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The Need to Contribute During Adolescence

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Abstract
As an intensely social species, humans demonstrate the propensity to contribute to other individuals and groups by providing support, resources, or helping to achieve a shared goal. Accumulating evidence suggests that contribution benefits the givers as well as the receivers. The need to contribute during adolescence, however, has been underappreciated compared with more individually focused psychological or social developmental needs. The need is particularly significant during the teenage years, when children's social world expands and they become increasingly capable of making contributions of consequence. Moreover, contribution can both promote and be a key element of traditionally conceived fundamental needs of the adolescent period such as autonomy, identity, and intimacy. The neural and biological foundations of the adolescent need to contribute, as well as the ways in which social environments meet that need, are discussed. A scientific and practical investment in contribution would synergize with other recent efforts to reframe thinking about the adolescent period, providing potential returns to the field as well as to youths and their communities.

Keywords
development, adolescence, interpersonal relations, others, positive psychology, contribution, prosociality

Two long-standing lines of scholarship demonstrate the striking predisposition of people to give as well as receive. Experimental games show that participants will donate an average of almost 30% of resources to others, even with no expected reciprocation or benefit to social reputation (Engel, 2011). Children in the first few years of life will provide assistance to others (Warneken, 2015; Warneken & Tomasello, 2006). Numerous variations of games such as the dictator and trust games show that the complexities of social relationships—kinship, trust, cooperation, need—influence giving to others (Engel, 2011; Levitt & List, 2007; Wynn, Bloom, Jordan, Marshall, & Sheskin, 2018). Individual differences in the propensity to give also exist. Pointed arguments about whether this tendency has purely altruistic or selfish roots continue, and people do keep substantial amounts for themselves even when giving to others (Andreoni & Miller, 2003; Bardsley, 2008). Yet there is little disagreement that people possess a strong inclination to provide at least some resources or support to others.

A different but equally established tradition of research demonstrates the tendency for people to voluntarily give time, energy, and resources to their social groups. These groups may be as small as three to four people or as large as a company or ethnoreligious group and can consist of known or unknown members (Hogg, 2003, 2013). Experimental studies demonstrate that even when social groups are involuntary and fleeting, such as in the minimal-group paradigm, members as young as 5 years of age willingly give resources and support to their groups (Balliet, Wu, & De Dreu, 2014; Dunham, Baron, & Carey, 2011). The inherent group-like nature of this giving is demonstrated by the fact that giving and having that giving recognized enhances one's identification with the group (Tyler, 1999; Tyler & Blader, 2003). Again, individual differences exist and debates remain about key mechanisms, but people will provide at least some resources and support to their social groups.

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It is noteworthy that the propensity to give to others does not depend on an actual or perceived need of the recipients. Need can promote giving, but it is not a prerequisite (Engel, 2011). Individuals will contribute to known and unknown others even when the need for resources has not been established. Relatedly, empathy can promote giving and other prosocial behaviors, but it is not an essential ingredient, as shown by experimental giving games in which no recipient need has been established (Engel, 2011). Empathy plays a complex role in prosocial behavior, and some observers have argued that shared need and distress can be aversive or generate parochialism in ways that diminish giving (Bloom, 2016; Singer & Klimecki, 2014). Regardless, a multitude of studies suggests giving does not require others to lack resources or have some other need to be addressed.

Thinking beyond situations of resource or emotional need allows us to consider a wider variety of ways in which individuals make contributions. People make many informal and formal contributions on a daily basis: helping with tasks and duties, providing instrumental advice and guidance, sharing news and gossip, offering opinions in group discussions, acknowledging others' success, and achieving in ways that help or reflect well on other individuals and groups. These contributions can relate to matters of consequence or temporary concerns that become quickly forgotten. Yet these behaviors, often categorized in other ways or considered minor, share the common characteristic of being contributions that people make to their social world.

The importance of making contributions to other individuals and groups can be found in several theories of psychological and social motivations. Helping others has been suggested as a way of meeting the fundamental needs of autonomy, relatedness, and competence posited by self-determination theory (Martela & Ryan, 2016; Ryan & Deci, 2017; Weinstein & Ryan, 2010). Willing contributions can fulfill the volitional feelings of autonomy, enhance the social connection necessary for relatedness, and promote the sense of impact and effectiveness that feed into competence. The fundamental "need to belong" proposed by Baumeister and Leary (1995) can be fulfilled by the expression of mutuality with others that comes with making contributions. Social-identity theory places contributions to the group as central to the dynamics of intragroup identification: Greater group identification promotes and is enhanced by individuals' contributions to their social groups (Hogg, 2003; Tajfel & Turner, 2001). Prevailing theories of the fundamental social orientation of humans consistently cite giving and helping others, regardless of need, as key elements of the evolved social imperative of our species (De Waal, 2014; Lieberman, 2013; Tomasello, 2009; Tomasello & Vaish, 2013).

Finally, numerous studies demonstrate the social, psychological, and health benefits of fulfilling the need for humans to make contributions to their social world. Several behaviors that involve giving to others—ranging from volunteering to providing instrumental or social assistance—have been linked to healthy psychological, behavioral, and physical profiles, including lower mortality (Brown, Nesse, Vinokur, & Smith, 2003; Musick, Herzog, & House, 1999), fewer objective and subjective health problems (Eisenberger, 2013; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003), less daily stress reactivity (Raposa, Laws, & Ansell, 2016), and lower depression (Li & Ferraro, 2005; Morrow-Howell et al., 2003), even during childhood and adolescence (Miller, Kahle, & Hastings, 2015; Schacter & Margolin, 2018; Schreier, Schonert-Reichl, & Chen, 2013; van Goethem, van Hoof, Orobio de Castro, Van Aken, & Hart, 2014). Experimental studies have provided evidence for causality, showing that giving instrumental, financial, or social support to others can reduce cardiovascular risk factors and reduce individuals' response to threat and stressful events (Dawans, von Fischbacher, Kirschbaum, Fehr, & Heinrichs, 2012; Schreier et al., 2013).

The Need to Contribute During Adolescence

The propensity to provide help and support to others may be evident throughout the life span, but increasing maturity and an expanding social world make adolescence a particularly important time for contribution. Skills and capacities essential to contribution blossom during adolescence, and contribution plays a central role in other essential developments during this period.

The ability to consider the needs, concerns, and perspectives of others increases through the teenage years. Enhanced social cognition allows adolescents to move beyond simple rules (e.g., equality or equity) to consider the complexities of social situations when making prosocial decisions, opening new opportunities to offer assistance and support (Eisenberg, Spinrad, & Knafo-Noam, 2015). Social experience and the accumulation of skills expand the ways in which adolescents can provide emotional, social, and instrumental support. Understanding the complexity of interpersonal relationships increases the ability to provide emotional support to those in need. Physical maturity expands the range of instrumental domains in which adolescents can help individuals and organizations. Finally, the real impact of youths' capacity to contribute becomes notable in numerous ways, such as adolescents' reporting more emotional support from friends, families receiving assistance in the form of chores and financial contributions, and community organizations benefitting from the

volunteer hours logged during secondary school (Blair, 1992; Bowes & Goodnow, 1996; Fuligni & Telzer, 2012).

The expansion of adolescents' social world and the approaching transition to adulthood arguably create a fundamental need for youths to apply and develop their capacity to make contributions to others. The social reorientation of adolescence makes concerns about peer acceptance and social status paramount (Brown & Larson, 2009; Nelson, Leibenluft, McClure, & Pine, 2004). Although aggression such as bullying confers social status in early adolescence, individuals who are deemed prosocial through their kindness and contributions generally accrue more popularity and friends than those who exhibit bullying behavior (Juvonen & Graham, 2014; Wentzel, 2014). Contributions to social groups become more valued and important determinants of acceptance as adolescence progresses. The ability to make such contributions—whether as small as offering an interesting idea or as significant as helping others in distress—is an essential skill for the social acceptance and integration critical for long-term functioning during adulthood (Penner, Dovidio, Piliavin, & Schroeder, 2005).

Adolescents' increasing engagement with their broader community also highlights the need to be able to make contributions that benefit both society and themselves. Workplaces depend on the contributions of their employees. Institutions such as schools, hospitals, and other nonprofit organizations rely on the investments of community members. Governments ask their citizens to contribute by voting, paying taxes, and providing military or civil service. For youths, active engagement with these community and social institutions predict a successful transition to adulthood in terms of long-term social engagement and integration (Damon, 2008; Eisenberg, Morris, McDaniel, & Spinrad, 2009; Lerner, 2007). And, perhaps most importantly, such engagement is enhanced when individuals feel that their contributions are useful and valued by institutions and organizations (Tyler, 1999; Tyler & Blader, 2003).

Giving and contributing, although not typically included in lists of the classic tasks of adolescence, may assist several fundamental developments during this period. Healthy autonomy development has been conceptualized more as a balance of agency and communion with others rather than detachment or complete self-reliance (Martela & Ryan, 2016; Ryan & Lynch, 1989; Weinstein & Ryan, 2010). Autonomy and agency, therefore, can be enhanced by making contributions and seeing the impact on other people and groups. Aiding a friend in need or helping a team or organization succeed provides youths with the sense that they can be effectual—that they have something to offer and can make an impact. Family relationships that afford adolescents the chance to offer their opinions in decisions or make instrumental contributions promote a healthy emotional autonomy. Identity development, particularly as it relates to social roles, can depend on one's contributions to others (Cote, 2009). Mature social roles imply obligations and responsibilities as well as rights and privileges. The acquisition of social roles and understanding one's place in the world depends on the opportunity to make contributions and having those contributions recognized and approved. Finally, intimacy—the capacity to have close and supportive relationships with others—requires the ability to provide as well as receive social and emotional support. Theory and research consistently demonstrate that youths who experience relationships with such give and take of emotional support tend to establish more stable, long-lasting relationships in adulthood (Allen, Grande, Tan, & Loeb, 2017; Collins, Welsh, & Furman, 2009).

Contributions to others have salutatory effects beyond the traditional developmental tasks of autonomy, identity, and intimacy. Indeed, conceptualizations of positive youth development have highlighted contribution as a way of promoting additional developmental assets such as a sense of purpose and generativity (Damon, 2008; Lerner, Phelps, Forman, & Bowers, 2009). A sense of meaning and purpose in life can be nebulous, but the search for a larger, coherent explanation for one's life trajectory taps into questions and strivings that become salient during the adolescent period. One does not expect or demand such questions to be answered during adolescence (or at any period of life for that matter), but the pursuit of these questions can be consequential for adjustment. Studies of adults have shown that contributing to others predicts aspects of eudaimonic well-being—such as a sense of meaning or purpose—more strongly than any other activity (Ryan, Huta, & Deci, 2013). Similar findings have emerged in studies of youths providing assistance to the family or engaging in well-designed and structured community service activities (Lawford & Ramey, 2015; Lerner et al., 2009).

Moreover, giving and contribution may stimulate the development of a sense of generativity among adolescents. Generativity refers to the motivation to be useful, to have an impact on the world, and to leave a legacy for future generations (Gruenewald, Liao, & Seeman, 2012; McAdams & de St. Aubin, 1992). Typically seen as a concern of midlife and later, generativity includes desires that become emergent during the years of middle and late adolescence. Having an impact and leaving a legacy are common themes in adolescents' responses to questions about their hopes and goals (Damon, 2008). The specific ways in which adolescents can leave a legacy are understandably ill-defined, but contributions to other people and the larger society clearly stand out. An emerging body of research has suggested

that a sense of generativity is positively related to experience with contributing to others during adolescence (Lawford, Doyle, & Markiewicz, 2013; Lawford, Pratt, Hunsberger, & Pancer, 2005; Pratt & Lawford, 2014). And, as has been shown during adulthood, adolescents with a greater sense of generativity exhibit better psychological functioning (Lawford, Pratt, Hunsberger, & Mark Pancer, 2005).

Neural and Biological Mechanisms

The capacity and motivation for adolescents to both make contributions and reap the mental and physical health benefits of those contributions may be facilitated by a number of significant neural and biological developments. Often discussed in relation to other discrete behaviors (e.g., risk taking, perspective taking, impulse control), these neurobiological developments arguably synergize to create a unique developmental period for learning to contribute to others.

Neural networks associated with reward, social cognition, and cognitive control processes engage in response to helping behavior during functional MRI tasks. Experimental paradigms of giving resources (e.g., to charities and others) and providing social support to partners suggest that activation in the ventral striatum (VS), ventral tegmentum, and septal area correlates with giving behavior, perhaps reflecting the motivational salience and psychosocial rewards of helping (Eisenberger, 2013; Keltner, Kogan, Piff, & Saturn, 2014; Moll et al., 2006). These regions are densely populated by dopamine and opioid receptors, which are related to parenting and support-type behaviors in animals and humans (Eisenberger & Cole, 2012; Inagaki & Orehek, 2017). Giving to others also activates elements of the "social brain," or mentalizing network, such as the medial prefrontal cortex, temporal-parietal junction, and posterior superior temporal sulcus (Inagaki & Eisenberger, 2012; Keltner et al., 2014; Telzer, Masten, Berkman, Lieberman, & Fuligni, 2011). Finally, regions associated with cognitive control processes involved with other reward-related processing (e.g., winning for oneself) have been found to be involved in prosocial giving to others (e.g., dorsal and lateral prefrontal cortex and orbital frontal cortex; Keltner et al., 2014; Telzer, Fuligni, Lieberman, & Galván, 2013; Telzer et al., 2011).

Each of these networks shows significant developments during adolescence. Most well-known is the heightened sensitivity and reactivity of regions associated with reward as a result of hormonal changes and increased levels of dopamine during and after puberty (Braams, van Duijvenvoorde, Peper, & Crone, 2015; Casey, Galván, & Somerville, 2016; Shulman et al., 2016). Cognitive control regions in the prefrontal cortex show more protracted development, maturing through the mid-to-late 20s (Shulman et al., 2016). Work focused on the social brain suggests that these regions in the prefrontal and temporal areas show continued structural and functional maturation during adolescence (Blakemore, 2008; Kilford, Garrett, & Blakemore, 2016; Mills, Lalonde, Clasen, Giedd, & Blakemore, 2012; Pfeifer & Blakemore, 2012). Connectivity within and between these networks appears to improve during the adolescent years, both during resting-state periods and when youths engage in social decision-making tasks (Stevens, 2016).

Collectively, these neural developments may underlie the cognitive skills, social awareness, and motivation that promote contributions to others. Developments of the social brain have been linked with increased social perspective taking (Blakemore, 2008; Kilford et al., 2016). The dopaminergic reward system is active during exploratory learning and seems particularly attuned to social rewards and influence (van Duijvenvoorde, Peters, Braams, & Crone, 2016). Although typically studied in the context of taking risks to earn rewards for oneself, these states may also stimulate motivational learning for prosocial behavior and the approach orientation (perhaps even risk taking) necessary for providing support and assistance to others (Do, Guassi Moreira, & Telzer, 2017; Telzer, 2016).

Despite a potentially enhanced motivation for prosocial learning, adolescents do not help all people in all situations. Instead, they move away from the simpler, rule-based approaches of childhood (e.g., equity or equality) and show more particularity in their giving (Eisenberg et al., 2015). The collection of maturational changes in the subcortical and cortical regions seems to create flexibility in adolescent learning and decision making. Adolescent decision making shows greater contextual sensitivity among adolescents relative to younger children, with flexible recruitment of regions such as the prefrontal cortex, temporal-parietal junction, and superior temporal sulcus depending on the motivational and social significance of the situation (Crone & Dahl, 2012). The brain developments of adolescence, therefore, may be related to the capacity and desire to process how, when, and to whom youths may contribute resources and support to other people and groups.

Adolescents may have a particular ability to reap the psychological and physical health benefits of making contributions. Moving away from simplistic rule-based approaches to helping involves volition and intrinsic motivation known to make activities more self-relevant and thereby more meaningful. Heightened engagement of the VS while giving to others has been associated with more personal valuation of helping others and

obtaining a greater sense of role fulfillment when doing things for others on a daily basis (Telzer, Masten, Berkman, Lieberman, & Fuligni, 2010). The activation of the VS during giving has additionally been associated with declining levels of internalizing symptoms over time (Telzer, Fuligni, Lieberman, & Galván, 2014). In terms of physical health, the activation of regions such as the VS and septal area have been suggested to have stress-reductive consequences through inhibitory connections with the amygdala (i.e., septal area) and opioid release that can attenuate the responses of the sympathetic nervous system and hypothalamic–pituitary–adrenal axis to stress and fear (Eisenberger, 2013; Eisenberger & Cole, 2012; Inagaki & Orehek, 2017). Over time, these stress-reductive effects could result in improved behavioral and biological indicators of health. Such effects could be valuable during an adolescent period characterized by heightened levels of both psychological and biological reactivity to stress (Romeo, 2013; Tottenham & Galván, 2016).

The enhanced cognitive abilities associated with adolescent brain development may also facilitate the reflection and processing of experience that can potentiate the benefits of contributing to others. A meta-analysis revealed that service-learning programs during adolescence produced positive effects only when such activities included the opportunity for participants to reflect on and process the meaning of their activities, either alone or with a group (van Goethem et al., 2014). Even then, the effects were most pronounced among older versus younger adolescents. The maturation of the social brain across adolescence could support the perspective taking necessary to consider the impact of one's giving on others and oneself (Kilford et al., 2016). Reflecting on and remembering prior experiences—both positive and negative—tend to engage similar regions that engage during the actual experience itself (Danker & Anderson, 2010). Although speculative, the behavioral and neural evidence suggests adolescence may be an important time when individuals can accrue the benefits of contribution beyond the actual experience itself, potentially setting into motion a positive feedback loop that creates a longer-term, habitual cycle of action and benefit. Such positive feedback loops may explain the potential positive effects of interventions that emphasize contributing to others (e.g., Yeager et al., 2014)

Despite the plausible role of brain maturation in the development of contribution, however, there has been little research directly associating age differences and changes in brain and behavior within the same study. Such studies represent a key next step in research. Work demonstrating developmental differences in the neural response to winning resources for others (Braams & Crone, 2017a, 2017b; Braams, Peters, Peper, Güroğlu, & Crone, 2014) suggests that such research efforts should prove fruitful, highlighting the important role played by neurobiological development in the need to contribute during adolescence.

Opportunities to Contribute

How do social and cultural environments respond to the psychological, neural, and biological maturations of adolescence that seem to prime youths to make contributions? Do youths have opportunities to offer resources, support, or ideas? Note that key features of what makes families, peers, schools, and communities successful for development often reflect a degree of contribution from adolescents. Much depends, however, on how those opportunities are constructed and made available to youths.

Families

Families typically serve as the first arena in which adolescents can find the opportunity to make contributions to others. Household duties such as cleaning, cooking, and sibling care that begin in childhood become of greater consequence as youths come to be more able and responsible. Great variation exists, with these and other more substantial roles (e.g., financial contributions) more evident in families facing economic challenges or with cultural traditions that emphasize the obligation of children to support and assist the family (García Coll, Crnic, Lamberty, Wasik, et al., 1996; Hardway & Fuligni, 2006; Hernández & Bámaca-Colbert, 2016; Schwartz, 2007). Instrumental contributions to the family are more evident in societies with fewer educational opportunities for youths (Greenfield, 2009). The impact of these instrumental contributions on families are profound—many simply would be unable to function without them. The impact on adolescents can be more complex. Helping the family provides an important sense of role fulfillment that can be salutatory for psychological well-being and provide a sense of responsibility that protects against dangerously risky behavior (Telzer, Gonzales, & Fuligni, 2014). At the same time, high levels of family work done in response to parental physical and mental illness or in the context of conflictual family environments can be more detrimental to adolescent psychological, behavioral, and educational adjustment (Chase, 1999; Jurkovic, 1997; Telzer & Fuligni, 2009; Telzer, Gonzales, Tsai, & Fuligni, 2015).

Other opportunities to contribute to the family can be subtle but still significant. Parenting practices and relational styles that allow for more adolescent participation in decision making can have salutatory effects on a variety of adolescent outcomes (Steinberg, 2001).

It is noteworthy that measures of authoritative parenting and autonomy often incorporate adolescents' contribution to decision making as a key component (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg, Mounts, Lamborn, & Dornbusch, 1991). Although the consistently positive impact of these practices is often considered the result of progressive autonomy granting, it is equally plausible that they are due to the impact of allowing and recognizing the value of adolescents' ideas and judgment. Even when adolescents' suggestions (e.g., a later curfew or school activity) are not ultimately accepted, the very act of allowing youths to contribute their ideas and have them considered can fulfill the need to contribute. The powerful impact of participating in decision making, rather than simply having autonomy, can be seen in the negative impact of parental permissiveness whereby adolescents make virtually all decisions on their own (Steinberg, 2001). In addition to being denied valuable parental expertise, adolescents who have complete autonomy in decision making can be deprived of the opportunity to feel that they are contributing to a joint family process.

Peers

The rising social orientation toward peers during adolescence includes increased motivation to provide support to friends. Experimental giving tasks show a rise in the noncostly and costly donation of resources to friends across the adolescent period, such that contributing to friends outstrips giving to strangers (Fehr, Glätzle-Rützler, & Sutter, 2013; Güroğlu, van den Bos, & Crone, 2014). Likewise, self-reported prosocial behaviors toward friends—such as giving emotional and instrumental support—increase across adolescence and become greater than the same behaviors toward families and strangers (Padilla-Walker, Carlo, & Memmott-Elison, 2017).

Friendships and peer relationships are key staging areas for adolescents to make contributions to others. The prevalence and significance of providing support to others is perhaps most evident in adolescents' reports of their receipt of social support. Youths increasingly report friends as a significant source of social and emotional support in their lives as they get older (Helsen, Vollebergh, & Meeus, 2000). Families remain important, but adolescents most frequently turn to friends for support with personal, emotional, and social concerns. The impact of these supportive contributions are significant. Adolescents reporting higher levels of social support from friends demonstrate better adjustment in a variety of domains (Brown & Larson, 2009).

Peer relationships additionally provide adolescents with valuable opportunities to offer ideas, play a role, and feel that their contributions are noticed and have an impact. The relatively more equal power balance within friendships, relative to relationships with parents and other adults, allows for a greater freedom to offer opinions, take risks to share new ideas, or play a role in making plans for the group (Youniss & Smollar, 1987). These seemingly mundane, everyday features of peer interactions—often occurring while just "hanging out"—offer unique opportunities for adolescents to fulfill their need to see their actions as having an impact on others. As such, adults should recognize the value of these experiences before severely restricting or disparaging seemingly unproductive time with friends.

It is important not to overly idealize the opportunities to contribute within peer relationships. Attempts to offer ideas may be rejected or even ridiculed. Helping others in need may necessitate taking risks that can affect peer status and acceptance (Do et al., 2017). Such dynamics contribute to the emotional significance and insecurity inherent in peer dynamics during adolescence. Yet the absence of any such opportunities, even with their complexities, may be why social isolation, rejection, and loneliness affect youths so significantly. The experience of rejection itself and the inability to receive social support have been considered primary reasons why the lack of peer connections is associated with poorer mental and physical health (Brown & Larson, 2009). But social disconnection also deprives individuals of the chance to accrue the benefits of helping and supporting others. The fundamental neural and biological changes during and after puberty, potentiated by the social orientation toward peers, may make this deprivation of opportunities more consequential for adolescents than younger children.

Schools

Secondary schools can be rich settings for providing adolescents with opportunities to contribute. Extensive research has shown that student motivation is enhanced by school environments that allow them to play at least some role in decision making about coursework, classroom practices, and school policies (Eccles & Roeser, 2009). Even the seemingly inevitable declines in student interest and motivation that occur between elementary and middle school can be mitigated when schools change to fit adolescents' developmental needs to have an impact on their school environments (Eccles et al., 1993). School belonging, typically considered to be a result of support provided to students, is strongly predicted by students' beliefs that their ideas and contributions are valued and respected (Anderman, 2003).

Opportunities to contribute can be offered to students in a variety of ways. Adolescents can play a role

in classroom practices from choosing seating arrangements to learning activities and grading practices (Eccles et al., 1993). Cooperative learning practices that encourage students' involvement in goal setting and discovery tap into adolescents' desire to share their ideas and assist their peers achieve a shared objective (Slavin, 1994). Student government can provide responsibility over some aspects of student life. Service-learning curricula offer structured opportunities for students to affect their local communities and to process the meaning of their contributions (Waterman, 2014). Myriad clubs and sports give youths the chance to fulfill roles, contribute to groups, and have an impact on their peers.

Unfortunately, limited resources and the multiple demands placed on schools can restrict their ability to provide a rich array of opportunities for students to contribute. Large, overenrolled schools simply cannot provide a sufficient number of extracurricular slots (Crosnoe, Johnson, & Elder, 2004). Student-led learning activities can be logistically challenging for teachers in packed classrooms. Poorer schools without the support of resourced communities and booster organizations are at a distinct disadvantage in what they can offer. Such schools and their students face numerous other challenges, but their inability to provide an environment rich in opportunities for youths to contribute and belong has been cited as a factor in students' underachievement and dropping out of school (Mahoney & Cairns, 1997).

Communities

Societal ambivalence about providing youths with responsibility and the chance to have a measurable impact can be seen in the inconsistent quantity and quality of community-level opportunities to make contributions. One the one hand, many efforts promote youth development through opportunities to contribute. National organizations such as 4-H, Boys & Girls Clubs of America, Girl Scouts of the USA, Boy Scouts of America, and YWCA/YMCA offer programming that explicitly includes adolescent responsibility and contributions that have a real impact on their communities (Lerner, 2007). Programming includes youth participation in decision making, activities that have a true and notable impact, and the chance to reflect on the meaning of such contributions for themselves and their communities. Local organizations dedicated to the unique needs and issues of their populations may provide youths with structured opportunities to make a difference in their communities through service learning, volunteering, and social action (Eccles & Gootman, 2002). Religious communities often include youth groups that give adolescents ways of having a voice and impact in their congregations. Employment opportunities can be positive for youths as long as the time and demands do not create undue stress and interfere with other important aspects of development, such as schoolwork and sleep (Staff, Messersmith, & Schulenberg, 2009).

Community programs, however, vary dramatically in their availability and quality. Overall, a little more than half of 12- to 17-year-olds in the United States participate in sports, clubs, or lessons outside of school (Laughlin, 2014). Inequalities exist. Poor, minority, and immigrant youths report significantly less frequent involvement in such activities because of the lack of community availability and family resources (Laughlin, 2014; Simpkins, Delgado, Price, Quach, & Starbuck, 2013; Vandell, Larson, Mahoney, & Watts, 2015). Low-income urban areas possess fewer outlets for youths to find opportunities to make contributions (Vandell et al., 2015). At the same time, many programs lack key features—such as "opportunities to be efficacious, to do things that make a real difference and to play an active role in the organizations themselves" (Eccles & Gootman, 2002, p. 117)—that make for a high-quality program. Some programs are able to provide such opportunities, but the necessary time, personnel, and resources put them out of reach for many.

A New Focus on Adolescent Contribution

The pervasiveness and salience across multiple aspects of development and experience suggest that the need to contribute during adolescence deserves to be a primary focus of study and practice. The absence of contribution from lists of canonical tasks and needs may stem from the origins of the science of adolescence development. The field emerged in North America and Europe during the 20th century after several profound historical shifts in these societies (Stearns, 2015). The Progressive Movement restricted and eventually banned industrial child labor in the early 1900s. Urbanization meant fewer family farms. The expansion of universal schooling moved high school attendance from being available to only a privileged few to becoming a universal feature of the adolescent experience (Crosnoe & Benner, 2015). As a result, the 20th century witnessed a decline in the contribution of adolescents to family and national economies in Western societies. The growth of the study of adolescence, therefore, took place within an emerging social ideal of protecting and educating youths rather than depending on their labor.

The field of adolescence additionally developed largely within a Western cultural and scientific context, like much of psychological science (Henrich, Heine, & Norenzayan, 2010; Markus, 2017; Shweder & Sullivan, 1993). The intellectual traditions of humanism and

independence may have led to a particular emphasis on self-oriented developmental issues (e.g., self-identity, autonomy). Funding for research and public-health efforts have historically emphasized resources and support that adolescents should receive to maximize individual health and minimize risk. Consequently, the intellectual and empirical foundations of scientific study of adolescence may have unintentionally neglected the developmental value of the resources and support that youths can give as well as receive.

A focus on the developmental need for youths to contribute would join other recent movements to shift traditional thinking in the field. Efforts to promote positive youth development emphasize engagement with communities and often include contribution as a key element (Damon, 2008; Lerner et al., 2009). Arguments for moving from a model of inherent adolescent risk to one of opportunity rest on the untapped potential of youth that is provided by neural and biological development (Steinberg, 2014). Recognizing the need for adolescents to make contributions of consequence—those that have a recognizable impact on other individuals and communities—is consistent with calls to build on adolescents' sensitivity to social status and respect when designing intervention and prevention programs (Yeager, Dahl, & Dweck, 2018). Efforts to more actively engage youths in research endeavors, such as through youth participatory action research, leverage the valuable contributions adolescents can make to the science itself (Ozer, 2017). Recent public-health calls to action have emphasized the importance of participation and contribution among youths around the world (U.S. Department of Health and Human Services, 2017; Patton et al., 2016).

Assessing youths' capacity to give and scanning the degree to which their environments provide opportunities to contribute should become primary targets of attention rather than secondary questions. Researchers can investigate whether contribution acts as a key driver of the effects of social experiences (e.g., family and peer relationships) and the development of more traditional developmental needs and tasks (e.g., autonomy and intimacy). Likewise, interventions can test whether their effects are bolstered by the specific features of doing things for others and contemplating the beneficial impact of one's activities on others (van Goethem et al., 2014; Yeager et al., 2014). Focusing on contribution as opposed to tackling broader constructs such as prosocial and moral development allows investigators to focus on specific and identifiable behaviors. It also allows for going beyond limited views of responding to others (e.g., volunteerism, empathy) and gives license to considering multiple ways adolescents may make contributions, from the mundane and everyday (e.g., cheering up a friend) to the profound and exceptional (e.g., helping a team win a championship). Individual differences in the motivation, frequency, and effects of contribution exist, but focusing on such experiences could bring into relief a pervasive aspect of adolescent development that may be more fundamental than previously thought.

Attending to adolescents' opportunities to contribute can also provide a means to meet two pressing challenges to the field of adolescence. First, the growth of developmental neuroscience has been a key source of renewed international interest in the adolescent period (Fuligni, Dapretto, & Galván, 2018; Spear & Silveri, 2016). Yet the integration of neuroscience with social and cultural perspectives of adolescence has proved difficult. Rather than continuing what could be considered at best an unproductive détente between the different approaches, a truly integrative developmental science of adolescence needs to identify topics and issues that lend themselves to creative interdisciplinary research. Contribution can be one such topic. The motivation and capacity to contribute and have an impact on others have identifiable neural and biological correlates. At the same time, contribution is fundamentally a social behavior—the ways, means, and opportunities to contribute are socially and culturally defined. A complete understanding of the role of contribution during adolescence, therefore, requires integrating perspectives and methods from multiple levels of analysis.

Enhancing scientific attention to population diversity presents a second pressing challenge to the scientific study of adolescence. The rising worldwide population of 10- to 24-year-olds stems largely from youths with non-European backgrounds (Patton et al., 2016; Sawyer, Azzopardi, Wickremarathne, & Patton, 2018). Focusing on contribution provides a way to incorporate the experiences of these adolescents into the broader understanding of the period. Indeed, the instrumental roles played by youths from Asian, Central and South American, and African backgrounds in their families and communities—whether they live in those regions or in Europe and North America—have stimulated attention and appreciation for the significance of contribution (e.g., Fuligni & Telzer, 2012). Populations experiencing globalization and the expansion of secondary education may see the greatest impact on their children in terms of how these changes reshape what it means for adolescents to contribute to their families and societies (Greenfield, 2009; Jensen & Arnett, 2012). Finally, although poverty continues to decline internationally, inequality is rising in many nations (Piketty, 2014). Rather than being only a disparity of held or received resources, inequality also can exist in the opportunities for youths to make contributions of consequence to

their communities and societies. The message that one's contributions are not welcomed or valued is perhaps one of the most significant ways that ethnic, cultural, and economic marginalization can derail successful adolescent development, with long-term consequences for both the youths and their societies.

Conclusion

Arguing for adolescents' need to contribute to others runs the risk of being Pollyannaish and moralistic. Youths clearly do not do things for others at all times in all cases, nor should they. Complete selflessness was not adaptive for our evolutionary ancestors and would not produce healthy functioning today. Like children and adults, adolescents can be selfish, insensitive, and unresponsive to those around them. However, it appears to be fundamental for youths to make some kinds of contributions to others at some times, in some ways. The question is whether adolescents actually have the chance to provide resources and support to others in their everyday lives. As social beings, they seem to be primed to do so, and not having that opportunity could be denying both the youths and their communities an invaluable resource.

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