their interventions " "The intervention conveyed the true story of Scott Forstall, who, with his team, developed the first iPhone at Apple. Forstall used growth mindset research to select team members who were not afraid of failure but were ready for a challenge."

²⁰ While the majority of research of adolescents comes from Western countries researchers agree that adolescents universally do better, when granted supported autonomy (Soenens & Byers 2012, Chirkov & Ryan 2001, Supple et al. 2009)

Timing

The timing of a growth mindset component within a larger socio-emotional intervention is important. First, orienting students toward their ability to grow is foundational to building other targeted socio-emotional skills (Yeager & Dweck 2012). Second, timing growth mindset interventions with **critical junctures in the school year** can increase its effectiveness because transition points (i.e., "critical junctures") are moments of increased stress/attention to growth, which in turn means that there is heightened opportunity for plasticity in terms of the brain and behavior (Yeager & Walton 2011). For example, these interventions can be timed with the start of the school year or when students embark on a more challenging curricula.

Duration

In general, the project of building socio-emotional skills is a long-term endeavor and many types of school interventions show a strong dose-response relationship, with more intervention leading to more change. However, for growth mindset change and reducing stereotype threat interventions,²¹ **a targeted, brief intervention can suffice** (Sisk *et al.* 2018). Short interventions also have a higher chance of being delivered with fidelity to the designers' plan.

Short interventions *can* foster long term success *if* they address critical barriers to learning (such as negative stereotypes, worries about own abilities etc). Specifically, once students change their minds about their own abilities, they are able to change relationships with their peers and teachers. This, in turn, may shift their perspective on school and learning, lead them to study more, bringing about short-term academic success and further reinforcing positive beliefs in themselves. This starts a positive spiral which leads to higher long-term achievement, better problem solving skills, emotional resilience and reinforces the original message through experience (Yeager & Walton 2011). However, being exposed to the message once may not be effective if the school environment does not sufficiently foster growth mindsets through teacher-student interactions. Therefore, it's important that a growth mindset should permeate throughout all learning that students are exposed to. For example, it would be counterproductive to teach growth mindset during SEL block, while maintaining a fixed mindset mentality in math class where teachers communicate that some people are good at math, while others are not.

²¹ Socially premised psychological threat that arises when one is in a situation or doing something for which a negative stereotype about one's group applies (Steele & Aronson, 1995). When one views oneself in terms of a salient group membership (e.g., "I am a woman. Women are not expected to be good at math." and "This is a difficult math test."), performance can be undermined because of concerns about possibly confirming negative.

Implementer takeaways:

In designing the growth mindset component, implementers may be able to (further) incorporate some factors associated with successful programs. Specifically we believe the following may be especially applicable:

- Growth mindset interventions should include two major components (1) informational session and (2) self-reflection exercises
- Written exercises may be more appropriate in crowded classrooms than classroom discussions, but discussion-based exercises have worked in India (Baite et al. 2012).
 - The informational sessions should be framed in a way that is most appealing to adolescents
- Time key growth mindset activities with **critical junctures in the school year**, ideally at the beginning to set the tone for the year.
- Framing of activities should remain **stealthy** by not labelling this unit “improving growth mindset to improve academic outcomes” but instead providing a different (but still true) set of goals.
- Literature shows that successful GM intervention can be **short** (consist of fewer but more effective learning sessions) which will reduce implementational differences across teachers.
- Growth mindset mentality should **permeate all learning**, not just during the allocated SEL blocks, so it’s important to train non-SEL teachers to foster a growth mindset.

5. Create a “smart” curriculum that is easy to implement by teachers on-the-spot to address and correct undesired behaviour

Programs tend to be better-implemented and yield better results when adapted to local and immediate needs, recognizing the dynamic nature of teaching practice in that context (Jones et al. 2017). Therefore, it's important to create a SEL program implementation plan that works for the “end users” (i.e., the teachers) and incorporates the dynamic circumstances in which they work. Recently, there has been a push to develop a deeper collaboration between program developers and teachers (referred to as “mutual adaptation”), and empower teachers in choosing **how** to teach SEL practices that work best in their unique setting (Jones, McGarrah, Khan 2019). This approach accomplishes two goals simultaneously. First, participating in co-creation of curriculum improves teacher buy-in since they see themselves as active co-owners rather than passive implementers. Second, it allows them to enhance their own unique teaching practices with SEL strategies. Bailey et al. (2019) outline a strategy-based teacher training approach. Under this approach, teachers are taught various strategies to teach SE skills and are then asked to select SE strategies that best-fit their classrooms. Within a larger SEL program, this can foster a sense of respect for current teacher practices, while improving SEL-related pedagogical skills.

Furthermore, teachers should be given flexibility in **when** to implement different modules to create positive learning environments and foster SEL continuously. This can be accomplished by building a menu of bite-size, self-contained activities (e.g., ‘kernels’ in Jones et al. 2017, which could become ‘tudka’ in Hindi). From this menu, teachers can select to respond to unique classroom environment/student challenges at the time of need. During teacher training, teachers can be exposed to and practice evidence-based kernels proven effective in building SEL.²² These kernels can be provided in addition to the official SEL curriculum and be sprinkled throughout the teaching practice to continuously encourage SEL development. One problem is that kernels may be forgotten as teachers have other priorities that compete for their attention. In order to keep best-practices salient for teachers, program implementers may consider sending reminders to teachers with evidence-based kernels via SMS. Well-designed SMS reminders have been proven to be an effective way to improve parental involvement with preschool children (York & Loeb, 2014) and may help teachers keep SEL best practices to the top of the mind. Practically speaking, the kernels can be implemented in the following way. On days with poor discipline, teachers can choose kernels that address problematic behaviour and teach effective self-regulation practices. For example, a prominent feature of the Middle School curriculum is the introduction/usage of “Control Signals” poster, whereby²³ students learn to follow a sequenced self-regulations strategy, composed generally of “Stop, Think/Plan, Act.” The poster can be placed in classrooms and referred to during difficult situations. Adolescents may also be taught self-regulation ability and other emotional skills through the use of a “feelings dictionary” and/or “feelings thesaurus,” being in line with their more advanced cognitive, social, and emotional development since a larger emotional vocabulary and an increased ability to identify emotions correctly and in real time is associated with better behavioral outcomes in both adolescents and adults. During difficult situations, teachers may ask adolescents to use words in the dictionary to more precisely

²² Jones et al. (2017) outline some evidence-based kernels in their initial concept. This team of researchers (including Michael McGarrah) is currently working on putting together a comprehensive list of effective kernels that will be available for public consumption in 2021

²³ <https://shop.pathsprogram.com/products/control-signals>

identify how they feel. These kernels can be taught to all teachers and implemented seamlessly in times of need, without the necessity of an explicit lesson or structured activity focused on developing or practicing self-regulation.

Implementer takeaways:

In designing the curriculum and the training, we recommend that

- **Teachers are viewed as an integral part of the design** and the program development process resembles “mutual adaptation”. Under this process the developers and teachers share a common vision of the program outcomes and adjust the program as needed. Practically speaking, the training can take the form of program developers/teachers co-creating “strategies” that foster SE growth. Co-ownership and working towards a shared vision between program implementers and teachers will likely lead to better buy-in from teachers, and contribute to better student outcomes.
- The program is developed in a way that can be **flexibly implemented on the spot**. Teachers teach in a dynamic setting and delivering the right intervention at the right time (e.g. self control techniques to improve classroom management) is likely more impactful than limiting SEL teaching to an SE block.
 - Practically speaking, there could be two sets of learning modalities: 1) during the SEL blocks students and teachers cover material in a structured manner 2) outside of the SEL blocks teachers deliver targeted, bite-size evidence-based intervention (i.e. kernels) at the times of need. The latter will help with integration of SEL knowledge outside of instruction time.
 - To facilitate both learning modalities, there could be two sets of teacher manuals: (1) a card deck that provides teachers with a strategy and brief description of teaching approaches/“kernels” related to SEL, and how to integrate them into teaching²⁴, and (2) a more detailed manual for reference and further study.
- To ensure that teachers keep best-practices to foster SEL on top of their minds, program implementers may consider creating and sending **SMS reminders with evidence-based techniques** to improve teacher-student interactions. The broad topics can include: strategies for fostering teacher’s own emotional health, teacher-student interactions that are SEL-promoting and effective classroom management tips (Schoner-Riechl 2017).
 - For example, an SMS reminder may remind teachers about proper framing of accomplishment to encourage growth-mindset such as emphasizing effort rather than innate abilities.

²⁴ An example of a card for teaching calming techniques can be found here: https://hechingerreport.org/wp-content/uploads/2019/02/Belly-Breathing_FINAL.pdf
 Examples of Kernels (currently available for students in lower grades) can be found here: https://qgie.berkeley.edu/student-well-being/sel-kernels/#tab_1

6. Follow sound practices for implementation of new programs in schools

1. Work to **gain and maintain commitment** from school leadership and all teachers ²⁵

Teachers are instrumental in promotion of SEL in students. At a minimum, gaining buy-in means that teachers and leadership are willing to participate in a program, such as a new curriculum. However, a more active and productive level of commitment can be promoted by ensuring that teachers and school leaders are encouraged and supported to fully internalize and prioritize the goals that will be met through enacting the new curriculum in their schools (Schiner-Reichl 2017), and connect those outcomes to their own goals as educators. In doing so, teachers and school leaders will develop a stronger sense that they have some stake in, and ownership of, the program, as well as a greater conviction that they and their students will benefit, professionally and personally, by actively adopting and implementing it. Educational change depends on teachers finding meaning in their work (Fullan 2016). Extensive collaborative work with teachers and school leaders focused on setting and understanding the shared goals they have with program developers and staff is critical for genuine buy-in. Dedicating the resources needed for these goals to be prioritized is also important. Teachers know their own students and their needs best; as such, incorporating teacher voices and ideas into the operational design of the curriculum will lead to more contextually relevant activities, which should be both more feasible and fulfilling to implement (Jones, McGarrah, Khan 2019). Allowing regular opportunities for teacher and school leader feedback during the design and implementation stages -- and updating the curriculum accordingly -- may help to maintain commitment even amid competing priorities and pressures.

2. Include a **professional development component** to ensure that *all* teachers are well equipped to foster development of SEL skills, this includes improvement of teacher's own SEL competencies.

A significant contributor to SEL is fostering environments in which other adults exhibit the same behavior. Thus, besides training only teachers responsible for teaching SEL blocks, the programs should ensure that all teachers in schools undergo *at least some* teacher training targeted at developing their own SE skills such as mindfulness (Schonert-Reichl 2017). Furthermore, Brackett et al. 2012 recommend measuring beliefs about SEL prior to program implementation to assess readiness of teachers to implement the curriculum²⁶. Okonofua et al. 2016 show that even light-touch training (a two-hour online module built on self-reflective activities for teachers) have made a difference in effective classroom management. The design of teacher training should follow the same principles as adolescents': non-directive, built on self-persuasion, include a self-reflective component and evoke personal experiences.

²⁵More resources on improving buy-in: [Barnes and Schmitz 2016. Community Engagement Matters](#) outlines the importance of ownership and community engagement
[Elias 2017: Creating Buy-In for SEL at Your School](#) summarizes 7 suggestions to improve buy-in from "Lessons in Leadership" (Rutgers University Press, 2016)

²⁶ The authors also develop and validate a measurement tool.

3. Encourage a **change champion and a peer leader** in each school, who will be supported become the subject matter expert.

Learning from peers -- both for teachers and students -- is an important driver of behavior change. Champions should not be selected strictly based on availability (as for other administrative roles in the school) but, rather should be selected based on (1) interest in the subject matter, (2) willingness to be an early adopter (even if that means experiencing and sharing some hiccups), and (3) have sufficient seniority and a high level of respect from relevant teacher and school leader peers. Implementers can make good use of these natural leaders by supporting and empowering them to serve as experts and representatives of the program. By positioning these champions to communicate the value of the program in language that resonates with their peers, implementers can increase teacher and leader buy-in. Furthermore, through their prominence among their peers and through regular modeling, coaching, and structured staff meetings, SEL champions can enhance the program fidelity and effectiveness.

Student leaders, or "SEL Champions," can also galvanize support for and promote effective participation in SEL programming by setting a positive example for and leading their peers, thereby supporting teachers and school leaders. Such student leaders should be chosen in a similar fashion as described above, by identifying students who are motivated and respected among their peers for their prosocial behavior and academic engagement.. In India, during the implementation of a school-based anti-smoking intervention, student leaders were purposefully empowered to lead and otherwise support program activities, alongside their teachers, leading to greater student engagement and, ultimately, more effective implementation of the program (Bate et al. 2009).

Implementer takeaways:

To ensure high fidelity to the program goals:

- Ensure sufficient attention has been dedicated to **teachers and school buy-in** of the program goals and activities, especially ensuring the program meets pre-existing needs and goals of teachers and schools.
 - This can be accomplished by including teachers as integral part of setting goals and, with compensation, creating curriculum-
- Invest heavily in teachers **professional development** as their own SE competencies and buy-in to the goals of program will ultimately affect students SE development
- Create **change champions** and **peer leaders**, with sufficient resources and channels to request help, who will be the resident experts on the subject for each school. Having representation from both teachers and students will foster co-ownership of goals which will deepen engagement with the materials.

Summation

We have focused this document on promising practices and reflect these lessons in closing with principles to avoid in working with adolescents.

1. While providing information is critical, **avoid taking a didactic teaching approach** on health, wellness, and socio-emotional topics. This can be experienced as having a moral or ulterior motive, failing to respect the adolescent need for autonomy and possibly backfiring if adolescents tune out. Instead, leading the student on a learning adventure is more productive -- in general and certainly on socio-emotional topics..
2. **Avoid providing instructions about or using direct persuasion on what constitutes good/bad behaviour** without opportunities to independently arrive at conclusions feels controlling to the adolescent recipient, as this violates self-persuasion principle. Unlike younger children, adolescents do not respond well to direct instructions or scare tactics. This is especially so if the taught behavior is a widely known fact *within that context*. For instance, telling adolescents that they will never get a job if they are not excellent public speakers may produce a backlash and reduce desire among most students to engage with the material.
3. **Avoid giving purely information or theory sessions** without an opportunity to apply and internalize knowledge (Yeager & Walton, 2011; Dweck & Yeager 2019; Yeager & Dweck (2012). It is alright if this ultimately means covering fewer topics. In addition, providing socio-emotional lessons that are not reflected in the behavior of teachers and school leadership will likely backfire, given adolescents' keen attentiveness to hypocrisy.

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