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Research on Adolescence in the Twenty-First Century

Robert Crosnoe[1] and **Monica Kirkpatrick Johnson**[2]

[1]Department of Sociology and Population Research Center, University of Texas at Austin, Austin, Texas 78712

[2]Department of Sociology, Washington State University, Pullman, Washington 99164-4020

Abstract

Recent methodological advances have allowed empirical research on adolescence to do better justice to theoretical models. Organized by a life course framework, this review covers the state of contemporary research on adolescents' physical, psychological, interpersonal, and institutional pathways; how these pathways connect within primary ecological contexts; and how they relate to broader patterns of societal stratification and historical change. Looking forward, it also emphasizes three future challenges/opportunities, including efforts to illuminate biosocial processes, link adolescence to other life stages, and account for the influence of major social changes (e.g., the new media).

Keywords

development; life course; transition to adulthood; inequality

Introduction

First coined by Hall (1904) only a century ago, adolescence was "created" by the convergence of multiple trends, including labor and schooling laws, that extended dependency beyond childhood and delayed entry into adult roles (Modell & Goodman 1990). Adolescence as a period of dependency and preparation for adulthood has since been reinforced through more recent social changes, including economic restructuring and changing cultural norms about parenting (Goldin & Katz 2008, Settersten et al. 2005). Research on adolescence has also changed dramatically. This review discusses recent developments in this literature, being cognizant of their historical underpinnings while focusing on the future. Given our background in the life course tradition, as well as the inherent importance of transitions, trajectories, and context to understanding this life stage, we use a life course framework to organize our review. Owing to space constraints, we focus primarily on American adolescents.

In his 1989 review, Dornbusch wrote that research on adolescence was turning from psychologists studying "individual adolescents carrying out their developmental tasks" (p.

233) to contextual approaches emphasizing transactions between adolescents and their environments. This trend has since intensified, reflecting refinements of theoretical models, including human ecology (Bronfenbrenner & Morris 1998) and the life course paradigm (Elder 1998). A central imagery of the latter, our focus here, is of lives as a tapestry of three threads—developmental trajectories (physical and psychological growth), social pathways (sequences of institutional roles and activities), and social convoys (continuity and change in interpersonal relations)—situated in settings of daily life, larger structures of society, and the broader sweep of history.

Unfortunately, studying this dynamic, multilayered model of adolescence has taxed methodological and data resources (Elder & Giele 2009). Recently, however, data sets on children have aged into adolescence (e.g., Children of the National Longitudinal Survey of Youth), and data sets on adolescents have aged into adulthood (e.g., National Longitudinal Study of Adolescent Health, or Add Health). Data sets are also integrating biological, behavioral, and setting data. At the same time, significant advances in longitudinal and multilevel modeling have allowed researchers to capture individual and population trajectories and to identify person-context effects (Bollen & Curran 2006, Bryk et al. 2002). Of note is that qualitative and mixed methods research projects are also increasingly emphasizing context, longitudinal change, and the multiple strands of adolescent development (Giordano et al. 2006).

In other words, sociologists are making progress on a more holistic understanding of adolescents in society. In reviewing this progress, we focus on each of the three main strands of the adolescent life course before turning to the ways in which their interweaving is embedded in ecological contexts and both reflects and contributes to population-level inequalities.

Three Threads in the Life Course Tapestry

Exhaustively reviewing recent research on the three main strands of the life course is impossible. As just one example, the United States has a high teen pregnancy rate that contributes to the overall rate of nonmarital fertility, and early parenthood relates to past and future socioeconomic disadvantages in complex ways (Mollborn 2007). As a result, this topic could fill an entire review article, and in fact has (Furstenberg 2003). Also regrettably left out are issues such as disordered eating and bullying. Consequently, this review should be viewed as an effort to put forward a limited set of illustrative examples of new ways to think about old issues.

Developmental Trajectories

Adolescence is a period of rapid change. This change is dramatically crystallized in the flood of hormonal activity and rapid physiological development that constitutes puberty (Susman et al. 2003). Great psychological and emotional change also occurs during adolescence. In the years following puberty, adolescents are faced with the task of establishing their own identity separate from their parents, which may be stressful (Kroger 2007). At the same time, rates of risky behavior (e.g., substance use, delinquency, sexual activity) also rise markedly, especially among boys (Bachman et al. 2002). A hallmark of

adolescence is that maturation can occur at different velocities in different domains of development, so that youth may look or feel like adults in some ways but not in others.

Beginning with puberty, a great deal of attention has been focused on pubertal timing, following earlier work outside the United States (Stättin & Magnusson 1990). Primarily among girls, going through puberty earlier than the norm is associated with a host of adjustment problems, including risky sex and delinquency. Sociologists have elucidated many mechanisms underlying these patterns, which are not entirely hormonal or biological in nature. One concerns premature self- and other-perceptions of early maturers, especially girls, as adults. In other words, they are adult-like physically and, as a result, may engage in actions or put themselves in situations that are ahead of their emotional or cognitive capacities (Cavanagh 2004, Haynie 2003). Another mechanism is increased distress related to growing size in the context of strict norms about female body weight (Ge et al. 2001). These socioemotional difficulties in early adolescence can then disrupt academic functioning (Cavanagh et al. 2007). Pubertal timing, therefore, represents an intersection of biological, emotional, social, and institutional processes.

Turning to mental health, adolescence marks the emergence of gender differences in depression—with girls higher than boys—that persist for decades (Hankin et al. 2007). Efforts to explain this trend have focused primarily on social psychological phenomena, including gender differences in self-concept, management of daily stressors, experiences of puberty, and the rigidity and enforcement of societal standards of appearance and behavior (Martin 1996, Rosenfield et al. 2000). A particularly insightful sociological approach to adolescent depression, regardless of gender, concerns how it is interpreted by others. For example, depression can be strongly stigmatized in social groups when it is perceived as mental illness as opposed to a health problem, leading depressed youth to be isolated from others just when they need more support (Martin et al. 2007). Indeed, social responses to adolescent distress influence whether it can have long-term effects on other areas of life, including education (McLeod & Fettes 2007). Thus, socialized perspectives on depression and other psychological constructs reveal insight into the complex dance between self and other that characterizes adolescence.

Identity development is another psychological process that has been studied from a variety of angles. The consensus is that it is a highly social process, with young people slowly integrating the different pieces of themselves that they come to understand through social interactions into a cohesive sense of who they are and where they fit in the world (Kroger 2007). In the past two decades, considerable research has centered on the development of group-based identities. For example, racial identity taps into the significance and meaning attached to race within individuals' overall senses of self. According to work by Sellers and associates (1998) on African American youth, racial identity has four dimensions: (*a*) salience (how much race is part of one's self-concept), (*b*) centrality (whether one defines him or herself through race), (*c*) regard (the degree of positive or negative feelings about one's race), and (*d*) ideology (beliefs about how someone of a certain race should act). Across minority groups, these dimensions tend to increase as adolescence unfolds and are strongly related to mental health (Mandara et al. 2009, Umaña-Taylor et al. 2009). For the most part, the benefits of racial identity are strongest when minority adolescents have

reached the achieved stage of identity development, meaning that they have committed to a particular identity after exploring what it means and what alternative identities might be possible (Seaton et al. 2006). Similar research has been done on sexual identity, tracing the gradual process by which adolescents come to see themselves as homosexual and the role that this process plays in healthy development (Russell & Sigler-Andrews 2003).

As for risky behavior, understanding why adolescents become more reckless even as they develop critical thinking skills has long been a major activity of adolescence researchers. One explanation is that adolescence is a time of heightened sensitivity to social influences and greater propensity toward emotional stimulation. These developmental changes have traditionally been viewed as by-products of identity development, but recent neurological research is shedding new light on this phenomenon (Dahl & Spear 2004). Specifically, magnetic resonance imaging (MRI) studies suggest that increased risky behavior during adolescence reflects different rates of growth in the brain's socioemotional and cognitive control systems. After puberty, dopamine receptors increase rapidly in regions that control sensation-seeking, which encourages behaviors that bring some emotional or sensory reward (Steinberg 2008). Peer approval is one such reward, and ample evidence indicates that engaging in some level of dangerous behavior can elicit peer esteem and popularity (Allen et al. 2005, Kreager & Staff 2009). Importantly, structural changes of equivalent magnitude do not occur in the prefrontal cortex, which controls cognition, until adolescents approach young adulthood. That enhanced self-regulation skills tend to come after the increased propensity toward sensation-seeking helps to explain the increase in risky behavior that characterizes the years between the end of childhood and the start of adulthood (Dahl & Spear 2004, Steinberg 2008). Clearly, other factors are also at work, including changing cultural norms about permissible behavior and increasing opportunities for engaging in certain behaviors, but neurological development is certainly a piece of the puzzle.

As is evident even from this very selective discussion, adolescent development crosses many different psychological, physiological, cognitive, and behavioral domains. As a result, understanding one domain often requires consideration of others.

Social Pathways

Beyond the family, two key institutions structure the social pathways of adolescence. Beginning with schools, sociologists have traditionally studied the organization of high schools via academic tracks (e.g., vocational, college preparatory). As formal tracking has been largely dismantled (Lucas 2001), new organizational schemas have been identified, including patterns of course-taking, critical courses (e.g., advanced math), and course trajectories (Gamoran & Hannigan 2000, McFarland 2006, Riegle-Crumb 2006). Math is a clear example, as it is highly structured and strongly predicts educational and occupational attainment (Adelman 2006, Frank et al. 2008, Riegle-Crumb 2006). Case studies have yielded new insights on the implications of curricular structure. McFarland (2006), for example, examined student flow across math courses in two high schools, one characterized by five math trajectories with fewer lower-ability courses over time, and the other with a branching tree structure in which students move from a single trunk into four eventual

trajectories of increasing differentiation. In each structure, specific courses represent critical junctions between trajectories and in math persistence altogether.

Thus, students' school pathways are far more complex than the traditional view of tracking suggests. Studying these pathways also reveals new insights into gender differences in education. Girls have been surpassing boys in most academic domains in secondary and postsecondary education for some time, especially among African Americans. Research on coursework trajectories suggests that girls have now also closed the gap with boys in math and science in terms of the course credits they accrue in high school. However, despite their advantage in college enrollment and graduation (Buchman & DiPrete 2006), they remain underrepresented in these curricula in college (Riegle-Crumb 2006).

Studies in the past decade have also emphasized the changing role of higher education in adolescents' lives. Expectations to earn four-year and graduate degrees have risen dramatically, faster than actual attainment (Jacob & Wilder 2010, Reynolds et al. 2006). In line with a "college for all" norm (Rosenbaum 2001), expectations to complete college have become less tied to social class and previous achievement (Goyette 2008, Reynolds et al. 2006, Schneider & Stevenson 1999). More than 80% of high school seniors in 2008 reported that they would probably or definitely earn a four-year college degree (Bachman et al. 2009). Some of the least educationally ambitious students may have dropped out of school before senior year and, therefore, would be absent from such statistics, but educational expectations are actually even higher when measured at eighth or tenth grade instead (Goyette 2008, Jacob & Wilder 2010). The rise in expectations to earn a college degree has been even steeper among girls, who now expect BAs at higher rates than boys, with little difference within gender between blacks and whites (Jacob & Wilder 2010).

Commonly cited explanations for rising educational expectations include (*a*) an increase in the earnings payoff to college (versus high school) graduation; (*b*) expanding higher education options, including online degrees and community colleges; and (*c*) trends in the educational attainment of parents (Berg 2007, Goldin & Katz 2008, Goyette 2008, Schneider & Stevenson 1999). Regarding the latter, the relative risk aversion thesis suggests that adolescents strive for at least as much education as their parents have. As parents' average education levels rise across cohorts, therefore, so do adolescents' educational expectations (Breen & Goldthorpe 1997).

Paid work is another institution shaping adolescence, with nearly all high school students employed during the school year at some point while in high school (Apel et al. 2007, Mortimer 2003, National Research Council 1998). Building on foundational studies from the 1980s and 1990s, recent research has elucidated the mix of risks and benefits of paid work for adolescents. Although adolescent work often starts earlier, most studies focus on high school, when employment is more likely to occur in the formal sector and for longer hours. Moreover, school-year employment continues to garner the most attention, despite higher rates of summer employment (Mortimer 2003, Perreira et al. 2007). These foci reflect concerns about potentially competing demands of school and employment, key institutions that structure the social pathways of adolescence. The question is whether (or under what conditions) employment facilitates educational attainment and builds human capital useful

later in the labor market or whether employment, especially working 20 h or more per week, can distract from academic pursuits and foster various problem behaviors, including delinquency and substance use (Lee & Staff 2007, McMorris & Uggen 2000, Mortimer 2003, Paternoster et al. 2003).

In the past two decades, a major activity has been in understanding the variable meaning and consequence of paid work in adolescence. For example, the outcomes linked to work hours depend on the goal of working, including saving for college and supporting the self or family (Marsh 1991, Newman 1996). Recent evidence indicates that work can promote educational attainment among those with low academic promise (Staff & Mortimer 2007) and among poor and/or minority students (Entwisle et al. 2005). For example, teenagers in Newman's (1999) ethnography of fast food workers often rejected the delinquency of peers in choosing to work, and their jobs brought them coworkers and supervisors that supported and rewarded their educational pursuits. Along these same lines, Lee & Staff (2007) compared adolescents who work intensively and those who do not do so but who share similar preexisting background characteristics. They found no effect on dropout among adolescents with backgrounds indicative of a high propensity to work intensively. These students tended to be from socioeconomically disadvantaged families and have weaker school performance. Additional studies indicate that the association between intensive employment and substance use is largely limited to whites (Johnson 2004) and that intensive employment can actually help curb substance use and delinquency for adolescents with earlier histories of these problem behaviors (Apel et al. 2007).

More effort also has been devoted to promoting causal inference in research on adolescent employment. Both spuriousness and bidirectionality are concerns in studies of work hour effects on adolescent behavior. Longitudinal studies adjusting for known covariates, including lagged measures of the outcome, often indicate that that preexisting differences account for many observed effects (Schoenhals et al. 1998, Warren et al. 2000). Links to substance use and some academic outcomes, however, persist (McMorris & Uggen 2000, Mortimer & Johnson 1998, Paternoster et al. 2003, Schoenhals et al. 1998). Other techniques, such as fixed and random effects models and propensity score matching, have revealed no evidence of work hour effects on adolescent behavior or effects only on adolescents with low or moderate propensities to work (Lee & Staff 2007, Paternoster et al. 2003), but they have been applied to a limited set of behavioral dimensions to date.

Thus, research is moving toward a clearer picture of how developmental, educational, human capital, and behavioral outcomes are linked to employment in adolescence. The same can be said of studies on other social pathways of adolescents (e.g., academic pathways).

Social Convoys

Adolescence is a time of both quantitative and qualitative change in the matrix of social relationships. In particular, the push and pull between parents and peers has been a dominant theme of research on adolescence for years.

Over time, the normative break with parents in adolescence has been reconceptualized as a renegotiation of parent and child roles, not disengagement. In other words, adolescents may

spend less time with, and seek more autonomy from, parents, but they typically do so in the context of stable strong connections and parental influence (Larson et al. 1996). Similar trends extend to other family relationships (e.g., with siblings and grandparents), which may loosen more in terms of shared time than in emotional bonds (Crouter et al. 2004, King et al. 2003).

The idea of parent-adolescent renegotiation has led to new ways of thinking about oft-studied issues. One of the best examples concerns parental monitoring. The general consensus has long been that adolescents engage in fewer problem behaviors when their parents keep close track of what they do and with whom they associate, in part because monitoring constrains opportunities to engage in such behaviors and in part because it helps to develop adolescent self-control (Browning et al. 2005, Hay 2006). Yet, Stättin & Kerr (2000) have argued that the most common indicator of parental monitoring—parental knowledge about adolescents' activities and peers—may be an effect of adolescent behavior more than a cause. In other words, well-behaved adolescents share their lives with their parents, creating the appearance of monitoring being behaviorally protective. More likely, this link is reciprocal—monitoring promoting prosocial behavior that, in turn, increases parent-adolescent relationship quality, adolescents' openness to parental monitoring, and adolescents' willingness to self-disclose to parents (Fletcher et al. 2004, Yau et al. 2009). This debate has driven home the need to think of adolescents' developmental trajectories and social convoys as intertwined over time.

Along these same lines, adolescents are increasingly viewed as eliciting parenting, not just being shaped by it. For example, changes in U.S. antipoverty policy that emphasize the role of fathers have brought attention to nonresident fathers (Furstenberg 2007). Although the assumption is that having involved fathers is good for adolescents, this link partially reflects the tendency for nonresident fathers to be more involved in the lives of well-adjusted adolescents (Hawkins et al. 2007). As another example, the normative increase in parent-child conflict during adolescence is less pronounced for second- or later-born children, as parents learn what to expect from their first-born children (Shanahan et al. 2007). Another line of research that views both sides of the parent-adolescent relationship concerns the degree to which the characteristics and behaviors of parents and adolescents are aligned. Consider that religious mismatches within the family (e.g., religious mother and nonreligious adolescent, or vice versa) appear to engender adolescent problem behavior (Pearce & Haynie 2004). Approaching parent-adolescent relationships as evolving, two-sided, and mutually influential, therefore, is crucial.

Of course, peers continue to be a primary focus of research on adolescence. Much of this research concerns how friends influence each other and how adolescents select into different kinds of friendships, but more attention is now being paid to the larger peer groupings in which these friendships are embedded. For example, boys are at greater risk for emotional distress when they are members of networks that are large and cohesive, but girls are at greater risk in networks that are large and noncohesive. This gendered pattern reflects differences in the interpersonal styles of girls and boys (Falci & McNeely 2009). As another example, friendships tend to have greater influence on adolescent delinquency when they are embedded in dense networks (Haynie 2001). Many social and institutional settings, such as

schools and neighborhoods, can also be thought of as peer contexts, in that they organize the friendship market and serve as a center of youth culture (Harding 2009). Peer relations and dynamics within such contexts may be better characterized by qualitative groupings of youth (e.g., crowds) as opposed to quantitatively measurable collectives (e.g., networks). Indeed, many meaningful peer groups are fluid but matter because they provide common identity and serve as the practical universe of potential friends (Akerlof & Kranton 2002, Brown & Klute 2003). Barber and associates (2001), for example, used the archetypal characters from the movie *The Breakfast Club* (e.g., the jock, the rebel, the princess) as a way of organizing data collection on such peer crowds. Importantly, interpersonal processes that occur within larger bands of peers seem to do as much, if not more, to predict the positive and negative mental health and educational outcomes of adolescents than intimate friendships, especially in the long term.

Historically, scholars studied another key peer relation—romantic relationships—in terms of major developmental tasks (e.g., preparation for adult relationships), leading to a focus on their benefits (Shulman & Collins 1998). Later, risks took the spotlight, including links of girls' dating with depression, stress, and abuse, and more attention was paid to the consequences of stricter norms about appropriate dating (and sexual) behavior for girls (Hagan & Foster 2001, Joyner & Udry 2000, Kreager & Staff 2009). Increasingly, however, scholars have recognized that adolescent romance may be developmentally positive or negative depending on the characteristics of the partners, the quality of the relationship, and the context in which it occurs. For example, romantic relationships may foster early sexual activity but also reduce the psychological strain of sex and increase contraceptive use. They may be especially important as buffers against the potential harm of weak bonds with parents or as a stand-ins for close friends (Giordano et al. 2006, Manlove et al. 2007, McCarthy & Casey 2008). Importantly, although boys were long thought to be less oriented to and affected by romance, emerging evidence suggests that boys may have equally strong ties to their partners as girls and be more influenced by them. Along with their lower confidence in their romantic skills, these qualities might leave boys vulnerable emotionally to the vicissitudes of adolescent romance (Giordano et al. 2006).

An emerging task is to add a wider variety of extrafamilial and other familial relationships to this traditional focus on parents and peers. Taking such a holistic view of overlapping relationships as they evolve is the best way to capture the concept of social convoys.

The Social Embeddedness of Adolescence

As alluded to throughout the prior discussion, the three main strands of the life course play out—and come together—within social contexts, ranging from small primary and secondary groups (e.g., families) to larger societal institutions (e.g., schools) to macro-level social structures, such as stratification systems based on gender, race, and class. Here, we highlight some recent explorations of this social embeddedness of adolescence.

The Ecological Contexts of Adolescence

Because adolescents have limited mobility, neighborhoods can powerfully structure their lives physically and socially. As a result, studies of neighborhood effects have proliferated in

recent years, aided by neighborhood data in specific locales (e.g., Project on Human Development in Chicago Neighborhoods, L.A. Family and Neighborhood Survey), on the national level (e.g., Add Health), and through demonstration projects moving low-income families to new communities (e.g., the Moving to Opportunity, or MTO, experiment), as well as by qualitative studies of neighborhoods and communities. Most of these studies focus on neighborhood disadvantage and adolescent risk-taking (Bellair & Roscigno 2000, Browning et al. 2005, Dance 2002, Harding 2003, Kling et al. 2007).

Motivating much of this research is Wilson's (1996) perspective on spatially concentrated disadvantage, which is thought to disrupt networks of social capital that socialize and supervise youth and to hinder the effectiveness of local institutions (e.g., schools, churches) and informal networks in providing social control. Contemporary scholars have sought to identify the mechanisms involved in these processes. For example, Browning and associates (2005) reported that adolescents in neighborhoods of concentrated poverty experienced sexual onset earlier than others but that higher neighborhood collective efficacy delayed sexual onset, at least among adolescents experiencing lower levels of parental monitoring. These findings suggest conditional effects between neighborhood conditions and family functioning, appearing to contradict prior studies downplaying the possibility of multiplicative contextual influences (Cook et al. 2002). Importantly, studies such as another by Browning and associates (2008) raise the issue of rates of risky sex in turn affecting the concentration of STD risk in neighborhoods, with individuals shaping context. Such micro-to-macro examples are rare but need more attention.

As in all examinations of contextual effects, causality has been a concern in neighborhood research. Browning and associates (2005) have argued that findings varying by level of neighborhood exposure suggest true effects. In line with this argument, Harding (2003) reported that neighborhood poverty effects on adolescents persisted when propensity score matching was employed. He also noted that controlling for individual-level factors may obscure real neighborhood effects if they are affected by neighborhood features themselves, a point echoed by Chuang and associates (2005) in arguing that parents may adjust their parenting based on neighborhood conditions. Indeed, instead of isolating neighborhood effects by controlling individual, economic, and family factors, Bellair & Roscigno (2000) have advocated for viewing labor market opportunities as preceding neighborhood disadvantage, family income, and adolescent attachments, all of which affect adolescent behavior. In other words, instead of controlling for family income, family structure, and adolescents' attachments to family, school, and peers to evaluate the link between local labor market conditions and delinquency, they map the effects of local labor market conditions on delinquency through its effects on family income and structure and adolescents' attachments.

With an experimental design, MTO revealed compelling findings about the implications of switching from low-income to middle-income neighborhoods for adolescents. Interestingly, the benefits of such moves were limited to girls, including improvements in mental health and decreases in delinquency. The qualitative components of the experiment suggested several mechanisms underlying these gendered effects, including girls' greater freedom from sexual fears, boys' (especially minority boys') greater difficulty integrating into new peer networks, and boys' continued strong ties to peers from their former communities (Clampet-

Lundquist et al. 2006, Kling et al. 2007). Outside MTO, other qualitative studies of minority youth have detailed the gendered dilemma of youth adaptation to neighborhood disadvantage, especially crime. Girls must live up to feminized social expectations of them while trying to survive often violent conditions, and boys must develop fearsome personae that protect them on the streets but may disadvantage them in other contexts (Dance 2002, Jones 2010).

Another major ecological setting of adolescence is the school, where young people spend a large proportion of their waking hours. Scholars continue to decipher the effects of the organizational structure of schools (e.g., size, sector, and racial and socioeconomic composition) on student outcomes (see Arum 2000 for a recent review). Yet, the past decade has witnessed considerably more interest in the normative and social climate of schools, as captured by the rates of behaviors and social characteristics in the student body as a whole. These aggregated aspects of the student body tap into the value systems and opportunity structures to which adolescents are exposed on a daily basis, socializing them as well as affecting their ability to act on or against their own proclivities (Crosnoe 2011). For example, adolescents attending schools in which a high proportion of their fellow students come from single-parent homes transition to first sex earlier than others, as this feature of the student body indicates reduced parental supervision of adolescents and their peers and also speaks to normative understandings of sexual relationships and families among students (Harris et al. 2002). As another example, the average body size of students in a school sets the standard of comparison for adolescents' self-evaluations, affecting whether their own body size has implications for their socioemotional functioning (Crosnoe 2011). As a final example, behavioral patterns in the student body as a whole can constrain or strengthen close friends' similarities on substance use (Cleveland & Wiebe 2003). The peer culture of the school, therefore, provides opportunities that condition selection and socialization processes. Importantly, schools do not just expose students to a student body, they also organize peer subsets within the student body through activity and curricular offerings. Consider that the aforementioned *Breakfast Club* groups (Barber et al. 2001) often arise from extracurricular activities. Moreover, Frank and associates (2008) used school transcripts to identify adolescents sharing the same social and academic space in school, peer groups that were significantly related to student outcomes.

As for the connection between neighborhoods and schools, ethnographic work has been especially insightful. For example, several studies have illuminated the unique challenges faced by working class and low-income African American youth, especially boys, as they simultaneously navigate their neighborhoods and their schools with very different sets of racialized expectations for youth. For such boys, the tough and seemingly defiant posture that they develop among peers in their neighborhoods is often misconstrued and viewed negatively by the middle-class personnel in their schools, leading to academic marginalization and fueling pernicious ideas about the oppositional culture of minority youth (Dance 2002, Carter 2006).

The point of this neighborhood and school research is that ecological settings create social networks and contexts in which the powerful peer and family processes of adolescence

operate. Thus, going beyond structural dimensions of such settings to capture social processes is important.

Adolescence and Social Stratification

The adolescent population is quite diverse in terms of race/ethnicity, social class, and other markers of social location. Especially among sociologists, such diversity has motivated a great deal of research concerning the ways that adolescents' experiences are both a product of and contributor to major systems of social stratification (Morgan 2005).

In part because adolescence is a relatively healthy period in the life course, major health disparities are less common and consistent during this stage compared with others (Crockett & Peterson 1993). Indeed, adolescents from historically disadvantaged minority groups often are similar to or lower than whites in rates of many risky health behaviors, such as drinking (Harris et al. 2006). Yet, the recent rise in obesity has also been problematic from a long-term health perspective, particularly for African American and Latino/a youth (Ogden et al. 2010). Thus, adolescence may play a positive and negative role in race/ethnic disparities across the life course.

On a structural level, school segregation continues to be an issue of great interest (Rothstein 2004). Studies of school composition suggest that racial desegregation has academic benefits for both white and non-white students by exposing them to different ways of thinking and by leading to greater equity in school resources. Yet, students may also feel lowered senses of belonging and perceive more discrimination in diverse schools (Goldsmith 2004, Johnson et al. 2001, Rumberger & Palardy 2005). Progress in school desegregation has also often come with increased within-school segregation (Mickelson 2001). Recently, *Parents Involved*, in which the Supreme Court curtailed use of race in school assignment, has shifted attention from race to socioeconomic status. Efforts to socioeconomically desegregate schools, however, also demonstrate a mixture of benefits and risks, with research suggesting that academic gains might be accompanied by psychosocial problems and that socioeconomically integrating schools would not alter levels of racial segregation (Crosnoe 2009, Reardon et al. 2006).

On an interpersonal level, Ogbu's (1997) oppositional culture thesis—which, among other things, argues that African American and Latino/a peers de-emphasize achievement and equate it with acting white—has continued to generate debate. Quantitative examinations have provided little evidence of this phenomenon (Ainsworth-Darnell & Downey 1998, Harris 2006). Mixed methods examinations have suggested that it does occur occasionally but with some important caveats: (*a*) It is rooted in schools' long-term misunderstanding of minority group culture, and (*b*) it is not racialized but instead happens in youth culture more generally, in ways that are manifested differently by race and class (Carter 2006, Tyson et al. 2005). In total, research on oppositional culture has probably done less to unpack race/ethnic achievement gaps than it has to illuminate the nexus of youth culture and schooling.

For the most part, research on socioeconomic disparities has continued to focus on socioeconomic disadvantage (e.g., poverty), especially after the contentious public debate about welfare reform (Gennetian et al. 2008). Much of this research suggests that poverty is

clearly detrimental to adolescents but perhaps less so than it is for children (Duncan et al. 1998). At the same time, the past decade has also witnessed significant advances in our understanding of socioeconomic advantage. Lareau's (2004) work has been enormously influential. This research has demonstrated that middle-class parents tend to follow an approach to parenting, concerted cultivation, that prioritizes providing children cognitively and socially stimulating activities at home and in formal organizations that develop skills, enhance their senses of entitlement, and teach them how to work institutional systems. Such parenting is so well aligned with the American educational system that it gives their children a competitive edge in school. Initially, Lareau focused on elementary school, but her basic insights have been replicated in studies of adolescence (Crosnoe & Huston 2007, Kim & Schneider 2005). Moreover, Lareau's recent follow-up of her sample in young adulthood revealed that parenting-related socioeconomic advantages persisted into adolescence and beyond.

Turning to immigration, traditional assimilation perspectives posited improved outcomes for the descendants of immigrants compared with immigrants themselves. Yet, newer research suggests that the foreign- and U.S.-born children of immigrants outperform third-plus-generation youth, despite higher levels of socioeconomic disadvantage among immigrants. Evidence of this immigrant paradox is more consistent among adolescents than children (Glick & Hohmann-Marriott 2007, Kao 1999, Portes & Rumbaut 2001, Suarez-Orozco et al. 2009). This age difference could reflect adolescents' greater time to adapt to American schools and culture. It could also reflect biases in high school data sets, as immigrants from many regions are more likely to drop out of or bypass school (Oropesa & Landale 2009). Perhaps more importantly, evidence of the immigrant paradox varies widely according to national origin, race/ethnicity, and socioeconomic status. For example, adolescents whose parents emigrated from Asia best illustrate the immigrant paradox, at least in the academic realm. Asia is a region in which migration is positively selective on education and income, but, beyond socioeconomic status, Asian immigrant parents tend to have high standards of academic success, go to great lengths to secure educational opportunities for adolescents, and are highly planful (especially financially) about education (Kao 2004, Zhou 2009). This diversity in immigrant outcomes has supported theoretical reconceptualizations, such as segmented assimilation (Portes & Zhou 1993), contending that the outcomes of assimilation depend on the context in which it occurs.

Of course, the adolescent population is stratified by factors beyond race and family background that also shape trajectories into adulthood. Two examples are obesity and homosexuality. Because of the stigma of obesity in American culture, obese youth are at heightened risk for psychosocial difficulties, which appear to disrupt their educational trajectories (Crosnoe 2011). Similarly, same-sex-attracted youth often face strong social sanctions during high school that can filter into multiple domains, including academic progress (Pearson et al. 2007, Russell & Joyner 2001). In both cases, adolescents' characteristics position them on a social hierarchy to create short-term problems with long-term consequences. These stratifying processes are similar to gender, race, class, and immigration in that their significance in adolescence may create and reinforce unequal life chances.

New Directions for Research on Adolescence

Attempts by sociologists and other scholars over the past two decades to answer many of the tough questions about adolescence have raised additional questions. Having looked back, therefore, we now look forward. Given the space allowed, we have decided to focus on three specific future directions that touch on particularly provocative and timely debates and discussions in the field.

Biosocial Processes

In recent years, the integration of biomarkers with psychological and social data has helped empirical activity catch up with developmental theory. The sociological value of this activity is not in establishing genetic effects on adolescent behavior but instead in understanding the interplay of genes and environment at work in adolescent behavior (Guo et al. 2008).

Understanding latent genetic influences has been aided by the creation of sibling samples, which allow assessments of sibling similarity in behavioral or other outcomes across sibling pairs of different degrees of genetic relatedness. Analyses of data from one such sample, the Nonshared Environment in Adolescent Development project, have elucidated the ways in which genetic traits select adolescents into different relationships and elicit different kinds of parenting. They have also demonstrated how the experiences that siblings have outside the home differentiate them on developmental outcomes, despite their genetic relatedness (Reiss et al. 2000). Research on Add Health's diverse sibling pairs subsample has been particularly insightful about variability in shared environment and observed heritability of behaviors across social settings (Boardman et al. 2008). For example, adolescent aggression is genetically influenced in both socioeconomically advantaged and disadvantaged communities, but the effects of shared environments (e.g., social influences experienced by both siblings) are significantly stronger in disadvantaged communities (Cleveland 2003).

Turning to specific genetic influences, the collection of genetic data in behavioral studies has encouraged deeper exploration of gene-environment interactions. For example, Caspi and associates (2003), drawing on biological and psychosocial data from New Zealand, reported that stressful life events had a larger impact on depression among youth with short alleles of the 5-HTT promoter polymorphism, which reduces efficiency of serotonin reuptake in the brain. Research by Guo and associates (2008) with the genetic data in Add Health demonstrated that the significance for delinquency of DRD2 alleles, which reduce efficiencies in the dopaminergetic system, is weaker in families with well-organized routines. Such studies push for a transactional view of biology, development, and environment.

Particularly important are genetically informed studies comparing adolescence with other life stages. For example, Dick and associates (2006), working with genetic and psychosocial data from the United States, reported that the presence of a gene-regulating neurotransmitters, GABRA2, was associated with conduct disorder in adolescence and then with alcohol use in young adulthood. Thus, a genetic predisposition toward risky behavior is manifested differently across stages. A sociological interpretation is that entry into new settings across the transition from adolescence to adulthood might account for such changes.

As for other biomarkers, cortisol is a central hormone in stress response. Because cortisol levels tend to decline over the day, flatter diurnal patterns may signal health risks through the overactivation of physiological stress response (Susman 2006). Efforts to integrate saliva samples and time diaries have revealed that minority youth report higher levels of chronic stress and demonstrate flatter cortisol patterns across the day than whites. Thus, identifying biological mechanisms underlying links between environmental stress and adolescent health may shed light on the role of adolescence in health disparities (DeSantis et al. 2007). Similarly, immunological processes provide a window into environmental effects on youth. For example, McDade (2001) has combined samples of Epstein-Barr virus antibodies with lifestyle data. This work indicates that the stress that adolescents feel from modernization in developing countries is manifested in reduced immune functioning. Like neuroscience, this biomarker research is more common outside sociology, but it touches on core sociological questions, such as the effects of social integration on life chances, thereby representing a growth area for sociologists.

The nature versus nurture debate, therefore, seems to be dying. Indeed, research on adolescence is turning to the synergistic interplay between nature and nurture. Sociologists interested in adolescence have a significant role to play in uncovering the complexities of this interplay moving forward.

Linking Life Stages

Adolescence is better understood when it is viewed within the full life course, and we are now well poised to theorize and empirically evaluate linkages between adolescence and other life stages (Johnson et al. 2011). As noted in the opening section of this review, advances in longitudinal sampling and modeling have facilitated asking and answering questions that involve processes unfolding over time and across contexts. At least in some domains (e.g., education, work), scholars of adolescence are accustomed to thinking about how adolescent experiences affect adult life. Both looking back to childhood and looking forward to adulthood, however, will enable us to elucidate the role of adolescence in the life course.

For example, initial curricular placements and academic achievement in high school are recognized as important to concurrent and future well-being. Yet, the past decade has also witnessed greater emphasis on understanding proximate and distal factors involved in producing varying levels of high school achievement. By following Baltimore schoolchildren from first grade into early adulthood, Alexander and associates (2007) were able to capture the full educational career and, in the process, identify critical periods. Socioeconomic disparities in academic progress at the start of high school were traced back to corresponding disparities in place at the start of first grade and to summer learning differences by socioeconomic status during the elementary school years. These ninth grade differences were then linked to curricular track, high school completion, and college attendance. Their interpretation emphasized how foundational the skills are that are learned in the early years of schooling and the ways in which the in-school and out-of-school settings and experiences that stratify early learning can have lasting, even accumulating, consequences for the life course. Exclusive focus on the adolescent years, and particularly

the high school years, misses these processes set in motion much earlier and likely obscures the best points of intervention (Heckman 2006).

As another example, pubertal timing may be a conduit in the connection between disadvantage in childhood and adulthood. Consider that family adversity is among the myriad biological and environmental factors accelerating pubertal timing (Belsky et al. 2007). Cavanagh and associates (2007) have reported that early pubertal timing during middle school is linked to lower grades and the likelihood of course failure at the start of high school, and that as a result, high school completion and the grades of those who graduate are also affected. By stepping back to view longer-term processes, we see additional mechanisms through which family disadvantage impacts children's success in adolescence and adulthood, operating via biological and social processes, as well as their complex interactions.

Finally, charting individual trajectories over time provides important context for understanding what is observed in adolescence. The influential differentiation between life course persistence and adolescence desistance in criminal behavior is one example (Moffitt 1993). Another concerns adolescent substance use, which is embedded within a variety of long-term trajectories that have distinct meaning and consequence. Following cohorts of adolescents in the Monitoring the Future Surveys into adulthood, Schulenberg and associates (2005) linked different patterns of substance use to the pathways through which adolescents transition into adulthood. Levels of substance use in adolescence anticipated the configuration of role transitions young people experienced in the years immediately following, but were also shaped by them. Young people who worked and did not attend school during these years binge drank more frequently during high school. Those who moved away from home for college were less frequent binge drinkers in high school but quickly caught up. These patterns suggest the varied settings and conditions that different adult statuses bring but also the potential for psychosocial preparation for these statuses during adolescence.

The life course paradigm emphasizes that development is lifelong and that no life stage can be understood in isolation. These examples highlight the advances that can be made if we rise to the challenge posed in this life course principle.

Social Change

Of course, linkages among life stages are also shaped by broader changes in the structure of society. Economic restructuring, for example, is dramatically affecting education and employment in young adulthood and beyond, and we need to better understand what this means for adolescents. Changes in the relative size of the manufacturing and service sectors have occurred in such a way as to reduce the availability of jobs with benefits, increase the income premium of higher education, and create greater fluidity between jobs (Goldin & Katz 2008). Furthermore, Fullerton & Wallace (2007) characterized a set of interrelated changes occurring since the 1970s, including declining unionization, downsizing, growing use of contingent labor, and organizational restructuring as a "flexible turn in U.S. labor relations (p. 201)," which has eroded workers' perceptions of job security. Such changes are increasing the importance of adolescents' educational experiences in the status attainment

process, thereby magnifying the significance of all of the factors discussed in this review that matter to these experiences.

In this context, the process of becoming adult has clearly changed, with scholars suggesting that adolescence has been extended to older ages or even that a new life stage should be recognized (Settersten et al. 2005). Demands for and returns to education have risen, and relatedly, the period of dependency and semi-autonomy has lengthened. We know young people are staying in school longer, more often combining employment with higher education, and marrying later (Bernhardt et al. 2001, Fitzpatrick & Turner 2007, U.S. Census Bureau 2006). Although race/ethnic and socioeconomic variability in these patterns has long been recognized (Settersten et al. 2005), we are only just beginning to address a number of other important questions related to these broad social changes, including what they mean for the achievement of social and financial autonomy and relationships with others, including parents, and what we need to equip adolescents with in order for them to successfully navigate the transition to adulthood.

Two major collaborative efforts have laid an important foundation for understanding the implications of these social changes for adolescence. The first is the MacArthur Research Network on Transitions to Adulthood and Public Policy (Settersten et al. 2005). It has reported, among other things, that parents, especially those with more resources, increasingly support their children through the transition to adulthood financially and otherwise. About one-third of 18–34 year olds in the Panel Study of Income Dynamics received cash support from their parents, at an average of just over $3,400 per year (Schoeni & Ross 2005). This and other forms of ongoing material assistance (e.g., support of higher education pursuits, allowing children to remain in the home, assistance in establishing independent households, providing childcare) may be yet another way in which parents' level of education and income can affect the status attainment of their children. The second effort is the Society for Research on Adolescence's Study Group on Adolescence in the Twenty-First Century (Larson et al. 2002). One of its reports has argued that changes in family size, structure, and relationships; increased participation in school and after-school activities; and the advent of the Internet have created new opportunities for adolescents to develop more flexible social skills and capacities to move between diverse social worlds. It also notes, however, that those from families in poverty and those in elite families are more deprived when it comes to the social experience that builds these skills.

Another major social change concerns the transformation of social interaction though new media and technologies. The Pew Internet and American Life Project has reported that, in 2009, 75% of 12–17 year olds had cell phones and 93% went online (Lenhart et al. 2010). The report also indicated that 76% of families with adolescents now had broadband access at home. Adolescents also go online via cell phones and portable gaming devices, in addition to computers at home. These technologies offer new opportunities for leisure, shopping, and staying in touch with others, as well as broader access to information and support. Roughly one-third of adolescents in the Pew study who went online used the Internet to gather information on health, dieting, or physical fitness, and 17% looked online for information about sensitive health topics, such as those related to drug use, mental health, and sex (Lenhart et al. 2010).

Importantly, the Internet can also be thought of as a new kind of peer context. A recent study of 800 American youth revealed that, for most youth, new media technologies are used primarily to maintain and extend friendship networks (Ito et al. 2010). Moreover, the Internet provides opportunities for socially isolated youth to connect with others in meaningful ways while also enabling the peer cultures of high school—including negative dimensions, such as bullying and gossiping—to follow young people home (Crosnoe 2011, Raskauskas & Stoltz 2007). Thus, new media represent a potential context of resource and risk related to peers.

Other potential risks ranging from driving accidents related to texting or talking on cell phones to exposure to questionable online content or social interactions (e.g., pornography, gambling, sexual solicitation) have concerned parents, educators, and lawmakers. Debates continue over whether risks can also accrue from the potentially sensitive or identifying information, including pictures and videos, adolescents post online about themselves and one another, or whether this is a healthy part of adolescents' self-expression and identity exploration. Nearly three-quarters of online youth use a social networking Web site such as Facebook or MySpace (Lenhart et al. 2010). A recent content analysis of teenagers' MySpace pages indicated that 40% of adolescent users restricted access to their pages to identified friends. Yet, 10% of adolescent users who did not restrict access posted their full name, and many more listed their hometowns and the name of their schools, which could be used to identify them (Hinduja & Patchin 2008).

Relevant empirical evidence about these concerns, however, is rare, and the topic is notably absent from the top sociological publishing outlets. Yet, sociologists have much to contribute, as adolescents' use of new media raises important questions about social networks, personal relationships, and identity development. What are the implications of cell phone use or online communication for parental monitoring and peer interactions? Do electronic interactions replace or complement face-to-face interactions? Do online venues provide a safe or dangerous place for identity work? As an example highlighting the potential work to be done, Blais and associates (2008) reported that Internet activity was related to changes in the quality of best friendships and romantic relationships over the course of a year among Canadian adolescents. Specifically, use of instant messaging, which occurs with known others, enhanced these relationships, but visits to chat rooms, which primarily involve communicating with strangers, were associated with worsening relationship quality over time. As these findings suggest, we will need to be specific about the types of media being used when we attempt to understand their implications for today's adolescents.

Conclusion

As is evident from this review, the rich sociological tradition of research on adolescence has continued into the new century. Still, the sociology of adolescence may be at something of a crossroads. The mapping of the human genome and the increasing sophistication of brain imaging are reshaping the scientific agenda in ways that, at first glance, do not tap into the traditional strengths of sociologists. At the same time, the renewed interest in childhood as a critical period—generated by findings that early interventions bring greater long-term

returns to investments than those targeting adolescence (Heckman 2006)—has shifted attention to earlier stages. Another way of looking at these developments, however, is that they are opportunities. Indeed, sociologists are well-positioned to demonstrate how biological processes cannot be understood absent a firm sociological understanding of the environment in which they play out over time, explain how the long reach of childhood is channeled through adolescence, and identify ways in which adolescence produces turning points and deflections in the life course.

Acknowledgments

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Summary Points

1. Research on adolescence has moved in a sociological direction by emphasizing the role of context in shaping adolescents' lives and the link between adolescent development and societal inequality, fueled in part by recent advances in data collection and methodology.

2. Early childhood experiences are very important to long-term health, educational, and behavioral trajectories, but adolescent experiences play key roles in this process by magnifying or deflecting children's trajectories.

3. Many of the major developmental trajectories of adolescence, including those related to puberty, risky behavior, academic achievement, health, and identity development, reflect a complex interplay of biology, personal agency, and environment.

4. Adolescents' navigation of institutional systems, such as school and work, have become increasingly complex and interrelated, with high school coursework more consequential to long-term outcomes in the globalized economy and paid work during adolescence becoming more common and potentially either risky or beneficial for educational attainment depending on motivation, background, and academic competence.

5. Adolescents tend to spend less time with parents and other relatives and seek more autonomy while becoming more immersed in expanding peer networks, including romantic networks, but they typically do so while maintaining strong emotional ties to their families.

6. Although much of the research on school and neighborhood effects on adolescent behavior has focused on the structural features of these contexts, more attention is being paid to the ways in which they organize peer groups that differ widely in terms of norms, values, and behavioral opportunities, as well as the ways families affect and respond within them.

7. Gender, race, social class, and immigration stratify adolescents' lives, with poor and/or minority youth particularly vulnerable in the educational system, through a variety of structural inequalities and interpersonal processes, but immigrant youth often demonstrate a high level of resilience in the face of similar risks.