CHAPTER 26

DEVELOPING TALENTS IN GIRLS AND YOUNG WOMEN

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After a comprehensive review of the literature, Subotnik, Olszewski-Kubilius, and Worrell (2011) concluded that giftedness is

> the manifestation of performance that is clearly at the upper end of the distribution in a talent domain even relative to other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental in that in the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted. (p. 3)

In our discussion of gifted girls and women, we accept this definition and Subotnik et al.'s developmental perspective—with several caveats. First, gifted education literature is itself gendered. In the early literature, the failure of gifted women to achieve eminence was simply accepted without question (Terman & Oden, 1935), and the reasons for this failure were superficially examined. Throughout a century of research in sex differences studies, intellectual abilities that were found to be higher in boys were given disproportionate emphasis. The "mathematics gap" was investigated intensely—until it disappeared (Hyde, 2014). Mathematical precocity was studied thoroughly in longitudinal studies, whereas verbal precocity, where girls have a moderate advantage, has languished (Kerr & McKay, 2014). The failure of women to achieve the highest levels in science, technology, engineering, and mathematics (STEM) was accorded millions in funding and has garnered hundreds of articles, but most of the emphasis, until the last decade, focused on intrapsychic variables (e.g., lack of self-efficacy, math anxiety) rather than obvious social and cultural variables (e.g., childrearing). As women closed the gap in many areas of STEM, interest turned overwhelmingly to narrow, specific abilities (e.g., spatial–visual rotation), where boys still held the advantage—even though these abilities were found to be highly influenced by experience and quite malleable (Uttal et al., 2013).

The temptation toward essentialism—the belief that boys and girls are essentially different in abilities, personalities, and interests—is strong in gifted education. Even the concept of eminence is itself gendered, because male-dominated fields such as physics, architecture, and philosophy are considered to require "genius" (Leslie, Cimpian, Meyer, & Freeland, 2015), whereas lists of eminent nurses, social workers, and textile artists are nowhere to be found.

Second, although many authors in gifted education implore scholars to consider the impact of race, socioeconomic status, sexual orientation, and other intersectionalities, the actual quantity of research on these variables is sparse, and the majority of studies of giftedness continue to focus mainly on White youth and adults from privileged backgrounds. With inequality growing in the United States and the world, and the continuing oppression of racial, sexual, and religious minorities, it seems important that the construct of distance from privilege be

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considered along with intellectual abilities and psychological factors in predictions of achievement and eminence. *Smart Girls in the Twenty-First Century* (Kerr & McKay, 2014) is based on a model of female talent development as the interaction of abilities, personality, passion, and privilege with education, opportunities, and gender relations. This model of female talent development is an expanded and validated version of the Noble, Subotnik, and Arnold (1999) model of talent development that explains how the *foundations* of ability, personality, passions, and distance from privilege meet the *filters* of education, opportunities, and gender relations to result in women's participation in public or personal *spheres* of achievements. In this chapter, we try to note wherever presence or absence of privilege may mediate or moderate the results of investigations.

What follows is an attempt to highlight all the research at the intersection of giftedness and gender—with attention to other intersectionalities that may make it more or less likely that a gifted girl will achieve eminence in her field.

FOUNDATIONS OF TALENT DEVELOPMENT: YOUNG GIFTED GIRLS

Young gifted girls are building the foundations of talent development as they manifest their intellectual abilities and are encouraged with appropriate challenges. They display the temperaments that will form the basis of their personalities, and parents socialize them by encouraging or discouraging characteristics like curiosity, independence, sociability, and striving. As is true for all human children, talent development is a constant dance of nature and nurture, and the realization of potential must take into account not only ability and temperament, but also those abilities and characteristics that will be encouraged by family, teachers, and culture (Ackerman, 2014).

Early Signs of Intelligence

Meta-analyses in infant research (Kavšek, 2004) consistently show that early signs of visual habituation (getting used to a stimulus quickly) and rehabituation (quickly recognizing a familiar stimulus) are indeed linked to later intelligence. Easily fascinated and ready to learn, bright female infants may show these signs, as well as greater inhibitory control and perceptual sensitivity than bright male infants or average infants of both sexes (Else-Quest et al., 2006).

According to several studies, girls outperform boys in the acquisition and use of verbal information, and this begins early as young girls pick up the meaning of words and try to use them appropriately (Hyde & Lynn, 1988).

Early Reading

Gifted girls are more likely to read earlier (between ages 3 and 5) than average (between ages 5 and 7), and intellectually gifted girls are even more likely to read precociously (Lovas, 2011). Large studies of precocious readers have found that very little of what could be called "teaching" of reading takes place for these children (Stainthorp & Hughes, 2004). Rather, reading begins within a warm, playful relationship with a parent or caregiver who engages in storytelling, reading aloud, and word play.

Not all precocious readers are later identified as gifted; however, many children later identified as gifted—especially girls—were found to be early readers (Kerr & McKay, 2014). Although precocious reading does often indicate giftedness, Stainthorp and Hughes (2004) noted that it is wrong to assume any child who is reading at age 3 or 4 is just memorizing or decoding words without comprehension. Many gifted girls have superior ability to pick up the skills of reading and to read independently, as long as they have access to the sounds of the alphabet and phonemes. Follow-up studies have shown that, even by age 11, early readers maintain their advantage in reading skill and vocabulary. Unfortunately, myths about reading precocity have often led school administrators to ignore early reading as a sign of giftedness (Kerr & McKay, 2014).

Early Admission to Kindergarten

When gifted programs are not available, early admittance to kindergarten may be the best option for challenging gifted girls. Many school districts resist this, however, where delaying kindergarten, especially for boys, is considered an acceptable way of ensuring larger size and social maturity.

In some places, laws or school district policies prevent 4-year-olds from entering kindergarten, despite the fact that it is often the best choice for gifted girls, who often are more advanced in emotional and social development (Colangelo, Assouline, & Gross, 2004; Gagné & Gagnier, 2004).

Precocity in Specific Abilities

Across studies, most creatively eminent individuals show an early passion for a specific intellectual activity. Early engagement is critical in some fields (e.g., music), where few achieve eminence who did not begin their career as children, and other, later developing talents (e.g., writing). Great accomplishment in any field is directly related not only to ability, but opportunities for early engagement and practice (Ackerman, 2014). For girls, an early passion not only builds important skills, but also may provide resilience in the face societal pressures to redirect interests.

Precocity is often observed at early ages in three domains: music, language, and mathematics. Research has emphasized the importance of early nurturance of musical talent (Haroutounian, 2002). Musically gifted children usually show signs of noticing off-key music, remembering melodies, singing in tune, enjoyment of playing instruments, rhythmic ways of moving, humming, tapping, and sensitivity to sounds. Musically gifted girls need early development of this ability, but privilege often determines whether individualized instruction is available.

One of the most neglected specific abilities in the United States and other English-speaking countries is linguistic ability. Many myths have been perpetuated about the early learning of another language. Teachers and speech therapists may insist that learning a second language will interfere in language learning, even though the opposite is true (McAlister, 2009). Nearly all children will learn to speak an unaccented second and third language by age 4, if they begin hearing and speaking in all of the languages. Gifted girls who speak less-privileged languages in the home, especially Hispanic girls, may not have their bilingualism noticed as a talent. Given gifted girls' superior development of verbal fluency compared with boys (Hyde, 2014), learning a second language in early childhood may be particularly important for girls.

Much has been written about development of talent in mathematics (Richardson & Benbow, 1990; Rotigel & Fello, 2004). Unfortunately for gifted girls, common stereotypes and myths about boys' superiority in math may prevent parents and teachers from noticing math ability in girls (Jacobs & Bleeker, 2004). Like mathematical ability, there is a tendency for scholars to emphasize sex differences in spatial ability, which also favors boys (Hyde & Mertz, 2009). These differences are seen most often in tests that emphasize tasks that are particularly interesting to boys (e.g., imagining how something mechanical works). Gifted girls need early challenge in mathematics, as well as the opportunity to practice spatial–visual skills.

First Friends and Play

All children pass through developmental stages in their understanding of friendship, and girls are consistently more advanced than boys in their choices and expectations for friendships. Historically, most educators have thought that gifted children's social needs were mainly for intellectual equals who could discuss ideas on the same level (Hollingworth, 1929). Friendship is critical to children's development, particularly when children are exceptional or twice exceptional (i.e., having giftedness and a learning disability; Asher, Brachial, & McDonald, 2013). A study on the friendships of 700 children of average, moderate, and high intellectual ability found that gifted children also need friends who had developed to higher levels of understanding of friendship (Gross & van Vliet, 2005). Highly gifted, young children want a "sure shelter" in a friend—someone who provides and receives trust, fidelity, and compassion. Even moderately gifted girls mature more rapidly than gifted boys and average girls and boys in their friendship needs, and seek the company of other gifted children or older children. When they are forced to learn, play, and socialize with children of the same age, gifted girl will often become the "odd girl out," because neither group understands why gifted girls are different.

As has been found previously, from Terman (1925) to Kerr and McKay (2014), the interests,

aspirations, and play activities of gifted girls are more like those of gifted boys than they are like those of average girls. Gifted children of both sexes tend to be androgynous in their interests and activities. Highly gifted and creative girls sometimes face rejection from other children because of their unusual interests—and this may lead to gifted girls preferring solitude. It appears from the few studies of very young gifted girls, however, that most of them manage to combine their adventurous, problem-solving, exploratory activities with more traditionally feminine play interests (Kerr & McKay, 2014).

Three decades ago, boys' and girls' books, toys, clothes, and games were much less segregated; however, Disney's discovery of the marketing power of princesses and their explosion of princess product lines led to greater differentiation among girls and boys (Orenstein, 2011). Developmental psychologists described how from 2 to 4 years old, children have very rigid, concrete notions about gender categories. These categories are formed through superficial cues (e.g., clothes and toys that make them boys or girls), and they are eager to show that they understand their category and anxious about any change in the cues that make their gender less obvious. Gifted girls need opportunities to transcend these rigid gender categories when they are ready, and nongendered toys need to be available.

Gifted Girls in Schools

The most sweeping changes to public education in the United States have occurred because of the No Child Left Behind Act (NCLB; 2002), and its requirements for frequent testing with state-developed assessments showing adequate yearly progress in raising scores on tests (Gallagher, 2004). The Thomas B. Fordham Institute has documented the ways in which NCLB has negatively affected gifted children by focusing teacher attention on slower learners (Finn, 2014). Compared with gifted boys, gifted girls may draw less attention to themselves (Kerr & Cohn, 2001). In addition, parents of boys may be more likely to push for school accommodations for their sons. A substantial number of teachers view parents of gifted children as pushy and elitist, particularly when they ask for some form of acceleration, which is viewed negatively by half of all teachers, according to a national survey (Siegle & McCoach, 2005). As a result, gifted girls may be invisible in the classroom, even camouflaging their abilities. Girls who use these coping skills can blend into the classroom so well that their teachers are often surprised when high scores on intelligence or achievement tests show these girls' true abilities (Swiatek, 2002). NCLB has worsened this situation because teachers are required to focus on the needs of less-able students.

Teachers who have had some training in gifted education are much more positive about gifted children and more effective in teaching gifted children (Hong, Green, & Hartzell, 2011). Teachers with training not only notice gifted girls, but can recognize their coping strategies. These teachers have knowledge of the many models of gifted education and choose those strategies that fit the individual child. Unfortunately for gifted girls of less privilege, access to gifted education is unlikely; parents with financial means are choosing private education (Reardon, 2013) and homeschooling (Rivero, 2002) more often, where there is greater access to acceleration and educational enrichment.

Alone Time

A major theme in the lives of eminent women in arts, sciences, and humanities is the importance of solitude. Because gifted girls are socialized to value popularity, friendship, and gregariousness more than gifted boys, they often are pressured to play with others when they prefer to be alone (Kerr & McKay, 2014). Solitude for gifted girls provides time for imaginative play, engagement with nature, and the friendship of books. Scholarship and creativity require a high tolerance for being alone, and it is in childhood that girls are most likely to learn the skills of solitude. When girls are given too much guidance, too many directions for how to play, and too many rules for what to do when playing alone, they may never develop a sense of inner freedom and playfulness of spirit. Even those whose temperament is toward emotional independence may be required to conform to the expectation that girls be sociable.

Most female scientists began their careers as girls exploring the outdoors and making things; but

parents tend to provide fewer of these experiences to their daughters than to their sons (Eccles, 2015). Female artists developed their sense of organic form and color through experiences in nature (Kerr & McKay, 2014). Female leaders may practice their capacity to nurture, teach, and lead by caring for animals. Alone time allows gifted girls to spend time immersed in their explorations.

Finally, for many gifted girls, books are considered their best friends. Voracious reading in early childhood is a characteristic of most eminent women (Kerr & McKay, 2014). Access to books (e.g., through library membership) and the Internet provides girls with ways to explore the world in a self-directed way during alone time.

FILTERS: EDUCATION, GUIDANCE, AND GENDER RELATIONS OF THE ADOLESCENT GIFTED GIRL

In the 1990s, public attention focused on the sudden shift that occurred in the self-expression of adolescent girls, and several books written at this time had important implications for gifted girls. Adolescent girls, according to Brown and Gilligan (1993), stood at the crossroads; only a few continued with confidence in the opinions and values they held as children. Others seemed to lose faith in their own voices as they attempted to conform to an image of girls as shy, withholding, and modest. In *Schoolgirls*, Orenstein (2013) described the drop in self-esteem that occurs between ages 11 and 17, which was common in the 1990s. Twenty years later, adolescent girls have caught up and surpassed boys in achievement in many academic domains, and score similarly in self-esteem (Hyde & Mertz, 2009). Gifted girls, however, still lack confidence in their intellectual abilities compared with gifted boys. Dai (2002) reviewed the literature on gifted girls' motivation for achievement and concluded that despite the advances in gifted girls' achievement, significant work needs to be done if they are to fulfill their potential.

Middle School

Characterized by a strong ideology centered on the belief that early adolescence is a distinct developmental period, the middle-school movement held that education should primarily prepare young people for participation in a diverse, democratic society, and that collaboration, community, and teamwork should be emphasized over competitiveness (National Middle School Association, 2005). Proponents of the middle-school movement thought that the best way to achieve their ideals was with heterogeneous groupings; thus, grouping by ability became rare. Only in math, where the differences in ability are so vast that something must be done for very low-performing students (under NCLB), will these schools offer some cluster grouping by ability. For gifted girls, who are advanced intellectually and socially, middle school may represent a stressful period of boredom and frustration. Although girls in general like collaborative learning, the favored method of teaching in middle school, gifted girls may dislike the way they often end up doing most of the work (Ramsay & Richards, 1997).

Talent Search and Gifted Girls

Talent search programs are run by universities in several regions throughout the United States and internationally (Lee, Matthews, & Olszewski-Kubilius, 2008). They provide high quality, accelerated, and enriched gifted programming during summers and online to elementary and middle school students who receive high scores on college entrance exams (e.g., ACT, SAT) during the seventh grade. In the past, special programs were only available to students who scored at or above the mean for high school seniors; now, however, there are hundreds of programs offering challenging courses to students with a wide variety of criteria. Sadly, there are still schools that do not encourage gifted students to apply to these programs. In poor schools serving minority students, the required testing and tuition may be considered prohibitively expensive. Gifted girls are less likely to take advantage of these programs if they are not confident in their abilities and may be more reluctant than gifted boys to take academic risks (Brody & Mills, 2005).

Skipping High School

Skipping high school entirely may be a viable option for gifted girls, according to Solow and Rhodes

(2012), who studied the long-term impact of early college entrance and special guidance on girls. Many parents, and even the girls themselves, had trepidations about skipping high school and going straight to college. This radical acceleration turned out to be effective in providing highly gifted young women development of their intellect and a feeling of a proper fit in the world; the specialized guidance and strong community supported their development (Solow & Rhodes, 2012). Like Talent search programs, opportunities for girls of lower privilege are limited by expense and their lack of exposure to special programs.

High School and Preparation for College

By high school, most gifted girls gain confidence and become involved in a wide variety of activities with less adult supervision outside of regular classrooms. Currently, it is specialized high schools, "exam schools," and residential high schools for gifted students that provide maximum opportunities for the development of talents. When opportunities are available, most academically talented gifted girls will maintain high academic achievement, as well as hold leadership positions in school activities (Mendez, 2000).

At one time, adolescent gifted girls would fall behind gifted boys in their career aspirations; however, they now continue to have high aspirations throughout high school and while planning for college. Given proper guidance, gifted girls know that they can strive for medical school, law school, or graduate school. They often have a career goal and at least a partial plan for getting there. Exploring their options for college is easier with parental support and the financial means to visit various college campuses, but it is important that girls begin thinking about college as early as their sophomore year of high school. Similarly, retrospective studies of gifted women who made early decisions about college found they had fulfilling career goals and significant relationships, as well as greater life satisfaction; they also reported being happy, proud, and satisfied with their relationships, as well as with their financial success (Perrone et al., 2006).

In poor communities and in underfunded schools, gifted girls are exposed to low expectations held for their peer group. Studies of talented at-risk girls, as well as studies of high-achieving minorities, showed that the adolescent gifted girls who had strong support of their families, who were provided with homes and safe out-of-school environments, and who were engaged in church and community activities were likely to survive, and even thrive (Kerr & Robinson-Kurpius, 2004). In African American communities, churches provided safe places to interact with teens and adults, and often offered musical and leadership activities that were missing at school. In many poor communities, strong athletic involvement provides not only a safe place but also a chance to stay healthy and strong. Athletic activities are a protective factor in reducing teen pregnancy, substance abuse, and exposure to violence (Johnson, Roberts, & Worell, 1999). For Hispanic girls, the extended family is a safety net; for American Indian communities, tribal involvement provides a strong sense of identity and pride that protect gifted girls against threats to their self-esteem (Kerr, Kurpius, & Harkins, 2004).

The Role of Advanced Placement, International Baccalaureate, and Honors Programs

Too often, the only gifted education programs available to bright students in high school are advanced placement (AP) and international baccalaureate courses and honor societies. Although students in these programs do perceive themselves to have higher stress than students in regular curriculum, they are as well-adjusted as their peers in regular programs (Suldo & Shaunessy-Dedrick, 2013). In fact, these programs amount to a "narrow escape" from boredom and social competition in high school culture (Hertberg-Davis & Callahan, 2008). Because these courses and honors usually come later in high school, freshman and sophomore gifted girls may continue to suffer the same neglect they experienced in middle school. On the positive side, AP courses provide a valuable opportunity to move ahead through college level material, allowing the student with qualifying test scores to enter more advanced courses in college. The cost for the end-of-year tests are increasingly expensive and often out of reach for poor students in schools that do not subsidize

the costs. Still, the cost to register for the test is less than the tuition cost of taking the course in college, so "testing out" through AP is a worthwhile option. Some AP programs are subsidized by school districts or foundations, so financial assistance is often available.

Fewer girls than boys enroll in AP courses for calculus, physics, computer science, and other physical sciences; fewer girls than boys take and pass AP tests overall (U.S. Department of Education Office of Civil Rights, 2012). Many theories have been proposed, and much research has been done, but it appears that by junior year, girls often feel like they don't have a place in those classes. In many ways, computer science and coding for software are the new "math filter" that screen young women out of opportunities for highly paid and highly desirable occupations. Four years of mathematics without computer science may not be enough to ensure admittance to technology-dependent college majors (Kerr & McKay, 2014).

Romance, Intimacy, and Sexuality

Popular culture and advertising teaches young girls and boys many false illusions about sex and sexuality (Durham, 2009). Puberty comes earlier for postmillennial girls than previous generations (Shriver, 2009) and early onset of sexual intimacy may make eminence in one's field less likely (Csikszentmihalyi, 2009). Most gifted girls will eventually be in long-term relationships, and many will have dual-career marriages. Relationships in high school should prepare gifted girls for dual-career lives, egalitarian relationships, and shared domestic tasks; relationship education should help gifted girls to resist unrealistic expectations for romance and sexuality.

For smart girls who have a lesbian orientation, the process of identity development is fraught with difficulty. Because many gifted girls are androgynous (i.e., having masculine and feminine behaviors; Kerr & McKay, 2014), they may receive confusing cues from others or direct questions about their sexual orientation. Lesbian gifted girls generally begin to wonder about their orientation around eighth grade, but they are fairly sure of their orientation by 11th grade (Peterson, 2000). While in high school, many have passed through the stages of wondering, denial, or defensive masquerading to the eventual acceptance of their orientation. Gifted lesbians must negotiate how, when, and even whether to come out to their parents and peers, which happens more often in high school than happened in previous generations. Even in schools that have a culture promoting equality and tolerance, bullying and verbal cruelty are real dangers.

Friendships can be as difficult as romantic relationships for smart girls. They may have few friends who are as bright as they are or lack a peer group that is achievement oriented. Johnson et al. (1999) suggested that girls are often engaged in a struggle with other girls about what is femininity. If a gifted girl's idea of femininity deviates too much from that of her peer group, she may be bullied. As a result of negative reactions, talented girls often develop "thorns and shells" in their personalities as boundaries to protect themselves from social scrutiny (Kerr & McKay, 2014). Thorns can manifest themselves by way of sarcasm, intolerance, self-righteousness, brusqueness, or simply having a sharp tongue. Shells, on the other hand, can be formed by wrapping the self in shyness, timidity, and modesty. Kerr (1997) suggested that disagreeability may help women gain eminence. The major personality trait of creative girls is openness to experience (Kerr & McKay, 2013; McCrae et al., 2002).

This same trait that allows them to be open to novel ideas and to create original work also may predispose them to be too open to experience (Kerr & McKay, 2014). These are the girls who are most likely to experiment with illegal substances and dangerous sexual intimacy; although they usually recover, these girls need careful, nonjudgmental advice about safety and psychological balance.

Millennial adolescent girls suffer from greater stress and higher levels of anxiety than adolescent boys, and gifted adolescent girls are at risk of being overwhelmed (Shriver, 2009). Intelligent girls are often multipotential (i.e., they have the capacity to excel in a wide variety of domains and activities) and may suffer from too many options. Girls with less privilege may have additional part-time jobs and family responsibilities. Eating disorders seem to affect gifted girls disproportionately, particularly those

gifted girls in dance, performing arts, and individual athletic training (Tseng, Fang, Chang, & Lee, 2013).

One of the most stressful events for an academically talented girl is the day she receives her college entrance exam scores. Often, the scores do not seem to reflect her academic performance. Although gifted girls receive the same or better grades in math and science as boys in the classes in which they are enrolled, there is still a tendency for boys to outscore girls in math and science in standardized tests (Sadker & Sadker, 2010).

Making a Connection to a Master Teacher and Mentor

The capacity to make a connection with a master teacher is critical for gifted girls, particularly those with specific, advanced abilities. Eminent individuals have had at least one teacher who challenged them to achieve their full potential, held extremely high expectations, developed students' technical skills and knowledge base, and provided access to students' future profession (Bloom & Sosniak, 1985). The strengths necessary for a continuing bond with the master teacher are a "thick skin," a desire to prove oneself worthy, and willingness to show consistent and sustained effort (Kerr, 1997). Kaufmann and Matthews (2012) found that having a mentor was associated with higher salary and status for female Presidential Scholars throughout their careers. Finally, a mentor or master teacher may be the individual who guides gifted girls toward the appropriate advanced training or college.

DEVELOPMENT OF TALENT IN COLLEGE

If a mentor is not found in adolescence, then college is the place where gifted young women need to become engaged with a faculty member who provides challenge, high expectations, and genuine involvement in the domain. Because engagement with the college and faculty has been found to be the strongest predictor of persistence (Kuh, Kinzie, Schuh, & Whitt, 2011), gifted young women need colleges where they have a high probability of becoming involved in research, service, or internship opportunities. That means that the Ivy League schools are not always the best choice, particularly large schools where graduate students often receive more attention than undergraduate students (Berger, 2006).

Only about 2% of women in higher education attend women's colleges, but this is unfortunate for gifted young women. Since their founding, women's colleges have produced more scholars and leaders than coeducational colleges. Recent, large-scale, well-designed studies have confirmed that for gifted women—particularly highly gifted women—this may be the best option for a challenging and fulfilling college education. Kinzie et al. (2007) found that women's colleges were superior to coeducational colleges for women on almost every measure of student engagement, including academic challenge, critical thinking, meaningful experiences, interaction with faculty, and satisfaction with the college experience.

Girls who are creatively gifted may need a different path for college planning. Creatively gifted girls often prefer careers in art, design, music, writing, and scientific and technological invention. Many are interested in unique careers that combine the arts with sciences and technologies. Traditional college education may not meet the needs of these highly creative students, and they need to be encouraged to get into higher education environments where their creativity will be nourished. For girls interested in arts and design, this means specialized colleges for the arts, or a self-created (DIY—do it yourself) education. Both paths might be perceived by parents as risky choices, as parents tend to become more vigilant about potential social and behavior problems and less concerned about achievement when considering these choices (Brooks-Gunn & Zahaykevich, 2013).

Smart young women enter college with a puzzling and contradictory set of characteristics. They have higher grades than men throughout school. They enter with higher achievement test scores in verbal reasoning, English, language AP tests, and social studies tests, and they score similarly to young men in mathematical reasoning, except at the very highest end of the distribution of scores (Halpern & Cheung, 2011). For many gifted young women, however, there is a disconnect between their actual ability and their confidence in their ability

to achieve their goals. Although young women are changing in the direction of higher self-efficacy and increased confidence in their abilities to succeed in college courses, many gifted young women have lower self-efficacy than their male peers of the same ability level. Longitudinal studies comparing gifted girls and gifted boys in high school and young adulthood found more girls than boys decreased their perception of their giftedness (Subotnik & Arnold, 1994; York, 2008). The aspirations of college-age women are higher than they have ever been, with more women than men intending to enter graduate school, medical school, and law school. Nevertheless, in studies where college-age women compare the time they spend on their academic goals versus their romantic goals, they spend more time and energy on their romantic goals compared with college-age men. One study found that the very mention of romantic goals had a negative impact on young women's motivation to enter STEM fields immediately following them being mentioned (Park, Young, Troisi, & Pinkus, 2011). Young women are involved in supporting the activities of men in their lives; for example, many Hispanic women in college spend inordinate amounts of time helping their boyfriends with housework and homework. In one nationwide study of college students, young women took responsibility for housekeeping and family-related tasks that were virtually absent from the lives of young men (Sax & Harper, 2005).

Young women pursuing degrees in STEM are aware that many women drop out of science because of relationship, marriage, and family issues, but believe that this would not happen to them (Kerr & Multon, 2015). On the other hand, some young women believed that not engaging in any relationships was necessary to succeed in STEM careers. Gender relations are a troubling and conflicted issue for gifted young women, as well as for our society.

THE SPHERES OF ACHIEVEMENT: ADULTHOOD OF THE GIFTED WOMAN

After college graduation, most gifted young women go on to graduate school, professional school, an internship, or work in their field. Women make up half of law and medical school classes and three-quarters of social science and humanities graduate classes. (Quaye & Harper, 2014). Studies of recent high school valedictorians, however, show that gifted young women tend to attend less selective colleges than gifted young men (York, 2008). This tendency to choose less selective colleges for undergraduate study also influences the selectivity of the postgraduate institutions to which they can aspire. Though they enroll in lower status graduate and professional schools, gifted young women achieve excellent grades.

The United States recently reached the lowest marriage rate among its young people in history; however, about 80% of women are in romantic relationships after college (Bolick, 2011). Young professional women seem to be engaging in alternatives to marriage, including commuter and long-distance relationships while completing graduate or professional studies.

More than ever before, men and women work outside the home, though women continue to take on more than 50% of the childcare and homemaking tasks; Rhoads and Rhoads (2012) found that the partners of male professors worked fewer hours at their occupational settings than the partners of female professors. Only 12% of male professors took paid parental leave as opposed to 69% of female professors. Although dual-career couples do have higher satisfaction, the path to dual-career bliss involves a great deal of negotiation (Dijkstra et al., 2012).

In summarizing the results of an extensive study of women in academia, a 2004 National Science Foundation report found that the major barrier encountered by women scientists is not their lack of ability or accomplishments; it is the fact that they find that the years of attainment of promotion and tenure are precisely their prime years for marriage and childbearing.

Despite these clear findings, researchers continue to try to find reasons in their personal lives for women's exodus from the highest levels of STEM, rather than in the context of their work. Former Harvard president Larry Summers once asserted that "innate differences" are responsible for the shortage of women at the highest levels of academia. Elizabeth Spelke and Janet Hyde rebutted his assertion with meta-analyses that showed clearly inherent sex

differences could not account for women's absence in top positions (Hyde & Linn, 2005; Spelke, 2005).

There are, however, stable differences between men and women that are cultural. For example, in Western cultures, men place more value on high salaries, taking risks, and the prestige of their organization, whereas women place more value on satisfaction at work, respecting colleagues, and comfortable conditions in the workplace. In non-Western countries, the prejudice against women as leaders makes the cultural barriers toward success particularly difficult to navigate. Gifted women, no matter how competent they are, tend to underestimate their abilities, whereas men overestimate their abilities. Perhaps because many women lack confidence in their abilities, women ask for less salary and negotiate increases less often. They are often punished socially for overconfidence (Kay & Shipman, 2014).

In an exhaustive study of hiring practices and editorial practices, Ceci and Williams (2011) found no evidence of women being passed up or of discrimination in scholarly journals, but rather the situation was caused mainly by women's choices, freely made and constrained by biology and society. Kerr and McKay (2014) contend, however, that women perceive themselves to be making a choice when they are actually making the best of a difficult situation, and using their congeniality, good adjustment, and resourcefulness to adapt to their husband's career goals.

Follow-up studies of mathematically precocious young women have also suggested that those women who did not follow the high-powered STEM-oriented paths of their male counterparts were merely expressing their preferences and choices for particular domains or lifestyles (Ferriman, Lubinski, & Benbow, 2009). It may be that even though these young women had extraordinary abilities in math, they just were not passionate about STEM fields and were drawn to more people-oriented careers. Alternatively, it is always important to consider the possibility that even the most brilliant women may be responding to the many pressures and barriers that women experience in STEM fields.

Sandberg's (2013) influential book suggested that accomplished women create their own models of marriage, family, and mothering that are independent of societal ideals and stereotypes. Recent studies have demonstrated that women scholars are more satisfied with their positions and more likely to persist in their fields when they are in dual-career couples (Sabharwal & Corley, 2009).

Women who want eminence in their domain need support at each transition. In choosing a career, which is the first milestone, self-confidence may be important. At the second milestone, persisting to graduation, environmental supports, such as mentoring and provision of information may be more important. At the third milestone, the final year of academic or professional education, decisions must be made about a first job; and at the fourth milestone, early career achievement, issues of family/career combinations and the promotion and tenure path become most important (Kelly & Grant, 2012).

Creative Women in the Arts

Despite the emphasis in the literature on inequities in the STEM fields, women are further behind gifted men in creative fields than in almost any other domain of work. Before auditions for positions in major orchestras were blind (i.e., the player was hidden), judges notoriously chose male performers over female performers, and only a tiny fraction of composers and orchestra conductors are women (Davidson & Edgar, 2003). In the ballet world, women seldom rise to the post of choreographers. Only about 8% of the artists featured in exhibits at the Museum of Modern Art are women (Butler & Schwartz, 2010). Disproportionately fewer women are named to lists of great novels or short stories—even very recently (Kerr & McKay, 2014).

Women artists, musicians, dancers, and writers struggle to be taken seriously; their lower salaries and sales mean that they must work harder to survive financially in occupations that are already risky and difficult. They must cultivate personal and financial independence. In addition, there are few protections for creative women in organizations and institutions in the arts; many of the academic and corporate policies that have existed for decades to prevent discrimination and sexual harassment are alien to arts establishments. As independent artists,

writers, and performers, they need strong entrepreneurial skills and thick skins.

Marylou Streznewski, in her book about gifted adults, divided adults into strivers, superstars, and independents (Streznewski, 1999). Her book suggests two other things women must do to survive in creative fields: they must cultivate their independence, and they must give up on praise or external reward as a measure of their quality. Only by being fiercely autonomous, aggressive, and enterprising can women persist in their creative work.

Falling in Love With an Idea

Because of its role in motivation, as a protective factor, and source of resistance to sex role stereotypes, the capacity to fall in love with an idea may be the most powerful determinant of success of eminent women (Kerr & McKay, 2014). What is it that causes a person to fall in love with an idea? What special experience allows them to follow that idea throughout their lives? It is possible that the experience of flow guides these women's choices. Csikszentimihalyi (2009) described the sense of flow that was experienced by eminent individuals in participation in their chosen domain (see Chapter 14, this handbook). Whether art, science, or leadership, these creative people felt at one with their work, felt a sense of challenge and mastery, and experienced a timelessness and joy in the practice of their discipline. Falling in love with an idea strengthens resolve in almost every other area of life (Kerr & McKay, 2014).

Older Gifted Women

Although there are only a few major longitudinal studies that extend to old age, of gifted elderly women (Holahan & Velasquez, 2011; Perrone et al., 2007) and of Presidential Scholars (Kaufmann & Matthews, 2012), much can be learned about the variables that predict life satisfaction for gifted women. Academic and career successes were associated with joy in living, life and work satisfaction, competence, and self-esteem among older gifted women (Holahan & Velasquez, 2011). The decision to commit to a romantic relationship in early adulthood leads to greater life satisfaction and successful long-term marriages and relationships for most gifted women (Perrone et al., 2007). What stands out is the importance of deliberateness in choosing to have a career and relationship (Perrone-McGovern et al., 2011). Those smart women who treat these aspects of life as equally important and equally worthy of deep reflection, planning, and careful decision-making seem to have the most satisfying lives. For bright women, meaning-making in this decade later in life is a powerful motive (Wiggs, 2010).

By age 62, the women in Terman's study had separated into clear groupings—lifelong homemakers, career women, and those who had done a combination of both (Noble, Subotnik, & Arnold, 1999). The most surprising finding of the study was that the single, older, childless gifted women were the happiest; the next happiest were those who had combined career and family. The homemakers who had never had income-producing work were the least happy. It would have been very hard to anticipate this result when the women were in their 30s, happily letting go of their goals. Those women who had held on to their goals—which several studies of aging bright women label as *purposiveness*—were satisfied with their lives, happy, and positive about aging.

The follow-ups of the Presidential Scholars of 1968 provided perspectives of gifted women at maturity. Kaufmann and Matthews (2012) called the period of life in gifted women's late 60s "coming into their own" (p. 83). These women never tied financial success to their definition of achievement. The salary differences are significant; throughout their lives, these gifted women made much less money than the men, yet they were still better off than the rest of population. Only those actions that were related to deeply held values—no matter what the outcome happened to be—gave a sense of satisfaction. Older gifted women came to the realization that they might never receive public recognition for their accomplishments, that less talented people might have gone further in salary and status, and that paradoxically, many of the barriers to public achievement had led them into more satisfying directions in life. For those women who had married and had families, most regarded their children as their major achievement. Integrating the longitudinal findings of the Terman study and the Presidential Scholar study, it is clear that single women

without children are extremely happy, but those gifted women, career oriented or not, who do have children usually regard their children as their major source of happiness.

Intelligence is indeed linked to good health and life satisfaction in old age, but what else does the distant future hold for smart girls? At the end of their lives, the Terman women were still happy and satisfied compared with the general population, but ill health did take its toll on happiness by the time the women were in their 80s, as is true for the general population. In fact, attention to physical health and adaptation to diminished abilities was significantly associated with happiness and satisfaction. Positive attitudes toward aging had long-term consequences; those women who showed positive attitudes toward aging while in their 60s were better off physically and psychologically in their 80s.

Adaptation to new circumstances and regulation of emotions were the major strategies used by elderly gifted women, according to the study of Terman's students into their old age (Holahan & Velasquez, 2011). In other words, those smart women who had attained equanimity and serenity were those who had learned to manage negative emotions and nourish positive emotions.

In summary, the keys to happiness and well-being in the late years of gifted women's lives seem to be academic, career, and personal accomplishments that fulfill deeply held values; satisfying relationships with partners and/or friends; being at peace with one's life choices; and adapting to the changes of old age.

TOWARD A NEW MODEL OF TALENT DEVELOPMENT FOR GIFTED GIRLS AND WOMEN

In 1999, Noble, Subotnik, and Arnold described a model of female talent development that included foundations (abilities, demographics, and privilege), filters (education, opportunities, and careers), and spheres (public or personal domains). Multon, Kerr, Kurpius, and Hammond (2009) set out to extend and operationalize this model through their National Science Foundation Gender Equity project. In the years since the model from Noble, Subotnik, and Arnold was articulated, the growing awareness among scholars of the intersectionality of privilege made it important to expand the construct of distance from privilege to encompass the many ways that gender interacts with race, citizenship, language, geographic location, age, sexual orientation, physical attractiveness, and religion to separate women from the centers of power in their society and their domains. Kerr et al. (2012) operationalized this construct and developed a measure that could assess subjective and objective distance from privilege.

In addition, the new research on the role of marriage and childrearing decisions in determining career progress required the construct of gender relations to be operationalized and measured (Kerr & Multon, 2015). Kerr and McKay's (2014) revised model of female talent development incorporated the findings of the gender equity project (Kerr et al., 2009) and the related research described in this chapter. In addition, they incorporated new findings on general and specific abilities and personality research, given the importance of these foundations of talent development. This chapter has adhered closely to the Kerr and McKay model in the description of the stages of gifted girls' and women's development. Early and middle childhood are the periods in which the nurturing of general and specific abilities and the personality characteristics—particularly openness to experience and independence—are foundations of talent development. Another foundation is the recognition of distance from privilege by parents, educators, and society, and the amelioration of lack of privilege. This is accomplished through social capital (building relationships and networks that promote talent) and cultural capital (exposure to the cultural resources such as libraries, internet, museums, and performances).

With adolescence, the importance of filters becomes salient, as specialized education (with a master teacher or mentor) and career guidance become important to talent development. In adolescence and young adulthood, the filter of gender relations emerges, as young women make decisions concerning equity in romantic relationships and the relative importance of their career and relationship

goals. Although there has been much attention to educating young women about career goals (particularly in STEM), there has been little attention to relationship education that teaches young women the potential consequences of inequitable relationships for career progress.

In adulthood and into old age, gifted women must concern themselves with the spheres in which they achieve and realize goals. Some women will move from public to personal and personal to public several times in their lifetime. For women to have a true choice about the sphere in which they enact their goals, they need a society that does not punish these transitions with occupational stagnation or decline and that actively supports these transitions with parental leave, childcare, and encouragement of flexibility in the workplace. In old age, life satisfaction and well-being may be determined by how much support and agency girls and women were given to strengthen foundations, navigate filters, and gracefully move between spheres.

The literature of gifted girls and of eminent women yield clear themes for the guidance of gifted girls and women. First, challenge in academics and encouragement of mastery of specific abilities plays a critical role. Second, it is necessary for girls to balance societal demands for feminine congeniality, popularity, and romantic and sexual engagement with the individual need for achievement and a sense of flow. Third, the need to make early choices and commitments and to "fall in love" with an idea prepares women to face the challenges of difficult academic work, extreme jobs, and work–life balance.

Psychologists can help bright girls to achieve their full potential in terms of accomplishment and life satisfaction by attending to these themes as they advise, counsel, and mentor them at each stage of development. Psychologists can help parents and schools to identify and encourage the abilities of gifted girls, using the appropriate signs of advanced abilities for girls. They can educate parents and teachers in the ways of encouraging temperaments of independence and openness and cautioning against overemphasis on sociability and conformity. Psychologists can show how early interests and enthusiasms build into a passion for an idea, a discipline, and a community of like-minded peers. In building awareness of distance from privilege and the ways of overcoming social and cultural barriers, psychologists can help communities to create the cultural and social resources that permit girls of little privilege to be empowered. These are the foundations that psychologists can strengthen.

In addition, psychologists need to be clear about the filters that will screen girls and young women out of opportunities. Relationship education and gender equity education can help girls avoid unequal partnerships. Recognition that gifted adolescent girls may be less likely to take advantage of rigorous programming from AP classes to advanced musical training, psychologists can provide extra encouragement and target girls for mentoring and referral to master teachers. They can collaborate with school guidance counselors to help young women make thoughtful college and advanced training choices that will propel them toward their goals.

Finally, many psychologists in practice may encounter adult gifted women as they struggle to achieve in public and personal spheres. Gifted women may need assistance in making informed choices about their career trajectory and the timing of their marriage and childbearing. Even more important, psychologists need to advocate at local and national levels for those policies that will allow greater freedom for women to combine family and career according to their own needs and aspirations. As women develop the passions that will guide their development as leaders in their disciplines, psychologists can help articulate and affirm gifted women's guiding values and the sense of flow. A gifted woman's love of an idea may be the protective factor that allows her to prevail over the inevitable difficulties she encounters at work and at home. As gifted women age, they can be encouraged by psychologists in the process of coming into their own, through reflecting on the narrative of their lives with self-compassion and pride. It is likely that psychologists have an important role to play at every stage of the development of talent in gifted girls and women in sharing the knowledge gained from the study of the bright women who have gone before them.

References

Ackerman, P. L. (2014). Nonsense, common sense, and science of expert performance: Talent and individual differences. *Intelligence*, *45*, 6–17. http://dx.doi.org/10.1016/j.intell.2013.04.009

Asher, S. R., Brachial, W., & McDonald, K. L. (2013). Children as friends. In Melton, G. B., Ben-Arieh, A., Cashmore, J., Goodman, G. S., & Worley, N. K. (Eds.), *The Sage handbook of child research* (pp. 169–194). Thousand Oaks, CA: Sage.

Berger, S. L. (2006). *College planning for gifted students: Choosing and getting into the right college*. Waco, TX: Prufrock Press.

Bloom, B. S., & Sosniak, L. A. (1985). *Developing talent in young people*. New York, NY: Ballantine Books.

Bolick, K. (2011). All the single ladies. *Atlantic Monthly*, *308*(4), 116–136.

Brody, L. E., & Mills, C. J. (2005). Talent search research: What have we learned? *High Ability Studies*, *16*, 97–111. http://dx.doi.org/10.1080/13598130500115320

Brooks-Gunn, J., & Zahaykevich, M. (2013). Parent-daughter relationships in early adolescence: A developmental perspective. In K. Kreppner & R. M. Lerner (Eds.), *Family systems and life-span development* (pp. 223–246). New York, NY: Psychology Press.

Brown, L. M., & Gilligan, C. (1993). Meeting at the crossroads: Women's psychology and girls' development. *Feminism and Psychology*, *3*, 11–35. http://dx.doi.org/10.1177/0959353593031002

Butler, C. H., & Schwartz, A. (Eds.). (2010). *Modern women: Women artists at the Museum of Modern Art*. New York, NY: Museum of Modern Art.

Ceci, S. J., & Williams, W. M. (2011). Understanding current causes of women's underrepresentation in science. *Proceedings of the National Academy of Sciences, USA*, *108*, 3157–3162. http://dx.doi.org/10.1073/pnas.1014871108

Colangelo, N., Assouline, S. G., & Gross, M. U. (2004). *A nation deceived: How schools hold back America's brightest students* (Vol. 1). Iowa City: University of Iowa.

Csikszentmihalyi, M. (2009). *Creativity: Flow and the psychology of discovery and invention*. New York, NY: HarperCollins.

Dai, D. Y. (2002). Are gifted girls motivationally disadvantaged? Review, reflection, and redirection. *Journal for the Education of the Gifted*, *25*, 315–358.

Davidson, J. W., & Edgar, R. (2003). Gender and race bias in the judgment of Western art music performance. *Music Education Research*, *5*, 169–181. http://dx.doi.org/10.1080/1461380032000085540

Dijkstra, P., Barelds, D. P., Groothof, H. A., Ronner, S., & Nauta, A. P. (2012). Partner preferences of the intellectually gifted. *Marriage and Family Review*, *48*, 96–108. http://dx.doi.org/10.1080/01494929.2011.628779

Durham, M. G. (2009). *The Lolita effect: The media sexualization of young girls and what we can do about it*. New York, NY: Overlook Press.

Eccles, J. S. (2015). Gendered socialization of STEM interests in the family. *International Journal of Gender, Science, and Technology, 7*, 116–132.

Else-Quest, N. M., Hyde, J. S., Goldsmith, H. H., & Van Hulle, C. A. (2006). Gender differences in temperament: A meta-analysis. *Psychological Bulletin*, *132*, 33–72. http://dx.doi.org/10.1037/0033-2909.132.1.33

Ferriman, K., Lubinski, D., & Benbow, C. P. (2009). Work preferences, life values, and personal views of top math/science graduate students and the profoundly gifted: Developmental changes and gender differences during emerging adulthood and parenthood. *Journal of Personality and Social Psychology*, *97*, 517–532. http://dx.doi.org/10.1037/a0016030

Finn, C. E., Jr. (2014). Gifted, talented, and underserved. *National Affairs*, *18*, 50–62.

Gagné, F. Y., & Gagnier, N. (2004). The socio-affective and academic impact of early entrance to school. *Roeper Review*, *26*, 128–138. http://dx.doi.org/10.1080/02783190409554258

Gallagher, J. J. (2004). No child left behind and gifted education. *Roeper Review*, *26*, 121–123. http://dx.doi.org/10.1080/02783190409554255

Gross, M. U., & van Vliet, H. E. (2005). Radical acceleration and early entry to college: A review of the research. *Gifted Child Quarterly*, *49*, 154–171. http://dx.doi.org/10.1177/001698620504900205

Halpern, D. F., & Cheung, F. M. (2011). *Women at the top: Powerful leaders tell us how to combine work and family*. West Sussex, England: Wiley.

Haroutounian, J. (2002). *Kindling the spark: Recognizing and developing musical potential*. New York, NY: Oxford University Press.

Hertberg-Davis, H., & Callahan, C. M. (2008). A narrow escape: Gifted students' perceptions of advanced placement and international baccalaureate programs. *Gifted Child Quarterly*, *52*, 199–216. http://dx.doi.org/10.1177/0016986208319705

Holahan, C. K., & Velasquez, K. S. (2011). Perceived strategies and activities for successful later aging. *International Journal of Aging and Human Development*, *72*, 343–359. http://dx.doi.org/10.2190/AG.72.4.d

Hollingworth, L. S. (1929). *Gifted children: Their nature and nurture*. New York, NY: Macmillan.

Hong, E., Greene, M., & Hartzell, S. (2011). Cognitive and motivational characteristics of elementary teachers in general education classrooms and in gifted programs. *Gifted Child Quarterly*, *55*, 250–264. http://dx.doi.org/10.1177/0016986211418107

Hyde, J. S. (2014). Gender similarities and differences. *Annual Review of Psychology, 65*, 373–398. http://dx.doi.org/10.1146/annurev-psych-010213-115057

Hyde, J. S., & Linn, M. C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin*, *104*, 53–69. http://dx.doi.org/10.1037/0033-2909.104.1.53

Hyde, J. S., & Linn, M. C. (2005). The gender similarities hypothesis. *American Psychologist, 60*, 581–592.

Hyde, J. S., & Mertz, J. E. (2009). Gender, culture, and mathematics performance. *Proceedings of the National Academy of Sciences, USA*, *106*, 8801–8807. http://dx.doi.org/10.1073/pnas.0901265106

Jacobs, J. E., & Bleeker, M. M. (2004). Girls' and boys' developing interests in math and science: Do parents matter? *New Directions for Child and Adolescent Development*, *2004*(106), 5–21. http://dx.doi.org/10.1002/cd.113

Johnson, N. G., Roberts, M. C., & Worell, J. E. (1999). *Beyond appearance: A new look at adolescent girls*. http://dx.doi.org/10.1037/10325-000

Kaufmann, F. A., & Matthews, D. J. (2012). On becoming themselves: The 1964–1968 Presidential Scholars 40 years later. *Roeper Review*, *34*, 83–93. http://dx.doi.org/10.1080/02783193.2012.660682

Kavšek, M. (2004). Predicting later IQ from infant visual habituation and dishabituation: A meta-analysis. *Journal of Applied Developmental Psychology*, *25*, 369–393. http://dx.doi.org/10.1016/j.appdev.2004.04.006

Kay, K., & Shipman, C. (2014). The confidence gap. *Atlantic*, *14*, 1–18.

Kelly, K., & Grant, L. (2012). Penalties and premiums: The impact of gender, marriage, and parenthood on faculty salaries in science, engineering, and mathematics (SEM) and non-SEM fields. *Social Studies of Science*, *42*, 869–896. http://dx.doi.org/10.1177/0306312712457111

Kerr, B., & McKay, R. (2013). Searching for tomorrow's innovators: Profiling creative adolescents. *Creativity Research Journal*, *25*, 21–32. http://dx.doi.org/10.1080/10400419.2013.752180

Kerr, B., & McKay, R. (2014). *Smart girls in the twenty-first century*. Scottsdale, AZ: Great Potential Press.

Kerr, B. A. (1997). *Smart girls: A new psychology of girls, women, and giftedness*. Scottsdale, AZ: Great Potential Press.

Kerr, B. A., & Cohn, S. J. (2001). *Smart boys: Talent, manhood, and the search for meaning*. Scottsdale, AZ: Great Potential Press.

Kerr, B. A., Kurpius, S. R., & Harkins, A. (2004). *Handbook for counseling girls and women: Vol. 2. Talent development*. Reston, VA: National Science Foundation.

Kerr, B. A., & Multon, K. D. (2015). The development of gender identity, gender role, and gender relations in gifted students. *Journal of Counseling and Development*, *93*, 183–191. http://dx.doi.org/10.1002/j.1556-6676.2015.00194.x

Kerr, B. A., Multon, K. D., Syme, M. L., Fry, N. M., Owens, R., Hammond, M., & Robinson-Kurpius, S. (2012). Development of the distance from privilege measures: A tool for understanding the persistence of talented women in STEM. *Journal of Psychoeducational Assessment*, *30*, 88–102.

Kerr, B. A., & Robinson-Kurpius, S. E. (2004). Encouraging talented girls in math and science: Effects of a guidance intervention. *High Ability Studies*, *15*, 85–102. http://dx.doi.org/10.1080/1359813042000225357

Kinzie, J., Thomas, A. D., Palmer, M. M., Umbach, P. D., & Kuh, G. D. (2007). Women students at coeducational and women's colleges: How do their experiences compare? *Journal of College Student Development*, *48*, 145–165. http://dx.doi.org/10.1353/csd.2007.0015

Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2011). *Student success in college: Creating conditions that matter*. Hoboken, NJ: Wiley.

Lee, S. Y., Matthews, M. S., & Olszewski-Kubilius, P. (2008). A national picture of talent search and talent search educational programs. *Gifted Child Quarterly*, *52*, 55–69. http://dx.doi.org/10.1177/0016986207311152

Leslie, S. J., Cimpian, A., Meyer, M., & Freeland, E. (2015). Expectations of brilliance underlie gender distributions across academic disciplines. *Science*, *347*, 262–265. http://dx.doi.org/10.1126/science.1261375

Lovas, G. S. (2011). Gender and patterns of language development in mother–toddler and father–toddler dyads. *First Language*, *31*, 83–108. http://dx.doi.org/10.1177/0142723709359241

McAlister, K. (2009). Linguistic giftedness. In B. A. Kerr (Ed.), *The encyclopedia of giftedness, creativity, and talent development* (pp. 492–495). Beverly Hills, CA: Sage.

McCrae, R. R., Costa, P. T., Jr., Terracciano, A., Parker, W. D., Mills, C. J., De Fruyt, F., & Mervielde, I. (2002). Personality trait development from age 12 to age 18: Longitudinal, cross-sectional, and cross-cultural analyses. *Journal of Personality and Social*

Psychology, *83*, 1456–1468. http://dx.doi.org/10.1037/0022-3514.83.6.1456

Mendez, L. M. R. (2000). Gender roles and achievement-related choices: A comparison of early adolescent girls in gifted and general education programs. *Journal for the Education of the Gifted*, *24*, 149–169. http://dx.doi.org/10.1177/016235320002400203

Multon, K., Kerr, B. A., Kurpius, S. R., & Hammond, M. (2009, August). Supports and barriers for women in STEM: An NSF project. Paper presented at the 117th Annual Convention of the American Psychological Association, Toronto, Ontario, Canada.

National Middle School Association. (2005). *This we believe: Successful schools for young adolescents: A position paper of National Middle School Association*. Cheltenham, Australia: Hawker Brownlow Education.

National Science Foundation. (2004). *Gender differences in the careers of academic scientists and engineers: A literature review*. Washington, DC: Author.

Noble, K., Subotnik, R., & Arnold, K. (1999). To thine own self be true: A new model of female talent development. *Gifted Child Quarterly*, *43*, 140–149. http://dx.doi.org/10.1177/001698629904300302

Orenstein, P. (2011). *Cinderella ate my daughter: Dispatches from the front lines of the new girlie-girl culture*. New York, NY: HarperCollins.

Orenstein, P. (2013). *Schoolgirls: Young women, self-esteem, and the confidence gap*. New York, NY: Random House.

Park, L. E., Young, A. F., Troisi, J. D., & Pinkus, R. T. (2011). Effects of everyday romantic goal pursuit on women's attitudes toward math and science. *Personality and Social Psychology Bulletin*, *37*, 1259–1273. http://dx.doi.org/10.1177/0146167211408436

Perrone, K. M., Perrone, P. A., Ksiazak, T. M., Wright, S. L., & Jackson, Z. V. (2007). Self-perception of gifts and talents among adults in a longitudinal study of academically talented high-school graduates. *Roeper Review*, *29*, 259–264. http://dx.doi.org/10.1080/02783190709554420

Perrone, K. M., Webb, L. K., Wright, S. L., Jackson, Z. V., & Ksiazak, T. M. (2006). Relationship of spirituality to work and family roles and life satisfaction among gifted adults. *Journal of Mental Health Counseling*, *28*, 253–268. http://dx.doi.org/10.17744/mehc.28.3.81a1dlhwelblce0v

Perrone-McGovern, K. M., Ksiazak, T. M., Wright, S. L., Vannatter, A., Hyatt, C. C., Shepler, D., & Perrone, P. A. (2011). Major life decisions of gifted adults in relation to overall life satisfaction. *Journal for the Education of the Gifted*, *34*, 817–838. http://dx.doi.org/10.1177/0162353211425101

Peterson, J. S. (2000). Gifted and gay: A study of the adolescent experience. *Gifted Child Quarterly*, *44*, 231–246. http://dx.doi.org/10.1177/001698620004400404

Quaye, S. J., & Harper, S. R. (2014). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations*. London, England: Routledge.

Ramsay, S. G., & Richards, H. C. (1997). Cooperative learning environments: Effects on academic attitudes of gifted students. *Gifted Child Quarterly*, *41*, 160–168. http://dx.doi.org/10.1177/001698629704100405

Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership*, *70*, 10–16.

Rhoads, S. E., & Rhoads, C. H. (2012). Gender roles and infant/toddler care: Male and female professors on the tenure track. *Journal of Social, Evolutionary, and Cultural Psychology*, *6*, 13–31. http://dx.doi.org/10.1037/h0099227

Richardson, T. M., & Benbow, C. P. (1990). Long-term effects of acceleration on the social-emotional adjustment of mathematically precocious youths. *Journal of Educational Psychology*, *82*, 464–470. http://dx.doi.org/10.1037/0022-0663.82.3.464

Rivero, L. (2002). *Creative home schooling: A resource guide for smart families*. Scottsdale, AZ: Great Potential Press.

Rotigel, J. V., & Fello, S. (2004). Mathematically gifted students: How can we meet their needs? *Gifted Child Today*, *27*(4), 46–51.

Sabharwal, M., & Corley, E. A. (2009). Faculty job satisfaction across gender and discipline. *Social Science Journal*, *46*, 539–556. http://dx.doi.org/10.1016/j.soscij.2009.04.015

Sadker, M., & Sadker, D. M. (2010). *Failing at fairness: How America's schools cheat girls*. New York, NY: Simon & Schuster.

Sandberg, S. (2013). *Lean in: Women, work, and the will to lead*. New York, NY: Random House.

Sax, L. J., & Harper, C. (2005, May). *Origins of the gender gap: Pre-college and college influences on differences between men and women.* Paper presented at the Annual Meeting of the Association for Institutional Research, San Diego, CA.

Shriver, M. (2009). *The Shriver report: A woman's nation changes everything*. New York, NY: Simon & Schuster.

Siegle, D., & McCoach, D. B. (2005). Making a difference: Motivating gifted students who are not achieving. *Teaching Exceptional Children*, *38*, 22–27.

Solow, R., & Rhodes, C. (2012). *College at 13: Young, gifted, and purposeful*. Scottsdale, AZ: Great Potential Press.

Spelke, E. S. (2005). Sex differences in intrinsic aptitude for mathematics and science: A critical review. *American Psychologist*, *60*, 950–958. http://dx.doi.org/10.1037/0003-066X.60.9.950

Stainthorp, R., & Hughes, D. (2004). What happens to precocious readers' performance by the age of eleven? *Journal of Research in Reading*, *27*, 357–372. http://dx.doi.org/10.1111/j.1467-9817.2004.00239.x

Streznewski, M. K. (1999). *Gifted grownups: The mixed blessings of extraordinary potential*. Hoboken, NJ: Wiley.

Subotnik, R. F., & Arnold, K. D. (Eds.). (1994). *Beyond Terman: Contemporary longitudinal studies of giftedness and talent*. Westport, CT: Greenwood Press.

Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2011). Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychological Science in the Public Interest*, *12*, 3–54. http://dx.doi.org/10.1177/1529100611418056

Suldo, S. M., & Shaunessy-Dedrick, E. (2013). The psychosocial functioning of high school students in academically rigorous programs. *Psychology in the Schools*, *50*, 823–843. http://dx.doi.org/10.1002/pits.21708

Swiatek, M. A. (2002). Social coping among gifted elementary school students. *Journal for the Education of the Gifted*, *26*, 65–86. http://dx.doi.org/10.1177/016235320202600104

Terman, L. M. (1925). *Genetic studies of genius: Vol. 1. Mental and physical traits of a thousand gifted children*. Stanford, CA: Stanford University Press.

Terman, L. M., & Oden, M. H. (1935). *Genetic studies of genius: Vol. 3. The promise of youth*. Stanford, CA: Stanford University Press.

Tseng, M. C. M., Fang, D., Chang, C. H., & Lee, M. B. (2013). Identifying high-school dance students who will develop an eating disorder: A 1-year prospective study. *Psychiatry Research*, *209*, 611–618. http://dx.doi.org/10.1016/j.psychres.2013.04.008

U.S. Department of Education Office of Civil Rights. (2012). *Gender equity in education snapshot*. Washington, DC: Author.

Uttal, D. H., Meadow, N. G., Tipton, E., Hand, L. L., Alden, A. R., Warren, C., & Newcombe, N. S. (2013). The malleability of spatial skills: A meta-analysis of training studies. *Psychological Bulletin*, *139*, 352–402. http://dx.doi.org/10.1037/a0028446

Wiggs, C. M. (2010). Creating the self: Exploring the life journey of late-midlife women. *Journal of Women and Aging*, *22*, 218–233. http://dx.doi.org/10.1080/08952841.2010.495574

York, E. A. (2008). Gender differences in the college and career aspirations of high school valedictorians. *Journal of Advanced Academics*, *19*, 578–600.