

# Developing Social-Emotional Skills for the Labor Market

## The PRACTICE Model

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Social Protection and Labor Global Practice Group

November 2014

## Abstract

Although there is a general agreement in the literature of the importance of social-emotional skills for labor market success, there is little consensus on the specific skills that should be acquired or how and when to teach them. The psychology, economics, policy research, and program implementation literatures all touch on these issues, but they are not sufficiently integrated to provide policy direction. The objective of this paper is to provide a coherent framework and related policies and programs that bridge the psychology, economics, and education literature, specifically that related to skills employers value, non-cognitive skills that predict positive labor market outcomes, and skills targeted by psycho-educational prevention and intervention programs. The paper uses as its base a list of social-emotional skills that employers

value, classifies these into eight subgroups (summarized by PRACTICE), then uses the psychology literature—drawing from the concepts of psycho-social and neuro-biological readiness and age-appropriate contexts—to map the age and context in which each skill subset is developed. The paper uses examples of successful interventions to illustrate the pedagogical process. The paper concludes that the social-emotional skills employers value can be effectively taught when aligned with the optimal stage for each skill development, middle childhood is the optimal stage for development of PRACTICE skills, and a broad international evidence base on effective program interventions at the right stage can guide policy makers to incorporate social-emotional learning into their school curriculum.

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## **Developing Social-Emotional Skills for the Labor Market: The PRACTICE Model**

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Key Words: non-cognitive skills, socio-emotional skills, training, employment, human capital development, psychology, education policy

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<sup>1</sup> Our thanks to Sophie Naudeau, Helen Abadzi, David Evans, Paula Villaseñor for their early reading of the paper and valuable suggestions, to various Ministries in the governments of Colombia and Mexico for their feedback on the model, and to World Bank's ECA Skills Team and LAC Skills Team for their critical feedback and shaping of the final concepts.

## I. Introduction

Although there is general agreement in the literature on the importance of employability skills beyond academic or vocational competence (Levy & Murnane, 2004; Yassin, Hasan, Amin, & Amiruddin, 2008), there is little consensus on the specific skills that should be acquired for labor market success or how to teach them. As Ter Weel (2008) notes, a diversity of definitions within and across disciplines has created problems for both measurement of and investment in skill development. Of the hundreds of skills, which are those with highest market returns and should be included in child and youth skills development strategies? Of those skills that are a priority, which are those that can be taught in public sector spheres? Few studies have summarized the core set of skills that employers want, linked them to long-term school and employment outcomes, and mapped the subset of social-emotional skills to effective policies, programs, and interventions. This paper does all three.

Economic studies of employer demand for skills reveal a multitude of lists of desired skills. Different studies have vastly different lists of skills, ranging from discrete life skills such as “being on time” or “computer literacy” to broader constructs<sup>2</sup> such as “teamwork.” A recent review of international studies on employer demand for skills identified approximately 140 “soft skills” defined across the sample (Cunningham and Villaseñor 2014).

Parallel with the literature on what employers want, economists and psychologists have been exploring a broad range of personal and social attributes<sup>3</sup> – often referred to as “non-cognitive skills” in the economics literature<sup>4</sup> – that play important roles in a range of social and economic dimensions. Much work in this area has focused on personality traits based on easily available empirically driven measurement systems, particularly the Big Five or five-factor model of personality (Conscientiousness, Agreeableness, Neuroticism, Openness to Experience, and Extraversion),<sup>5</sup> or a single characteristic such as Grit<sup>6</sup> (defined as long-term goals and persistence). Most recent studies looking at these constructs and employment outcomes have been correlational, and have demonstrated some relation between personality traits such as Conscientiousness and Grit with outcomes such as earnings (Cunha & Heckman, 2008).

Beyond a focus on the Big Five and Grit, other studies have leveraged existing data sets that include other skills-labeled as “non-cognitive” to examine their relation with economic success.

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<sup>2</sup> Constructs are psychological concepts or variables.

<sup>3</sup> “Social attributes” are interpersonal qualities that facilitate or impede relationships with other people.

<sup>4</sup> These skills are defined to some extent by what they are not rather than what they are. Indeed, the term has been used to capture individual characteristics linked to social and economic success beyond cognitive skills such as IQ. However, defining skills by what they are not has provided little guidance or conceptual integration for delineating skills that are learned and that represent malleable targets for human capital investment.

<sup>5</sup> A personality taxonomy that describes five key personality traits that are identifiable and distinguishable across cultures. The Big Five model defines its personality factors: *Conscientiousness* encapsulates characteristics such as dependability, industry, reliability, and self-discipline; *Agreeableness* includes personality facets such as cooperation, amiability, flexibility, and empathy; *Neuroticism* is defined by emotional instability, anxiety, and the tendency to focus on the negative aspects of the self; *Openness to Experience* encompasses intellect, originality, creativity, and insight; and *Extraversion* - Extroverted individuals are expressive, gregarious, energetic, and social.

<sup>6</sup> Grit is a trait-like characteristic that contributes to the achievement of long-term goals. Individuals who are high on Grit exert sustained effort and demonstrate long-term stamina and persistence, even in the face of failure.

These include classroom misbehavior (Segal, 2008), parent-reported behavior problems (Cunha & Heckman, 2008), self-regulation (Rauber, 2007), and self-evaluations linked to self-esteem, locus of control,<sup>7</sup> generalized self-efficacy, and emotional stability (Holmand & Silva, 2009; Judge & Hurst, 2007).

Much like the literature on skills employers want and studies of non-cognitive skills, the policy research community also has its own lists of skills that are the target of interventions designed for social-emotional skill building. Some approaches address a broad range of internal assets<sup>8</sup> and contextual supports,<sup>9</sup> such as the 40 assets for positive youth development<sup>10</sup> listed by the Search Institute (2013). Other models outline a smaller set of skills. For example, the Consortium for Social and Emotional Learning (CASEL) has identified five core skills: self-awareness; self-management; social awareness; relationship skills; and responsible decision-making (CASEL, 2012). Lerner (2013) has identified a different set labeled the 5C's: competence, confidence, character, connection, and caring. These frameworks focus broadly on positive skills for life or risk prevention but are not specifically geared towards skills predicting labor market success.

In the program implementation realm, a range of psycho-educational skill-building interventions to develop different sets of skills have been developed and implemented in schools and communities. These interventions represent a variety of approaches including character education, life skills training, anger management, social skills training, interpersonal problem solving, and general skill building. Although the broad approaches differ in emphasis and scope, most programs target some combination of social-emotional skills. Most of this work is focused on children and youth.

Because the psychology, economics, policy research, and program implementation literatures are not sufficiently integrated in terms of focus or outcomes, psycho-educational skill-building interventions have not yet incorporated labor market success as a targeted outcome. We recognize that there are many lists of skills linked to school and labor market outcomes, and that suggesting yet another set of skills may be met with some concern. However, the field still lacks a simple and cohesive organizing framework to delineate social-emotional skills that (a) employers value; (b) predict school and labor market success; (c) follow a developmental course; and (d) are malleable through structured, evidence-based interventions.

The objective of this paper is to provide a coherent social-emotional skills framework and related policies and programs that bridge the psychology, economics, and education literature. It

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<sup>7</sup> Locus of control is the extent to which an individual believes that he/she has power or control over events and outcomes in his/her life. An internal locus of control represents the belief that ability and influence lies within oneself whereas an external locus of control represents the belief that outside forces determine success or failure.

<sup>8</sup> Internal assets are internal resources or advantages that help to facilitate healthy development. For instance, high IQ is an internal asset that increases the likelihood that a child will reach a healthy and productive adulthood.

<sup>9</sup> Contextual supports are environmental assets that help to promote positive youth outcomes. For example, a nurturing family environment and an academically rigorous school system are both supportive contextual domains for child development.

<sup>10</sup> Positive youth development is a broad emphasis on fostering youth assets, strengths, and abilities as opposed to preventing risk or reducing harm.

develops and uses the PRACTICE framework to build on and expand three distinct literatures-- skills employers value, non-cognitive skills that predict positive labor market outcomes, and skills targeted by psycho-educational prevention and intervention programs.<sup>11</sup> The paper uses as its base a list of social-emotional skills that employers value, classifies these into eight sub-groups, then uses the psychology literature to map the age and context in which each skill sub-set is developed, drawing in examples of successful interventions to illustrate the pedagogical process. Our intent is to provide broad direction for labor-market oriented skill-building policies and programs and to reframe these efforts in a language of skills that is consistent with intervention programs.<sup>12</sup>

An additional contribution of this paper is to identify the optimal periods for development of the PRACTICE skills. People cannot learn any skill at any age; instead they are learned progressively in a bottom-up fashion once the fundamental developmental processes are in place. In this paper, we define the developmental periods as neurobiological and psycho-social readiness coupled with the contexts to facilitate learning.

The paper is organized into five sections, following this Introduction. In Section II, we provide concepts and definitions that will be used throughout the paper, including a detailed introduction to the concept of optimal stages. Section III describes the specific PRACTICE skills and how they reflect skills employers value that also predict labor market outcomes. We also illustrate how these skills are consistent with non-cognitive indicators commonly used among economists, specifically the *Big Five* and *Grit*, and reflect a variety of sub-skills typically included in skill building programs. We highlight related biological mechanisms to illustrate how these skills are linked to and supported by innate human processes that contribute to readiness for skill acquisition.

In Section IV, we discuss how acquisition of each PRACTICE skill set is aligned with neurobiological and psychosocial readiness and relevant contextual supports across each of four age-linked developmental stages: the early years, ages 0-5; middle childhood, ages 6-11; adolescence, ages 12-18; and young or emerging adulthood, ages 19-29. We describe skill development in each PRACTICE area across these developmental stages, emphasizing the importance of cumulative investment in skill acquisition and highlighting the role of early experiences.<sup>13</sup> However, we also argue that, while programs and policies to enhance social-emotional skills will be particularly effective during the early years and in developmental stages when skills are being actively acquired and frequently utilized, continued efforts may be required to sustain effects, and remediation<sup>14</sup> and later learning also are possible.

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<sup>11</sup> We recognize that the importance of these skills will likely vary across different cultural and country contexts, and that in some settings there may be culture-specific needs for other skills.

<sup>12</sup> The PRACTICE framework represents an attempt to synthesize across these literatures and provide direction for policies and programs. It is not intended as an exhaustive list but rather as a framework that covers a broad range of the most critical social-emotional skills for personal and economic success.

<sup>13</sup> From an economic and policy standpoint, it is well established that early development sets the stage for success through ability and skill acquisition that renders later investments more productive (Cunha & Heckman, 2008).

<sup>14</sup> Remediation is to correct or repair a skill deficiency. For instance, many programs for juvenile delinquents seek to remediate their problematic decision making skills.

In Section V, we review evidence-based interventions for social-emotional skill enhancement to build PRACTICE skills. We provide an illustrative table of model programs with greatest evidence of effectiveness on key outcomes and related skills, including programs in middle income and developing countries. We discuss best practices by age group, with recommendations for intervention and future directions aligned with the promotion of the PRACTICE skills from the early years into young adulthood. Section VI concludes.

## II. Concepts and Definitions

### *Integrating Economic and Psychological Approaches by Focusing on Social-Emotional Skills*

For the purposes of this paper, we define *social-emotional skills* as the broad range of malleable skills that enable individuals to navigate interpersonal and social situations effectively. These skills will underlie the PRACTICE framework. Those who have rallied around the Big Five and personality assessments may wonder how a focus on core social-emotional skills is different. In other words, given that the Big Five has been widely used in studies of labor market outcomes, why is it necessary to identify other skills, and are they not already captured by the Big Five? We highlight three advantages of a broader skills-based approach.

First, by definition, personality traits are relatively fixed characteristics. The Big Five describes and empirically validates a set of independent factors that summarize the core dimensions or broad traits of personality that differentiate individuals. So, a person who is measured by the Big Five scale as being very introverted will have the same scores for introversion after an intervention; by nature she possesses that trait. This is not to say that traits do not change; research finds that they do change with age, but they are rank-order consistent (Roberts & delVecchio, 2000). For instance, individuals become more conscientious as they get older and the more conscientious children generally are the more conscientious adults.

Second, while traits are useful for prediction and classification of individuals into groups, skill building programs requires the identification of modifiable skills<sup>15</sup> that are aligned with more enduring traits. Indeed, studies have shown that personality factors affect motivation and performance largely through mediating factors that include skills such as problem solving and self-efficacy (Roberts, Wood, & Smith, 2007). For example, a person may rank as very introverted on a personality traits scale, but she may have learned tools to enact behaviors associated with extraversion, so her behaviors may be extraverted but she is still an introvert at heart. Thus, from an intervention perspective, it is more appropriate to target skills rather than facets of personality.<sup>16</sup>

Third, interventions designed to enhance work-relevant skills require finer distinctions of discrete sub-skills, rather than the broad range of skills captured in the Big Five constructs. For instance, Neuroticism (lower levels of emotional stability) has been associated with facets such

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<sup>15</sup> Modifiable skills are changeable through intervention, in contrast to stable or set traits that are more permanent and thus unlikely to be altered through programs or support services.

<sup>16</sup> For example, schools do not engage in “personality change” interventions designed to promote specific traits, but regularly implement programs to build social-emotional skills.

as anxiety, hostility, depression, impulsiveness, vulnerability, and self-consciousness and has been linked primarily to negative mental and physical health outcomes (Lahey, 2009). Notwithstanding some evidence that Neuroticism relates to labor market outcomes as part of a broad dispositional trait termed *core self-evaluations*<sup>17</sup> (including self-esteem, self-efficacy, and locus of control) (Judge & Bono, 2001), this personality dimension does not align with successful employment. Rather than seeking to move a person more toward the emotional stability scale, programs can teach problem solving and relaxation tools, for example, to manage anxiety or depression. Instead of embedding skill-building programs in models of personality, we propose that skill acquisition investments should be guided by a framework that specifies key skills that can be enhanced across the life course.

### ***Optimal Stages***

Skills are learned over time and across developmental stages. But any skill cannot be learned at any age. Instead, the child needs to be “ready” in order to acquire a skill. The concept of readiness implies that skill acquisition must be aligned with developmental capacity. This creates *optimal periods* for acquisition and investment in specific skills. These optimal periods are best understood as windows of opportunity of maximum sensitivity when it is easiest for individuals to acquire specific skills.<sup>18</sup> They begin and end gradually and can be amenable to recovery. A common example is second language learning. This is considered optimal between ages 3 and 6, but not impossible at any age, although the majority of older learners do not speak with a native accent.

An optimal period is partly defined by neurobiological and psychological readiness. Neurobiological readiness refers to a range of neurological and biological capacities, such as brain structure or hormonal levels that are mature enough so that concepts can be understood, learned, and acted on. For instance, a newborn cannot learn to speak or regulate emotions very well because his/her neural connections are primarily those that govern physical functions such as heart rate and breathing. Similarly, a 15-year old may still have problems with self-control because the prefrontal cortex of the brain does not mature until early adulthood. Psychosocial readiness is the notion that an individual has reached a level of sufficient emotional maturity and social understanding to acquire a new set of skills. For instance, young children cannot solve complex social problems<sup>19</sup> until they develop the capacity for abstract thinking in adolescence. A 5-year old cannot reason about complex ethical issues because he or she is not cognitively able to consider multiple perspectives at once.

The optimal period is also defined by contextual supports, defined as age-appropriate settings that provide opportunities to learn, practice and utilize skills. For example, a child cannot learn social interaction skills if she is not in an environment in which she can engage with peers. Or, in order to learn skills involved in teamwork, children must have opportunities to engage in

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<sup>17</sup> Core self-evaluations are a broad, higher-order personality trait that predicts job satisfaction and is based on a composite of several individual personality traits including self-esteem, self-efficacy, neuroticism, and locus of control (Judge & Bono, 2001).

<sup>18</sup> although they may be learned later with greater effort

<sup>19</sup> Interpersonal issues that arise during social interactions; for instance, being left out of a group, competing for a leadership role, or navigating conflicting goals and values with those of one’s peers.



constructive social interaction with peers, which primarily occurs when they leave their parents' sphere and go to school. The specific contexts where skill building is supported shift from early childhood through young adulthood, although the specific age when this occurs may vary across cultures and historical time periods.<sup>20</sup>

### ***Skill Building by Optimal Stage***

Investment in developmentally appropriate skill enhancement policies and programs therefore requires understanding key features of neurobiological and psychosocial readiness and relevant contextual supports for children of different ages.<sup>21</sup> Because there are marked shifts in capacities and important *developmental tasks*<sup>22</sup> that are roughly aligned with specific ages and stages, it is useful to examine development within and across four major stages: The early years (ages 0 to 5), middle childhood (ages 6 to 11), adolescence (ages 12 to 18), and emerging or young adulthood (ages 19-29) (Guerra & Bradshaw, 2008).

#### *The Early Years (ages 0-5)*

Neurobiological development is an intense process in the early years. At birth, babies have over 100 billion brain cells but they have very few connections for utilizing these brain cells beyond those needed for basic physical functions. They spend the first years of life actively absorbing the physical and social environment, creating new connections more rapidly than at any other time. Neural circuits are shaped through a breadth of experiences, and patterns of connectivity are strengthened. The infant brain is being actively "wired" during this developmental stage, creating foundations for later skill development.

Much of this brain wiring is established through interactions with the primary caregiver. Indeed, research has shown that ongoing, reliable interaction with a trusted caregiver in a supportive environment is essential for the development of healthy brain circuits, and this is particularly critical during the ages 0-3. Children who have a *secure attachment*<sup>23</sup> with a caregiver trust others and are ready to learn about the social world, paving the way for skill development. On the other hand, children who are insecurely attached to their caregiver have difficulty coping with separation, which can lead to dysfunctional or problematic relationships and compromise a child's ability to learn social-emotional skills later on (Shonkoff & Levitt, 2010). This illustrates a very early foundation for skill building that occurs in the context of infant-caregiver

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<sup>20</sup> Presently, in most settings the family is the primary social context during the early years, and skill-building programs must involve families. In middle childhood, children enter primary school where they interact with peers. During adolescence, some children leave school and enter the workforce while other children continue in secondary schooling and higher education. In young adulthood, the social context is varied, where young people may be in school, in the workforce, living in their parents' home, or beginning their own families.

<sup>21</sup> It also is impacted by how contexts are organized and the specific supports that are available to promote skill building in each context.

<sup>22</sup> Developmental tasks are broad classes of events or "lessons" appropriate to a child's developmental stage such as learning to walk or to follow the teacher's directions at school. Children complete a developmental task by interacting with the environment, engaging with a task, and acquiring a resulting skill-set.

<sup>23</sup> Secure attachment is a healthy, trusting, and stable emotional relationship between a child and her/his primary caregiver.

interactions, a foundation that can be bolstered by policies and programs to promote bonding and support families.

In terms of psychosocial development, roughly before age 2, children have little notion of self or the ability to distinguish themselves from others. Beginning around ages 2-3, children begin to have simple representations or cognitive schema of themselves, others, and basic elements of social interactions, but they are unable to see things from another's perspective until several years later. Their brains are still in the process of forming connections, and their social connections soon extend beyond the primary caregiver to the peer group. By socializing with peers, young children begin to develop a *sense of autonomy and initiative* that allows them to understand how to navigate the social world on their own and regulate their behavior to comply with group norms, such as turn-taking and sharing.

The context in the early years is largely limited to parents, family, and small play groups. Children in this age group are actively absorbing and trying to understand information, imitating what they see others do, and adjusting their behavior in response to their environment. Different behaviors will evoke different responses from others, and these different responses work to shape the preschoolers' emerging social-emotional skills and behavior. However, behavior still is controlled largely by external contingencies rather than internal motivation. Skill building for this age group requires providing contexts for social interaction where children can learn how to get along with others on their own, and where they can observe, model, and be regularly rewarded for developmentally appropriate skills that provide a foundation for future skill building.

### *Middle Childhood (ages 6-11)*

Across multiple disciplines, scholars and practitioners have identified middle childhood as a time when personality, behavior patterns, and social-cognitive orientations become increasingly hard-wired, setting an important stage for future skills and behavior. Indeed, the majority of effective social-emotional interventions have been implemented during this stage (Durlak et al., 2011).

Beginning around ages 6-7, children's brain systems become increasingly coherent and interconnected through processes such as synaptic pruning<sup>24</sup> (Kagan & Herschkowitz, 2005). Connections used regularly become stronger, and those not used eventually are pruned away to increase efficiency. These changes provide a neurobiological grounding for the development of habitual social, emotional, and behavioral responses during this developmental stage.

Psychosocial, as well as cognitive capacities, undergo rapid developmental change in this stage. Between ages 6 and 10, children are increasingly able to manipulate information, but they are still unable to think in abstract terms thus requiring concrete examples. In addition, responses that once required conscious control and slow thinking become automatic and patterned. Improved cognitive abilities in middle childhood, particularly enhanced verbal and spatial memory retrieval, also mirror children's neurological maturation (Sowell et al., 2001). Flexibility, goal setting, and information processing skills undergo critical progression between 7

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<sup>24</sup> The elimination of weak or unproductive connections between brain cells that facilitates connections among more useful neural pathways.

and 9 years of age, and seem to stabilize by age 12 (Anderson, 2002). Social beliefs begin to crystalize, and personality traits and related skills become more established and predictive of future adaptation (Shiner, 2000). Although external rewards still are important, internal standards for success are increasingly relevant.

Supportive contexts provide opportunities to regularly practice newly acquired skills. Successful school and peer experiences lead to a sense of competence and set the stage for motivation to succeed. For example, the primary school setting with structured academic activities presents a context in which to develop an increasingly sophisticated self-understanding and *sense of industry*,<sup>25</sup> an important developmental task for this age. Peer contexts are increasingly important as children begin to evaluate themselves in positive and negative ways and in comparison to their peers, which increasingly shapes their self-related cognitions.<sup>26</sup>

### *Adolescence (ages 12-18)*

Children experience another major growth in cognitive abilities such as abstract reasoning during adolescence, particularly in second-order or meta-level executive control systems<sup>27</sup> (Kuhn, 2006). Maturation in these systems leads to more effective decision making and learning. Adolescents increasingly process decisions more quickly and also progressively constrain their own responses and withstand competing inputs. These upgrades in higher order cognitive functioning allow youth to direct their own learning and mental life, choosing how and where to apportion their mental effort (Durstun & Casey, 2006). Advances in abstract thinking allow them to step outside of both themselves and others and take a "third-person" or societal perspective.

Despite cognitive advances in complex reasoning and abstract thinking, hormonal changes that come with the onset of puberty and the not-yet-complete maturation of the prefrontal cortex can lead adolescents to act impulsively, be overly sensitive to rewards, and struggle to make decisions. On the one hand, the adolescent brain is quickly maturing, while on the other hand it is still not fully ready to take on adult responsibilities. Indeed, the brain continues to change and mature throughout adolescence and into young adulthood (Steinberg, 2008).

From a psychosocial perspective, adolescence is a time when young people actively try to figure out who they are and where their lives are headed. A major developmental task is the achievement of a *coherent identity*<sup>28</sup> that allows adolescents to connect past, present, and future experiences in a cohesive self-understanding (Erikson, 1950; 1993). Given this focus, it is easy to see how teenagers become overly concerned with their self-image and the opinions of peers.

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<sup>25</sup> Having a sense of industry is to have the capability, productivity, and competence, often in relation to learning new skills and acquiring knowledge.

<sup>26</sup> Self-related cognitions are thoughts and views about the self, including self-concept about one's abilities in different domains (e.g. academic, social physical).

<sup>27</sup> Executive control systems guide deliberate and intentional goal-directed behavior. As such, executive control systems have been described as the "air traffic control system of the brain" (National Scientific Council on the Developing Child, 2007).

<sup>28</sup> Coherent identity is a sense of coherence, of personal sameness and continuity in different settings.

School and peer contexts take a different form in this age period than in the middle childhood period. In fact, during this time, the importance of peers increases dramatically, and much development (both positive and negative) occurs in the context of the peer group. Peer group conformity is particularly intense between the ages of 12 to 14, but often continues throughout adolescence. These supportive contexts should offer opportunities for self-exploration and engagement with peers and communities.

Although there has been considerable discussion regarding the potential inefficiency of investment in skill building during adolescence, the developmental literature suggests that it still is a time of increased cognitive capacity, greater independence, and changing roles that support strategic investment. There is a growing awareness of the need to develop targeted social-emotional skill building interventions for this age group.

### *Emerging or Young Adulthood (ages 19-29)*

The concept of emerging adulthood is relatively new. It has been proposed as a developmental stage where the major task is to move into the adult world and build a *stable life structure*, although this only occurs in cultures that allow young people a prolonged period of independent exploration into their 20s (Arnett, 2000). In some sense, this period can be understood as an extended hiatus between adolescence and adulthood where young people take time to explore job and career options, relationships, and values that can guide the rest of their lives.

Neurobiological development continues into young adulthood until the brain reaches full maturity until in, at least, the mid 20s. The specific changes are not well studied, although it is clear that the executive functions mature. These functions impact high-level skills such as calibration of risk and reward, prioritizing, thinking ahead, self-evaluation, long-term planning, and regulation of emotion.

In contrast to primary contexts associated with earlier stages, emerging adulthood is characterized by a heterogeneity of contexts, including a continuation of schooling, entrance into the world of work, moving out of the home and family environment, and creating independent lives and new families. These multiple contexts afford opportunities for altering a developmental course but they also make it more difficult to provide structured supports across these different contexts.

### **III. The PRACTICE Skills**

The PRACTICE taxonomy captures the key skills that employers want, is consistent with what has been studied in the non-cognitive skills literature, and provides direction for interventions to enhance educational and employment success. The PRACTICE taxonomy was developed by: (a) sorting employer demanded skills identified in a review of international studies into primary categories or skills and aligning these with other related studies; (b) reviewing the literature on non-cognitive skills to determine overlap of common indicators such as Big Five and the Grit scale; and (c) reviewing the psychological and educational literature to identify social-emotional skills commonly targeted by interventions that are most relevant for improving labor market outcomes.

We identify eight major skill areas relevant for the labor market, each with sub-skills, related personality correlates, and links to neuro-biological systems (summarized in Table 1).

**Table 1. PRACTICE Skills, Sub-Skills, Big Five Traits, and Biological Foundations**

<b>PRACTICE: Skills for Success</b>	<b>Sub-Skills (Skills, Attitudes, Beliefs, Behaviors) identified by employers</b>	<b>Related Big Five Personality Traits</b>	<b>Neuro-Biological Foundations</b>
Problem-Solving	Social-information processing skills Decision making Planning skills	Conscientiousness	Executive attention systems—ability to focus attention and to inhibit negative emotionality
Resilience	Stress resistance Perseverance Optimism Adaptability	Conscientiousness (Grit) Neuroticism	Biological system focused on preventing harm
Achievement Motivation	Mastery orientation Sense of purpose Motivation to learn	Conscientiousness (Grit) Openness to Experience	Biological tendency to seek out new environments Orienting sensitivity—tendency to respond to sensory stimulation
Control	Delay of gratification Impulse control Attentional focus Self-management	Conscientiousness	Executive attention systems—ability to focus attention and to inhibit negative emotionality Self-Regulatory System—delay of gratification
Teamwork	Empathy/Prosocial Low aggression Communication skills Relationship skills	Extraversion Agreeableness	Biological system promoting active approach and exploration—tendency to enjoy social interaction and positive moods
Initiative	Agency Internal locus of control Leadership	Conscientiousness Openness to Experience	Biological tendency to seek out new environments Orienting sensitivity—tendency to respond to sensory stimulation
Confidence	Self-efficacy Self esteem Positive identity	Neuroticism	Biological system that is focused on preventing harm
Ethics	Honesty Fairness orientation Moral reasoning	Conscientiousness	Biological system promoting active approach and exploration—tendency to enjoy social interaction and positive moods

**Problem Solving** includes a range of discrete skills related to how individuals solve social problems. These skills are associated with specific facets of Conscientiousness. Much of the developmental and intervention work on social problem solving<sup>29</sup> has emphasized an array of interconnected social information-processing skills<sup>30</sup> individuals use when solving social problems (e.g., joining a group, resolving conflicts). These include attention to relevant cues, interpretation of cues and emotional reactions, goal setting and planning, access to behavioral responses from memory, evaluation of responses, decision making, behavioral enactment, and reflection (Crick & Dodge, 1994). Through socialization, direct instruction, and cultural influences, individuals develop relatively stable patterns of processing social (and non-social) information.

**Resilience** has been defined as the ability to “bounce back” from adversity and thrive in the context of risk. Resilience refers to a pattern over time that is characterized by good eventual adaptation despite risk, stressors, or adversity. It also is defined by the ability to appropriately and realistically connect future goals and opportunities to one’s own abilities, and to adapt as needed to situational constraints. Resilient individuals cope well with stressors and do not get derailed by stressful events but persist and remain optimistic. Although there are individual differences in stress tolerance, resilience generally is a learned process that is facilitated through positive and supportive interactions with the environment. Conscientiousness and low Neuroticism are two of the Big Five traits that align with resilience, along with Grit, but it is the expression of these traits under difficult circumstances that is the defining feature of resilience.

**Achievement Motivation** includes an orientation towards success, mastery, and sense of purpose. It has been associated with the capacity and drive to pursue difficult tasks, to work toward desired goals, and a high degree of independence. Individuals who are high in achievement motivation will demonstrate both a desire to learn and a focus on mastery as well as (or even more than) performance goals. They view learning skills and intelligence as an effortful, incremental process that can be improved rather than an inherited trait that is relatively stable over time. In terms of personality traits, it is most closely aligned with Conscientiousness and Openness to Experience as well as the construct of Grit.

**Control (self-control)** includes a range of self-regulatory skills that are evident when individuals are able to modulate and restrain their impulses or immediate reactions to stimuli. Control skills such as the ability to effectively focus attention, delay gratification, and inhibit impulsive responding are crucial for early academic achievement and have been linked to later adjustment, educational, and occupational success. They also are important for problem solving, as they allow individuals to “stop and think” before acting and respond in a controlled rather than automatic fashion. Control is related to the concept of delay discounting in that low levels of impulse control are linked to higher levels of discounting future rewards. Self-control is an

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<sup>29</sup> “Social problem solving” is defined as an individual's ability to acquire, maintain, and apply social information about people and inter-personal situations.

<sup>30</sup> “Social information-processing skills” are “On-line” cognitive abilities that are used during social interactions, such as encoding information from the environment, interpreting social intimations, creating a set of plausible behavioral responses, and selecting and enacting an appropriate reaction.

important skill complement to Conscientiousness.

**Teamwork** refers broadly to a set of skills involved in getting along with others, understanding their feelings and points of view, communicating effectively, being helpful and agreeable, and not engaging in aggressive or bullying behaviors. In the social-emotional domain it has been defined more regularly as “relationship skills” that enable individuals to get along with and work effectively with others, including people from diverse cultures. Teamwork is highest among individuals who score high on personality traits of Extraversion and Agreeableness.

**Initiative** can be conceptualized as the “active ingredient” that motivates individuals to operate as positive and successful actors in their own lives and in systems. Initiative hinges on personal agency<sup>31</sup> and an internal locus of control, a belief that outcomes depend on one’s own actions rather than fate, chance, or others. It is linked to enterprise, taking charge, follow-through, determination, and leadership. It also facilitates effective engagement within organizational contexts. Although initiative and achievement motivation are related, they are distinct skills. Initiative relates to any type of “take charge” action such as picking up litter on the street, whereas achievement motivation is linked to a desire to succeed and is associated with setting long-term academic and career goals and following this pursuit in spite of obstacles that may occur along the way. Initiative correlates with mastery orientation to achievement and relates to the personality traits of Openness to Experience and Conscientiousness.

**Confidence** includes beliefs and feelings about one’s abilities generally and in specific contexts. These beliefs have been referred to as self-efficacy or efficacy beliefs. Confidence also includes a realistic self-concept and positive feelings towards the self, often labeled self-esteem or self-confidence. In adolescence, it is an important component of identity development based on a positive sense of self and one’s direction and future in the world. Self-relevant constructs have been linked to low levels of Neuroticism.

**Ethics** are skills that are characterized by strength of character, social responsibility, and principled behavior. There is considerable debate as to whether there are universal ethical values or whether ethics are relativistic or dependent on cultural norms. Still, in terms of labor market outcomes, it is possible to identify specific and more universally-accepted and relevant skills linked to honesty, following rules, following through on actions, fairness, and acting in a responsible manner. Clearly, society and employers require trustworthy citizens who follow cultural rules and norms. For example, GED-earning adults contribute less to the economy than high-school graduates, a pattern that is not attributable to differences in academic competence. Instead, GED earners may be less proficient in adhering to ethical, context-suitable behavior, because they missed opportunities to acquire these skills from school social interactions (Heckman & Rubinstein, 2001). Skills related to ethics such as following rules are associated with the personality trait of Conscientiousness.

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<sup>31</sup> Personal agency is the understanding that outcomes and consequences are a result of one’s own volition. It is the sense that an individual has the power and ability to control his or her own outcomes.

#### IV. Putting It All Together: How PRACTICE Skills Are Learned Across the Early Lifecycle

As we have noted throughout this paper, skill acquisition is a continuous process that requires neurobiological and psychosocial readiness coupled with ongoing contextual supports. For each of the PRACTICE skills it is possible to identify the stages that are particularly appropriate (optimal) for skill building. Table 2 summarizes these stages for each PRACTICE skill.

**Table 2: Stages of Development for PRACTICE skills**

Skills for the labor market	Early childhood	Middle childhood	Adolescence	Emerging adulthood
Problem solving	Foundational	Optimal	Optimal	Reinforce
Resilience	Optimal	Optimal	Reinforce	
Achievement motivation		Optimal	Reinforce	
Control	Optimal	Optimal	Optimal	Reinforce
Teamwork	Optimal	Optimal	Reinforce	
Initiative	Optimal	Optimal	Optimal	Optimal
Confidence	Foundational	Optimal	Optimal	Reinforce
Ethics	Foundational	Optimal	Optimal	

Note: “foundational” indicates that skills developed in this period form the basis for the core skill building in a following period. “Reinforce” indicates that a skills acquired during the optimal period needs intense practice in the reinforcement period for the skills to be truly learned.

**Problem solving.** Problem solving is characterized by the ability to autonomously make decisions, to plan, and to process information, with social problem solving referring to an individual's ability to solve interpersonal problems involving conflicts with others. The foundational skills for problem solving are set during the early years but middle childhood and adolescence are the optimal stages for problem solving development.

Although young children have a very basic capacity to solve social problems, their context is such that they typically rely on adult caregivers to help them navigate this task. Still, by about ages 4-5, they are able to understand basic concepts for how to get along with others including turn taking and sharing, and they can learn these skills through modeling, reinforcement, and practice. Programs for preschoolers such as *I Can Problem Solve* (Shure & Spivack, 1982) have shown that children in this age group can improve problem-solving skills such as generating alternative solutions to social problems through focused training.



The middle childhood context – entering formal schooling – and cognitive shifts make this stage particularly conducive to the development of social problem solving skills. As children enter formal schooling around ages 5-6, they are faced with a plethora of new demands they must resolve on their own or with limited adult and peer assistance. These demands are accompanied by cognitive shifts that provide for greater efficiency that contribute to more habitual styles of solving problems. During middle childhood, children practice problem-solving skills as they moderate the intensity and difficulties associated with educational transitions (Elias et al., 1986) and buffer the effects of stress on academic achievement and behavior (Dubow & Tisak, 1989). In fact, strong social problem solving in middle childhood has ripple effects on later development and shepherds a proficient shift into the workforce in early adulthood (Hustson & Ripke, 2006).

The neural systems governing major cognitive skills have reached a maturation level to allow for optimal development of social problem solving skills during middle childhood. Executive attention<sup>32</sup> continues to mature, so that children can increasingly focus attention and inhibit negative emotionality. Consistent with this neurobiological progression, teaching children to correctly interpret social cues, to balance the pros and cons of social decisions, and to hold a repertoire of pro social response-sets during this period helps them to avoid later aggression problems (Guerra, Boxer, & Kim, 2005), that, in turn, predicts higher job earnings in adulthood (Duckworth et al., 2012).

The interplay between biology and context set a developmental mandate for improved problem-solving skills during adolescence. In most cultures, adolescence affords growing opportunities for autonomy that increase the utility and importance of problem-solving skills and thus the opportunity to practice and therefore internalize these skills. Problem solving can be enhanced through programming designed to move teenagers towards more controlled decision-making within appealing contexts. Adolescents also can be encouraged to set their own decision rules to guide their problem solving. For instance, teenagers can be taught to differentiate contexts and decisions that require thoughtful and reflective decision making, versus situations that require more automatic responses.

**Resilience.** Resilient individuals adapt and even thrive in the face of stress and difficulty. Because at its core, resilience depends on an individual's response to adverse events, biological systems that regulate the body's stress response play an important role in its development. Because stress is quite toxic during the early years, it is particularly important to build resilience skills beginning in infancy through middle childhood, although they should be strengthened and reinforced later in time.

A combination of psychosocial predisposition and contextual supports in the early years forms the basis of resilience. In particular, children with engaging, easy temperaments that generate or attract emotional support from parents and others during the early years and continuing through

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<sup>32</sup> Executive attention is generally focused on short-term or working memory and allows for processing of relevant material. Executive attention is also attentional control that blocks potentially distracting information from gaining focus.

childhood and adolescence fare better. Affable temperament serves primarily to “enlist” positive adult influence, a skill that can be augmented by interventions and programs that provide emotional and educational supports to young children and families at risk. Even children who display some level of biological vulnerability can benefit from programs that help parents provide emotional support for their children; these programs are most effective when provided during the early years (ages 0-5).

This extends to the effects of supportive neighborhood and community settings. Several related studies have demonstrated how environmental contexts can buffer the effects of individual risk for the 0-5 age group. For example, in one study of low-income and high-income 4-year olds, Gutman, Sameroff, and Cole (2003) found that the high risk group (low IQ, etc.) living in low risk community conditions performed consistently better on a range of outcome measures than the low risk group living in high risk conditions. Similarly, using data from the National Longitudinal Survey of Youth (NLYS), Heckman, Stixrud, and Urzua (2006) found that the impact of early gaps in ability on various outcomes diminished greatly when family background was controlled for.

Middle childhood brings with it new challenges aligned with improved cognitive and psychosocial maturation, observed through an increasing sense of industry and greater self-awareness, that allow children to reflect on their circumstances and develop proactive strategies and coping skills to respond to failures and challenges. At this stage, providing children with opportunities to adaptively respond to challenges can cultivate resilience. Even children growing up in well-to-do contexts can face difficulties with peers and in school and must learn and practice overcoming these challenges. These coping skills can be taught directly through structured interventions, and often are part of comprehensive skill building programs. These skills can also be facilitated by settings that provide “second chances” and new opportunities for youth to efficiently use the skills they have. In particular, skills can also be buttressed by coaching children to accurately assess and work to improve their own abilities and strengths (Werner, 1993).

**Achievement motivation.** Middle childhood is an optimal period for the development of achievement motivation, and primary schools have a particularly important role. Ages 6-11 is a time when connections that are used become stronger and habitual behaviors, attitudes, and beliefs crystallize. Primary school is a major developmental context for this age group with learning goals and performance assessments.

Children who do not perform well during primary school may develop beliefs and strategies that derail and frustrate them, interfering with subsequent performance, particularly in cultures that place a high value on achievement. By teaching children that intelligence is a malleable quality that can be cumulatively increased through learning, children’s achievement motivation can be increased, leading to a mastery orientation (Dweck, 1986). Children who have a mastery orientation seek out challenges and try for excellence even amid the possibility of failure, deriving gratification from learning new skills and mastering new tasks. In contrast, children who have maladaptive responses to challenge avoid difficult tasks and circumvent contexts that hold the possibility for failure, diminishing their functioning and curtailing their growth--their primary motivation is to avoid failure.

A number of interventions in middle-childhood have been successful in developing achievement motivation by changing children's beliefs about intelligence, learning goals, and strategies for coping with academic challenges during the primary school years (Blackwell, Trzesniewski, & Dweck, 2007). This is particularly compelling as a target for intervention because it can level the academic playing field for those who are less versus more cognitively gifted (Dweck & Leggett, 1988). Although remedial supports may be implemented in adolescence and early adulthood, schools are the primary context for supporting achievement motivation, and primary schools are critical.

**Control.** Efforts to enhance self-control must begin from infancy and continue through adolescence, with reinforcement in early adulthood, when the prefrontal cortex (that provides the neurological engine for control) becomes fully mature. Self-control is important because it allows individuals to regulate behavior, delay gratification, and refrain from impulsive responding.

Although infants have difficulty regulating affect and behavior, beginning around age 2, executive attention systems that regulate control undergo significant changes, setting the stage for early control systems to develop (Posner & Rothbart, 2000). As children enter preschool and formal schooling, self-control helps them pay attention in class, wait their turn, listen to directions, complete tasks as assigned, and interact effectively with others. In contrast, children with poor executive function have difficulty focusing their attention and inhibiting negative emotionality. In the early years, this sets the stage for academic difficulties and coercive interactions with peers, teachers, and parents. Poor executive function can create a negative developmental cascade in which children with poor self-regulation skills decrease their opportunities for academic learning and socialization, setting in motion further educational and relationship difficulties.

A number of psychological and educational studies demonstrate that self-control can be effectively encouraged during early childhood (Blair & Diamond, 2008). Parents can model and scaffold self-regulation by using language to assist children in controlling their impulses and to help children problem solve. Parents also can model and reinforce emotion and behavioral control strategies and positive attitudes towards self-regulation. Several cost-effective pre-school interventions (discussed in Section V) provide strong examples of how early self-control interventions can spark a positive developmental chain reaction—improved self-regulation leads to improved school readiness which leads to better academic and psychosocial outcomes<sup>33</sup> (Cunha & Heckman, 2008).

During middle childhood, neurobiological and psychosocial development leads to increases in cognitive flexibility<sup>34</sup> and social connectedness (Anderson, 2002). In parallel, children's improved language skills help them to mediate their control responses and respond non-

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<sup>33</sup> Psychosocial outcomes reflect the interplay between personal or individual level outcomes (e.g. physical health) and social or contextual outcomes (e.g. peer pressure, parental support). Psychosocial outcomes are a broad umbrella term for outcomes that reflect an individual's level of functioning in the context of their environment

<sup>34</sup> Cognitive flexibility is the ability to creatively connect ideas, to adapt cognitive processing strategies to unforeseen conditions, and infer information from new circumstances (Deák, 2003).

physically to provocation (Greenberg, Kusche, & Speltz, 1991). As a result of these developmental changes, middle childhood tends to be a period of enhanced self-control.

However, adaption problems linked with poor control are also magnified during this developmental stage, as children have increasing influence over their own environments. Such inhibitory control difficulties are likely to beget further concerns, including low academic achievement and rule-breaking behavior. Poor affect regulation<sup>35</sup> and inability to tolerate frustration during middle childhood can lead to poor skill formation and related problems in adolescence and beyond (Olson, Schilling, & Bates, 1999). Further, control skills during middle childhood set the stage for the manifestation and expression of distinctive and more permanent stable patterns of social interaction in adolescence and adulthood (Shiner, 1998).

During adolescence, progressive neural development ultimately leads to better and more mature decision making. However, self-control is a work in progress. Cognitive control systems show a developmental lag and undergo a different maturational pattern relative to affective systems<sup>36</sup> (Steinberg, 2008). Namely, control systems seem to be less fine-tuned and connections among control systems less networked, so that this mechanism for regulating dangerous and problematic behavior does not come “on-line” as rapidly or as regularly as the adolescent’s affective reward system (Crone & Dahl, 2012).

Consistent with “affective overdrive” in their neural systems, adolescents display heightened social and emotional reward salience relative to both children and adults, and place a marked emphasis on excitement and peer approval. All of this translates to a developmental period marked by a surge in health threatening and reckless behavior linked to difficulties in self-control that can dampen adolescent’s social and economic contributions over the long-term. For example, adolescents engage in high rates of substance use that can lead to lower educational attainment and higher substance dependence (Odgers et al., 2008).

**Teamwork.** Although teamwork frequently appears as a skill that employers value highly, it is not commonly considered within the social-emotional skills literature as a discrete skill. Translating this to social-emotional learning, teamwork represents a cluster of attributes such as empathy, communication, and relationship skills that facilitate positive social interactions. These social skills are a product of both temperament and context; environmental supports can buffer the effects of negative temperamental attributes as well as contribute independently to skill development. By about age 12, children develop relatively stable patterns of social behavior related to teamwork. Consequently the early years, from infancy through middle childhood, are particularly critical for building skills that provide the foundations of teamwork and collaboration.

Early temperament plays a defining role in how infants and very young children interact in social settings. Clearly identifiable and enduring patterns of social interaction such as shyness have

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<sup>35</sup> “Affect regulation” is the ability to modulate or manage negative mood or emotion in a positive and productive manner. Poor affect regulation is reflected in anger management problems, interpersonal issues, and risk behavior.

<sup>36</sup> Emotional systems that emphasize social-emotional rewards, such as excitement and peer approval. Affective systems appear to drive adolescents’ relatively heavy involvement in risk behavior.

been observed in very young infants. For example, several studies have demonstrated a link between temperamental characteristics such as behavioral inhibition (easily distressed in response to novel stimuli) and high social reticence with unfamiliar peers or adults in childhood (Fox et al., 2001). Other studies have focused on dispositional qualities such as willingness to explore in unfamiliar situations, and the tendency to enjoy social interaction (Campos, Campos, & Barrett, 1989) that contribute to the development of teamwork and related social skills.

Given that biology and context interact to perpetuate trajectories that lead to strong or weak teamwork skills, early interventions with infants and young children may help to facilitate the development of positive characteristics such as adaptability and positive affect. Policies and programs also can provide targeted, supportive contexts for very young children with known temperamental risk factors before they translate into more stable skill deficits over time.

Many of the early positive developmental precursors to teamwork are teachable skills during early childhood. For example, purposefully eliciting verbal discourse and expanding language competencies by scaffolding vocabulary<sup>37</sup> and grammar can teach communication skills. Children can further attain interpersonal skills through interaction and modeling and learn through feedback to increase integration strategies. High quality preschool also is a useful intervention for augmenting social skills and increases children's proficiency in forming and keeping peer relationships (Hazen & Black, 1989). Investment in programs that provide supportive environments for very young children and their families may help to counteract biological risk and facilitate the development of positive teamwork and related social-emotional skills (Knudsen, Heckman, Cameron, & Shonkoff, 2006).

As children grow older, their increasing cognitive maturation allows them to take the perspectives of others and understand emotional cues. Thus, particularly beginning in middle childhood, they are increasingly likely to engage in prosocial behaviors towards others, including getting along and working cooperatively with others, empathy and helping behaviors, concern about acceptance by others, and management of aggressive and antisocial behaviors according to normative standards. Cross-cultural studies also have shown that children who engage in more household, school, and community tasks display higher levels of altruism and empathy (Whiting & Edwards, 1988), although the directionality of effects is unclear. Similarly, children who are rated as socially engaged and competent by peers have better academic and mental health outcomes years later (Morrison & Masten, 1991; Parker et al., 2004).

Developmental shifts in aggression also occur during middle childhood, with verbal and more indirect forms of aggression (including bullying) rising when children enter school and interact regularly with peers. Although aggression generally declines over time, it tends to stabilize in relative rank during middle childhood. A number of studies have shown that childhood aggression around age 8 is a robust predictor of adult criminality and related problems, particularly for boys (Bushman & Huesmann, 2002). There are a number of curriculum-based competence promotion and aggression prevention programs (reviewed in Section V), as well as school climate and school organizational interventions with evidence of impact on social

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<sup>37</sup> To scaffold vocabulary is to give appropriate assistance to help a child learn the meaning of a word. An adult can scaffold vocabulary by using a word in a sentence, defining a word multiple ways, pointing to pictures that represent a word, or asking questions that help a child to further understand the meaning of a word.

behavior and academic outcomes (Durlak et al., 2011). Schools that provide opportunities for children to work together through cooperative learning and small group activities (versus lectures and rote learning techniques) are building the foundations of teamwork. Parent training and family support programs also can reduce inefficient and coercive parenting styles that increase child aggression (Patterson, 2002).

**Initiative.** Although initiative often is associated with leadership and “taking charge” of a situation, the seeds of initiative begin very early in development. However, the different contexts throughout the lifecycle result in all periods being an optimal stage for development of the next more complex level of initiative.

During the early years, infants who depend on caregivers for guided interactions soon become toddlers who venture into the world of their peers, with social play taking center stage. Indeed, it has been said that play is the work of young children. Through directed play and other social interactions, toddlers increasingly begin to operate with initiative and assert control over their world. Erikson (1950; 1993) identified this stage (around ages 3-5) as critical for the earliest development of initiative linked to exploration and making appropriate choices. Children learn that their actions have reactions, and that to accomplish tasks they must engage in purposeful behaviors. Exploration and initiative can be encouraged by allowing children certain “guided” freedom to initiate activities (including pretend play) in structured settings and encouraging them to explore new opportunities with appropriate levels of supervision.

During middle childhood as children enter primary school, they increasingly select their contexts and experiences, and actively choose friendship groups, structured activities, and leisure pursuits (Shiner, 1998), although this may vary significantly across cultures. All of these social contexts work to shape children’s social initiative—guiding children towards or away from active participation and leadership (Ladd, 1999). Through interpersonal feedback children learn how to successfully influence and direct their environments and thus translate their initiative into leadership. Not surprisingly, children with high levels of initiative tend to be pro-social leaders (Chang, 2003). Longitudinal research also indicates that initiative in middle childhood is linked with skill acquisition and lack of psychopathology<sup>38</sup> in adolescence (Morrison & Masten, 1991).

Cross-culturally, adolescence is marked by varying degrees of increasing independence. This independence brings new and different challenges, and adolescents are allowed and expected to exercise more independent choices. Over time, they increasingly become agents in their own lives (Larson & Hansen, 2005). This draws on their ability to effectively interact with adult networks, to consider complex systems and actors, and to think strategically. Biologically, youth who are willing to seek out new environments and experiences are likely to have strong initiative and related leadership skills. Contexts can also be supportive of adolescent initiative. For example, youth service programs operate across much of the world, and are a salient context for stimulating initiative in adolescents. Organizations dedicated to service or social activism seem to be particularly generative of leadership and agency, as these bodies call on youth to identify,

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<sup>38</sup> Psychopathology encompasses mental illness or distress and also the behaviors or experiences that signal mental illness.

articulate, and take action on issues of concern to themselves and others (Larsen & Hansen, 2005).

During young adulthood, the transition to the labor market provides a novel context that both requires and showcases initiative skills. At the onset of young adulthood, assets such as personal agency shape the variety and type of career options that young people contemplate. Ultimately, these skills help to crystalize young people's final vocational choice (Nauta, Kahn, Angell, & Cantarelli, 2002). Upward career mobility also depends on initiative skills—being autonomous, accountable, and a self-starter can springboard a young adult towards higher occupational achievement relative to previous generations (Elder, 1969). Likewise occupational choices reciprocally feed personal agency (Nauta et al., 2002), and work contexts can nurture young people's initiative by providing feedback on social roles, norms, and self-perceptions (Roberts, Caspi, & Moffitt, 2003).

**Confidence.** Confidence includes a realistic self-concept and positive feelings towards the self, often labeled self-esteem or self-confidence, as well as beliefs about one's abilities, labeled self-efficacy. Early social interactions with caregivers and others provide a broad foundation for the development of confidence. Parents who encourage and support children foster a positive sense of self, and adults who are harsh and negative can create early self-doubt. At the extreme, abuse and trauma during the early years can have a lasting impact on an individual's self-development, as well as leading to a range of psychological and behavioral problems (National Scientific Council on the Developing Child, 2010). However, from a skills development perspective, children's self-awareness and self-understanding begins to crystallize during middle childhood as they begin to integrate the opinions of others in to their own self-understanding and the search for self-identity and biological development of long-term perspective-taking makes adolescence an optimal stage for confidence building, as well.

During middle childhood, confidence develops, in part, as children compare themselves with others. Peers are an important source of social comparison, and studies have shown that children increase markedly in these peer-based comparisons during middle childhood. This likely is due to both their improved cognitive skills and ability to take the others' perspective as well as their increased exposure to larger peer groups in school. How children think they compare to peers plays a major role in the development of their self-confidence. Low social status with peers can lead to negative outcomes. Parent and teacher behavior also plays a critical role in the child's emerging sense of self and self-esteem—excessive punishment and criticism can have damaging consequence for children (Harter, 2006).

Adolescence is marked by an increasing search for identity, as youth seek to find their “niche” in the world. During this stage, future orientation lengthens, so that youth increasingly consider their long-term options and evaluate their attributes against future goals. Youth who have skills that are desirable in specific contexts as well as opportunities to develop and showcase these skills are likely to build their self-confidence. For instance, a talented football player can build confidence in settings where football skills are valued and opportunities for mastery and performance are available.

During adolescence, confidence is largely considered a product of caregiving environments and, more specifically, the person-context fit. For many youth, particularly those growing up in more disadvantaged environments, there are few supportive contexts to learn or utilize skills that increase self-confidence. In many cases, a teenager's identity becomes wrapped up in skills that are relatively easy to acquire and convey immediate status, such as power and aggression for males or sexuality for females.

There is mixed evidence concerning whether and how to improve confidence skills. The current consensus is to intervene around specific as opposed to global self-concept dimensions from middle childhood through adolescence (Marsh & O'Mara, 2008). For instance, academic self-concept, but not general self-esteem, longitudinally predicts higher academic achievement and educational attainment. In fact, high general self-esteem can lead to heightened initiative and persistence, but otherwise is of arguable relevance to labor market indicators (Baumeister, Campbell, Krueger, & Vohs, 2003). Empirical evidence suggests that self-esteem should not be nurtured indiscriminately, but instead should be fostered with realistic aims and effort towards self-improvement.

In young adulthood, individuals often simultaneously enter work, social, and/or educational contexts. Lack of confidence can be a significant impediment to exploration and success in these new milieus (Nelson et al., 2008), whereas high self-esteem and self-efficacy predict successful adaptation into new adult roles (Masten et al. 2004). The novel environments of young adulthood also provide rich opportunities for confidence-building transitions into more productive roles. Transitional contexts such as military service, apprenticeships, and continued education can bolster positive self-identity and self-awareness and re-direct young adults onto healthier adult trajectories (Masten et al. 2004). In addition "second chance opportunities" such as healthy marriages and adoption of religious beliefs, can further lend emotional stability and positive identity to young people, paving an alternate route to productive adulthood (Werner & Smith, 1982).

**Ethics.** A sense of ethics and moral obligation requires more advanced levels of cognitive functioning that allow children to think about and reflect on their decisions. For this reason, middle childhood and adolescence are particularly opportune times to support ethical development, and school-based character education programs are quite popular.

Infants and toddlers develop a sense of right and wrong based on "getting caught" or being punished. They generally consider outcomes such as damage done rather than intent in assessments of wrongness. For example, preschoolers typically judge as "more wrong" a child who accidentally breaks several cups rather than a child who intentionally breaks one cup (Piaget, 1967). During the early years, external contingencies also work to control behavior. In this fashion, early foundations of ethics skills are learned in contexts where rules are fair and regularly enforced, and good behavior is modeled.

Moral and ethical reasoning develops appreciably during middle childhood, as children progressively develop their empathic reasoning skills (Eisenberg et al., 1987). In tandem with more varied social environments, these maturational abilities provide fertile ground for shaping pro-social attitudes, character skills, and advanced moral thinking (Eisenberg & Fabes, 1998).



Children’s cognitive development is dominated by concrete thinking, which contributes to their focus on clear “rules” in games, sports, and everyday life (Piaget, 1967).

The importance of rules coupled with increased capacity for empathy during middle childhood provides a receptive context for efforts to build character in key areas such as honesty, responsibility, and fairness. In many instances, this can be facilitated through peer and adult modeling, as well as more structured discussions. For example, schools that foster open discussion of controversial issues and allow students to probe their own opinions and consider the views of their peers have been shown to cultivate a sense of obligation to the greater good within their students (Flanagan, Cumsille, Gill, & Gallay, 2007). Overall, considering differing viewpoints leads children to respect fairness, and not bully others (Brubacher, Fondacaro, Brank, Brown, & Miller, 2009).

Adolescence is an important period for enhancing ethical skills because it corresponds with enhanced cognitive flexibility, abstract thinking, and an increased capacity for perspective taking. Aligned with these shifts, adolescents are able to understand moral actions not only in terms of rules to be obeyed but also in terms of principles (such as justice) to be followed. This can be enhanced through adult role models and opportunities for moral debate and action (Berkowitz & Bier, 2004).

## **V. Evidence-Based Interventions for Social-Emotional Skill Enhancement to Build PRACTICE Skills**

Although we have presented and described a discrete set of PRACTICE skills linked to education and employment outcomes, in real-world programming, skill-building interventions target a wide array of skills in various combinations. Some programs focus on a single skill such as achievement motivation, confidence, or ethics. Other programs include combinations of skills such as problem solving and resilience, or broader combinations that include most of the PRACTICE skills. To a certain extent, the specific skills targeted by a given program depend on any number of factors including underlying program theory, agency priorities, cultural norms, relevance for prevention of specific problems (e.g., violence, HIV/AIDS), and popular topics (e.g., bullying prevention).

Still other programs focus on general enrichment without direct instruction in specific skills, although it is easy to see how certain skills may be impacted. For example, children’s participation in sports activities and orchestra programs are seen as valued activities in their own right, although it also is likely that they have an impact on building skills such as self-control and teamwork. Social policies such as conditional cash transfers (CCTs) and increased opportunities for maternal employment also can indirectly impact skills, although effects can be negative for some skills for some age groups, for instance, the negative effect of maternal employment interventions on attachment in young children (Baydar & Brooks-Gunn, 1991; Sroufe, 1996).

Because most programs and policies target different skill sets, it is difficult to review accumulated evidence on how best to promote each PRACTICE skill. Further, most program evaluations focus on a particular outcome of interest to funders or policy makers (e.g., violence

prevention, grades in school) and generally do not measure a range of related social-emotional skills or provide follow-up assessments of employment outcomes.

However, looking at the evidence across age groups and skill sets, certain directions for investment are clear. We only consider a selection of programs with quasi-experimental or experimental evidence of impact on a diverse set of social-emotional skills and related outcomes that are closely aligned with the PRACTICE skills. We include programs being implemented in the US, middle-income and developing countries, although most experimental studies have been conducted in the US. Because policies and programs align roughly with the age groups discussed in this paper, we organize the discussion accordingly. Table 3 presents selected interventions, by age group and PRACTICE skill targeted, although in many cases we had to infer skills targeted from program descriptions.<sup>39</sup>

### **Skill-Building Interventions by Age Group**

#### *The Early Years (ages 0-5): parenting and child-centered daycare/pre-school*

There is a growing evidence-base for effective programs and practices to promote healthy development given the neurobiological and psychosocial readiness of this age group. Most of these programs focus on salient developmental contexts, specifically families, day care/pre-school settings, and communities. However, because programs focused on developmental contexts such as families and communities typically are part of broader capacity building and resource development strategies (such as strengthening families), they rarely are framed or evaluated in terms of children's skill acquisition and future labor market success.

Interventions in early childhood can be grouped into three primary categories: (a) programs and policies to help reduce parenting stress and teach parenting skills (such as home visitation and parenting interventions); (b) programs to reduce *toxic stress*<sup>40</sup> in communities (e.g., exposure to violence, poverty, lack of opportunities) through community improvement and increased services; and (c) programs to provide high-quality day care and preschool, including directed skill building programs to enhance social-emotional learning.

Increasingly public policy is recognizing the value of “going into the home” to support parenting practices. Perhaps the most well documented and widely used parent support program for infants is home visitation, where new mothers receive individualized training in child development and life management skills from trained nurses during pregnancy and after the birth of their child. Several empirical studies have demonstrated positive outcomes for mothers including fewer subsequent pregnancies, less use of welfare, and lower rates of child abuse and neglect in the U.S. and many other countries (Olds et al., 1997). Short-term impacts on child

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<sup>39</sup> While many of the programs reviewed provide a package set of materials with specific protocols to follow, very few programs specify the “active ingredients” or best practices on which their programs are based that can provide more general guidance for investment in skill building.

<sup>40</sup> The experience of serious, chronic adversity (e.g. chronic abuse or violence) without protective relationships or contexts that can buffer the negative experience. Toxic stress causes prolonged stress responses that can alter the brain's chemistry and architecture (National Scientific Council on the Developing Child, 2010).

psychological, cognitive, and health outcomes also have been noted, although effects are more limited for high-risk children (Peacock, Konrad, Watson, Nicke, & Muhajarine, 2013).

A number of different program models have been developed to reflect local needs. For example, the *Durham Connects* program is a 4-7 session manualized program that addresses family needs in home and connects high-risk parents with community resources to improve infant health and well being. Several randomized controlled trials have found that program participants report fewer infant emergency care visits, more community connections, more positive parenting behaviors, and lower rates of mental health problems such as anxiety than the control group (Dodge et al., 2014). (See Table 3.)

Programs to reduce toxic stress at the community level are quite broad and part of larger community and economic development efforts that are beyond the scope of this paper. Obviously, the most effective way to reduce the impact of community stressors on children and families is to reduce the stressors themselves—alleviate poverty, reduce crime, provide adequate services, etc. Yet this is the most difficult and costly path, requiring the greatest investment. Given the broad range of these programs, they are not included in the inventory in Table 3.

Instead, most of the evidence base for early childhood programs centers on specific programs for families and day-care/preschool programming. Day care and preschool programs to enhance children’s social emotional skills are anchored in high quality settings, and frequently are supplemented by focused skill-building programs. Much has been written in the psychological and economics literature about the benefits of early investment in high quality preschool programs such as enriched Head Start and the Perry Preschool Program, particularly when followed by later enrichment programs (Cunha & Heckman, 2008). Through well-structured and responsive environments that provide low student-teacher ratios, child-centered activities, and opportunities for cooperative learning and structured play, these settings can promote a range of skills including the PRACTICE skills control, teamwork, and initiative. Indeed, as noted in Table 3, many of the effective preschool programs specifically target these skills (Perry Preschool Child Observation Record; High Scope Educational Research Foundation, 2010).

Similarly, a number of evidence-based programs currently are available to directly build social-emotional skills in pre-school aged children. All of the interventions listed in Table 3 that target the age group 0-5 address skills related to social interactions and teamwork, including communication and relationship skills, empathy, prosocial behavior, and prevention of aggression. Some of these programs incorporate a focus on self-control and initiative, such as *Second Step*, whereas others, such as *Tools of the Mind*, specifically target only self-control skills, with noted improvements following training.

#### *Middle Childhood (ages 6-11): A Range of School Interventions*

The peak target age for social-emotional skill development and greatest evidence base for program effectiveness targeting social-emotional skills is for the 6-11 year old group (Durlak et al., 2011). This is a prime period for impacting all of the PRACTICE skills. In some cases, this will be accomplished most effectively via comprehensive programs that target all eight skills, whereas in other cases, effective programs may focus on a sub-set of related skills, for instance

cooperative instructional models designed to impact skills involved in social interactions that build teamwork or mastery learning interventions designed to improve achievement motivation.

Schools are a key venue for skill development for this age group. Primary schooling is nearly universal in most countries, and most children worldwide spend at least some time in the primary grades. The organization of the school day also lends itself to sustained skill-building efforts. Children typically spend time in a single classroom with a single teacher and the same group of peers for an entire school year. This “single point” of entry renders programs easier to implement, less costly, and more likely to have consistent effects.

Interventions for the 6-11 age group may take various forms: (a) training teachers to possess social-emotional skills that they can model in the classroom, (b) classroom lessons and activities to improve classroom climate, (c) social-emotional skills curriculum taught as a school subject, (d) teaching practices that incorporate social-emotional learning into the methodology for teaching academic content, and (e) after-school enrichment programs.

For a teacher to incorporate social-emotional learning into the classroom, he must possess the skills himself. Although this may be difficult in lower and middle-income countries with fewer resources for training, there have been recent efforts to build training platforms in schools. For example, Peru’s *Escuela Amiga* model developed a one-year social-emotional learning course for teachers and principals. The course, taught in a university by professional psychologists, included classroom instruction using a multi-session curriculum, role-playing, mentoring, and peer support for two semesters. The teachers, all from marginal neighborhoods, received a certificate on completing the training (World Bank, 2012). Though the program has not been evaluated, the teachers who went through the training had notably calmer classrooms, used non-standard teaching methodologies, and expressed that their initial reluctance in spending every Saturday in a training course had enormous personal benefits, in addition to professional benefits.

Skill building for children is enhanced when the classroom environment is more supportive and engaging for children. A number of comprehensive programs are designed to provide lessons and activities focused on direct learning and modifying the quality of the classroom environment. For example, the RULER approach, trains principals and teachers to teach and practice a set of tools designed to help students to recognize emotions emerging out of the school experience and develop strategies to proactively manage these emotions in a positive way. In a recent randomized trial in 5th and 6th grade classrooms, RULER classrooms were rated as having higher levels of warmth and connectedness, and students were rated as higher on autonomy and leadership skills (Rivers et al., 2012).

In some cases, the primary focus of the intervention is on classroom instruction, with social-emotional classes included in the regular school curriculum. These classes are typically a dedicated period on a regular basis in which teachers guide students through a curriculum with accompanying materials to develop a pre-identified set of skills. They may focus on a range of skills (*PATHS* in the US), specific behaviors such as decision-making (*I Can Problem Solve* in the US; *Social Decision-Making Skills Curriculum* in Lebanon), or on a specific outcome such as preventing bullying (*Second Step* in the United States, República Bolivariana de Venezuela, and Norway) or drug use prevention (*Lions Quest* in the US, *Young Citizen’s Program* in Tanzania)

(Table 3). Several program curricula and packages for learning have been developed by psychologists and implemented in different schools and can be purchased on line; some programs provide training and support. In general, these approaches are somewhat less comprehensive but easier and more straightforward to implement than school and classroom improvement programs that require comprehensive engagement by teachers and administrators.

Pedagogical methods can be adapted to utilize social-emotional skills for academic learning. Programs such as *Facing History and Ourselves* build skills such as communication and problem solving into lessons about history and literature.<sup>41</sup> For example, a teacher could present a lesson on history or he could break the class into small groups that would prepare a lesson on a historical fact in a limited amount of time and present it to the whole class, thereby teaching history, as well as teamwork, relationship skills, empathy, communication skills, problem-solving, self-regulation, self-esteem, and a range of other social-emotional skills. Such learning can be monitored, as is traditional academic learning, through mechanisms such as the KIPP Report card, where social-emotional skills are identified, measured, and discussed with parents and students at evaluation time.

In addition to schools, sports, music, arts, and recreational after-school or out-of-school activities can provide building blocks for social-emotional skills. As shown in Table 3, some of these programs have been evaluated among middle school-aged children with positive results, such as *New Jersey After 3* in the US that offers a range of recreational activities and the *Sport and Play Program for Afghan Refugee and Pakistani Children*. Recently, systematic randomized controlled trials are being conducted of the effects of child and youth participation in orchestra systems such as the *El Sistema* National Network of Youth and Children's Orchestras (*Fundación Musical Simón Bolívar*) in República Bolivariana de Venezuela. Although programs such as youth orchestras are not designed a priori to teach specific skills, preliminary findings suggest that they have a positive impact on self-regulation, prosocial behavior, collective efficacy, persistence (GRIT), and well-being. To more effectively use this intervention type, it is necessary to articulate more clearly the potential impact of these activities on skills. For example, a soccer program may indirectly teach teamwork while a *Futbol con Corazon* model run by child developmental specialists<sup>42</sup> adjusts the soccer rules to teach a set of pre-determined social-emotional skills, including teamwork and communication.

The effectiveness of school-based programs is supported by a number of individual studies as well as recent comprehensive reviews. For example, Durlak et al. (2011) reviewed findings from 213 school-based universal social and emotional learning programs involving over 270,000 participants in different types of programs. Using meta-analytic techniques, they found that compared to controls, SEL participants demonstrated significant improvements in a range of social and emotional skills and an 11-percentile point gain in academic achievement.

*Adolescence (ages 12-18) and Emerging or Young Adulthood (ages 19-29): Reaching at-risk and Not at-risk Populations*

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<sup>41</sup> <https://www.facinghistory.org/>

<sup>42</sup> <http://futbolconcorazon.org/>

While some of the techniques discussed for children may be applicable to in-school youth (teacher social-emotional learning, in-school social-emotional training, pedagogical methods – see Table 3 for examples), school is a less optimal intervention venue for adolescents and is particularly problematic for young adults. Especially in developing countries, many youth and young adults are not in school, they operate in many contexts, schedules are varied, students change classrooms and teachers regularly, and the influence of peers increases dramatically.

While school-based programs tend to be universal for all children, programs for adolescents and young adults typically are more targeted to those most at-risk in community and agency settings. The assumption is that resources should be reserved for those who are at a “skill disadvantage” because they lack adequate building blocks from earlier developmental periods. This is important to mention, because it highlights the primarily remedial focus of skill-building programs for adolescents and young adults, even though neurobiological and psychosocial readiness to acquire a new set of skills occurs for everyone in this age group. The exclusive programmatic focus on at-risk youth has changed slightly in recent years with more calls for health promotion and positive development programs for all youth.

Most adolescent and young adult programs that incorporate social-emotional skills or life skills (the term more commonly used in programming for older youth and young adults) described in Table 3 fall into five major program types: (a) prevention of problem behaviors, (b) arts, recreation, and sports programs, (c) vocational training/job corps type programs, and (d) youth engagement/service learning programs.

Programs to prevent problem behaviors typically include a direct focus on building life skills, along with providing information and attitude-change strategies. For example, *Life Skills Training* (Botvin & Griffin, 2004; Griffin, Botvin, Nichols, & Boyle, 2003) is a well-validated substance abuse prevention program that incorporates life skills training in three areas relevant for the PRACTICE model: problem solving (decision-making skills), teamwork (communication skills), and initiative (assertiveness skills). These skills are emphasized because of their empirical relations with substance abuse and prevention. Other such programs that have shown positive effects on include *Problem Solving for Life* (depression) in Australia, *Lions Quest Program* (drug use prevention) in the US, and *Young Citizens Program* (sexual health) in Tanzania (Table 3).

Arts, recreation, and sports programs for youth are similar to those discussed for middle-childhood, but they may be less connected to schools and focus on more complex behaviors that youth are ready to confront. Art, music, and theater-based programs will often use participant experiences as the subject of their work, thereby providing a space within which to identify emotions and develop strategies to manage them. The programs often foster mentoring, teamwork, and positive social interactions. These programs exist across the world, and several have shown to effectively teach problem-solving, teamwork, and resilience skills in contexts as different as the *Youth Theater for Peace* in Kyrgyzstan and Tajikistan, *Sports and Play for Traumatized Children and Youth* in Iran (Table 3).

The other two types of programs may include a direct focus on skill building (often with a separate curriculum). Many programs engage youth in employment training or civic engagement and service learning activities as a means to indirectly enhance related skills. For example,

*YouthBuild* is a well-known international program that teaches youth construction and other skills involved in community improvement projects, while indirectly emphasizing improvements in social-emotional skills such as teamwork, initiative, and confidence. Evaluations from quasi-experimental studies show improved life outcomes (educational progress, having a job) for participating youth, although acquisition of specific skills has not been assessed (International Youth Foundation, YouthBuild International, & Catholic Relief Services, 2010).<sup>43</sup> Using more traditional training methods, programs such as *Servol* in Trinidad and Tobago provide youth with marketable job skills while also emphasizing social-emotional skills such as control and confidence. In a tracer study of program outcomes, participants had higher self-confidence and improvements in related behavior such as delay in childbearing for females (Griffith, 2002). However, in many cases the influence is indirect through engagement in the program.

Comprehensive programming and multi-sectoral approaches for reaching out of school youth is challenging (USAID, 2013). Not only do these programs vary in their specific focus, they often are funded by different sectors. For instance, violence prevention programs often are funded by citizen security and justice sectors; arts, recreation, and sports often are funded by the youth sector; and vocational development programs typically fall under Departments or Ministries of Labor. Drawing these together in a cohesive strategy has been an elusive task.

## **VI. Summary and Future Directions**

The social-emotional skills that employers value can be effectively taught when taking into consideration the optimal stage for each skill development. Employers value a range of social-emotional skills, which can be classified into eight skills groups summarized in the acronym PRACTICE. These skills – problem solving, resilience, achievement motivation, control, teamwork, initiative, confidence, and ethics – are best developed before reaching the labor market, and serve to enhance school performance as well as a range of other welfare enhancing outcomes.

The optimal stage for development of PRACTICE skills is during middle-childhood. While recent emphasis has been put on the teaching social-emotional skills during the early childhood period, this period is actually too young to acquire some skills that require higher levels of neurobiological or psychosocial development or contexts that are only appropriate for older children. This implies that we need to refine our concept of the appropriate age for skill development based on the prerequisites for each skill to develop.

A broad international evidence base on effective program interventions at the right stage can guide policy makers to incorporate social-emotional learning into their school curriculum. This review does not allow for a differentiation of appropriate ages for PRACTICE skills development by cultural context, suggesting an adaptation of the paper's parameters to the relevant context.

Early childhood programming for children ages 0-5--home visitation, family support, and enriched preschool programs are becoming more available in many countries and settings. These

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<sup>43</sup> <http://youthbuildinternational.org/>

programs help families learn effective parenting skills and support parent-child connections, setting the stage for early attachment relationships and providing an important foundation for skill building. A clear mandate is to extend the reach of these programs and adapt them to contexts with scarce resources. For example, parents and other family members (grandparents, aunts, uncles, etc.) can be trained as "promotoras" or lay outreach workers to engage and support new parents and families and to teach them effective parenting skills (Williamson, Knox, Guerra & Williams, in press).

Schools need to play a much larger role in development of PRACTICE skills. Primary school is the best environment that children have to teach these skills since coverage is very high in almost all countries and students are with one teacher and one set of peers thus allowing for practice and reinforcement of skills. International evidence shows that primary school children can develop and crystalize social-emotional skills indirectly through teacher modeling and reinforcement in a positive school setting, but this requires professional, trained teachers, who also recognize the importance of skill building and student engagement. In countries across the world, children have learned these skills directly through classroom-based lessons, pedagogical methods that teach academic content using PRACTICE skills, and through after school programs.

Although adolescence is an optimal period for development of several PRACTICE skills, there are considerably fewer carefully evaluated skill building programs for adolescents and young adults. Programming for adolescents typically occurs indirectly through youth development and extra-curricular activities such as sports, arts, and music, but few programs specify or measure target skills and whether they are impacted by specific activities. Most specific skills-intensive interventions for these age groups is targeted at at-risk youth and young adults through second chance programming for remedial education and/or vocational and job skills training. Although these programs often incorporate training in a range of skills, a specific framework typically does not guide them to select the most relevant skills for long-term employment impact.

More research on effective interventions to build PRACTICE skills is needed. The particular gaps are in programs for youth who are not at-risk, very young children, and young adults. Further, more research in various cultural contexts and with specific populations, such as rural youth or those living in conflict zones, is also needed.



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**Table 3. Interventions by primary ages and skills targeted**

<b>Program</b>	<b>Program Type</b>	<b>Age Group</b>	<b>Location(s)</b>	<b>Skills Targeted</b>	<b>Outcomes</b>	<b>Citation(s)</b>
<b>Durham Connects</b>	Home Visitation	Infants	USA	<b>Resilience</b> <b>Teamwork</b> -Relationship skills	Fewer infant emergency care visits, more community connections, more positive parenting behaviors, and lower rates of anxiety	Dodge et al. (2014)
<b>Early Child Development Program</b>	Parent Training	0-5	Philippines	<b>Resilience</b> <b>Teamwork</b> -Relationship skills	Increased cognitive, linguistic, and fine motor skills, improved social-emotional skills and nutrition	Armecin et al. (2006)
<b>Incredible Years Series</b> -Dinosaur School Child Curriculum (also includes parent- and teacher-training components)	Social-Emotional Learning plus Parent/Teacher Training	0-5	Jamaica: Teacher Training and adapted Dinosaur School lessons  USA: Dinosaur School lessons	<b>Resilience</b> <b>Teamwork</b> -Relationship skills -Communication skills -Empathy -Low aggression	Jamaica: Increased positive teacher behaviors and positive child behaviors, increased child interest and enthusiasm, improved teacher warmth and class climate  USA: behavioral improvements	Jamaica: Baker-Hintingham et al. (2009)  USA: Webster-Stratton, Reid, & Hammond (2004)
<b>Aprender a Convivir Program</b>	Social-Emotional Learning	0-5	Spain	<b>Control</b> <b>Teamwork</b> -Relationship skills -Communication skills -Emotion knowledge -Low aggression	Improved social competencies and reduced antisocial behaviors	Benítez et al. (2011)

<b>AI's Pals: Kids Making Healthy Choices</b>	Social-Emotional Learning	0-5, 6-11 (specifically for ages 3-8)	USA	<b>Resilience</b> defined as social competence, problem-solving, autonomy, and sense of purpose/belief in future	Improved social-emotional competence and positive coping skills	Lynch, Geller, & Schmidt (2004)
<b>Tools of the Mind</b>	Social-Emotional Learning	0-5	USA	<b>Control</b> -Attentional focus -Self-regulation	Improved self-regulation and executive functioning skills in children from low-income families	Bodrova & Leong (2007)
<b>Head Start REDI</b> program combined with <b>PATHS</b> Preschool Version	Social Emotional Learning, integrated with Academics	0-5	USA	<b>Problem-solving</b> <b>Control</b> <b>Teamwork</b> -Relationship skills -Communication skills	Improved literacy and vocabulary skills, increased emotional understanding, social problem-solving, social behavior, and learning engagement.	Bierman et al. (2008)
<b>PATHS</b> — Preschool and Elementary School versions	Social-Emotional Learning	0-5, 6-11	USA	<b>Problem-solving</b> <b>Control</b> <b>Teamwork</b> -Emotional understanding <b>Confidence</b> -Self-esteem	Increased emotional knowledge, skills, and social competence	0-5: Domitrovich, Cortes, & Greenberg (2007)  6-11: Conduct Problems Prevention Research Group (1999, 2010)
<b>Social Decision-Making Skills Curriculum</b>	Social-Emotional Learning	6-11	Lebanon	<b>Problem-Solving</b> -Decision-making	Improved emotional intelligence and social skills	El Hassan & Mougaine (2013)
<b>I Can Problem Solve</b>	Social-Emotional Learning	0-5, 6-11	USA	<b>Problem-Solving</b> -Decision-making	Decreased impulsivity and improved behavior among ages 0-5; improved social	Boyle & Hassett-Walker (2008); Kumpfer,

					competencies and self-control among ages 6-12	Alvarado, Tait, & Turner (2002); Shure & Spivack (1982)
<b>Second Step</b> <b>Segundo Paso</b> in Venezuela, RB <b>Steg for Steg</b> in Norway <b>Faustlos</b> in Germany	Violence Prevention	0-5, 6-11 0-5 6-11 6-11	USA Venezuela, RB Norway Germany	<b>Problem-Solving</b> -Decision-making <b>Control</b> -Self-regulation <b>Teamwork</b> -Relationship skills -Low aggression <b>Initiative</b>	Increased empathy and prosocial behavior Venezuela, RB: Improved social competencies Norway: Improved social competencies Germany: Improved social competencies	USA: Grossman et al. (1997); McMahon & Washburn (2003) Venezuela, RB: Clinton & Amesty (2010) Norway: Holsen, Smith, & Frey (2008) Germany: Schick & Cierpka (2005)
<b>4 Rs</b> (Reading, Writing, Respect, & Resolution) Program	Social-Emotional Learning, integrated with Academics	6-11	USA	<b>Problem-Solving</b> <b>Teamwork</b> -Relationship skills -Communication skills -Emotion intelligence	Reduced hostile attribution bias and depressive symptoms; increased social skills and attention functioning	Jones, Brown, & Aber (2011); Jones, Brown, Hoglund, & Aber (2010)
<b>Resolving Conflict Creatively</b> (basis of 4 Rs program)	Violence Prevention	6-11	USA	<b>Problem-Solving</b> -Decision-making <b>Teamwork</b> -Relationship skills -Communication skills -Low aggression	Increased social-emotional competencies, decreased aggression	Aber, Brown, & Jones (2003); Aber, Jones, Brown, Chaudry, & Samples (1998)
<b>Social-Emotional Learning</b> (unnamed program)	Social-Emotional Learning	6-11	Portugal	<b>Control</b> <b>Teamwork</b> -Relationship skills -Communication skills <b>Confidence</b>	Improved self-control, emotional differentiation, social skills, and self-esteem	Moreira et al. (2010)



				-Self-esteem		
<b>The RULER Approach</b>	Social-Emotional Learning integrated with academics	6-11	USA	<b>Teamwork</b> -Relationship skills -Communication skills -Emotional understanding and expression	Improved student warmth and connectedness, improved autonomy and leadership	Rivers et al. (2012)
<b>Facing History and Ourselves</b>	Social Emotional Learning integrated with academics	6-11; 12-18	Global--N. Ireland, Israel, China, US, S. Africa	<b>Ethics</b> -Character -Values -Ethics	Several evaluations have shown increases in critical thinking skills, ethics, and civic values for participants, particularly adolescents	Selman et al. (2007)
<b>Character Education Programs (e.g., Character Counts, Positive Action)</b>	Social-Emotional Learning integrated with academics	6-11; 12-18	USA	<b>Ethics</b> -Character -Values -Ethics	Across multiple programs, some evidence of impact on values and ethics, particularly for elementary school aged children.	Berkowitz & Bier (2004).
<b>Penn Optimism Program</b>	Depression Prevention	6-11	China	<b>Problem-solving Resilience Initiative</b> -Coping skills -Optimism -Assertiveness	Fewer depressive symptoms	Yu & Seligman (2002)
<b>Penn Resiliency Program</b>	Depression Prevention	6-11, 12-17 (10-12)	USA	<b>Problem-solving Resilience Initiative</b> -Coping skills -Optimism -Assertiveness	Fewer depressive symptoms, which is focus of PRP, although program also targets social skills, problem-solving, and cognitive style	Brunwasser, Gillham, & Kim (2009; meta-analysis)
<b>FRIENDS Program</b>	Depression and Anxiety Prevention	6-11, 12-17	Australia (a pilot study was also conducted in	<b>Resilience Confidence</b> -Coping skills -Optimism	Decreased anxiety and increased future orientation in short-term	Barrett, Sonderegger, & Sonderegger (2001); Barrett,

			Yugoslavia)	-Self-esteem		Farrell, Ollendick, & Dadds (2006); Lock & Barrett (2003)
<b>Life Skills Training</b>	Drug Use Prevention	6-11, 12-17 (10-12)	USA	<b>Problem-Solving</b> -Decision-making (also refusal skills) <b>Teamwork</b> -Communication skills <b>Initiative</b> -Assertiveness	Decreased drug use, increased knowledge of interpersonal and communication skills; decreased aggression, fighting, and delinquency	Botvin & Griffin (2004; review paper); Griffin, Botvin, Nichols, & Doyle (2003)
<b>Lions Quest Program—Skills for Adolescence</b>	Drug Use Prevention	6-11, 12-17 (10-12)	USA	<b>Problem-Solving</b> -Decision-making <b>Teamwork</b> -Communication skills <b>Initiative</b> -Agency	Decreased drug use; increased self-efficacy for drug refusal skills	Eisen, Zellman, & Murray (2003)
<b>Young Citizens Program</b>	AIDS/HIV Prevention	6-11, 12-17	Tanzania	<b>Teamwork</b> -Communication skills -Emotion regulation <b>Initiative</b> -Agency	Increased deliberative and communicative efficacy, emotional control, and child collective efficacy	Carlson, Brennan, & Earls (2012)
<b>Urban Improv</b>	Arts (Theater) Recreational Activities	6-11	USA	<b>Problem-Solving</b> -Conflict resolution -Decision making <b>Control</b> <b>Teamwork</b> -Communication skills	Decreased teacher-rated hyperactivity and internalizing problems; increased prosocial behavior.	Kisiel et al. (2006)
<b>Music-Based Interventions and Youth Orchestras</b>	Arts	6-11, 12-17	USA; Vienna; Australia; Peru; Venezuela, RB	<b>Control</b> -Emotional expression <b>Teamwork</b> -Communication skills <b>Confidence</b> -Self-esteem	Meta-analysis and one quasi-experimental study have shown that music interventions can be beneficial for improving symptoms and quality of life.	Gold, Wigram, & Voracek (2005) Meta-analysis: Gold, Voracek, & Wigram (2004)

<b>New Jersey After 3</b> (out-of-school activities)	Recreational Activities	6-11	USA	<b>Teamwork</b> -Relationship skills -Communication skills -Prosocial behavior	Increased social and interpersonal skills (rule following, cooperation, etc.); increased civic engagement (community activities)	Eagle et al. (2009)
<b>LA's BEST</b> (out-of-school/after-school activities)	Recreational Activities	6-11	USA	<b>Achievement Motivation</b> -Mastery -Sense of purpose <b>Teamwork</b> -Relationship skills -Communication skills -Prosocial behavior -Low aggression <b>Initiative</b> -Assertiveness	Higher reading and math scores compared to control group; reduced school drop-out	Goldschmidt & Huang (2007)
<b>4-H Program</b> (out-of-school 4-H activities)	Recreational Activities	6-11, 12-17	USA	<b>Teamwork</b> -Relationship skills -Communication skills -Prosocial behavior	Increased developmental assets; increased community contributions; reduced likelihood to engage in risk behaviors (drug use; sexual activities)	Lerner & Lerner (2009; summary)
<b>Sport and Play for Traumatized Children and Youth</b>	Recreational Activities	6-11, 12-17	Iran	<b>Resilience</b> -Coping skills <b>Teamwork</b> -Relationship skills -Communication skills -Prosocial behavior	Children reported increased trust with sport coaches; antisocial behavior decreased over the course of the program; children were observed to become more cooperative	Kunz (2006)
<b>Sport and Play Program for Afghan Refugee and Pakistani Children/Youth</b>	Recreational Activities	6-11, 12-17, 18-29	Afghanistan, Pakistan	<b>Teamwork</b> -Relationship skills -Communication skills -Prosocial behavior	Increased self-regulation, confidence, conflict resolution, and communication skills; increased attendance	Right to Play (2010)

<b>Problem Solving for Life</b>	Depression Prevention	12-17	Australia	<b>Problem-solving</b> -Decision-making -Interpersonal problem-solving <b>Resilience</b> -Coping skills	-High-risk participants showed significantly decreased depressive symptoms and increased problem-solving scores; low-risk decreased in depression	Spence, Sheffield, & Donovan (2003)
<b>Aggression Replacement Training</b>	Violence Prevention	12-17	USA	<b>Problem-solving</b> -Decision-making <b>Control</b> <b>Ethics</b> -Moral reasoning	Several efficacy trials show improved self-control and competencies, although findings are limited for aggression	Reddy & Goldstein (2001; review paper)
<b>Youth Empowerment Solutions (YES) for Peaceful Communities</b>	Violence Prevention	12-17	USA	<b>Teamwork</b> -Leadership skills -Communication -Prosocial behavior <b>Ethics</b> -Moral reasoning	Pilot study results: Participants less likely to be victims of neighborhood crime; improved group leadership and conflict resolution skills.	Reischl et al. (2011)
<b>Youth Theater for Peace</b>	Arts and Recreational Activities	12-17	Kyrgyzstan and Tajikistan	<b>Problem-solving</b> -Conflict resolution <b>Teamwork</b> -Leadership skills -Communication -Prosocial behavior	Improved conflict resolution; increased sense of agency (ability to impact conflict in one's community); increased communication skills	Nigmatov (2011)
<b>Drama Approach to Aids Education: DramAide Intervention</b>	Arts and Recreational Activities, integrated with HIV/AIDS Prevention	12-17	South Africa	<b>Problem-solving</b> -Decision-making (safe sex practices) <b>Teamwork</b> -Prosocial behavior	Improved knowledge and attitudes about HIV/AIDS; increased sexual safety	Harvey, Stuart, & Swan (2000)
<b>Physical Activity Intervention (unnamed program)</b>	Recreational Activities	12-17	Chile	<b>Teamwork</b> -Relationship skills -Communication skills <b>Confidence</b> -Self-esteem	Targets of change were physical activity, teamwork and self-esteem; found some impacts on physical fitness and mental health	Bonhauser et al. (2005)

<b>The Ishraq “Enlightenment” Program</b>	Positive Youth Development, integrated with Academics	12-17	Egypt	<b>Achievement Motivation</b> -Mastery orientation -Sense of purpose <b>Teamwork</b> -Communication skills <b>Confidence</b> -Self-esteem	Increased self-confidence and civic engagement; improved literacy; also increased “safe spaces” and practices for girls; girls reported wanting to marry at an older age	Brady et al. (2007)
<b>Adolescent Development Program</b>	Positive Youth Development	12-17	Trinidad and Tobago	<b>Teamwork</b> -Communication skills <b>Confidence</b> -Self-esteem	Increased self-esteem, self-awareness, and confidence; increased communication skills	Griffith (2002)
<b>Kingston YMCA Youth Development Programme</b>	Positive Youth Development	12-17	Jamaica	<b>Teamwork</b> -Social/life skills <b>Initiative</b> - Agency	Increased self-esteem, moral beliefs, and decision making, decreased aggression propensity	Guerra et al. (2010)
<b>YouthBuild</b>	Positive Youth Development	12-17, 18-29	Guatemala, El Salvador, Honduras, Nicaragua	<b>Teamwork</b> -Communication skills <b>Initiative</b> <b>Confidence</b> -Self-esteem	Increased social-emotional competencies (i.e., self-esteem) and life skills; decreased rates of delinquency	International Youth Foundation, Youthbuild International, & Catholic Relief Services (2010)
<b>Palestinian Youth Empowerment (RUWWAD)</b>	Positive Youth Development	12-17, 18-29, 30+	Palestine	<b>Achievement Motivation</b> -Mastery orientation	Increased program infrastructure and involvement	Hyatt & Auten (2011)
<b>Community Youth Peace Education Program</b>	Positive Youth Development	18-29, 30+	Liberia	<b>Problem-solving</b> -Decision-making -Conflict resolution <b>Teamwork</b> -Relationship skills -Communication skills	More likely to settle conflicts in a non-violent manner; safer sex practices	Yeager Sallah (2006)
<b>Job Corps</b>	Vocational Training	12-17; 18-29	USA	<b>Achievement Motivation</b> -Mastery orientation (job skills)	Increased educational attainment, earnings (for several post-program years; gains not sustained except for	Schochet, Burghardt, & McConnell (2008)

				<b>Teamwork</b> -Relationship skills -Communication skills	oldest participants); decreased criminal activity	
<b>Empowerment and Livelihood for Adolescents Program (focuses on girls only in this evaluation)</b>	Vocational Training	12-17; 18-29 (18-year-olds allowed to participate )	Uganda	<b>Problem-solving</b> -Decision-making (health risk-taking choices) <b>Achievement Motivation</b> -Mastery orientation (job skills)	32% increased likelihood that girls will engage in income generating activities (self-employment increases); increased condom usage; decreased child-bearing and unwanted sexual interactions	Bandiera et al. (2012)
<b>Juventud y Empleo (Youth and Employment) Program</b>	Vocational Training	12-17; 18-29	Dominican Republic	<b>Achievement Motivation</b> -Mastery orientation (job skills) <b>Teamwork</b> -Relationship skills -Communication skills <b>Confidence</b> -Self-esteem	Increased youth future expectations, increased earning rates and job quality for males; decreased teen pregnancy; increased social and personal competencies (combined measure of leadership, self-esteem, empathy, communication)	Ibarrarán, Ripani, Taboada, Villa, & Garcia (2012)  Card, Ibarrarán, Regalia, Rosas-Shady, & Soares (2011)
<b>PROJoven</b>	Vocational Training	12-17; 18-29 (targeted ages are 16-24)	Peru	<b>Achievement Motivation</b> -Mastery orientation (job skills)	Increased paid jobs, monthly earnings, and formal employment probabilities, especially for females and 16-20 year olds	Díaz & Jaramillo (2006)
<b>PROBECAT/SICAT</b>	Vocational Training		Mexico	<b>Achievement Motivation</b> -Mastery orientation (job skills)	Increased formal job employment, although increases were inconsistent	Delajara, Freije, & Soloaga (2006)
<b>Jóvenes en Acción (Youth in Action)</b>	Vocational Training	18-29	Colombia	<b>Achievement Motivation</b> -Mastery orientation (job skills)	Increased wages/salaried earnings, increased probability of paid employment; increased formal sector jobs	Attanasio, Kugler, & Meghir(2009)
<b>Training and</b>	Vocational	18-29	Jordan	<b>Achievement</b>	Giving girls a voucher	Groh, Krishnan,

<b>Wage Subsidy Program</b>	Training			<b>Motivation</b> -Mastery orientation (job skills)	increased employment in short-term only	McKenzie, & Vishwanath (2012)
<b>Deliberate Psychological Education</b>	Moral Education	18-29, 30+	USA	<b>Ethics</b> -Moral Reasoning	Increased “principled” reasoning; qualitative findings also support increased ethical decision-making	Schmidt, McAdams, & Foster (2009)
<b>Summer Service Learning Programs</b>	Service Learning	18-29, 30+	USA	<b>Ethics</b> -Moral Reasoning	Increased broad moral reasoning	Lies, Bock, Brandenberger, & Trozzolo (2012)
<b>Stepping Stones Program</b>	HIV/AIDS Prevention	12-17; 18-29	South Africa	<b>Teamwork</b> -Communication skills	33% reduction in herpes; decreased risk behavior in males only.	Jewkes, Nduna, Levin, Jama, Dunkle, Puren, & Duvvury (2008)
<b>Save the Children Malawi COPE (Community-based Options for Protection and Empowerment) Program</b>	Community-wide HIV/AIDS Prevention	**Ages not listed—targets children, families, and communities	Malawi	<b>Teamwork</b> -Communication and relationship skills <b>Ethics</b>	Increased community cohesion, awareness of HIV/AIDS, engagement in community participation	Hunter (2002)