Working Paper:

Young Adolescent Development

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Introduction

Early adolescence is an exciting period of transition and change as young people move from childhood into adolescence. Sometimes referred to as "pre-teens," or "tweens," terms that date back to the 1920's and 1940's, respectively (Sherwood, 2015), the Association for Middle Level Education (AMLE) includes youth ages 10 to 15 in their discussion of "young adolescence" (AMLE, 2010). In the United States, the creation of educational settings for youth in this age group dates back to 1909 when the first junior high school was created for students in grades 7 through 9 as a strategy for decreasing school dropout (Manning, 2000). Further concerns about meeting young adolescents' needs led to the creation of the first middle school in 1950; the "Middle School Movement" picked up steam in the 1960's and '70's and has continued to evolve ever since (Schaefer, Malu, & Yoon, 2016).

To say that early adolescence is a period of transformation is an understatement. Indeed, a central focus of reform efforts has been on finding ways to best serve young adolescents, whose needs differ from their younger and older peers (AMLE, 2010). The incredible amount of change that happens between ages 10 to 15 – which some call "a phase of igniting passions" – provides a wealth of opportunity for shaping positive trajectories of development (Patton et al., 2016, p. 2461). Of course, this capacity for change means that both healthy and toxic factors can influence development. Thus, it is critical to consider the kinds of support and resources that young adolescents need to flourish, as well as the "stressors" that may increase vulnerability.

Physical Development

Puberty

Puberty is often considered a marker of the transition into early adolescence, particularly because of the remarkable physical changes that occur. In reality, changing patterns of hormone secretion driven by the endocrine system (i.e., the glands in our body that regulate hormones) can begin as early as age six without producing observable physical growth (Dorn & Biro, 2011). Eventually, luteinizing hormone

(LH) and follicle-stimulating hormone (FSH) stimulate boys' testes and girls' ovaries, resulting in increases in androgens (e.g., testosterone) and estrogens. These hormones stimulate changes in primary sex characteristics, like sperm production in boys and menstruation in girls, and in secondary sex characteristics (e.g., pubic and underarm hair, breast development, deepening voice) (Dorn & Biro, 2011). The endocrine changes are typically accompanied by a growth spurt—for girls, it is usually between ages 10 and 15 with a peak around age 12; for boys, the spurt may span from age 12 to 17, peaking around age 14 (Bogin, 2015). Such wide ranges lead to great diversity in the physical appearance of middle school students, and as discussed below, those with earlier pubertal onset may face unique challenges.

Puberty catalyzes a cascade of important changes in early adolescence—including development of brain areas sensitive to social information (especially from peers), emerging interests in intimate relationships, and growing awareness of one's sexuality. While the general biological processes of puberty are universal, there is a lot of individual variation in the experience of puberty due to interacting biological factors (e.g., genetics; disability or medical condition) and environmental factors (e.g., nutrition, exposure to toxins) (Dorn & Biro, 2011; Tulloch & Kaufman, 2013). Young adolescents may differ in the *timing* of puberty – for instance, most girls have their first menstrual period at age 12, but some may get it as early as age 9 or as late as their mid-teens. They may differ in the *status* of puberty, or what stage they are in in the process of pubertal development. Finally, youth vary in the *tempo* of puberty – some go through the stages of puberty more slowly or more quickly than others (Dorn & Biro, 2011). Youths' experiences with puberty can also vary depending on the messages they receive about how their bodies are changing.

The most vulnerable young adolescents may be those who experience "early onset" puberty. Boys and girls who started the process earlier than average may look older than their peers, which can lead others to treat them as if they are older than they actually are (Weichold, et al. 2003). Notably, teachers expect early developers to have more academic and social problems in school (Carter, Mustaffa,

Leath, 2018). Black youth are particularly vulnerable to being perceived as older than they are (Goff et al., 2014; Epstein, Blake, & Gonzalez, 2017), and such "adultification" of children can have life-threatening consequences. At its most extreme, adultification of Black children can end in tragedy -- the police shooting of 12-year-old, Tamir Rice being one example. Additionally, as discussed below in the section on equity, student awareness of bias in treatment by school staff can undermine trust, belonging, and performance (Yeager, Purdie-Vaughns, Hooper, & Cohen, 2017).

Importantly, just because a young person goes through early puberty, the other aspects of development – cognitive, emotional, and psychosocial – are usually not moving at the same pace. So if a 12-year-old looks 16, they should still be expected to think and act like a 12-year-old. Youth who go through puberty early may be more vulnerable to negative experiences, like involvement with delinquent peers, substance use, or depression and anxiety; however, factors like supportive families and prosocial peers can help offset the risks associated with early pubertal timing (Klopack, Simons, & Simons, 2018; Mrug et al., 2008).

The Young Adolescent Brain

Not too long ago, it was commonly believed that early childhood, especially ages zero-to-three, was the most dynamic period of development. However, recent advances in neuroscience show that adolescence is another major period of change. Like observable spurts in height, adolescent brains undergo their own growth spurt of sorts, and the changes make adolescent brains much more malleable or "plastic" than we once thought.

There are three important processes in brain development that shift in ways that make adolescence unique from other periods of life. First, connections between nerve cells (a.k.a. "neurons") proliferate. These connections, or "synapses" form in response to new experiences, allowing neurons to communicate with each other in networks, kind of like electrical circuits. Second, *unused* neural connections are discarded through a process called "synaptic pruning." Pruning helps young adolescents'

brains work more efficiently, much like pruning back excess branches on a bush helps it to thrive. While synaptogenesis (i.e., forming new synapses) and synaptic pruning happen throughout our lifetimes, there is a surge in both processes beginning in early adolescence (Steinberg, 2014). The third process that helps young teens' brains work more efficiently is called "myelination." Myelin is a fatty substance that provides insulation, like plastic coating on an electrical wire. As youth develop, myelin helps speed up communication between neurons. Unlike synaptogenesis and pruning, which increase rapidly in early adolescence, myelination occurs at a steady pace from birth through adolescence (Giedd, 2015).

The regions of the brain where these three processes are occurring most intensely are also unique to adolescence. Areas located in the center of the brain – like where the pit of a peach would be – are very sensitive to emotions, rewards, and social cues, and undergo rapid development in early adolescence. The density of receptors for dopamine, a chemical associated with our sensitivity to rewards, also peaks in these inner (or "subcortical") regions in early adolescence (Casey, Galvan, & Somerville, 2016). Transformations in these brain areas mean that young adolescents are more attuned to social information and more sensitive to rewards than ever before. Peers become an especially salient factor—peer interactions can activate the reward centers of the brain, and youth often become more sensitive to social evaluation compared to earlier periods of development (Blakemore & Mills, 2014).

The outer or "cortical" brain areas, particularly the prefrontal cortex (PFC), which is near our forehead, assists in regulating our emotions and impulses, resulting in more planned-out behavior and decision-making (Giedd, 2015). In early adolescence, synaptic pruning and myelination begin making the PFC more efficient; moreover, connections between the cortical and subcortical brain regions become more integrated (Casey et al., 2016). As integration increases, youth are better able to regulate their cognitive, social, and emotional behavior.

Importantly, connections between circuits within and across brain regions change over time and in conjunction with experience (Casey et al,. 2016). Like puberty, these remarkable changes can vary

greatly across individuals in terms of timing and tempo; indeed, "uneven acceleration" may be the best way to characterize neurobiological development among young adolescents. Youth also vary in their level of context-sensitivity – some may be more sensitive to social cues than others (Schriber & Guyer, 2016).

Physical Development: Implications for Practice

Direct support and scaffolding in positive contexts can benefit all young adolescents during this period of change. In particular, adults can provide opportunities for youth to practice building their social-emotional skills through sequenced, active, focused, and explicit (SAFE) activities, like those described in the Collaborative for Academic, Social, and Emotional Learning guide (CASEL, 2015; also see Domitrivich, Syvertsen, & Calin, 2017).

Physical activity is also critical to adolescent well-being, especially when youths' bodies and brains are undergoing such incredible changes. While early adolescence is among the healthiest times relative to other periods of life, it is also a period of health transitions. Indeed, despite physical activity being a critical determinant of future health and its concurrent associations with academic performance, motivation, and social engagement, adolescence is typically a time when physical activity decreases (Dumith et al., 2011). Experts recommend that middle school students spend 45 minutes a day (or 225 minutes per week) in physical education class, and engaged in "moderate to vigorous physical activity" for at least 50% of that time (Kohl III & Cook, 2013). Most schools do not currently meet this standard.

Finally, young adolescents need 8.5 to 9.5 hours of sleep per night; however, biological, psychosocial, and environmental factors converge to create what sleep researchers refer to as a "perfect storm," resulting in less sleep over the course of adolescence (Carskadon, 2011). While sleep deficits are not as pronounced in early adolescence as they are among older teens, chronic sleep loss has both short- and long-term consequences on youth's behavioral, psychological, and academic functioning (Owens, 2014). Findings from sleep loss studies prompted the American Academy of Pediatrics to recommend that

secondary schools start at 8:30 or later; however, less than 20% of middle schools currently do so. See

Box 1.1 for more on sleep.

Box 1.1 The Importance of Sleep

Chronic sleep loss in adolescence can have adverse impacts. Importantly, a "perfect storm" of factors

(Carskadon, 2011) affects sleep during this period of development:

- **Biological:** As a result of pubertal changes, adolescents' "internal clock" starts to shift towards a delay in sleep onset. This means youth feel sleepier later in the evening and often take a longer time to fall asleep (Crowley et al., 2014).

- **Psychosocial:** Young adolescents may get more autonomy when it comes to bedtime and choose to go to bed later than in childhood. Youth may also feel a desire to stay connected with peers (i.e., via social media, texting, etc.) well into the evening hours (Carskadon, 2011).

- **Contextual:** Middle school often comes with increases in afterschool activity involvement and homework, and with an early school start time. The average middle school starts at 8:04AM, and over 40% of middle schools start earlier than this. Additionally, having access to technology—like a computer or cell phone—in the bedroom is also related to sleep delays; youth who regularly use devices in their bedroom at night go to bed later and get less sleep during the week (George & Odgers, 2015)

Cognitive Development

Early adolescence is an exciting time for capitalizing on cognitive flexibility and the creativity

that accompanies it. Cognitive skills, like thinking, decision-making, reflection, and planning, continue to

grow as youth gain capacity to integrate multiple processes at once. Young adolescents grow increasingly

better at using "cognitive control," which means they can make decisions based on goals rather than

impulses, develop action plans to guide behavior, and switch between tasks more efficiently. Importantly, the cognitive control system is still relatively flexible in adolescence, and behavior may vary greatly depending on contextual factors like the presence of peers, individual motivation, task structure, and perceived rewards (Crone & Dahl, 2012).

Following puberty, adolescents' sensitivity to social stimuli increases rapidly, as does their tendency for novelty- and sensation-seeking (Crone & Dahl, 2012). These trends increase over the course of early adolescence and typically reach their height in mid-adolescence. Adolescents are also more sensitive to rewards relative to adults, so sometimes their decision-making abilities are skewed towards the positive benefits of a decision rather than the potential risks. But this very same reward sensitivity can also enhance learning and drive curiosity (Giedd, 2015). Indeed, researchers find that adolescents do better than young adults on learning and memory tasks when the reward systems of the brain are engaged (Davidow, Foerde, Galvan, & Shohamy, 2016).

From early through late adolescence, teens become better at using evidence to draw conclusions, although, like adults, they may still rely on personal experiences and make generalizations based on those experiences. With more capacity to reason about abstract ideas, young adolescents can begin to approach and solve problems more strategically; however, problem-solving skills require guided supports and opportunities for practice (Kuhn, 2009). Giving young teens suggestions, rather than direct instruction, can facilitate cognitive growth (Kuhn & Dean, 2005); this approach also capitalizes on youth's growing need for autonomy.

Cognitive Development: Implications for Practice

Ultimately, both social and cognitive control skills develop throughout adolescence and are sensitive to the motivational salience of the context for learning or decision-making (Crone & Dahl, 2012). These changes provide a foundation for cognitive flexibility, which can be highly adaptive as young adolescents get increasing opportunities for autonomy. With the right supports, this capacity for

flexibility and adaptability can foster deep learning, complex problem-solving skills, and creativity (Crone & Dahl, 2012; Kleibeuker, De Dreu, & Crone, 2012). In other words, young adolescents are in a prime position to build the kinds of skills critical for the 21st century (National Research Council, 2012). In order to take advantage of this time, educators can provide ongoing, scaffolded opportunities for youth to reflect on their thinking processes (i.e., metacognition), to practice "executive functioning" skills like holding multiple pieces of information in mind or navigating competing interests to reach a goal, and to take responsibility for their learning strategies (i.e., self-regulation; National Academies of Science, Engineering, and Medicine, 2018).

Identity and Self Development

Exploration of questions like, "who am I?", "who do I want to be?", and "where do I fit in?" are often considered central to being an adolescent (Erikson, 1968). In early adolescence, youths' self-definitions are more complex than in childhood – youth may have multiple "selves" across social and relational contexts (e.g., with family, close friends, in the classroom, etc.) (Harter, 2012). While young adolescents may have a greater number of "abstractions" about the self, these labels can be inconsistent and sometimes even contradictory. Kayla Day, the fictitious student in the 2018 film "Eighth Grade," had a bubbly, vivacious online persona and said of herself, "...if people talked to me and stuff, they'd find out that I'm like, really funny and cool and talkative." Yet she was painfully shy in school and was voted the quietest girl in her grade (Rudin & Burnham, 2018). Such discrepancies in self-variation across contexts are not necessarily distressing – youth often desire to identify themselves in multiple ways beyond assigned roles; however, what can begin causing distress are contradictions between a young teen's "ideal" vision of themselves verses their "real" self (Harter, 2012).

Identity development does not occur in a vacuum – family and peer relationships, school experiences, cultural and societal expectations, and media messages are among the many factors that shape identity. Young people are not passive in this process – they can exert agency in selecting the

people and settings they want to be around and use feedback to adjust self-beliefs and behaviors. Young adolescents often begin to prioritize personal values and decisions to reflect how they see themselves, but in alignment with their neurobiological development, they may be more attuned to social feedback. In the context of middle schools, they may also begin comparing themselves to peers more often, and frequent social comparison, coupled with a greater focus on the importance of ability (over effort), can foster negative self-evaluations among some teens (Peter & Gazelle, 2017).

Racial & Ethnic Identity

Within the broader question of "Who am I?" youth also may wonder, "How important is race to my self-perception?" and "What does it mean to be a member of my racial or ethnic group?" (Sellers et al., 1998). Ethnic-racial identity (ERI) is an important part of normative development that is relevant for all youth but may be particularly salient for youth of color (Williams, Tolan, Durkee, Francois, & Anderson, 2012). ERI is multidimensional – it includes youths' beliefs about their group and its level of importance to their self-definition, both of which may change over time (Umaña-Taylor et al., 2014). Having a strong sense of ERI positively relates to psychological well-being, academic success, and prosocial behavior (Rivas-Drake et al., 2014). Middle school is often a time when young adolescents begin to think more about ERI, and schools can be an important place for youth to co-construct their ERI among their peers (Tatum, 2017). On one hand, peers from the same racial/ethnic background can provide a safe, supportive context for identity exploration; on the other hand, having a more diverse friend group in early adolescence may lead to greater opportunities for youth to explore and learn about their own backgrounds (Santos, Kornienko, & Rivas-Drake, 2017).

Gender Identity and Sexuality

In early adolescence, youth develop a multidimensional concept of gender identity that includes their self-identification, sense of compatibility with their gender, felt pressure for gender conformity, and attitudes towards gender groups (Egan & Perry, 2001). Youth may be negatively affected by biases and

the pressure to conform to gender norms (Egan & Perry, 2001; Toomey, Card, & Casper, 2014). Gender nonconforming adolescents, in particular, may experience greater peer victimization and aggression during early adolescence, although the broader school gender norms can mitigate or exacerbate the level of distress they experience (Smith et al., 2017). Adolescents adjust best when they are secure in their gender identity while also free to explore it as desired (Egan & Perry, 2001).

The physical changes associated with the onset of puberty may also be accompanied by changes in youth's sexuality. Indeed, changes in sexual interest, orientation, and preference are a normal part of adolescence. Intimate relationships may become more important as youth begin to develop sexual attractions, have sexual thoughts and begin experimentation (Tulloch & Kaufman, 2013), and youth may also begin to express their sexual identities in early adolescence. Among those identifying as Lesbian, Gay, Bisexual, and/or Transgender (LGBT), the current average age of "coming out" is 14 (Russell & Fish, 2016); this marked decrease in age – less than a generation ago, the average young person came out in their 20's – is likely associated with increasing social and legal acceptance of same-sex relationships. However, the pace for acceptance and support of transgender youth has not been as rapid (Smith & Juvonen, 2017; Wilson et al., 2017), and LGBT youth continue to have higher rates of depressive symptoms and suicidal ideation relative to peers (Russell & Fish, 2016). Importantly, these negative outcomes emerge a function of unsupportive contexts and negative experiences, and are not inherent to LGBT youth themselves.

Identity and Self Development: Implications for Practice

As youth begin the process of constructing cohesive, integrated answers to the question, "Who Am I?," the answer itself is shaped by membership across multiple social identity groups – race, ethnicity, nationality, sexuality, gender, religion, political affiliation, and more. Youth's visions for their "possible selves" (i.e., who they want to become, or avoid becoming, in the future; Markus & Nurius, 1986) are important for fostering motivation. Studies of young adolescents show that providing support for youth to

envision future versions of themselves and connecting these visions to current involvement in school can promote positive outcomes, like school bonding and prosocial behavior (Oyserman, Terry, & Bybee, 2002). Importantly, scaffolding meaningful problem-solving skills and strategies are key ingredients for linking identity, motivation, and behavior (Oyserman, Bybee, & Terry, 2006). Building connections between youth and parents or other adults in the community can also strengthen associations between possible selves and academic outcomes (Oyserman, Brickman, & Rhodes, 2007).

Ultimately, schools can help structure opportunities for youth to interact with both same- and cross-ethnic peers, and should consider the ways in which different racial/ethnic identities are affirmed in academic and social spaces. Indeed, the multiple academic and social benefits of racial/ethnic diversity in middle school are strongest when students perceive the school as being more socially integrated (Graham, 2018; Juvonen, Kogachi, & Graham, 2017).

Finally, schools have an opportunity to provide comprehensive sexuality programs, which can support youth in understanding the normative aspects of their own sexual identity development and can increase the chances that youths' needs for critical health information are met (Chandra-Mouli et al., 2016; Patton et al., 2016). Moreover, consistent evidence shows that youth in general, and LGBTQ students in particular, who attend secondary schools with Gay-Straight Alliances (GSAs) and/or whose schools have sexual orientation and gender identity-inclusive nondiscrimination and anti-bullying policies feel safer, report lower levels of victimization and involvement in health-compromising behaviors, and have greater well-being (Poteat et al., 2013; Russell & Fish, 2016).

Social Contexts for Development

Families

Youths' family relationships often begin to shift in early adolescence, coinciding with the cognitive, psychosocial and physical changes described above. Researchers have documented increases in parent-child conflict in early adolescence compared to childhood, but there is a lot of variation across

youth and families in whether and how it happens (Fuligni & Tsai, 2015; Tsai et al., 2012). A desire for increased autonomy and independence may contribute to the changing nature of parent-child relationships (Smetana, 2011). Notably, many families report parent-child conflict tends to be short-lived and mild, and while it may feel uncomfortable, when youth have opportunities to engage in conflict in the context of supportive relationships, it can foster skills related to perspective-taking, critical thinking, and self-regulation (Steinberg, 2014).

Younger adolescents tend to desire more autonomy for personal issues (e.g., hairstyle and clothing choices) and conventional issues (e.g., cursing/swearing) compared to older teens (Daddis, 2011). This increase in desired autonomy among younger teens maps onto findings that older teens actually report having more autonomy across multiple domains compared to their younger peers (Daddis, 2011). Gaining a sense of autonomy does not mean that adolescents strive to become detached from their family, however. Indeed, the developmental task for most teens is about establishing a balance between autonomy and connection (Smetana, 2011).

Non-parental adults

Non-parental adults fill an important role in adolescents' lives as they occupy space between a parent (i.e., adult knowledge, experience, and expertise) and a peer (i.e., offering companionship and limited authority; Chang et al., 2010). The presence of significant non-parental adults has been associated with numerous positive outcomes including academic (e.g., DuBois & Silverthorn, 2005), relational (e.g., Griffith & Larson, 2016), and psychosocial well-being (e.g., Hurd & Zimmerman, 2010). Youth's relationships with significant non-parental adults are a normative part of adolescence. (Dubois & Silverthorn, 2005; Beam, Chen, & Greenberger, 2002). Who these adults are vary from youth to youth and can include grandparents, aunts/uncles, formal mentors, coaches, youth group leaders, family friends, teachers, and more. Across roles, relational features such as time spent together, trust, and role modeling

have been found to be key in forming meaningful connections (Griffith & Larson, 2016; Liang, Spencer, Brogan, & Corral, 2008).

Peers

Peers become increasingly salient as youth enter early adolescence (Brown & Larson, 2009). Young adolescents' often spend time in peer groups, which serve as a source of identity, belonging, self-esteem, and social support (Gavin & Furman, 1989). Youth may gravitate towards similar others across factors like race, gender, and language status (Juvonen et al., 2018; Zeng & Xie, 2008), as well as extracurricular and social interests, such as sports, academics, and arts (Tanti, Stukas, Halloran, & Foddy, 2011). While youth may select into friend groups based on such commonalities, they are also influenced by the beliefs and behaviors of their friends, and may become more similar to their friends over time. These selection and influence effects have been observed for a diverse set of factors including academic engagement (Kindermann, 2007), prosocial behavior (Wentzel, 2014), ethnic-racial identity development (Santos et al., 2017), and risk-taking behavior (Leung, Toumbourou, & Hemphill, 2011; Maxwell, 2002).

Social status (i.e., "popularity") becomes a more central concern in early adolescence compared to earlier and later periods (LaFontana & Cillessen, 2010). Young adolescents are more likely to prioritize group status over friendship, romance, academic success, antisocial and prosocial behavior (LaFontana & Cillessen, 2010). On the one hand, this creates an opportunity to identify youth who may be "influencers," i.e., the ones to whom other kids pay attention. As discussed later, these youth can be leveraged to create positive change in school contexts (e.g., reducing bullying; Paluck, Shepherd, & Aronow, 2016). On the other hand, a preoccupation with social status can carry over into classroom settings and contribute to hierarchical, segregated learning spaces (Wilson, Karimpour, & Rodkin, 2011).

Media Context

Today's adolescents are fully embedded in the digital world. Ninety-three percent of teens ages 13-14 own a smartphone, 86% have a gaming console, and 88% have a computer. While computer access

at home is more likely among middle and upper income families, cell phone access is prevalent among all youth (Anderson & Jiang, 2018). Not only do most young adolescents have and use technology, in a 2018 poll, 45% of teens reported being online 'constantly' or 'near constantly' and 44% were online 'several times a day' (Anderson & Jiang, 2018). Youtube topped the list as the most popular online platform, followed by Snapchat then Instagram. Online engagement does vary across demographic groups; Black youth are more active on social media than their white peers, and youth in low-income families use Facebook more often than youth in middle/upper-income families (Anderson & Jiang, 2018; NORC at the University of Chicago, 2018).

Social media and Internet use can have important benefits that align with young adolescents' developmental needs. It provides a space for identity exploration, social support, and social capital. Youth may seek and find resources and supportive communities online, and they often use social media to stay connected with current friends (George & Odgers, 2015; Uhls, Ellison, & Subrahmanyam, 2017). Indeed, most teens report that the impact of media use is mostly positive or neutral and identify opportunities to connect with family and friends and to access news as being particularly beneficial (Anderson & Jiang, 2018). However, youth who are experiencing challenges offline – like depressive symptoms or bullying – may be likely to have the same challenges online, where they can be amplified due to the magnitude of exposure (Odgers, 2018; George & Odgers, 2015). Youth themselves report bullying and decreases in face-to-face contact as negative aspects of social media usage (Anderson & Jiang, 2018). Additionally, using a computer or smartphone in the evening can interfere with a young person's sleep cycle (George & Odgers, 2015; see Box 1.1 for more on sleep).

Social Contexts of Development: Implications for Practice

Recognizing that great cultural and contextual variation exists in approaches to parenting (e.g., Zhang et al., 2017), multiple studies converge on the idea that some combination of parental warmth and firmness, including monitoring and support, is beneficial for supporting youth development in critical

domains like identity (Becht et al., 2017), self-regulation (Bowers et al., 2011; Steinberg, 2014), and well-being (Kim et al., 2014). Parent support works well when scaffolded appropriately, which means providing just enough support for a young person to succeed on their own (Steinberg, 2014). Beyond style of parenting, parents can also be instrumental in fostering cultural pride through their ethnic-racial socialization practices (Brody et al., 2004; Knight et al., 2017); as discussed above, a strong sense of ethnic identity is associated with positive social and academic outcomes, particularly for youth of color.

With the complex demands of a middle school setting – multiple, large classes, standardized testing, and diverse student needs – teachers may find it difficult to form meaningful connections with their students. Yet, in a nationally representative sample, 26% of U.S. middle and high school students nominated a teacher or guidance counselor as a significant non-parental adult (Dubois & Silverthorne, 2005). What are teachers doing that youth perceive as signaling closeness, trust, and respect? Contrary to popular belief, not every interaction with youth needs to be deeply profound in order to build meaningful connections. Across, studies it appears youth appreciate when teachers notice them (e.g., listening, saying hi in the hallway, recognizing struggle, acknowledging life outside of the classroom), and are invested them (e.g., offering extra help, accommodating individual needs; McHugh, Horner, Colditz, & Wallace, 2013; Yu, Johnson, Deutsch, & Varga, 2016). Small acts of noticing and investing in students have a big payout in the classroom, as positive teacher student interactions and relationships have been associated with improved academic and social outcomes for students (Okonofua, Paunesku, & Walton, 2016; Wentzel, 2016).

The centrality of peers in young adolescents' lives is developmentally normative; however, attunement to social feedback and status can be challenging both for youth and adults. Indeed, peer culture influences students' perceptions of whether academic success results in costs or benefits to social popularity, and young adolescents may feel greater emotional risk around academic participation (Hamm, Farmer, Lambert, & Gravelle, 2014). When teachers are aware of such dynamics, they can interrupt them

through an emphasis on inclusive classroom norms, supportive teacher-student interactions, grouping and seating decisions (e.g., grouping studies outside of existing friendships), and an emphasis on mastery and competence rather than performance (Hamm et al. 2014).

Finally, while parents and educators are often concerned about the high level of time youth spend online, experts suggest that most young teens are navigating the online context successfully. Adults can mediate the online experience by engaging in conversation about young adolescents' online activities, providing tips for Internet safety, and by participating with youth (e.g., watching videos or playing online games together). Youth most vulnerable to online challenges are those experiencing challenges offline, including conflict engagement, bullying or victimization, or struggles with attention; these youth may be in most need of support and scaffolding to avoid amplifying effects (Odgers, 2018). Additionally, late-night screen use can disrupt sleep for youth (and adults), so limits on evening use may be warranted.

Equity in the Context of Early Adolescence

While early adolescence marks the beginning of what some call the "age of opportunity" (Steinberg, 2014), the reality is that opportunities to access supportive, enriching educational environments are not equally available to all youth. Structural inequities refer to the "intrapersonal, interpersonal, institutional, and systemic mechanisms that organize the distribution of power and resources differentially across lines of race, gender, class, sexual orientation, gender expression, and other dimensions of individual and group identity" (National Academies, 2017). Bias, discrimination, and oppression are the root cause of inequities, and while all are impacted in some way, youth from historically marginalized groups often face disproportionately negative impacts. Such inequities can manifest between schools and school divisions – for example, Black and Latinx students are more likely than students from other racial/ethnic groups to attend high-poverty schools (Orfield, Frankenberg, Ee, & Cuscera, 2014) – or they can manifest within schools, like when students from particular groups (e.g.,

students of color, students with disabilities, students from low-income families) are more likely than their peers to experience exclusionary discipline (US Government Accountability Office, 2018).

In middle school, student's educational trajectories become more path-dependent, and getting locked into a particular track can affect a student's entire educational trajectory. Indeed, the practice of academic tracking, or the separation of students based on factors such as test scores and teacher recommendations, is common by eighth grade, particularly in mathematics (Loveless, 2013). There are racial disparities in access to and enrollment in high level math and science courses, and Black, Latinx and American Indian students are less likely than their peers to be recommended for and enrolled in gifted and talented programs (US Department of Education, 2016).

Well-documented racial disparities also exist in discipline. Thus, while Black, Latinx, and American Indian youth are underrepresented in college and career readiness academic tracks, they are overrepresented in exclusionary discipline, like suspension and expulsion (Gregory, Skiba, & Noguera, 2010). Importantly, given young adolescents' cognitive capabilities and increased attunement to social cues, this is a critical socialization period for beliefs about institutional trust and fairness. Evidence suggests that when Black middle school students are aware of racial bias in discipline, they become less trusting of their school; this in turn predicts more behavioral infractions and even predicts lower college enrollment (Yeager et al., 2017).

The same cognitive and social capacities that help youth recognize bias may also make them more aware of stereotypes. Students in groups associated with negative stereotypes about their academic ability become vulnerable to "stereotype threat," which means their performance on assessments is lowered because of unconscious worries about confirming the stereotype (Steele, 2010). In addition to being more vulnerable to stereotype threat, pubertal changes make early adolescence a period of vulnerability for mental health (Patton et al., 2016). Youth exposed to chronic stress stemming from socioeconomic conditions like poverty, or from specific family circumstances or unexpected life-events,

warrant attention. In the context of changing bodies and needs in early adolescence, stress can be particularly toxic; however, when supports are in place, resilience is more likely.

Meeting the Needs of Early Adolescents: Promising Directions & Implications for Practice

Meeting the needs of young adolescents in schools requires developmentally-informed approaches. As youths' needs for autonomy and agency increase and their neurobiological shifts create more attunement to social information, they often have a heightened sensitivity to status and respect. This means youth may readily align "attention, motivation, and behavior with the potentially rewarding feelings that come from attaining status or being respected" (Yeager, Dahl, & Dweck, 2018, pp. 104). Accordingly, approaches that make an adolescent feel socially connected, valued and worthy of respect may be particularly effective. Not only are such approaches developmentally appropriate, they also have the potential to address issues of equity, particularly at the intra- and interpersonal levels.

For instance, when teachers were trained to lead with empathy in their discipline practices with middle school students, not only were student suspension rates reduced by half, but students who were previously suspended (largely students of color) perceived their teachers to have greater respect for them (Okonofua et al., 2016). In another intervention, middle school students who received "wise feedback" from teachers – feedback conveying high expectations and a belief in the student's ability to meet them – submitted higher-quality work compared to peers. Students who mistrusted teachers most seemed to benefit most (Yeager et al., 2014); moreover, increased trust helped disrupt the recursive cycle between mistrust and negative behavior (Yeager et al., 2017). Finally, capitalizing on youths' sensitivity to social status, social referents (i.e., the most popular or attention-getting students in the school), along with other randomly selected peers, were tasked with creating an anti-conflict campaign in their schools as part of a special, bi-weekly, in-school program (Paluck et al., 2016). As a result, disciplinary referrals for conflict dropped by 30%, and the impact was strongest in schools where more social referents participated in the program (see: http://www.betsylevypaluck.com/roots-curriculum/).

A number of other approaches with a broad range of foci show promising benefits for early adolescence (Gregory, Skiba, & Mettirata, 2017; Yeager et al., 2018). The emphasis on developmentally-relevant needs, like respect, social status, and "meaningful roles" (e.g., Ellis, Volk, Gonzalez, & Embry, 2016), appear to be key ingredients for their effectiveness. Opportunities for civic engagement can be beneficial as well, because they foster a sense of purpose and provide space for youth to have agency in tasks with real-world implications (Watts et al., 2011). These kinds of endeavors can foster important skills in critical analysis, which can be applied to issues of social injustice as well as other academic content in schools (Ginwright, Noguera, & Cammarota, 2006). Such approaches can even extend to health behavior – when middle school students considered healthy eating as a matter of autonomy (i.e., I'm in control when I make healthy choices), social status (i.e., healthy eaters are more respected than unhealthy eaters), *and* social justice (i.e., I'm standing up to companies who try to sell unhealthy food to kids) – they made healthier food choices.

Early adolescence provides a wealth of opportunity for shaping positive trajectories of development. Understanding the dynamic, normative biological, cognitive, and social-emotional changes during this period can go a long way in creating affirming and equitable educational contexts for young people. Supporting young adolescents means expecting a wide range of developmental capacities and idiosyncratic change, both across and within youth. Young adolescents need space to practice autonomy and to develop meaningful social connections; this requires modeling and support from older peers and adults. While their growing desire for respect and social status may make them seem at-odds with adults on occasion, youth will benefit greatly from caring and supportive environments that permit them to make mistakes and learn from them.

Implications For Practice

Supporting young adolescents means creating contexts where they feel socially connected,

valued, and worthy of respect. They also need support that is scaffolded to meet their changing needs over time, and plenty of opportunities to grow and refine their cognitive and social-emotional capacities. Here are a few specific implications for practice:

Physical, Cognitive, and Social-Emotional Development

- Provide sequenced, active, focused, and explicit (SAFE) opportunities for youth to build and practice social-emotional skills

- Provide regular opportunities for physical education; experts recommend 45 minutes per day, at least half of which involves moderate-to-vigorous physical activity

- Support healthy sleep hygiene: young adolescents need 8.5 to 9.5 hours of sleep per night

- Create intentional opportunities for youth to reflect on their thinking, manage competing interests to meet a goal, and take responsibility for their learning strategies

- Support youth in envisioning future versions of themselves by providing structured opportunities for meaningful problem-solving activities and bringing in authentic models from the community (e.g., parents and other adults)

- Help youth make explicit connections between visions of their future self and their current lives in and outside of school

- Structure opportunities for youth to interact with both similar and different peers, and ensure that formal and informal messages in the school affirm diverse ways of being and knowing

Social Contexts of Development

- Adult caregivers should offer a combination of warmth and firmness, including monitoring and support; how these are expressed and interpreted will vary as a function of culture and context

- Adult caregivers should also provide messages of cultural pride balanced with frank conversations about the possibilities of prejudice and discrimination

- Practice "small acts of noticing" to help foster positive youth-adult interactions

- Balance sensitivity to young adolescents' heightened attunement to peers and social status with intentional efforts to interrupt toxic social dynamics

- Engage youth in conversations about their online activities and provide tips for online safety

- Recognize that young adolescents who are experiencing challenges offline may be most vulnerable to challenges online

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