What Does the Research Say on SEL and Equity?
Knowns and Unknowns in Meeting the Needs of Students from Historically Underserved Populations

JEREMY BURRUS, ALEX CASILLAS, NOLA DALEY, JILL MCVEY, & DANA MURANO[1]

Conclusions

Social and emotional learning is often cited as a means through which to improve equity outcomes for learners from historically underserved populations. A review of current research shows more research is needed to strengthen this claim and unpack the mechanisms through which equity-related outcomes can improve. This review uses Maslow's hierarchy of needs as a framework for organizing potential mechanisms for social and emotional skill development and, in the process, identifies several areas of research knowns and unknowns.

So What?

The research compiled in this review shows how social and emotional skills are intertwined with meeting the needs of all students, and particularly those from historically underserved populations. It is critical that scholars in the field of social and emotional learning fully understand these connections and further unpack causal mechanisms in order to develop solutions that can increase equity outcomes and help all students succeed.

Now What?

Interest in social and emotional learning has never been as high as it is now. And, interest in initiatives that emphasize diversity, equity, and inclusion may also be at an all-time high. It is imperative that we continue to emphasize conducting research and using the findings from research in our quest for improving equity through SEL.

About the Authors

Jeremy Burrus, PhD (he/his)

Senior Director

Alex Casillas, PhD (he/his/él)

Principal Research Psychologist

Nola Daley, PhD (she/her)

Research Scientist

Jill McVey, PhD (she/her)

Research Scientist

Dana Murano, PhD (she/her)

Research Scientist

Center Bio

All authors are part of the Center for Social, Emotional, and Academic Learning (SEAL) in ACT's Research division. The center conducts research on social and emotional skill assessment and development. With expertise across a broad range of psychological disciplines (clinical, educational, industrial-organizational, personality, social, quantitative, and experimental), the team is an active thought leader in the field of social and emotional learning. The team examines ways of improving the measurement and development of social and emotional skills across the elementary–workforce continuum, and has increasingly focused its research on topics that address the needs of students from historically underserved populations.

Introduction

In the early 1960s, research was conducted to examine whether high-quality early childhood education could improve the lives of Black children who were living in poverty and considered "at-risk" to fail in school (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010; Highscope, 2021). One hundred twenty-three children ages 3–4 from Ypsilanti, Michigan were randomly assigned to one of two groups. The first group took part in an immersive preschool experience at Perry Elementary School. The program included 2.5 hours of weekly academic instruction that emphasized active learning and home visits to parents. The second group, the control group, was not provided with any preschool education. Important life outcomes were measured throughout these students' adulthoods.

The results were encouraging. To provide a few examples, by the time the students were 40:

- 60% of Perry students (as compared to 40% of control students) had earned more than $200,000 in their lifetime.

- 77% of Perry students (as compared to 60% of control students) graduated high school.

- 38% of Perry students (as compared to 55% of control students) had been arrested 5 or more times (Highscope, 2021).

Furthermore, the rate of return to society for the Perry program has been estimated to be as high as 16% (Rolnick & Grunewald, 2003). This begs a question: what caused these positive effects? Because the program's central focus was on teaching skills to students, a reasonable assumption is that these effects were caused by skill improvement. But which skills?

Skills can be roughly divided into two categories: cognitive skills (skills used for knowledge acquisition, manipulation, and reasoning), and social and emotional skills. Social and emotional skills are interpersonal, self-regulatory, and task-related behaviors important for success (Casillas, Way, & Burrus, 2015). An initial assumption of the research was that the Perry program would have positive effects via an increase in intelligence, or IQ. Although program participants saw a larger increase in IQ than did control participants in the short term, this effect did not persist over time (Heckman et al., 2013). Not long after the study was complete, the difference in IQ between Perry students and control students was negligible. Thus, the long-term positive effects of the program cannot be attributed to IQ gains.

In contrast with findings on IQ, the Perry program did result in lasting improvements in social and emotional skills. For instance, the program reduced aggressive and anti-social behaviors (in all students) and increased academic motivation (in girls only; Heckman, Pinto, & Savelyev, 2013). Although the design of the study makes it difficult to definitively claim that improved social and emotional skills caused the positive outcomes, it does strongly suggest that this may be the case. It is also worth noting that the finding is consistent with a growing body of research evidence demonstrating positive effects for programs that teach social and emotional skills (e.g., Albert et al., 2020; Mahoney, Durlak, & Weissberg, 2018).

Importantly for the purposes of the current paper, the results of the Perry study suggest that, because improving social and emotional skills promoted positive outcomes for a group of students from historically underrepresented populations living in poverty, teaching these skills through social and emotional learning (SEL) programs might be a powerful tool for improving outcomes for a variety of learners from historically underserved populations. Students from historically underserved populations can be defined as those whose parents did not attend college; whose family income is less than $36,000 per year; or whose race/ethnicity is Black, Hispanic/Latinx, Native American, or Pacific Islander (ACT, 2018). This non-exhaustive definition does not capture all students who may identify as a member of a group that has historically or currently faced marginalization in traditional education spaces such as LGBTQ+ students and students with learning differences, disabilities, or special needs. As such, in our discussion below, we also include some of the more limited research involving these students who may also be considered underrepresented. In addition to experiencing more negative long-term outcomes than their more advantaged peers, these students also tend to have poorer academic outcomes. For example, compared to more privileged students, students from historically underserved populations tend to have lower standardized test scores (NAEP, 2016), lower levels of college and career readiness (ACT, 2018), and lower college graduation rates (e.g., Ishitani, 2006).

There are many reasons students from historically underserved populations are more likely to experience negative outcomes. Simmons and colleagues (2018) outline five barriers experienced by students from historically underserved populations that impede their academic and social and emotional development. These include:

- *Poverty*: children from low-income communities are more likely to grow up in poverty, which provides them with less access to resources such as high-quality healthcare, education, and safe and stable housing.

- *Exclusionary discipline practices and policies:* **students from historically underserved populations are more likely to be disciplined through suspension and expulsion from school, and students who are absent from school miss out on important academic, social, and emotional development opportunities.**

- *Lack of trauma-informed school practices:* **students from historically underserved populations are more likely to experience trauma than their more privileged peers. Trauma is associated with a host of negative outcomes, including lower academic achievement and reduced cognitive and social development (e.g., Park & Schepp, 2015). Programs can be put into place in schools that can help students deal with trauma, but such programs are rare or inconsistent in their implementation.**

- *Implicit bias in school staff:* **implicit biases are unconscious stereotypes and prejudices that can influence the way people interact with each other. Students from historically underserved populations are often subject to the implicit bias of adults that work in schools (e.g., Staats, Capatosto, Wright, & Contractor, 2015). These biases or "isms" can have a negative impact on academic achievement (e.g., Van den Bergh, Denessen, Hornstra, Voeten, & Holland, 2010).**

- *Educators' stress and burnout:* **educators report high levels of stress and burnout, which can lead to low teacher retention. Retention rates are lower at schools with a larger percentage of students of color and students from low-income communities (Carver-Thomas & Darling-Hammond, 2017). Students in schools with high teacher turnover rates are less likely to form strong relationships with teachers and more likely to have to learn from inexperienced teachers, potentially hindering both their academic and social growth.**

There is a growing belief that SEL is a key intervening variable in the relationship of these, and other, factors to important long-term outcomes for students from historically underserved populations (CASEL, 2021a). For example, reducing poverty can help promote conditions that help students develop social and emotional skills. Promoting social and emotional skills in educators can help reduce both their implicit bias and their level of stress and burnout. Later in this paper, we discuss the relationship of SEL to positive outcomes for students from historically underserved populations and possible mechanisms by which these effects occur. First, however, we define SEL in more detail below.

What is SEL?

Generally, most discussion of SEL centers on social and emotional skills. As stated above, social and emotional skills are interpersonal (e.g., empathy, teamwork), self-regulatory (e.g., emotion management, self-control), and task-related (e.g., work ethic, organization) behaviors important for success (Casillas et al., 2015). Social and emotional skills are not necessarily the same thing as SEL. The Collaborative for Academic, Social, and Emotional Learning (CASEL) defines SEL as, "The process through which all young people and adults acquire and apply the knowledge, skills, and attitudes…" (CASEL, 2021b, para. 1). Therefore, SEL is a **process** that teaches students social and emotional skills and improves knowledge and attitudes.

Importantly for the current paper, CASEL also states that, "SEL advances educational equity and excellence through authentic school-family-community partnerships to establish learning environments and experiences that feature trusting and collaborative relationships, rigorous and meaningful curriculum and instruction, and ongoing evaluation. SEL can help address various forms of inequity and empower young people and adults to co-create thriving schools and contribute to safe, healthy, and just communities" (CASEL, 2021b, para. 2). Thus, SEL is supported by additional factors such as positive school climate that fosters positive student identities and a sense of belonging. Because of this, in this paper we expand our discussion of SEL to include school climate, belonging, and identity.

Is SEL Important?

SEL is important for academic, work, and life success. For example, in school, social and emotional skills are related to academic performance at all levels of education, and it has been shown to be just as important as cognitive ability for performance in postsecondary education (Poropat, 2009). These skills are also related to fewer behavioral problems in middle and high school (ACT, 2021), better attendance in high school (ACT, 2021), increased high school graduation rates (Moore et al., 2016), and persistence in college (Allen & Robbins, 2008; Robbins et al., 2004). In the workplace, social and emotional skills are predictive of job performance (Barrick, Mount, & Judge, 2001) and job satisfaction (Judge, Heller, & Mount, 2002). These skills also predict additional important life outcomes such as happiness (Diener & Lucas 1999), health (Bogg & Roberts, 2004), and longevity (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Positive outcomes are not only associated with the skill component of SEL. For example, schools with positive school climate report higher academic performance than schools with more negative school climate (Allen, Way, & Casillas, 2019; Voight & Hanson, 2017). Furthermore, a strong sense of belonging to one's school and a sense

of connection to fellow students and teachers is related to academic performance, motivation, and lower dropout (Osterman, 2000; Pittman & Richmond, 2007).

Can SEL be Taught?

Several meta-analyses (studies that statistically combine the results of many individual studies into one general finding) have now concluded that programs that aim to teach SEL are effective at improving social and emotional skills, improving attitudes, promoting positive social behaviors, decreasing conduct problems, decreasing emotional distress, and improving academic performance (Mahoney et al., 2018). Furthermore, meta-analyses of follow-up studies have shown that these effects persist over long periods of time (Sklad, Diekstra, de Ritter, Ben, & Gravesteijn, 2012; Taylor, Oberle, Durlak, & Weissberg, 2017).

Additionally, there are examples of interventions from the literature that work well for students from historically underserved populations and promote equity. Yeager and colleagues (2019) conducted a nationally representative intervention on growth mindset (the belief that talent and skills can be grown) that demonstrated an increase in growth mindset and improved course grades for lower-achieving students in an online intervention that took less than an hour to complete. Similarly, short interventions that improve students' from historically underserved populations sense that they belong at school have been shown to improve academic outcomes (e.g., Walton & Wilson, 2018). For instance, a simple intervention in which Black college students read stories from older students that indicated that these students had felt similar doubts when they were younger led these students to have better college grades three years later (Walton & Cohen, 2011).

Why Focus on Students from Historically Underserved Populations?

It has become increasingly clear these historically underserved populations require special consideration when discussing educational services and programming. These students face significant barriers throughout the K–20 education pipeline, including a variety of systemic and institutional barriers, such as under-resourced schools, lack of cultural capital, knowledge, and family resources, limited access to experienced/tenured teachers, limited access to counseling due to low counselor-student ratios, and less access to rigorous college-preparatory courses (Mudge & Higgins, 2011; Walker & Pearsall, 2012). We know that addressing the needs of these learners is a pressing need in our current educational system; more than 50% of students in K–12 classrooms belong to a racial/ethnic minority group in a survey conducted in 2014 (EdWeek, 2014), and this "majority minority" trend will continue. Recent estimates by the National Center for Education Statistics reveal that White

students make up approximately 47% of school-age children, with Hispanic/Latinx students comprising the next largest portion at 27% (NCES, 2021).

In addition to systemic and instructional barriers, exposure to discrimination and microaggressions is a fact of life for many learners, particularly for youth of color. These experiences can take many forms and may include treating youth rudely or disrespectfully, calling them names or harassing them, following them and treating them suspiciously, acting as though one is afraid or intimidated by them, speaking to them in a condescending manner, and ignoring their requests or needs (Sue et al., 2007). In education, discrimination often shows up as educators having lower expectations for students from historically underserved populations (Umaña-Taylor, 2016, Rivas-Drake et al., 2014). In fact, research has noted that the prevalence of ethnic and racial discrimination appears to increase during adolescence relative to childhood, and increasing discrimination as students age is reported among many racial/ethnic groups, including Black, Hispanic/Latinx, Asian American, and Native American youth (Umaña-Taylor, 2016; Rivas-Drake et al., 2014). Further, research has noted that more exposure to discrimination in adolescence is related to a host of negative social, emotional, and health outcomes, including obstacles to ethnic identity development, stereotype threat, lower self-esteem, more difficulty managing emotions, increased stress, more conduct problems, and a higher risk for physical and mental health problems (for a list of representative studies, see Table 1 in Umaña-Taylor, 2016). It is important to note that, while much of the above literature focuses on students of color, discrimination in educational settings impacts other historically marginalized populations as well, including LGBTQ+ students (e.g., AERA, 2013; Payne & Smith, 2012) and students with disabilities (e.g., AERA, 2013; Baumeister, Storch, & Geffken, 2008).

The Role of SEL in Equitable Education

There is a growing belief that SEL is a crucial factor for important long-term outcomes for students from historically underserved populations (e.g., Jagers, Rivas-Drake, & Williams, 2019; Osher et al., 2020). For example, reducing poverty can help promote conditions that help students develop social and emotional skills (see SEL and Physiological Needs section below). Promoting social and emotional skills in educators may also help reduce both their implicit bias and their level of stress and burnout. Importantly for the current paper, CASEL states that, "SEL advances educational equity and excellence through authentic school-family-community partnerships to establish learning environments and experiences that feature trusting and collaborative relationships, rigorous and meaningful curriculum and instruction, and ongoing evaluation. SEL can help address various forms of inequity and empower young people and adults to co-create thriving schools and contribute to safe, healthy, and just communities." (CASEL, 2021b, para. 2). Thus, SEL is

supported by additional factors such as positive school climate that fosters positive student identities and a sense of belonging.

Despite the fact that SEL should logically be especially beneficial for students from historically underserved populations, research on whether it actually does is scarcer than one might think. A recent review of 242 research articles published since 2008 that focused on SEL interventions for elementary school found an alarming lack of attention to subgroup differences (Cipriano, Naples, Eveleigh, Rappolt-Schlichtmann, & Cook, 2021). For example, only 26% of studies analyzed outcomes by race/ethnicity, and only 10% of studies reported intervention efficacy as a function of race/ethnicity. This demonstrates a need to further review the existing research literature on where SEL might, and might not, have a positive impact on students from historically underserved populations, and perhaps an even larger need to conduct additional research examining these issues.

Maslow's Hierarchy of Needs as a Framework for Understanding how SEL can Promote Equity

While momentum in the belief that SEL can be used to promote equity is growing, a question that remains is **how**? Through what mechanisms can SEL be leveraged to promote equitable outcomes for learners from historically underserved populations, and what needs are SEL practices meeting? We use Maslow's hierarchy of needs (1943) as a framework to organize our discussion on how social and emotional skills can be developed equitably and how SEL programs can promote equitable outcomes.[2] It is important to note this framework was derived anecdotally with little empirical support for the hierarchical structure of these needs (Wahba & Bridwell, 1976). That is, one may still be able to achieve psychological needs, or other needs at higher levels of the hierarchy, even if they have modest control over their basic needs being met (Tay & Diener, 2011). However, it is clear that needs at each level of the hierarchy are important, and the framework can be used to conceptualize and illuminate connections between SEL and equity issues. We also discuss how culture fits into this framework and the importance of justice, equity, diversity, and inclusive (JEDI) informed practices in promoting equity in Appendix A.

Maslow's Hierarchy of Needs

Maslow (1943) proposed a theory for human motivation, which states that human behavior is driven by an individual's desire to fulfill various needs. The theory arranges needs hierarchically so that the most basic needs are included on the bottom of the hierarchy. Below, we explain each level of the hierarchy, and a graphical presentation of the hierarchy is displayed in Figure 1.

Figure 1. Maslow's Hierarchy of Needs (1943)
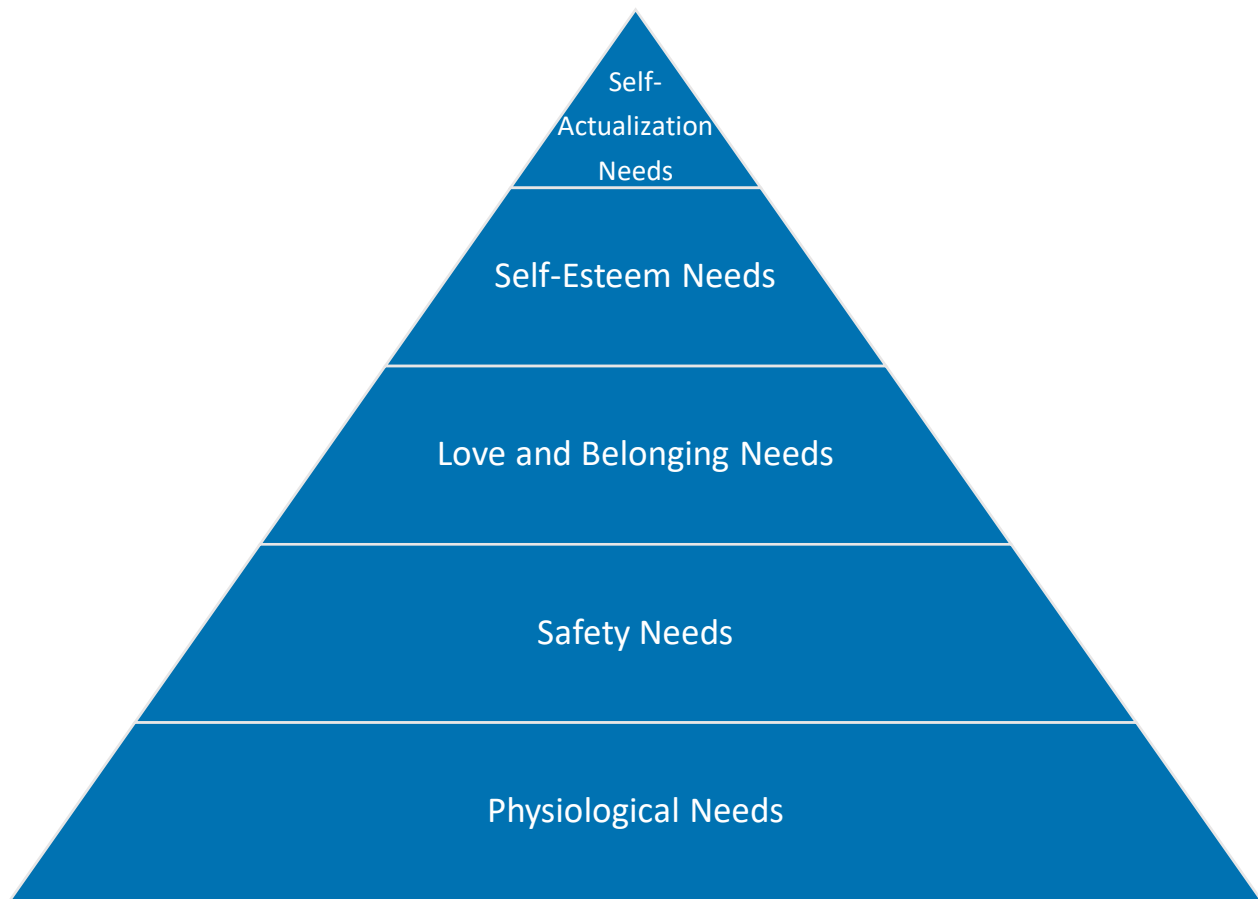
Physiological Needs

Physiological needs include food, water, moderate temperature, and sleep. Deprivation of these resources over time can lead to severe physical distress and even death. As such, Maslow considered these the most basic needs for human motivation. As he stated, "Undoubtedly these physiological needs are the most prepotent of all needs" (Maslow, 1943, p. 373). These needs are placed at the bottom of Maslow's hierarchy, signifying that fulfilling these needs is a prerequisite for fulfilling more advanced needs. For example, trying to focus during class would be difficult for a student who is experiencing hunger pains or is having trouble staying awake. Consistent with this point, several reviews and meta-analyses have found that household food insecurity negatively affects early childhood development, including academic performance (Cook & Frank, 2008; de Oliveira et al., 2020; Pérez-Escamilla & Vianna, 2012; Shankar, Chung, & Frank, 2017). Similarly, better sleep quality is associated with better school performance (for a meta-analysis, see

Dewald, Meijer, Oort, Kerkhof, & Bögels, 2010; for a systematic review, see Hayes & Bainton, 2020).

Safety Needs

The second level of Maslow's (1943) hierarchy entails safety and security needs. Safety needs include concrete (e.g., shelter, protection from physical harm) and abstract psychological (e.g., having someone to rely on for help, a feeling of stability in life) components that contribute to an individual's overall need for safety (Taormina & Gao, 2013). In this paper, we focus on three components of safety needs: physical, emotional, and financial. Physical safety entails feeling safe and free from danger or the risk of harm at home, within the broader community, or at school. Emotional safety refers to a sense of safety felt within the context of relationships with others. These can be peer-peer relationships, student-teacher relationships, or child-caregiver relationships. Financial (or economic) safety entails a household income sufficient to give individuals and their families the ability to live comfortably, secure housing and access to basic needs such as transportation and food, and attain desired levels of education and other affordances.

Love and Belonging Needs

Under Maslow's hierarchy, love and belonging needs form the third level of the pyramid (Maslow, 1943). This level of the hierarchy is the first of two levels that include primarily psychological needs that people have before they can achieve self-actualization. This level includes feeling loved by others and being able to love in return within the contexts of various platonic and non-platonic relationships. Importantly for the context of education, it includes building relationships and the feeling that you belong and that you are accepted by others as you are.

Self-Esteem Needs

The fourth level of Maslow's hierarchy, and the step before the final level of self-actualization, is esteem needs (Maslow, 1943). Self-esteem is simply defined as "how much value people place on themselves" (Baumeister et al., 2003, p. 2). High self-esteem signifies a highly favorable evaluation of oneself, while low self-esteem signifies an unfavorable definition of oneself. As described by Baumeister et al. (2003), "self-esteem is thus perception rather than reality. It refers to a person's belief about whether he or she is intelligent and attractive, for example, and it does not necessarily say anything about whether the person actually is intelligent and attractive" (p. 2). Given this more recent work showing that self-esteem is not always related to positive outcomes (e.g., Baumeister, Campbell, Krueger, & Vohs, 2003) and the fact that earlier "self-esteem" movements are now considered failures due to null results (e.g., Finn & Hess, 2019), in the current paper, we frame esteem needs as relating to academic self-efficacy, or the belief that one can successfully learn and complete educational tasks. While self-esteem and self-efficacy are related, self-

esteem is more about our judgements about who we are, while self-efficacy is how well we believe we can perform a task in a specific context, such as school, and is a better predictor of performance (Lane et al., 2004). Studies have demonstrated that academic self-efficacy helps predict academic achievement (Weiser & Riggio, 2010) and school satisfaction (Huebner & McCullough, 2000), making it an important piece to consider when thinking about equity in education.

Self-Actualization Needs

Self-actualization needs are placed at the top of Maslow's hierarchy. Maslow described the process of meeting self-actualization needs as, "...the desire to become more and more what one is, to become everything that one is capable of becoming" (Maslow, 1943, p. 382). In other words, self-actualization needs refer to the need for self-fulfillment and the realization of potential. Individuals who have these needs met can actively develop their skills and abilities. For this reason, we posit that learning and the development of social and emotional skills can help individuals become one step closer to reaching self-actualization or their true potential. When individuals have basic and psychological needs met, they can work toward both intellectual, academic, and personal growth; learn new skills; and explore new interests. Individuals who have these needs met also accept themselves despite their limitations and can develop deep and loving relationships with others. Consistent with this view, research has found positive correlations between self-actualization and measures of greater mental health and personal growth (Compton, 2018).

Below, for each hierarchy level, we describe the research on how students from historically underserved populations specifically are less likely to have their needs met, thus resulting in less equitable educational opportunities. When applicable, we explain ways in which fulfilling these needs helps to develop **social and emotional** skills and when SEL practices can help meet these needs to promote equity. Additionally, we point out gaps in the research literature where more research is needed. Our goal is to highlight where SEL is meeting the needs of students from historically underserved populations, through which mechanisms, and where more research is needed to establish these connections.

Needs, Historically Underserved Populations, and SEL: What does the Research Say?

Physiological Needs and Historically Underserved Populations

Students from historically underserved populations are less likely to have their physiological needs met, in part due to the fact that they experience greater rates of poverty. Rates of poverty are higher for those whose race/ethnicity is Black or Hispanic/Latinx in comparison to White (Semega, Kollar, Shrider, & Creamer, 2020). Further, of the households with children in the United States, 57% of Black and 50%

of Hispanic/Latinx households were living in net-worth poverty in 2019 (i.e., total household assets minus debts, Gibson-Davis, Keister, & Gennetian, 2021). Rates of poverty are also higher among families supporting a child with an intellectual or other disability (Emerson, Shahtahmasebi, Lancaster, & Berridge, 2010; Spencer, Blackburn, & Read, 2015). As described above, living in poverty reduces access to resources, and this lack of resources may lead to deprivation of physiological needs. Consistent with this possibility, rates of food insecurity (e.g., being unable to afford balanced meals, being hungry due to lack of food) are higher for lower-income households (Nord, Andrews, & Carlson, 2009). Rates of food insecurity are also higher for people of color (Bruening, MacLehose, Loth, Story, & Neumark-Sztainer, 2012; Koh, Kaiser, Sweeney, Samadi, & Hyder, 2020; Nam, Huang, Heflin, & Sherraden, 2015; Nord et al., 2009). Additionally, rates of food insecurity are higher for families raising a child with disabilities in comparison to families who were raising a child without disabilities (Sonik, Parish, Ghosh, & Igdalsky, 2016).

In addition to greater food insecurity, sleep quality and duration may be disrupted for those from lower-income households and for ethnic/racial minorities. A review found White adolescents had a longer average sleep duration than Black and Hispanic/Latinx adolescents (Guglielmo, Gazmararian, Chung, Rogers, & Hale, 2018). Similar disparities for preschool-aged children from racial/ethnic minority groups were found in a systematic review (Smith, Hardy, Hale & Gazmararian, 2019). Additionally, a meta-analysis found that shorter sleep duration was associated with neighborhood socioeconomic status (SES; Tomfohr-Madsen et al., 2020). Further, children with an intellectual disability, attention deficit hyperactivity disorder, and/or autism spectrum disorder experience a higher prevalence of sleep disorders (Buckhalt, 2013). Finally, other disparities in the attainment of physiological needs exist. For instance, ethnic/racial disparities are found in lifetime homelessness and access to services for clean drinking water (e.g., MacDonald, DeFelice, Sebastian, & Leker, 2014; Patel, & Schmidt, 2017). LGBTQ+ youth are also more likely to experience homelessness (e.g., Fusaro et al., 2018; Morton et al., 2018).

SEL and Physiological Needs: What do we know from the research?

Deprivation of physiological needs is associated with various negative behavioral and emotional outcomes. For instance, experiencing hunger or thirst in the short term has been shown to increase the likelihood of dishonest behavior (e.g., a thirsty game participant cheating to win a prize of a bottle of water; Williams, Pizarro, Ariely, & Weinberg, 2016). In adolescence, insufficient sleep is associated with a greater likelihood of risk-taking behavior such as drug use and violent behavior (Short & Weber, 2018). More severe sleep deprivation (five hours or less) is also associated with more of these types of behaviors (Meldrum & Restivo, 2014). Sleep deprivation and food insecurity are also associated with lower self-control, which is related to delinquency (Jackson, Newsome, Vaughn, & Johnson, 2018; Meldrum, Barnes, & Hay,

2015). In addition, poor sleep quality is also related to aggression and mood deficits such as lower positive moods, greater anger, depression, negative affect, and anxiety (Short, Booth, Omar, Ostlundh, & Arora, 2020; Van Veen, Lancel, Beijer, Remmelzwaal, & Rutters, 2021). Similarly, sleep disruption and household food insecurity are associated with emotional regulation problems (Palmer & Alfano, 2017; Shankar et al., 2017). Further, food insecurity and poverty have been linked with mental illness in children and adolescents (Perez-Escamilla & de Toledo Vianna, 2012; Peverill et al., 2021).

In addition to these behavioral and emotional outcomes, deprivation of these needs has a negative impact on brain development. For example, childhood poverty is associated with changes in certain neural functions and structures implicated in executive function (McNeilly, Peverill, Jung, & McLaughlin, 2021; Olson, Chen, & Fishman, 2021). Additionally, lower childhood SES is associated with flatter growth slopes for all four lobes of the brain (Rakesh, Zalesky, & Whittle, 2021). Further, certain nutritional deficiencies are linked with impaired brain development (Prado & Dewey, 2014). These developmental changes may have implications for developing social, emotional, and academic skills. For instance, executive function includes a set of mental skills important for thinking and self-control. Additionally, the amygdala is important for emotional responses. Consistent with this possibility, a study found that changes in the functioning of the amygdala that are associated with childhood poverty are related to a greater sensitivity to social threat cues and a lowered sensitivity to positive social cues (Javanbakht et al., 2015).

In summary, deprivation of physiological needs is associated with negative behavioral and emotional outcomes and impaired development of certain neural structures and functions. These results suggest that fundamental needs must be met before we try to build a child's skills, regardless of whether those skills are academic or social and emotional.

SEL and Physiological Needs: Unknowns

The research reviewed above suggests that students who experience deprivation of their physiological needs may have impaired social, emotional, and academic skill development. Further, this risk is higher for students from historically underrepresented populations that experience greater rates of deprivation of these needs. Consistent with the potential impact on academic skills, research shows worse academic achievement for children who face deprivation of these needs (Cook & Frank, 2008; Dewald et al., 2010; Hayes & Bainton, 2020; de Oliveira et al., 2020; Pérez-Escamilla & Vianna, 2012; Shankar et al., 2017). However, research has yet to establish these same direct relationships between children who face deprivation of these needs and impaired development of social and emotional skills. Establishing this potential link is an important direction for further research, given the

importance of social and emotional skills to academic and life outcomes (Mahoney et al., 2018).

Given the likely impact of the deprivation of these needs on impaired social and emotional skill development, future research could aim to integrate SEL with organization and community-level interventions to address gaps in physiological needs and develop children's social and emotional skills. Given the gaps noted above, some potentially useful combinations may include SEL programming with food assistance programs, nutrition programs, housing assistance, and services for clean drinking water. These interventions could help ensure all children have their physiological needs met. With these needs met, children will likely be able to better focus on developing their social and emotional skills during programming targeting these skills. Family members may also benefit from these interventions and thus have more capacity to engage with their children in SEL. However, these possibilities await direct empirical evaluation.

Safety Needs and Historically Underserved Populations

As discussed previously, safety needs include not only concrete needs such as shelter and protection from harm, but also abstract needs, such as having someone to rely on and a sense of stability in life. In this section, we focus on three specific aspects of safety: physical, emotional, and financial.

When considering physical safety needs, students from historically underserved populations, particularly those coming from low-income households, are more likely to live in communities with higher crime rates (Harrell, Langton, Berzofsky, Couzens, & Smiley-McDonald, 2014; Stolzenberg, Eitle, & D'Alesio , 2006), which limits physical safety needs being met. Furthermore, youth living in communities with high rates of violent crime and limited educational and economic opportunities are at greater risk of having adverse childhood experiences (ACEs; CDC, 2021). ACEs are negative experiences such as neglect, experiencing or witnessing violence, and physical and emotional abuse that are predictive of various negative outcomes in adulthood, such as substance abuse, depression, and other poor mental and physical health outcomes (Felitti et al., 1998). In the seminal CDC-Kaiser ACE study (Felitti et al., 1998), Black and Hispanic/Latinx children experienced more ACEs than their White peers, which were attributed to social and economic conditions of the communities in which they lived. In addition to ACEs, low-income and Black children are also more likely to experience toxic stress during childhood (Jiminez et al., 2016). Toxic stress can occur when children are consistently exposed to adversity, such as physical or emotional abuse, exposure to violence, or financial hardship (Shonkoff et al., 2012). When children experience toxic stress, the neurological stress response system is altered, and brain development can be impacted. Experiencing more toxic stress in childhood can have negative impacts on physical and mental health throughout the lifespan (National Scientific Council on the Developing Child, 2014). Taken together,

this suggests that, as a result of limited physical safety, students from historically underserved populations are at higher risk for experiencing ACEs and toxic stress in the environments in which they develop.

School is another environment where physical safety needs manifest for students from historically underserved populations. Students from low-income communities showed higher risks of perceiving their school as being unsafe (Hong & Eamon, 2012), and Black and Hispanic/Latinx students are also more likely to report feeling unsafe in school than their White or Asian peers (Lacoe, 2013). Gender non-conforming and LGBTQ+ also typically feel unsafe at school, both in terms of physical and emotional safety (e.g., Birkett, Russell, & Corliss, 2014; Hazel, Walls, & Pomerantz, 2019; Olsen, Kann, Vivolo-Kantor, Kinchen, & McManus, 2014).

Students from historically underserved populations also typically experience less financial safety. A contributing factor is that students from historically underserved populations tend to have lower rates of postsecondary readiness and completion (ACT, 2016). This can be a long-term barrier to achieving financial security given that postsecondary degree attainment is associated with higher lifetime earnings (e.g., Shambaugh, Bauer, & Breitwiess, 2018). The Bureau of Labor Statistics states that median weekly earnings for Black ($799) and Hispanic/Latinx ($779) workers were substantially lower than those of White ($1,012) and Asian workers ($1,281; U.S. Department of Labor, 2021), further demonstrating barriers to achieving financial safety.

SEL and Safety Needs: What do we know from the research?

When considering physical safety needs, research demonstrates that children experiencing ACEs or toxic stress in childhood show poorer social and emotional outcomes. In a recent study, the number of ACEs experienced by children ages 5–12 accounted for the most variance in social and emotional competence, with children experiencing a higher number of ACEs, demonstrating lower social competence and a higher number of behavioral problems (Ray et al., 2020). Similar evidence exists for the impacts of toxic stress on social and emotional development. In particular, self-regulatory capabilities are negatively impacted by hormone and neural abnormalities affected by exposure to toxic stress (Branco & Linhares, 2018). Black children who experience toxic stress disproportionally also demonstrate higher ratios of attention problems in the classroom (3:1), social problems (2.5:1), and aggression and rule-breaking (2.5:1) compared to children who had not experienced toxic stress (Morsy & Rothstein, 2019). Experiencing ACEs and/or toxic stress can be considered trauma. For children who have experienced trauma, typical social and emotional skills are overwritten by a trauma-response activation, which manifests in

behaviors such as acting defiantly, shutting down, and struggling to form relationships and set boundaries (Cook et al., 2005).

Although a lack of physical safety in a child's environment can contribute to poorer social and emotional outcomes, there are aspects of emotional safety related to SEL that have been identified as protective factors in adverse home environments. In seminal work on the development of resilience in at-risk children, the strongest protective factor in students' lives was having a positive attachment relationship formed with a caregiver or other trusted adult (Masten & Coatesworth, 1998; Masten, 2018). Secure attachment relationships with safe, supportive adults are also cited by the Centers for Disease Control and Prevention (CDC) as protective factors against a child experiencing ACEs (CDC, 2021). These types of relationships are also cited as factors that can improve a child's responses to adverse situations, particularly when children have been impacted by the effects of toxic stress (Shonkoff et al., 2012). This research makes clear that relationships, specifically strong caregiver-child relationships, can be protective factors and promote healthy development.

Given that healthy relationships can serve as protective factors when children experience adversity, SEL programming has been implemented with parents in efforts to improve caregiver-child relationships, caregiver social and emotional and parenting skills, and positive social and behavioral outcomes in young children (see Bierman & Motamedi, 2015). Research supports the efficacy of parent SEL programs; they typically show small–moderate effects on student social and emotional outcomes, with larger effects when intervention programming was implemented with students with social or behavioral issues (e.g., Murano, Sawyer, & Lipnevich, 2020). Meta-analytic data also show that parent training programs aimed at increasing positive parent-child interactions and emotional communication skills showed the largest effects in reducing child behavior and adjustment problems when compared to other target parent skills (Kaminski, Valle, Filene, & Boyle, 2008). Taken together, results are promising that SEL programming geared toward parents can improve relationships and child outcomes and mitigate the impacts of adversity experienced during childhood.

SEL can play a similar protective role in school environments. We know that students from historically minoritized groups, whether that be through race/ethnicity, economic, or gender status, typically feel less safe at school. School climate plays a pivotal role in improving students' sense of physical and emotional safety in school. School climate includes many factors that are key for learning and development— emotional and physical safety, connectedness, respect, engagement, and challenge (Berg et al., 2017). A recent meta-analytic review shows that positive school climate correlates positively with school safety and ought to be considered a main factor in school improvement efforts (Bradshaw, Cohen, Espelage, & Nation, 2021). School climate is also associated with other positive outcomes that are related

to physical and emotional safety. In schools with more positive school climate ratings, there are less instances of bullying and aggression occuring between students (Espelage et al., 2014; Turner et al., 2014). School climate also relates positively with student self-esteem (Allen et al., 2019) and positive psychosocial adjustment (Brand et al., 2008). A positive school climate can also serve as a protective factor when students have experienced ACEs or toxic stress (Darling-Hammond & Cook-Harvey, 2018). For example, students who have experienced trauma benefit from predictable school routines, which promote a sense of safety (Blaustein & Kinniburgh, 2018).

The need for emotional safety at school can also be met through relationships between students and teachers. Seminal work by Hamre and Pianta (2001) illustrates the importance of teacher-student relationships for students' positive outcomes. The quality of teacher-child relationships in kindergarten predicted behavior and academic outcomes through the end of students' 8th-grade years, with higher-quality relationships showing more positive outcomes. In contrast, conflict and dependency in relationships was associated with later discipline problems and declining academic performance. Positive teacher-student relationships are the foundation of warm, positive classroom environments and also serve to promote student social and emotional skill development (Schonert-Riechl, 2017). Just as relationships with caregivers are important for positive student development, so are relationships with teachers.

As mentioned previously, financial security becomes more relevant as individuals age and become responsible for securing their own living. Social and emotional skills first contribute to obtaining financial security through the pathway of academic success and educational attainment. In K–12 settings, meta-analyses show students who participated in SEL programming demonstrated improved academic performance (Corcoran, Cheung, Kim, & Xie, 2018; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Furthermore, social and emotional skills are also associated with academic performance and retention in postsecondary settings (Robbins et al., 2004; Robbins, Oh, Le, & Button, 2009). Students who complete college earn more throughout their lifetime compared to students with only high school diplomas (e.g., Tamborini, ChangHwan, & Sakamoto, 2015), which suggests that financial security may be more attainable for those with four-year and graduate degrees. Furthermore, social and emotional skills are positively related to higher lifetime earnings (Chernyshenko, Kankaraš, & Drasgow, 2018). Last, studies show that social and emotional skills are desirable to employers, and the need for social and emotional skills in the workforce will continue to grow (Bughin et al., 2018). Taken

together, these findings show that social and emotional skills can prepare students to succeed in the workforce and potentially help them achieve financial security.

SEL and Safety Needs: Unknowns

When considering the three components of safety needs, SEL can positively contribute to attainment of physical, emotional, and financial safety needs dynamically from early childhood to adulthood. While SEL is clearly tied to meeting safety needs in these areas, there remain unknowns and areas that could benefit from further research.

First, more research is needed surrounding programming designed to improve child-caregiver relationships when children have experienced ACEs or toxic stress. Longitudinal studies examining the impact of caregiver SEL programming on outcomes such as substance abuse and health issues in adulthood could strengthen the claim that relationships can serve as protective factors. Furthermore, more outcomes could also be considered in research looking at caregiver training programs. For example, could the number of ACEs decrease from a first to second child following an SEL intervention aimed at strengthening relationships? Similarly, could a community see lower toxic stress exposure over time when SEL programming is consistently provided for parents with young children? Studies such as these could determine whether SEL could ultimately reduce the prevalence of traumatic events and environments for children, rather than just give parents tools to mitigate the impacts of trauma once it has occurred.

Related to school climate, countless researchers, practitioners, and organizations posit that school climate improvement efforts can benefit students and offer research-based recommendations to improve school climate (e.g., AIR, 2021; Caskey, Cerna, Hanson, Polik, & Van Houten, 2016; Darling-Hammond et al., 2018; Elias, DeFini, & Bergmann, 2010; Osher, Kirdon, & DeCandia, 2016). More work is needed to establish the efficacy of many of these strategies and the effects they have on teachers, students, and school climate factors within the school. Additional research could also be conducted when considering the relationship between school climate, social and emotional skills, and SEL programming. Results from a recent study suggest that implementing SEL programming can improve school climate (e.g., Baumsteiger et al., 2021), and moreover, that climate improvements happened following teacher professional development focused on SEL, even prior to implementation with students. However, more research is needed to replicate and strengthen the knowledge base on the effects of SEL programming on school climate, how the development of student and teacher social and emotional skills contributes to a school's climate, and on the efficacy of specific strategies that are intended to improve aspects of school climate. Experimental studies employing randomized control trial (RCT) designs would be beneficial in this area, particularly if

they can serve to identify specific strategies that are most effective in improving outcomes for students from historically underrepresented groups.

Similarly, more research is needed to determine the efficacy of trauma-informed instructional approaches and programs. Trauma-informed practices are cited as means through which educators can help improve outcomes for children who have suffered trauma, which are disproportionally children of color and those who are economically disadvantaged (e.g., Morsy & Rothstein, 2019; Pawlo, Lorenzo, Eichert, & Elias,, 2019). Trauma-informed approaches have demonstrated efficacy in a variety of contexts ranging from the treatment of victims of domestic violence (Sullivan et al., 2018), social work practice (Wilson et al., 2016), and children in the foster care system (Lotty et al., 2020). However, research does not yet fully support the efficacy of trauma-informed practices in schools on student outcomes. Several recent studies do support the efficacy of trauma-informed professional development on teacher attitudes and behavior management (Dorado et al., 2016; McIntyre et al., 2019). However, student outcomes should be considered in future studies, including social and emotional outcomes, behavioral outcomes, academic performance, and longitudinal outcomes such as substance abuse and health issues in adulthood.

Lastly, more research is needed to unpack the relationship between social and emotional skill development and financial security. On one hand, much of the evidentiary basis for the relationship between social and emotional skills and labor market outcomes is correlational in nature. To our knowledge, no studies exist that longitudinally examine the impact of social and emotional programming on earnings or financial security. Furthermore, and as highlighted by a cost-benefit analysis (Belfield et al., 2015), our ability to compute the economic value of social and emotional skills is limited to how social and emotional skills are mediated by higher educational attainment. It is plausible that other schoolwide effects such as school climate or school quality can contribute to economic gains resulting from SEL programming, both for individuals and for societal outcomes.

Love and Belonging Needs and Historically Underserved Populations

Though the need to belong is a universal human experience and belonging in school is important academically and personally, students from historically underserved populations may encounter unwelcoming environments and find it difficult to feel that they belong in school. While as a nation we have made progress toward inclusivity in education, such as the Brown vs. Board of Education supreme court decision in 1954 and the passage of Individuals with Disabilities Act (IDEA) in 1975, in practice, these actions did not ensure that all students had access to equal educational opportunities (Dudley-Marling & Burns, 2014; Marshall, 2019). Today, many schools that serve primarily students of color continue to have fewer resources than schools serving primarily White students. One study estimated that in the 2015–16 school year, the overall disparity in funding in the United States between schools

that served primarily students of color and schools that served primarily White students was a staggering $23 billion dollars per year, favoring primarily White districts (Knoff, 2019).

The unequal nature of educational opportunities is important when examining school belonging because students from historically underserved populations may be viewed through a deficit lens, or the view that the primary reason for systemic issues like school problems or academic failures is because of the students' own shortcomings (Ford, 2014; Marshall, 2019), something that does not cultivate a sense of acceptance or respect. Some researchers have suggested that due to the stigmatization and marginalization of underserved populations in school, individuals who identify with these groups may feel "belonging uncertainty" and feel less sure that they are able to be accepted and included in such spaces (Walton & Cohen, 2007). Students who identify as LGBTQ+ are also more likely to feel uncertain of their belonging in school and often face increased levels of harassment and bullying from peers (AERA, 2013; Poteat, Mereish, DiGiovanni, & Koenig, 2011).

In addition to feeling uncertain about being accepted in the school environment, students from underserved populations may also face other barriers to feeling a sense of belonging at school. Intentional or not, many learning spaces are designed with a certain type of learner in mind: White (Alim & Paris, 2017), middle or upper class (Condron & Roscigno, 2003; McCrory Calarco, 2020), neurotypical (Smagorinsky, 2020), and in some spaces, male (Nguyen & Ryan, 2008). In practice, this means that school often serves to reinforce and prioritize one culture over others, which can be alienating for students who do not identify with the prioritized culture (Celeste, Baysu, Phalet, Meeussen, & Kende, 2019; Gorman, 2010). Additionally, educators are not immune from implicit bias and may have stereotypes about students from different backgrounds, which can impact the way they interact with students and lead to inequitable treatment and unfair disciplinary practices at school (Girvan, Gion, McIntosh, & Smolkowski, 2017).

SEL and Belonging Needs: What do we know from the research?

School belonging is the "extent to which students feel personally respected, accepted, included, and supported by others in the school social environment" (Goodenow, 1993, p. 80). This concept has shown to be important to both school outcomes and student well-being. A recent meta-analysis underscored the importance that school belonging has on academics. Academic achievement, motivation and engagement, and self-efficacy were positively correlated with belonging, whereas absences and dropout were negatively correlated with belonging (Korpershoek et al., 2020). School belonging has also been shown to positively correlate with well-being (Arslan, 2018; Jose, Ryan, & Pryor, 2012). Positive relationships with others in the school environment is an important way in which SEL can help develop a sense of belonging for students. Research has demonstrated

that strong student-teacher relationships are related to a number of positive outcomes, such as improved grades and work habits (Hamre & Pianta, 2001), engagement and persistence (Noble, Heath, Krause, & Rogers, 2020), and motivation and belonging (Crouch, Keys, & McMahon, 2014; Scales, Van Boekel, Pekel, Syvertsen, & Roehlkepartai, , 2020). Notably, these associations are also strong for students from historically underserved populations (Decker, Dona, & Christenson, 2007; Scales et al., 2020).

Providing professional development opportunities for teachers related to building relationships and SEL can help teachers promote students' sense of school belonging. One promising study examined the impact of a student-teacher relationship intervention that was built using best practices (e.g., spending individual time with students, expressing high expectations, providing positive feedback) and also had a focus on equity; teachers were trained on implicit bias and learned strategies to improve equitable relationship building (Gaias et al., 2020). Students in this study experienced increases in belonging, prosocial behavior, and decreases in problem behavior, and these effects were largest for students of color.

Additionally, research has shown that when teachers are trained to understand social processes and group dynamics, they can increase students' feelings of school belonging and inclusion and help facilitate cross-group friendships (Juvonen, Lessard, Rastogi, Schacter, & Smith, 2019). Another study found that when teachers were trained to identify which students were more likely to be bullied, this intervention served as a protective factor for bullied students (Norwalk et al., 2016), and as a result, these students had higher levels of school belonging than students whose teachers were not aware that they were being bullied.

Peer relationships are also important to school belonging (Keifer et al., 2015), and in secondary school, may be more important to school belonging than teacher-student relationships (Gowing, 2019). SEL implementation has been shown to improve peer relations (Raimundo, Marques-Pinto, & Lima, 2013). In one study, students with disabilities who received SEL instruction were provided with strategies to intervene in bullying, and also demonstrated improved grades compared to students with disabilities who did not receive the instruction (Espelage et al., 2016). Higher levels of peer support and supportive school environments also helped to buffer LGBTQ+ students against some of the most harmful effects of harassment and victimization (Denny et al., 2016; Hatchel, Espelage, & Huang, 2018).

Interventions for students themselves have also shown success in increasing feelings of student belonging. In one study, researchers conducted a brief, one-hour intervention where new college students were taught to think of adversity they experienced in college as common and transient (Walton & Cohen, 2011). Students in this study, in both the intervention and control groups, were followed for three years. In addition to reporting higher levels of belonging on campus and higher GPAs,

Black students who received the intervention also reported higher levels of well-being and health than Black students in the control group, even three years after the intervention. As the authors wrote, "the intervention robbed adversity of its symbolic meaning for Black, untethering their sense of belonging from daily hardship" (Walton & Cohen, 2011, p. 1449). When the authors followed up with these students nearly a decade later, they found that students who had received the intervention reported higher levels of career satisfaction, well-being, and community involvement than students in the control group (Brady, Cohen, Jarvis, & Walton, 2020).

Lastly, in addition to explicitly teaching SEL to both educators and students, using culturally responsive education is a way to promote belonging at the school or classroom level. When students have the opportunity to connect with learning material and see themselves and their culture reflected in it, they are more likely to feel as though they belong at school (Alim & Paris, 2017; Gray, Hope, & Matthews, 2018). This also means that SEL should be taught with cultural responsiveness and the larger social context in mind, using strategies such as encouraging students to reflect on their identities, helping them develop social awareness, and examining what behavior means in different contexts to different people (Simmons, 2019).

SEL and Belonging Needs: Unknowns

As explored in the section above, we know that school belonging is an important concept that relates to a number of student outcomes. We also know that SEL can be used as a way to enhance student school belonging by improving relationships or shifting student mindsets. However, less well known is how factors like school belonging can influence the relative success of SEL interventions themselves. Given that we know that increased belonging is associated with higher academic achievement, it is possible that this benefit may also extend to SEL. In other words, students who have higher levels of school belonging may respond more favorably to other SEL interventions. School belonging and other SEL skills are likely related, but research is needed to understand to what extent they influence one another. Research should also be conducted on the relationship of belonging to outcomes for students with disabilities.

Additionally, some of the interventions that have shown promise at the postsecondary level have not yet been tested in different age groups of students. The one-hour intervention designed to normalize adversity at the college level showed promise; even years later, participants in the intervention group had better outcomes than those in the control group (Brady et al., 2020). Because the intervention required few resources, this study is something that could be potentially replicated at other levels of schooling, especially high school. Given the

positive effects this intervention had on Black students in particular, it could potentially be used to benefit other historically underrepresented populations.

Esteem Needs and Historically Underserved Populations

We would like to note that Maslow's hierarchy, while useful as a general organizing framework, is also somewhat dated when it comes to its lack of incorporation of research and events that have come since its development. This is especially the case for self-esteem. Research has since shown that higher self-esteem is not necessarily related to positive outcomes (e.g., Baumeister et al., 2003). The "self-esteem" educational movement of the early 1980s was largely a failure in that it resulted in neither gains in student self-confidence nor academic performance as it was intended to (e.g., Finn & Hess, 2019). Indeed, Finn and Hess (2019) warn SEL practitioners to take caution to not follow the mistakes of the self-esteem movement. If Maslow's hierarchy were to be updated today, we hypothesize that esteem needs would be reframed as "identity needs," including self-beliefs such as self-efficacy, stereotype threat, and growth mindset. Thus, we discuss those concepts below.

The development of self-efficacy begins early in life, but school also plays a role in its development, especially academic self-efficacy. Unfortunately, as students progress through school, these self-efficacy beliefs tend to decline (Schunk & Pajares, 2002). Research has found lower levels of academic self-efficacy in Black and Hispanic/Latinx students than in White students, while other studies have found that differences between groups is explained by differences in SES (Schunk & Meece, 2006). One study found that students who come from low-income households tend to have lower self-efficacy than students from high-income households and anticipate that they will earn lower grades (Wiederkehr, Darnon, Chazel, Guimond, & Martinot, 2015). The authors of this study believed that this reduced self-efficacy played a role in these students' academic performance. They wrote, "This differential level of self-efficacy in turn affected their mathematics performance, which might reinforce beliefs that low SES students do not have a sufficient level to perform in school, creating a sort of vicious circle" (Wiederkehr et al., p. 780). In other words, it's a self-fulfilling prophecy made possible because of the inequities present in society that are reflected in schools.

Stereotype threat, or the fear of confirming negative stereotypes about one's self-identified group (such as race/ethnicity, gender, etc.), may also impact student general and academic self-efficacy and performance (Nguyen & Ryan, 2008; Walton & Spencer, 2009). In research studies related to this concept, participants are generally presented with a stereotype about how a group with which they identify is supposedly less competent on a given task (e.g., girls are naturally not gifted in math) before asking participants to complete said task. When presented with this information, the individuals who identify with the stereotyped group tend to

perform worse than their past performance would suggest they should. The reasons for this could be due to several different processes, such as increased anxiety, negative thinking, and/or mind-wandering, all of which can impair working memory (Pennington at al., 2016). Research has also shown that students with disabilities tend to have lower levels of academic self-efficacy, and in one study, 85% of surveyed students had a negative academic self-concept, which is a more global view of one's ability to perform well in school (Kloomok & Cosden, 1994). One caveat on stereotype threat is that it has recently failed to replicate in experimental studies (Schimmack, 2017). More research is needed to further explicate where and when stereotype threat does, and does not, negatively impact students in real-world contexts.

Lastly, physiological and emotional states are important to consider related to academic self-efficacy in different learning situations. As Maslow's hierarchy makes clear, physiological and safety needs are foundational, so it makes sense that when these are threatened, so too is self-efficacy. Students from underserved populations may be particularly vulnerable to feeling stress related to learning events such as tests (Usher & Pajares, 2008). Another study noted students with Autism Spectrum Disorder (ASD) are more likely to experience stress at school and more likely to develop depression than neurotypical peers (Mackay, Shochet, & Orr, 2017).

SEL and Esteem Needs: What do we know from the research?

Stereotype threat may have a detrimental impact on students developing self-efficacy. Fortunately, there is research suggesting that even brief interventions related to this concept can have a big impact. One study with 7th graders, designed to replicate earlier work done by Cohen, Garcia, Apfel, and Master (2006) with college students, showed success at combatting stereotype threat through a short writing prompt designed as a way for students to affirm their beliefs and identities (Borman et al., 2021). These researchers found that Black and Hispanic/Latinx students who completed the affirmation exercise had significantly better outcomes than the control group, such as higher GPAs as well as increased on-time graduation rates years later.

Educators can also help students develop academic self-efficacy through additional SEL strategies and interventions. One study found that opportunities for high-quality collaboration (student-centered, culturally responsive activities where students felt respected) were associated with positive classroom experiences, increased engagement, and increased self-efficacy, particularly for students who identified as Black (Surr, Zeiser, Briggs, & Kendziora, 2018). Another study found success in increasing self-efficacy related to writing skills through the use of goal setting and reflection that promoted a growth mindset (Traga Philippakos, 2020). Providing opportunities for students to collaborate with one another in a supportive environment or teaching students strategies such as these are examples of

providing mastery experiences, one avenue of developing self-efficacy (Bandura, 1997).

Vicarious experience is another way in which students can develop self-efficacy (Bandura, 1997). Individuals are more likely to be influenced by someone they perceive to be like themselves. In addition to fostering belonging with students in school, it is important that curriculum and instruction provide positive examples of "like" individuals (another way in which culturally responsive pedagogy is beneficial). Curricula should also actively combat harmful stereotypes and biases. Research has shown that activating stereotype threat can create conditions for students to perform lower (Cohen & Garcia, 2005). However, interventions such as values-affirmation exercises can help to mitigate this effect and serve to improve students' self-perceptions (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009).

Similarly, related to verbal and social persuasion, educators should be aware of the harm that can occur through negative messaging to students, as it can be easier to diminish students' self-efficacy through negative messaging than to improve it through positive messaging (Britner & Pajares, 2006). While the types of negative messaging can vary, students who are persuaded that they will not be successful at something are more likely to give up when confronted with difficulty (Britner & Pajares, 2006). Conversely, teachers who create opportunities for students to see themselves as capable learners can boost student self-efficacy, particularly in students from historically underserved groups, such as Black students (Usher & Pajares, 2006).

Finally, although SEL interventions are not intended to treat depression, those designed to help students develop coping skills have shown promise in helping students with autism build social and emotional skills such as resilience (Mackay et al, 2017).

SEL and Esteem Needs: Unknowns

Though research studies have provided us with some strategies that work to help improve the academic self-efficacy of students from historically underrepresented populations, there are still several unknowns when it comes to self-efficacy and SEL. One area that has received little attention is how growth mindset impacts self-efficacy. Since having a growth mindset is a belief that one's talents and intelligence can be improved with effort (Dweck, 2016), it could stand to reason that improving a student's growth mindset could also improve their self-efficacy. Few studies examine the impact of growth mindset on self-efficacy, though one study examined this relationship in middle school special education students by measuring the impact that growth mindset had on students' motivation and self-efficacy related to reading (Rhew, Piro, Goolkasian, & Cosentino, 2018). In this quasi-experimental study, the treatment group received an intervention designed to increase students' use of

growth mindsets. Although the treatment group experienced increases in motivation, their self-efficacy did not change.

Another question related to this topic that may deserve exploration is whether or not academic self-efficacy is related to learning social and emotional skills, or if this is related more strongly with social self-efficacy, or beliefs about one's ability to initiate and maintain social relationships (Pastorelli et al, 2001). Given the importance that SEL has on student wellbeing, students' beliefs about their ability to learn and apply social and emotional skills could be important. Prior research has found that students from underserved populations, such as students with disabilities, tend to have both lower levels of academic and social self-efficacy (Hen & Goroshit, 2014). As such, this research could be particularly salient for historically underrepresented groups.

Self-Actualization Needs and Historically Underserved Populations

It is our view that academic and social and emotional skill development can help students achieve self-fulfillment and the realization of potential (i.e., self-actualization). As detailed previously, social and emotional skills are important for success in academics, work, and life (e.g., Bogg & Roberts, 2004; Diener & Lucas, 1999; Poropat, 2009). Core academic skills are also important predictors of success (Camara, O'Connor, Mattern, & Hanson, 2015). Unfortunately, due to historical policies and systemic barriers in the K–12 system, many children do not obtain an education that successfully develops their skills. As such, students can struggle with the transition to college and/or the workplace.

Opportunity gaps emerge early in childhood, with a greater likelihood of enrollment in preschool programs for White children versus Hispanic/Latinx children (McFarland, et al., 2019). These gaps persist as students progress in school as shown by scores on the National Assessment of Education Progress (NAEP) tests for math, science, and reading. These scores are higher for White students, well-funded schools, and native English-speaking students than for Black and Hispanic Latinx students, poorly funded schools, and English-learning students (McFarland, et al., 2019). Similarly, as measured by a standardized state test, math achievement is lower from 3rd to 7th grade for students with a disability than students without disabilities (Schulte & Stevens, 2015). High school dropout rates are also lower for White students and students without disabilities than Black, Hispanic/Latinx, Native American students, and students with disabilities (Hussar et al., 2020; McFarland, et al., 2019).

These opportunity gaps continue to persist as students progress to and through postsecondary education and into the workplace. For instance, postsecondary enrollment rates in 2016–2018 were higher for White students than for Black, Hispanic/Latinx, Native Hawaiian or other Pacific Islander, and Native American or Alaska Native students (McFarland et al., 2019; Hussar et al., 2020). Additionally, a higher percentage of students from families with lower SES left before they

completed a postsecondary credential than those from families with higher SES (McFarland et al., 2019). Job satisfaction also differs by race/ethnicity. For instance, a study found higher job satisfaction for White individuals than Black and Asian individuals while controlling for individual and job-specific characteristics (Hersch & Xiao, 2016).

SEL and Self-Actualization Needs: What do we know from the research?

One potential way to address these opportunity gaps in academic outcomes and support student development of SE skills is through SEL interventions. As mentioned above, evidence from a growing literature suggests these interventions can effectively enhance SE skills and other important outcomes, including academic achievement (for meta-analyses, see Corcoran et al., 2018; Durlak et al., 2011; Taylor et al., 2017).

In addition to the general benefits of SEL interventions, these interventions are beneficial for students from historically underserved populations (Payton et al., 2008). Consistent with this possibility, meta-analyses on SEL have included a large number of racially and ethnically diverse samples and found overall benefits of SEL interventions (Durlak et al., 2011 Sklad et al., 2012). Further, several meta-analyses have specifically examined the effects of SEL interventions with specific subgroups of students. These analyses found positive effects for studies that involved a majority of students from low SES families (Corcoran et al., 2018; Murano et al., 2020; Taylor et al., 2017), a majority of students of color (Murano et al., 2020; Taylor et al., 2017), or mostly Black students (Durlak et al., 2011).

Consistent with these meta-analytic findings, positive effects are found in studies directly examining SEL interventions with students from underrepresented groups. For instance, Jones and colleagues conducted a randomized experiment with 1,184 students from inner-city elementary schools in New York City. Most of these students were from households that were at or below 100% of the federal poverty level (61.8%), and most students were either Hispanic/Latinx (45.8%) or Black (41.3%). After two years of a universal, school-based SEL and literacy program, they found improvements across various domains for students in the intervention schools. For instance, socially competent behavior improved, aggressive interpersonal negotiation strategies decreased, and math and reading achievement improved for those identified as having the highest risk at baseline. The results of this study and other similar studies with diverse students (e.g., Albert et al., 2020; Bierman et al., 2010; Gunter, Caldarella, Korth, & Young, 2012) provide evidence that SEL programs may be an effective way to help students from historically underserved populations.

SEL and Self-Actualization Needs: Unknowns

As described above, gaps in educational attainment for students from historically underserved populations exist at all levels, including lower scores on standardized

tests measuring core academic skills. In contrast (and somewhat surprising given our review to this point), less research has focused on potential differences in social and emotional skills for underrepresented populations, and the results of prior studies are somewhat mixed. For instance, one study found no differences between children of color and White children in social competence on an initial baseline measure in pre-K and no difference in changes to social competence through the end of kindergarten (Barbarin, 2013). In contrast, another study found lower levels of social and emotional skills for 9th–12th-grade Hispanic/Latinx students than non-Hispanic/Latinx students before the students received an SEL intervention and following that intervention (Zhou, Padron, & Waxman, 2020). Further, a larger-scale study of 6th–8th-grade students found a more complicated pattern of results (Kuo, Casillas, Walton, Way, & Moore, 2020). In this study, at lower levels of SES, White students tended to have lower social and emotional skills than students of color. However, as levels of SES increased, the trend tended to reverse. Differences in the age groups examined across these studies make it difficult to draw conclusions, but these somewhat mixed results suggest gaps in social and emotional skills may be smaller than for typical core academic measures, and this possibility is consistent with prior research (Allen & Mattern, 2019).

Consistent with the idea of the use of SEL as a lever to promote equity, scholars have pointed to the potential for SEL interventions to have a greater impact on students from historically underserved populations than for students who are not from historically underserved populations. For instance, Rivas-Drake, Lozada, Pinetta, and Jagers (2020) have suggested positive identity development may follow from improvements to empathy and perspective-taking. Additionally, Reyes, Elias, Parker, and Rosenblatt (2013) suggest educator-student relationships may be improved by increasing student skills in managing and communicating emotional distress and conflict.

Despite these theoretical arguments, few studies have been designed to directly examine if SEL interventions result in **larger** benefits for students from historically underserved populations. This is highlighted by several reviews focused on the effectiveness of SEL interventions for different student groups. For instance, Rowe and Trickett (2018) reviewed individual studies included in a well-cited meta-analysis by Durlak and colleagues (2011). They examined the studies' treatment of five characteristics: gender, race/ethnicity, SES, disability status, and sexual orientation/gender identity. They found that, apart from gender, the percentage of studies reporting on each characteristic was highest for race/ethnicity (64% of studies), followed by SES (45%), and disability status (15%); no study reported LGBTQ+ status. They also found that only a third of studies examined moderation effects based on different student characteristics and that the results were mixed. Similarly, a recent review of 166 studies on universal SEL interventions found only 11.4% of studies explicitly mention including students with disabilities, while 9% excluded

students with disabilities (Daley & McCarthy, 2020). Five of these studies examined moderation effects based on disability status, and the results were mixed. An additional review focused on the effects of SEL interventions with different student populations (i.e., SES, race/ethnicity, gender, English learners, and urban vs. rural schools) points to similar conclusions regarding the small number of studies and mixed results (O'Conner, De Feyter, Carr, Luo, & Romm, 2017). These reviews highlight the need for complete reporting and future research designed to directly examine differences in program effectiveness based on student characteristics.

Although few individual studies are designed to directly examine if SEL interventions result in larger benefits for students from historically underserved populations, several meta-analyses have examined if program effectiveness differs across studies involving different groups of students. However, their results find little evidence of greater benefits in samples that predominantly involve students of color versus White students (Durlak et al., 2011; Murano et al., 2020; Taylor et al., 2017). Additionally, these studies fail to find greater benefits for predominantly lower SES samples compared to middle or higher SES samples (Corcoran et al., 2018; Murano et al., 2020; Taylor et al., 2017). Further, other characteristics such as disability status tend not to be examined due to the small number of studies reporting this characteristic. As such, more research is needed to directly examine these differences, but these meta-analytic results suggest benefits of SEL interventions may be similar across different student populations.

To better support the specific needs of students from historically underserved populations, SEL interventions may need to be culturally adapted. Indeed, several recent studies have focused on culturally adapted SEL programs. For instance, Graves and colleagues (2017) examined the impact of a culturally adapted version of the *Strong Start* intervention program. Adaptations included changing the literature to have central Black characters for their study involving K–2nd grade Black boys. Similarly, Graves and Aston (2018) conducted a pilot of a program called *Brothers of Ujima. Brothers of Ujima* is an SEL intervention that aims to teach an appreciation of African and Black/African American culture to 6th- and 7th-grade Black boys. Further, for EL students, Castro-Olivo (2014) examined a culturally adapted and translated version of the *Strong Teens* program called *Jóvenes Fuertes*. The results from the small number of studies examining these culturally adapted interventions are promising. Nevertheless, more work is needed to examine the benefits of these and other culturally adapted interventions.

Conclusion

We opened this paper with an illustration of the potential for SEL to improve outcomes for students from historically underserved populations. Specifically, we provided the example of the Perry Preschool study, which showed that participation in an immersive preschool program led to improved outcomes for participating

students until mid-life, and these outcomes might be attributed to improved social and emotional skills.

Optimally, the positive effects of the program should pass on to future generations, creating a virtuous cycle demonstrating the benefits of improved social and emotional skills. This idea has been confirmed by follow-up research that has since been conducted examining the children of the original Perry participants (Heckman & Karapakula, 2019). For example, children of Perry participants were less likely than control group children to be suspended from school, never be arrested, be employed full-time, and have at least some college experience. Although Perry participants' children grew up in similar neighborhoods as control group children, they were more likely to grow up in stable two-parent families with higher average household salaries. Returning to Maslow's hierarchy of needs, stable two-parent families with higher salaries should be more likely to be able to provide the crucial physiological, safety, and love and belonging needs compared to single parent families with lower incomes (e.g., United States Census Bureau, 2016).

These studies are promising examples of inexpensive and easy to implement interventions that demonstrate the potential power of SEL as a lever to increase equity. Improving social and emotional skills has benefits not only for students from historically underserved populations that receive SEL training, but it can benefit their children as well (and perhaps even their children's children). As we have demonstrated in this white paper, however, there is still much to learn about exactly why and how programming works to improve outcomes.

Future Research Directions in Connecting SEL and Equity

We used Maslow's hierarchy of needs as a framework for organizing potential mechanisms for social and emotional skill development and, in the process, identified several areas of research knowns and unknowns. We summarize these in Appendix B. We believe that Appendix B represents a solid starting point to creating a comprehensive research agenda examining the relationship between SEL and equity. While much is known from the research about the possibility for SEL to improve equity, more research is needed both on how social and emotional skills develop inequitably and how SEL can reduce educational and societal inequities. Example studies to be conducted include:

- Research examining the direct relationship of physiological need fulfillment to social and emotional skill development, and which physiological needs interventions would be most effective so that these skills are fully developed.
- More research examining the impact of ACEs and toxic stress on social and emotional skill develop and the relationships, contexts, and interventions that serve as protective factors against ACEs and toxic stress.
- More research on how the belief that one belongs in school affects the development of social and emotional skills and impacts the efficacy of SEL programs. Also, research that examines whether belongingness interventions that work for postsecondary students also work for younger students.

- Research examining the relationship of growth mindset to self-efficacy and research examining whether self-efficacy is related to one's ability to improve their social and emotional skills.
- Research clarifying social and emotional skill differences for different groups of students.
- Important to equity, research examining whether there are interventions that are more effective, or especially effective, for students from historically underserved populations as compared to their peers.
- Finally, research examining whether JEDI-informed practices infused with culturally relevant and sustaining pedagogies are effective in facilitating social and emotional skill development and also help create more equitable educational opportunities for underserved students.

A Solid Start Toward Equity and a Promising Future

Studies like the Perry study described in this paper not only served as one of the foundations for an organized field of SEL, but also as a proof of concept that programs that improved social and emotional skills can indeed lead to more equitable outcomes for all students. Decades after the Perry study was conducted, we now have a solid foundation of research to help us determine the relationship between SEL and equity, how to measure important social and emotional skills, and how to intervene to improve these skills.

We also believe that we have a promising future. Interest in SEL has never been as high as it is now. And, interest in initiatives that emphasize diversity, equity, and inclusion may also be at an all-time high. It is imperative that we continue to emphasize conducting research and using the findings from research in our quest for improving equity through SEL.

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Appendix A: Culture and JEDI-Informed Practices

How Does Culture Fit Into this Framing?

Although Maslow did not articulate how culture fits within the hierarchy of needs, other research shows that culture is integral to everyday life and that it influences every aspect of human behavior (e.g., ways of thinking, habits, customs, values) for both individuals and groups (Gay, 2000). Culture is at the center of how people interact and react to others and their environment. Further, culture is also central to how people perceive their needs, communicate those needs, and attempt to address them. Consequently, for educators to successfully engage, partner, and serve the needs of all of their students, families, and communities, they must come from a lens of cultural responsiveness where they are attuned to the diverse needs of their students, their families, and communities and respond to these needs in affirming and helpful ways (Francis & Osher, 2018). As CASEL (2021b) notes on its District Resource Center website, "SEL can be a powerful lever for creating caring, just, inclusive, and healthy communities that support all individuals in reaching their fullest potential." To this end, we provide a brief history of the thinking behind culturally responsive practices and how these practices can be integrated with SEL to facilitate positive outcomes.

One of the most important steps in the move to better address the needs of historically underserved learners came with Ladson-Billings's (1995) landmark article introducing the term culturally relevant pedagogy (CRP). Briefly, this work has focused on strategies for making teaching and learning more relevant to the languages, literacies, and cultural practices of **all** students in our communities and has deeply influenced both educational research circles and teacher education programs. This work was expanded by Gay (2000, 2010) where she describes five elements for establishing teaching that is culturally responsive. These elements are briefly summarized here:

- *Developing a culturally diverse knowledge base.* **Despite some progress, many educators report that they feel ill-prepared to teach ethnically diverse students. As such, it is difficult to fully engage in the mission of teaching and learning. This requires helping educators develop the knowledge base to better address the needs of an increasingly diverse student population.**

- *Designing culturally relevant curricula.* **In addition to a culturally diverse knowledge base, educators need to learn how to render this knowledge into curriculum designs and instructional strategies that can address the needs of diverse learners.**

- *Building a learning community based on cultural caring.* **Culturally relevant knowledge bases and curricula are not enough unless they are accompanied by a classroom climate in which culturally diverse students feel safe and cared**

for. Educators need to establish teaching environments where all students feel welcome and engaged because they see themselves and their cultures reflected in what happens in the classroom.

- *Cross-cultural communications.* Given that culture influences how we think, talk, and behave, cross-cultural communications that acknowledge the diversity of students and their families and aim toward inclusiveness are essential (e.g., sending the message "all are welcomed and served here").

- *Delivering instruction in a culturally coherent way.* This aspect entails delivering instruction in ways that will resonate with the cultural backgrounds of students, including the use of cooperative group learning, music and movement, and more variability in tasks and formats, as well as storytelling.

Other practitioners and scholars have taken the CRP approach a step further by injecting social justice. Specifically, Alim & Paris (2017) have called for instruction to reflect culturally sustaining pedagogy (CSP). This approach calls for the acknowledgement that underserved learners have endured social and educational inequality for too long and that a shift away from the White, middle-class norms of knowing is required in the educational paradigm in order to address the educational needs of a more diverse and pluralistic society—particularly the needs of youth of color. CSP emphasizes that the languages, literacies, histories, and cultural ways of being for people and communities of color are just as important as those for White, middle class, monolingual English-speaking communities. Further, CSP promotes the view that cultural differences are assets (rather than deficits) that can enhance teaching and learning, enrich learning environments, and better prepare students for the present and future of learning, working, and living in a multicultural, globally interconnected world.

What is JEDI-Informed SEL?

As stated above, both CRP and CSP celebrate students' cultural backgrounds as assets rather than characteristics that need to be homogenized in order to assimilate. We believe that these efforts can be distilled into four guiding principles: social Justice, Equity, Diversity, and Inclusion (JEDI), defined below:[3]

- *Justice*: Dismantling barriers to resources and opportunities in society so that all students and their communities can thrive.
- *Equity*: Recognizing that advantages and barriers exist for many students (the "isms") and that we need to allocate resources and implement tools to ensure that everyone has access to opportunities.

- *Diversity*: Acknowledging the presence of group-level differences (not just based on race or ethnicity) that are associated with advantages or barriers to opportunities.

- *Inclusion*: Fostering a sense of belonging by respecting, valuing, and amplifying the knowledge, voices, and perspectives of those who experience barriers based on their cultural backgrounds or identities.

SEL- and JEDI-informed approaches can mutually reinforce each other to help educators implement culturally responsive (and ideally culturally sustaining) methods by which to establish learning environments that are safe, engaging, foster caring relationships between students and school adults, promote belonging and identity, and support the learning needs of an increasingly diverse and pluralistic society in ways that are inclusive and just.

It is worth noting that, while SEL alone will not solve longstanding and deep-seated inequities in our education system, it can help schools and communities to promote better understanding, examine implicit and explicit biases, reflect on and address the impact of "isms" (e.g., racism, sexism, ableism, homophobia, etc.), build stronger cross-cultural relationships, and cultivate the type of learning environment that helps to close opportunity gaps, and create more inclusive and just schools and communities (CASEL, 2021a). In doing so, schools can promote high-quality educational opportunities and outcomes for **all** students, regardless of race/ethnicity, gender, sexual orientation, family income, (dis)ability, language spoken at home, or any other differences.

Appendix B: Research Findings and Areas for Future Research by Level of Need

Table B1. Physiological Needs

Knowns from the Research	Areas for Future Research
Lower SES associated with… • Flatter growth slopes for all four lobes of the brain, and especially with a lower amygdala, hippocampal, and striatal volume (Rakesh et al., 2021). *Hunger/food insecurity/poverty associated with…* • Increased likelihood of cheating to alleviate these needs (Williams et al., 2016). • Lower self-control and delinquency (Jackson et al., 2018; Meldrum et al., 2015). • Emotional regulation problems (Palmer & Alfano, 2017; Shankar et al., 2017). • Mental illness in children and adolescents (Perez-Escamilla & de Toledo Vianna, 2012; Peverill et al., 2021). • Changes in certain neural functions and structures implicated in executive function (McNeilly et al., 2021; Olson et al., 2021). • Impaired brain development, with implications for developing social, emotional, and academic skills (Prado & Dewey, 2014). • Changes in amygdala functioning related to a greater sensitivity to social threat cues and lowered sensitivity to positive social cues (Javanbakht et al., 2015). *Insufficient sleep associated with…* • Greater likelihood of risk-taking behavior (e.g., drug use; violent behavior; Short & Weber, 2018). • Risk-taking and violent behavior (Meldrum & Restivo, 2014). • Lower self-control and delinquency (Jackson et al., 2018; Meldrum et al., 2015). • Aggression and mood deficits (e.g., anger, depression, negative affect, anxiety; Short et al., 2020; Van Veen et al., 2021). • Emotional regulation problems (Palmer & Alfano, 2017; Shankar et al., 2017).	• Research has yet to establish direct relationships between children who face deprivation of physiological needs and impaired development of social and emotional skills. • Future research could aim to integrate SEL with organization and community-level interventions to address gaps in physiological needs and develop children's social and emotional skills.

Table B2. Safety Needs

Knowns from the Research	Areas for Future Research
Number of ACEs/trauma experiences associated with... • Children aged 5–12 experiencing a higher number of ACEs demonstrated lower social competence and a higher number of behavioral problems (Dee et al., 2020). • Overwritten social and emotional skills, leading to behaviors such as acting defiantly, shutting down, and struggling to form relationships and set boundaries (Cook et al., 2005). *Protective factors against ACEs/trauma experience...* • Having a positive attachment relationship formed with a caregiver or trusted adult is a protective factor when a child experiences ACEs or toxic stress (CDC, 2021; Masten & Coatesworth, 1998; Masten 2018; Shonkoff et al., 2012). • Positive school climate (Darling-Hammond & Cook-Harvey, 2017). SEL programming has been implemented with parents in efforts to improve caregiver-child relationships, caregiver social and emotional and parenting skills, and positive social and behavioral outcomes in young children (see Bierman & Motamedi, 2015). Research supports the efficacy of parent SEL programs and typically show small-moderate effects on student outcomes, with larger effects when intervention programming was implemented at students with social or behavioral issues (e.g., Murano et al., 2020). • Parent training programs aimed at increasing positive parent-child interactions and emotional communication skills showed the largest effects in reducing child behavior and adjustment problems when compared to other target parent skills (Kaminski et al., 2008). *Exposure to toxic stress associated with...* • Negatively impacted self-regulatory capabilities impacted by hormone and neural abnormalities affected by exposure to toxic stress (Branco & Linhares, 2018). Black children who experience toxic stress disproportionally also demonstrate higher ratios of attention problems in the classroom (3:1), social problems (2.5:1), and aggression and rule-breaking (2.5:1; Morsy & Rothstein, 2019). *Positive school climate associated with...*	• Research is needed surrounding programming designed to improve child-caregiver relationships when children have experienced ACEs or toxic stress. Longitudinal studies examining the impact of caregiver SEL programming on outcomes such as substance abuse and health issues in adulthood could strengthen the claim that relationships can serve as protective factors. • More outcomes could also be considered in research looking at caregiver training programs. For example, could the number of ACEs decrease from a first to second child following SEL intervention aimed at strengthening relationships? Similarly, could a community see lower toxic stress exposure over time when SEL programming is consistently provided for parents with young children? • More research is needed to establish the efficacy of strategies to improve school climate and the effects they have on teachers, students, and school climate factors within the school. • More research is needed to replicate and strengthen the knowledge base on the effects of SEL programming on school climate, how the development of student and teacher social and emotional skills contributes to a school's climate, and on the efficacy of specific strategies that are intended to improve aspects of school climate. Experimental studies employing randomized control trial (RCT) designs would be beneficial in this area, particularly if they can serve to identify specific strategies that are most effective in improving outcomes for historically underrepresented student groups.

- School improvement efforts (Bradshaw et al., 2021).
- Less instances of bullying and aggression that occur between students (Espelage et al., 2014; Turner et al., 2014).
- Student self-esteem (Allen et al., 2019) and positive psychosocial adjustment (Brand et al., 2008).
- Behavior and academic outcomes through the end of students' 8th-grade years, with higher-quality teacher-student relationships showing more positive outcomes, and conflict and dependency in relationships was associated with later discipline problems and declining academic performance (Hamre & Pianta, 2001).

- Research is needed to determine the efficacy of trauma-informed instructional approaches and programs. Research does not yet fully support the efficacy of trauma-informed practices in schools on student outcomes.
- Research is needed to unpack the relationship between social and emotional skill development and financial security.

Table B3. Love and Belonging Needs

Knowns from the Research	Areas for Future Research
Correlates of school belonging... - Academic achievement, motivation and engagement, and self-efficacy (Korpershoek et al., 2020). - Well-being (Arslan, 2018; Jose et al., 2012). - Absences and dropout are negatively correlated with belonging (Korpershoek et al., 2020). *Impact of teacher training...* - Strong student-teacher relationships are related to a number of positive outcomes, such as improved grades and work habits (Hamre & Pianta, 2001), engagement and persistence (Noble et al., 2020), and motivation and belonging (Crouch et al., 2014; Scales et al., 2020). These associations are also strong for students from historically underserved populations (Decker et al., 2007; Scales et al., 2020). - Students of teachers trained in implicit bias and equitable relationship building experienced increases in belonging, prosocial behavior, and decreases in problem behavior, and these effects were largest for students of color (Gaias et al., 2020). - When teachers are trained to understand social processes and group dynamics, they can increase students' feelings of school belonging and inclusion and help facilitate cross-group friendships (Juvonen et al., 2019). - Teacher training in bullying awareness served as a protective factor for bullied students (Norwalk et al., 2016), and as a result, these students had higher levels of school belonging than students whose teachers were not aware that they were being bullied. *Impact of peer relationships...* - Peer relationships are important to school belonging (Keifer et al., 2015), and in secondary school, may be more important to school belonging than teacher-student relationships (Gowing, 2019). - Higher levels of peer support and supportive school environments help to buffer LGBTQ+ students against some of the most harmful effects of harassment and victimization (Denny et al., 2016; Hatchel et al., 2018). *SEL interventions for students and belonging...*	- How can factors like school belonging influence the relative success of SEL interventions? In other words, students who have higher levels of school belonging may respond more favorably to other SEL interventions. School belonging and other SEL skills are likely related, but research is needed to understand to what extent they influence one another. - Some of the interventions that have shown promise at the postsecondary level have not yet been tested in different age groups of students. The one-hour intervention designed to normalize adversity at the college level showed promise; even years later, participants in the intervention group had better outcomes than those in the control group (Brady et al., 2020). Because the intervention required few resources, this study is something that could be potentially replicated at other levels of schooling, especially high school. Given the positive effects this intervention had on Black students in particular, it could potentially be used to benefit students from other historically underrepresented groups.

- Students with disabilities who received SEL instruction were provided with strategies to intervene in bullying, and also demonstrated improved grades compared to students with disabilities who did not receive the instruction (Espelage et al., 2016).
- A study of a one-hour intervention that taught new college students to think of adversity they experienced in college as common and transient (Walton & Cohen, 2011). Black students who received the intervention reported higher levels of belonging, and also reported higher levels of well-being and health than Black American students in the control group, three years after the intervention. A follow-up 10-years later found that students who had received the intervention reported higher levels of career satisfaction, well-being, and community involvement than students in the control group (Brady et al., 2020).

Table B4. Esteem Needs[a]

Knowns from the Research	Areas for Future Research
Interventions combatting stereotype threat… • A study with 7th graders showed success at combatting stereotype threat through a short writing prompt designed as a way for students to affirm their beliefs and identities (Borman et al., 2021). These researchers found that Black and Hispanic/Latinx students who completed the affirmation exercise had significantly better outcomes than the control group, such as higher GPAs as well as increased on-time graduation rates years later. • Activating stereotype threat can create conditions for students to perform lower (Cohen & Garcia, 2005). However, interventions such as values-affirmation exercises can help to mitigate this effect and serve to improve students' self-perceptions (Cohen et al., 2009). *Interventions to increase self-efficacy…* • Opportunities for high-quality collaboration (student-centered, culturally responsive activities where students felt respected) were associated with positive classroom experiences and increased engagement and self-efficacy, particularly for students who identified as Black (Surr et al., 2018). • Self-efficacy related to writing skills were increased through the use of goal setting and reflection that promoted a growth mindset (Traga Philippakos, 2020). • Providing opportunities for students to collaborate with one another in a supportive environment or teaching students strategies such as goal setting and reflection are examples of providing mastery experiences, one avenue of developing self-efficacy (Bandura, 1997). • Vicarious experience is another way in which students can develop self-efficacy (Bandura, 1997). Individuals are more likely to be influenced by someone they perceive to be like themselves. In addition to fostering belonging with students in school, it is important that curriculum and instruction provide positive examples of "like" individuals (another way in which culturally responsive pedagogy is beneficial). • Students who are persuaded that they will not be successful at something are more likely to give up when confronted with difficulty (Britner & Pajares, 2006). Conversely, teachers who create opportunities for students to see themselves as capable learners can boost student self-efficacy, an effect seen with Black students (Usher & Pajares, 2006).	• One area that has received little attention is how growth mindset impacts self-efficacy. Since having a growth mindset is a belief that one's talents and intelligence can be improved with effort (Dweck, 2016), it could stand to reason that improving a student's growth mindset could also improve their self-efficacy. One quasi-experimental study (Rhew et al., 2018) did find that an intervention designed to increase students' use of growth mindset increased motivation but not self-efficacy. • Another question related to this topic that may deserve exploration is whether or not academic self-efficacy is related to learning SEL. Prior research has found that students from underserved populations, such as students with disabilities, tend to have both lower levels of academic and social self-efficacy (Hen & Goroshit, 2014). As such, this research could be particularly salient for students from historically underrepresented groups.

- Interventions designed to help students develop coping skills have shown promise in helping ASD students build social and emotional skills such as resilience (Mackay et al, 2017).

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[a] more closely related to identity in current terminology

Table B5. Self-Actualization Needs

Knowns from the Research	Areas for Future Research
Impact of SEL interventions… • Evidence from a growing literature suggests these interventions can effectively enhance SEL skills and other important outcomes (for meta-analyses, see Corcoran et al., 2018; Durlak et al., 2011; Taylor et al., 2017). • SEL interventions are beneficial for students from historically underserved populations (Payton et al., 2008). Consistent with this possibility, meta-analyses on SEL have included a large number of racially and ethnically diverse samples and found overall benefits of SEL interventions (Durlak et al., 2010; Sklad et al., 2012). • Meta-analyses found positive effects for studies that involved a majority of students from low SES families (Corcoran et al., 2018; Murano et al., 2020; Taylor et al., 2017), a majority of students of color (Murano et al., 2020; Taylor et al., 2017), or mostly Black students (Durlak et al., 2011). • Positive effects are found in studies directly examining SEL interventions with students from underrepresented groups. For instance, Jones and colleagues (2011) conducted a randomized experiment with 1,184 students from inner-city elementary schools in New York City. After two years of a universal school-based SEL and literacy program, they found that socially competent behavior improved, aggressive interpersonal negotiation strategies decreased, and math and reading achievement improved for those identified as having the highest risk at baseline.	• Little research has focused on potential differences in social and emotional skills for students from historically underserved populations compared to peers from non-marginalized populations, and the results of prior studies are mixed. Differences in the age groups examined across these studies make it difficult to draw conclusions, but these somewhat mixed results suggest gaps in social and emotional skills may be smaller than for typical core academic measures, and this possibility is consistent with prior research (Allen & Mattern, 2019). • Despite the theoretical arguments for the potential of SEL interventions to have a greater impact on students from historically underserved populations, few studies have been designed to directly examine if SEL interventions result in larger benefits for historically underserved populations as highlighted by several reviews focused on the effectiveness of SEL interventions for different student groups. • To better support the specific needs of students from historically underserved populations, SEL interventions may need to be culturally adapted. The results from the small number of studies examining culturally adapted SEL interventions are promising. Nevertheless, more work is needed to examine the benefits of these and other culturally adapted interventions.

Notes

1. Authors are listed alphabetically and all contributed equally to this paper.

2. There is evidence to suggest that Maslow's thinking was influenced by Blackfoot (Siksika) Nation beliefs and philosophy, as he spent some time visiting them in 1938 (several years before publishing his influential theory in 1943). Blackfoot beliefs place self-actualization at the bottom of the framework and consider this stage foundational to community actualization and cultural perpetuity, both key to the Native American philosophy of life (Heavy Head, 2007).

3. Definitions adapted from the JEDI Collaborative (jedicollaborative.com).

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