

Career Assessment With Intellectually Gifted Students

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Career counseling with the intellectually gifted poses unique challenges to counselors. Development of competent practices with this population requires the career counselor to be aware of several issues specific to the intellectually gifted in general, along with specific issues that may differentially affect gifted males, females, and minorities. Traditional career counseling is insufficient to meet the needs of this population. Therefore, the article reviews trends and improvements to counseling the intellectually gifted, controversies, and multicultural issues and suggests an expanded role for career counselors of the intellectually gifted.

Keywords: Career assessment, intellectually gifted, career counseling, students

Research on the career development needs of intellectually gifted students has often been linked to the rise and fall of the political fortunes of the gifted education movement. In addition, changing theories about the nature of giftedness have further complicated the process of making generalizations about bright students. The post-Sputnik era emphasized research on the needs of high-IQ young people, the late 1960s and early 1970s de-emphasized intelligence scores and focused on creativity, and the 1980s and 1990s produced a plethora of theories regarding intellectual development and a further exploration within the realm of specific talents.

With the new millennium came an increasing concern for integrating multicultural knowledge into interventions for gifted students. Therefore, progress has continued, if somewhat inconsistently, in the conceptualization of vocational development of intellectually gifted students, the understanding of gifted students' choices and needs, and the creation of research-based career counseling interventions. This article reviews advances in the vocational psychology of intellectually gifted students, the implications for career assessment, and the means by which counselors can help these students to plan more effectively for their professional futures.

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CONCEPTUALIZATION

Two concepts have helped us to understand the unique career development needs of intellectually gifted students. The first concept, "multipotentiality" (Frederickson & Rothney, 1972), is perhaps the more controversial concept of the two (Achter, Benbow, & Lubinski, 1997). Multipotentiality is defined as the ability to select and develop any of a number of diverse career options. Gifted students are often multipotential because they possess a high level of general ability, which makes them capable of performing capably in almost any intellectual endeavor. Unlike students of average ability, who must make academic and career choices based on their areas of greatest strength, many gifted students must make their choices based on some other criterion than ability. Unfortunately, vocational interests, when measured at grade level by current standardized measures, are also of limited usefulness for career decision making.

The evidence that multipotentiality poses a significant barrier to effective decision making is available from modern research, primarily from case studies and longitudinal studies. Hollingworth (1926) found that the many participants from the large pool of gifted students she interviewed had experienced considerable difficulty in choosing from among their many interests and confining themselves to a reasonable number of enterprises. The term *multipotentiality* was actually coined at the Wisconsin Research and Guidance Laboratory for Superior Students, which provided research through service programs for students of high academic ability from 1957 until 1984.

Researchers there consistently found that the gifted students attending the laboratory had excellent grades across the board in their coursework, high scores across achievement tests, and multiple expressed interests on vocational instruments (Frederickson & Rothney, 1972; Sanborn, 1979).

At the Study for Mathematically Precocious Youth (SMPY) at Johns Hopkins University, Fox (1978) also found that junior high-age gifted students identified by the talent search were higher on most basic interest scales than nongifted students. They were particularly high on the intellectually oriented scales, but clearly differentiated patterns of interest were rare. Later studies by SMPY showed males to be fairly well differentiated, with primary interests in investigative occupations, and females to have equally strong interests in investigative, social, and artistic themes (C. Benbow, personal communication, October 21, 1992). Studies of high school juniors and seniors scoring in the 95th percentile on the American College Test (ACT) show elevated interests across five of the six occupational theme groups, all except business operations (Kerr & Colangelo, 1988).

These studies were followed by a variety of investigations that found differentiated profiles among gifted students. Achter, Lubinski, and Benbow (1996), testing 1,000 participants in the SMPY, found highly differentiated profiles for this population and went so far as to say that multipotentiality was "never there, and already vanishing" as a concern for gifted youth. Milgram and Hong (1999) found little evidence of multipotentiality among more than 500 gifted high

school senior boys and also suggested that the concept of multipotentiality be reconsidered. Sajjadi, Rejskind, and Shore (2001) also found that gifted adolescent boys were well differentiated on interest profiles.

Why such disparate findings about multipotentiality? Is it indeed vanishing as an issue of concern? Several explanations may account for the inconsistent findings. First of all, those studies that found multipotentiality to be a problem for gifted youth tended to have as their participants young people who had received high scores of tests of general intelligence (Hollingworth, 1926), high grades across coursework (Male & Perrone, 1979), or high scores across achievement tests (Kerr & Colangelo, 1988). These were students who were clearly multitabled; therefore, it stands to reason that they would be more likely to have multiple interests as well. On the other hand, most studies that have shown gifted youth to have highly differentiated profiles have had as their participants adolescents who are participating in programs for students with highly developed domain-specific talents, particularly mathematically precocious youth (Achter et al., 1997). Of all the domains, mathematically gifted youth may be the least likely to have difficulty choosing among options. The choices are all too clear: Science, engineering, and medicine are each strongly encouraged for these students.

Another issue that has seldom been addressed in the multipotentiality controversy is that there is a strong tendency for differentiated gifted youth to be male. Many of these studies were done primarily with males or with predominantly male groups (Milgram & Hong, 1999; Sajjadi et al., 2001) or found differences between males and females, with females less differentiated (C. Benbow, personal communication, October 21, 1992; Fox, 1978). So there is a possibility that there are sex differences, with females being less likely to be differentiated. Kerr and Cohn (2001), reviewing longitudinal studies of gifted boys and men, found that gifted males, in general, received more pressure from parents (particularly fathers) to follow linear career paths, deciding early and sticking with career choices even when they were less than happy with the results. Boys with math and science talents whose fathers also had these talents were particularly at risk for foreclosing their options. Females, on the other hand, not only receive much less pressure to decide on career goals but are actively encouraged to keep their options open. Kerr (1985) described the difficulty gifted females experience in a "culture of romance" that persistently leads to diffusion of interests and declining focus on career goals in college.

This leads to another problem in making generalizations about gifted students: Many of the differentiated students in the SMPY studies were quite young, whereas multipotentiality was more likely to surface among college-bound and college students (Kerr & Colangelo, 1988; Kerr & Erb, 1991). Therefore, gifted students may actually become more general in their interests as they grow older.

Those students who are participating in programs designed to encourage their interests in math and science careers seem to respond to assessments with more differentiated interests, as the designers of those programs intend. SMPY youth

and gifted girls participating in a National Science Foundation program to encourage math and science careers (Kerr & Kurpius, 1999) were likely to show clear interests in investigative careers such as scientist and realistic careers such as engineer.

Finally, it has been suggested that the assessments that are used for average students are inappropriate for gifted students, yielding undifferentiated profiles. Above level ability testing has been successful at documenting individual differences and for predicting differences in achievement (Achter et al., 1997). Intellectually gifted children may be precocious in interests as well as abilities. Therefore, using traditional career assessment instruments that were intended for young adults may be suitable for young gifted adolescents. Using the top 1% of high scorers on the SAT, Achter et al. (1996) applied similar concepts of above level ability testing to above level interest testing. Assessing in early adolescence revealed a differentiated pattern of Holland's interest themes. In this manner, traditional career assessment instruments could reveal individual differences in gifted early adolescents.

Specific Extraordinary Talents

The concept of specific, extraordinary talent is more recent than that of multipotentiality and owes much to the work of Stanley and his colleagues (Benbow & Stanley, 1983; Stanley, 1984) at Johns Hopkins University. The SMPY program and related programs at six other talent search sites across the United States focused on the identification of specific talents rather than the simple labeling of giftedness when planning educational programming. As noted earlier, for students at the highest levels of ability and performance in specific domains, multipotentiality is not a major factor in vocational development (Colangelo & Kerr, 1990; see Achter et al., 1997, for review). Many of the students who have participated in the SMPY talent searches, particularly the males, fit into this category. However, there are difficulties in career development for these young people as well. Some of these gifted students are absolutely focused on the development of one talent and are sure of their career by middle school, much to the consternation of parents and teachers who believe that they may miss out on being "well-rounded."

There is no evidence to support the idea that young people with strong, well-developed interests in one vocational area are at any risk for poor career decision making, if the interests are truly their own. Instead, the greatest challenge for the career counselor is encouraging the intensive nurturing of the specific talent while preventing any major gaps in the education. In addition, counselors need to encourage parents to attend to the development of the whole individual.

People with specific, extraordinary talent also must cope with the expectations of others that they be gifted in everything. However, it is often the case that these students are not brilliant in all subjects. Colangelo and Kerr (1990) and Colangelo, Assouline, Cole, Cutrona, and Maxey (1996) found domain-specific

performance on the ACT. Students who achieved a perfect score in one subject were often average scoring in another. Although gifted students generally enjoy academics, their academic self-concept derives from specific subject areas in which they excel, relative to other areas (Marsh & Shavelson as cited in Dixon, 1998).

Gardner (1983) presented cases of genius in intelligence domains labeled linguistic, mathematical-logical, spatial-visual, kinesthetic, musical, and personal. Besides making it possible to conceptualize the development of talent in specific domains rather than the development of a unitary giftedness, Gardner lent some insight into developmental differences in the appearance of talent and into differential strategies for the development and nurturance of specific talents. The notion of multiple intelligences, once anathema to supporters of a unitary construct of giftedness, has now gained widespread support among educators.

CHOICES AND NEEDS

Studies using ACT data continue to describe the career choices and career development needs of entire national cohorts of high-scoring students (Colangelo et al., 1996; Colangelo & Kerr, 1990; Kerr & Colangelo, 1988; Kerr, Colangelo, Maxey, & Christensen, 1992).

Colangelo et al. (1996) have reported that it does not seem useful to guide students into gifted programs or particular career paths on the basis of composite scores. Colangelo et al. assessed for highly exceptional academic talent by seeking students who had attained perfect scores on subtests of the PLAN, a standardized test developed by American College Testing. Subtests include English, mathematics, and science reasoning. Reading was by far the most common subtest where students earned a perfect score. Boys attained perfect scores on the mathematics subtest at more than twice the rate of girls, and girls attained perfect scores on the English subtest at more than twice the rate of boys. No significant differences were found for boys and girls on reading and science reasoning.

The Colangelo et al. (1996) study has documented changes in the national cohort of gifted boys and girls relative to an earlier examination of the ACT (Colangelo & Kerr, 1990). There was no observed difference across gender in attaining a perfect subtest score, as compared to the previous finding in which boys were 4 times as likely to obtain a perfect subtest score relative to girls. Boys were more likely to achieve perfect scores in mathematics relative to girls by a ratio of 2 to 1, down from the previously reported ratio of 3 to 1. Girls attained perfect scores in English by a ratio of 2 to 1, as compared to boys. This represents somewhat of an increase for girls relative to boys as girls previously displayed only higher scores twice as much as boys. There were no differences between boys and girls in science reasoning in contrast to a 6 to 1 ratio previously found for boys relative to girls on a similar subtest of the PLAN. Colangelo et al. also found that

perfect scores on the English subtest are related to high mathematic scores for boys but not for girls.

Career choices for girls showed that designating undecided as a choice tied with communications, followed by social science and health. Boys' top choices were biological/physical sciences and engineering. The boys scoring perfectly on either mathematics or science reasoning chose engineering as their top choice, whereas girls scoring perfectly on these subtests ranked engineering lower as a career choice relative to boys and below undecided within their own group. Both boys and girls did not rank education high, but boys were consistently lower than girls in how high they ranked education. These latter findings were more in line with previous trends found in research of gifted boys and girls, showing distinct differences in patterns of interests (Colangelo et al., 1996). Nevertheless, girls continue to close the gender gap in achievement as well as in interests in math and science (Kerr & Foley-Nicpon, 2002).

On the other hand, many of the nation's academically talented students are making surprisingly unimaginative career choices. Despite the choice of nearly 200 college majors, more than half of the high-scoring students in 1988 crowded into just five majors: business, engineering, communications, premed, and prelaw (Kerr & Colangelo, 1988). Among students who scored perfectly on subtests of the ACT—indicating an extraordinary grasp of English, mathematics, social studies, or natural sciences—relatively few expected to major in their area of great expertise (Colangelo & Kerr, 1990). Instead, these students chose pragmatic, applied majors associated with high-salary, plentiful jobs. Minority gifted students also fit the pattern of choosing from among a few practical occupations (Kerr & Colangelo, 1992), despite choosing high-status, challenging careers once considered rare options for Native Americans, Blacks, and Hispanics (Colangelo & Kerr, 1990). The picture in the new millennium continues to show that bright students consider a fairly narrow range of options.

RESEARCH ON CAREER ASSESSMENTS AND INTERVENTIONS

Most studies of career assessments and interventions have taken place in university settings. The Guidance Laboratory for Gifted and Talented at the University of Nebraska, established in 1982, extended the work of the Guidance Laboratory for Superior Students, later the Guidance Institute for Talented Students, by emphasizing evaluational and experimental studies of career counseling assessments and interventions. Findings of an early study (Kerr, 1986) suggested that gifted students prefer structured individual counseling (a counseling session in which the counselor suggested topics, asked open-ended questions, and presented test results according to an interview protocol) to an open-ended format in which the student was encouraged to take the lead in the session and

no protocol was followed. They also preferred same-sex group counseling formats. Finally, they favored a battery of tests that yielded information about vocational interests, personality needs, and values.

Guidance laboratory models of counseling that followed successfully encouraged students to continue career exploration, set career goals (Kerr & Ghrist-Priebe, 1988), and raise the career aspirations of gifted girls (Kerr, 1983).

With the establishment of the Counseling Laboratory for Talent Development at the University of Iowa in 1986, college honors students were targeted, and the guidance laboratory interventions were further modified for individual assessment and counseling while adding to structured questions and test interpretations an influence attempt that encouraged gifted students to make career decisions in keeping with their most deeply held values (rather than aptitude test scores, job market statistics, peer opinions, or family pressure). Two studies were performed to test that this values-based career counseling would affect students' sense of purpose and vocational identity (Kerr & Erb, 1991). Both studies' students increased their confidence in their vocational identities, with more than half of the students switching college majors to majors more in keeping with the values they had claimed in their individual sessions.

More recently, the Talented at Risk Girls: Encouragement and Training for Sophomores program at Arizona State University was a guidance laboratory that added discussions of risk behaviors, hands-on experiences to increase math/science self-efficacy, and goal-setting exercises to the guidance laboratory model. This program, administered to more than 500 high school girls who were gifted in math and science but considered to be "at risk" by their schools, was effective in increasing career exploration, increasing self-esteem and self-efficacy, and reducing some at-risk behaviors (Kerr & Kurpius, 1999; Kurpius & Kerr, 2002).

CAREER ASSESSMENT OF INTELLECTUALLY GIFTED STUDENTS

Using the Right Instruments

New research by Achter et al. (1996) suggests that most career assessment instruments, when given at grade level, do little to help gifted students. Many counselors are aware of gifted students' skepticism about career tests—that they regard them as childish or overly general in their results. Like most career education material, career instruments are keyed to the lowest common denominator. Instead, gifted students might profit better from career interest tests, personality tests, and values inventories given out of level. Therefore, the Self-Directed Search might be effective for primary school gifted, although generally it is not given until middle school; the Strong Interest Inventory, although usually given to high school students and college students, may be appropriate to middle

school students and early high school students; and the Personality Research Form (Jackson, 1986) and Vocational Personality Inventory may be most appropriate for high school students even though they are most frequently used with college students and adults.

The research suggests that gifted adolescent students do have preferences for particular combinations of instruments (Kerr, 1991). A vocational test that establishes a Holland code and a general idea of the sorts of occupations that are appropriate, such as the Self-Directed Search (Holland, 1985) or the Vocational Preference Inventory (Holland, 1988), should be the first instrument. A personality test that provides enough differentiation of specific personality characteristics and that is developed on a normal population should be next. The Edwards Personal Preference Survey or the Personality Research Form each appears to fit well here. A values inventory provides further focus and places the counseling session within the context of true “vocational” counseling, in that young people are helped to make decisions based on meaning. Students need to be encouraged to see that the overabundance of options can be reduced through a consideration of personality, needs, and values. In addition, this battery of instruments can provide a clear affirmation of the goals of those students who are already differentiated and who need the support of these objective tests to persuade others that they are on the right path.

Asking the Right Questions

Gifted students often have unusual or esoteric interests. It is best for counselors conducting career assessments to show curiosity rather than ignorance, using verbal “following” and open-ended questions to explore students’ interests, to help them to make connections between their interests and the world of work. De-emphasizing the topic of what the student is “best at” helps steer clear of the spurious distinctions gifted students often make between the 95th and 99th percentile, saying “I’m not so good at math (95th percentile) but I’m really good in English (99th percentile).” Because it is likely that the gifted student is above average in nearly every academic area, he or she has the necessary talent for almost any college major. A few percentile points difference should not be used as a basis for career decision making.

Balancing Interests, Needs, and Values

Unfortunately, most average and below average students must make their occupational decisions on what they are most able to do and sometimes do not have the ability to pursue a career (such as priest or physician) that might allow the fullest expression of their values. Values-based decisions are important for people in general, wherever possible. For gifted students, values-based decisions

can prevent students from feeling obligated to develop abilities for which they have little interest and career paths that have little meaning for them.

Hebert (2000) examined self-identity formation and career development for six gifted men pursuing undergraduate degrees in elementary education, a non-traditional career for males. Factors that appear to have allowed these gifted young men to pursue this nontraditional career were a strong belief in self and ongoing parental emotional support. These individuals were also empathetic and psychologically androgynous and could commit to a set of ideas that they could trust, as well as allowing themselves a worldview of men being capable nurturers. This study underscores the importance of nurturing career interests based on beliefs and values.

General self-concept of both gifted and nongifted high school students correlates highly with academic self-concept. Academic self-concept also correlates highly with actual achievement in school, which is not necessarily related to the individual's potential (Van Boxtel & Monks as cited in Dixon, 1998). Research suggests that gifted students, despite possessing such "gifts," may be prone to lower self-concepts. Self-concept is a multidimensional construct for students in general. Particularly relevant to gifted students are the social and academic self-concepts. High ability itself is not enough to maintain a self-concept; one has to achieve as well (Dixon, 1998). Gifted students also tend to be perfectionistic. This may serve them well in certain individual tasks but can also impede the completion of tasks as well as dampen their perception of their own skills.

The self-concept of gifted children may be affected by several social and emotional problems. Disruptive and/or dysfunctional social relations, unrealistic expectations imposed by parents or others, and exceptional academic demands imposed by acceleration or other special programming top the list of potential barriers to gifted students' development (Hoge & Renzulli, 1993).

Emmett and Minor (1993) explored factors important in career decision making in gifted high school graduates and found the following themes: issues of heightened sensitivity, perfectionism, psychosocial development, superior intelligence, and multipotentiality.

Dixon, Cross, and Adams (2001) examined individual differences in students attending a Midwestern residential school for gifted and talented students. Students were sorted by their Self-Description Questionnaire III scores into the following six hierarchical clusters: mathematics focus, social focus, nonathletic, low overall self-concept, verbal group, and a nonspiritual/nonreligious group. The largest clusters of students were math superstars and nonathletes, followed by socially focused students. Clusters were validated by the Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A) and Self-Perception Profile for Adolescents scores. No pathology, as would be indexed by the MMPI-2, was reported for this sample. An earlier study (Manor-Bullock, Dixon, & Dixon as cited in Dixon et al., 2001) yielded two predominant types, low self-concept and stereotypical gifted students. Both studies underscore the importance of attending to individual differences in self-concept.

GENDER ISSUES AND CAREER ASSESSMENT OF GIFTED STUDENTS

Gender role socialization and gender-based guidance practices negatively affect the career development of gifted girls and gifted boys. Girls of great intellectual promise often do not grow up to be women who accomplish their career goals despite often having high career aspirations and a strong sense of confidence in their abilities. A study that compared sixth-grade through eighth-grade girls in a gifted program, relative to their general education group peers, demonstrated that girls in the gifted group perceived themselves as having higher instrumentality (generally regarded as a masculine attribute), having higher achievement motivation, were less traditional in their career aspirations, and were more liberal in their orientation toward the rights and roles of women. It is also encouraging that no significant differences were found between both groups regarding self-perceptions of expressiveness (generally regarded as a feminine attribute), degree of competitiveness, and fear of success (Mendez, 2000).

However, gifted girls' confidence in their own aspirations often fades with adolescence. Gassin, Kelly, and Feldhusen (1993) found that gifted elementary school girls were more certain about their talents and career plans than boys, but this did not continue for junior high and high school, where uncertainty about career aspirations rose for girls relative to earlier grades and to boys. However, boys' career certainty was stable throughout high school. These girls may succumb to pressures based on their sex, ability expectations, and career myths.

Parents were strong influences on choice of major and career-related decisions for seven gifted females who spent precollege years in a rural area (Grant, Battle, & Heggoy, 2000). The stability of their career aspirations was influenced by their extracurricular activities. However, it was the tasks and skills employed in the extracurricular activities that aligned with their career aspirations and not the activities themselves. These rural, young, gifted women experienced a values conflict (Kleinsasser as cited in Grant et al., 2000), where they felt pressure from their rural community to uphold community and family life.

Sadker and Sadker (1994) named biased achievement tests that underestimate girls' abilities and seem to indicate inferiority as the single greatest culprit in undermining girls' confidence in their abilities. Some gifted girls, despite high grades in mathematics and science-related courses, come to believe that they have little proficiency in that area on receiving their test scores. Unfortunately, teachers and counselors sometimes collaborate with gifted girls in this process (Eccles, 1984). Many guidance counselors advise gifted girls away from those courses that they perceive as having a negative impact on the girls' grade point averages. The result is that many adolescent women enter college with much less preparation for the courses that are necessary to their academic majors. Therefore, a single decision made by an adolescent gifted girl to discontinue her studies in math and science may have far-reaching consequences on her career

options. Adolescent girls are often faced with the choice of developing intellectually or socially. Developing intellectually may mean taking advanced math and science courses in which there are few girls, attending summer institutes at universities where there are few friends or acquaintances from one's own home school, and taking advantage of special tutoring and lessons that may take place during the time that most adolescents are engaged in social activities with one another. The gifted girl who chooses to emphasize social development may find herself minimizing the importance of good grades and academic achievement.

Bright young women may make decisions to take less rigorous coursework and choose less challenging college majors than bright young men (Kerr, 1997). Arnold and Denny's (1985) longitudinal study of high school valedictorians found that whereas males maintained or increased their estimates of their intelligence, females decreased their estimates of their intelligence by sophomore year of college. The gap between gifted women's career achievements and those of their male peers widens throughout their lifetimes (Kerr, 1995, 1997). Although career assessment cannot remediate the social causes of gifted women's failures to achieve their goals, a series of career assessments throughout the life spans of the gifted women can help encourage, strengthen, and provide guidelines for accomplishing the career goals they set (Kerr, 1997).

For gifted boys, the path to the development of a freely chosen career goal is often blocked by male gender role socialization and the expectations of others. Young gifted boys have high career aspirations and tend to have broad and varied career interests. However, gifted boys learn at a very young age that intelligence and creativity are often associated with effeminacy. Kerr and Cohn (2001) showed how gifted boys' concern about being "real boys" leads them to underachieve so as not to be perceived as nerds or teachers' pets. Gifted boys are often pressured into athletic activities as a proving ground for their masculinity, even when they have little interest in sports. Half of the boys in Alvino's (1991) survey of gifted boys' attitudes found it necessary to hide their giftedness. Albert's (1978) follow-up studies of boys who scored very high on intelligence and achievement tests showed that boys on a math/science track found it very difficult to leave that path, whereas boys in other tracks such as humanities found that changing majors and career interests was more easily accomplished. Boys whose fathers were also in math/science fields seemed to find it particularly difficult to pursue their own interests. Arnold and Denny (1985), in a longitudinal study of high school valedictorians, found that whereas females in their study struggled with fears about balancing careers and family, gifted males throughout adolescence and young adulthood gave little thought to this issue. The gifted males in this study were very linear in their career paths, like those in other long-term studies. They were strongly encouraged to pursue careers in male-dominated, high-status professions. However, at 26 years old, many of the men seemed unhappy with their career choices. The authors said that the men "seemed extremely disillusioned for 26-year olds who had arrived exactly where they aspired to be."

Similarly, in Kerr, Anderson, and Cohn's (2001) follow-up of gifted men, they found that at age 50, these men who had been guided toward high-status careers in traditional masculine areas such as business, medicine, and law had become "aggressively ordinary."

Therefore, career assessment of gifted boys needs to take into account the pressures boys experience to be ordinary; to follow a linear, nonstop career path; to ignore the place of marriage and child raising; and to be content in careers that do not necessarily fit their interests, needs, or values.

Career assessment for both young gifted boys and young gifted girls means discovering the ways in which their career fantasies and aspirations can be reinforced. Some group guidance techniques may be more effective than objective instruments for career assessment; however, even at this early age, single-sex groups may be more productive. Interviews in which the teacher or counselor asks about occupational daydreams and favorite play activities can yield information that can be used to provide in-class and out-of-class experiences to help bright children learn about the occupations they find exciting. Assessment at this stage should include a strong component of encouragement to both girls and boys to consider nontraditional occupations.

Career assessment with adolescent gifted girls must take into account career aspirations, lifestyle plans, math/science self-efficacy expectations, and self-esteem. In addition, adolescent gifted girls need specific information about their talents, interests, needs, and values. An assessment of math/science self-efficacy (Kerr & Kurpius, 1999) can help a counselor to determine the degree to which low self-efficacy is impeding a gifted girl's career development. The bright young woman's commitment to a goal is as important as the goal itself.

Adolescent gifted boys also need assessment of their interests, needs, and values and need opportunities to discuss those interests that they may be attempting to hide because they are not as lucrative, masculine, or prestigious as more traditional masculine goals.

Just as important to assess are the lifestyle plans of both gifted young men and gifted young women. The computerized career assessment techniques and frequently used interest instruments assume that career decision making is completely separate from decision making about marriage and children (Kerr & Fisher, 1997). The counselor needs to assess such aspects of lifestyle as when the student would like to marry; preferred partner's level of aspiration and career type; when he or she would like to have children, how many, and at what intervals; and the extent and nature of child care. Counselors should be careful not to imply that it is the young woman's sole responsibility to make these decisions or to arrange child care for her children; nor should they imply that males will be the sole breadwinners and therefore must sacrifice their interests for a good salary.

Self-efficacy expectations, particularly those related to math and science, are critical to young women's decisions to pursue advanced training and nontradi-

tional careers. Objective instruments exist for the measurement of self-efficacy (Hackett & Betz, 1992; Kerr & Kurpius, 1999); however, informal interview questions concerning math and science may also be effective. Questions such as, "How do you expect to perform in your next year's math class?" and "What evidence do you have for your estimate of your math/science ability?" can be fruitful. If self-efficacy expectations are low, counselor intervention is necessary to dispute and overcome them, preferably using objective evidence from achievement test data and school grades.

The diagnostic-prescriptive model of career counseling for adolescent girls developed by Hollinger and Fleming (1984) included questions pertaining to most of the above categories. In addition, young women were asked to identify both internal and external barriers they perceived to the attainment of their career goals and were helped by the counselor to discuss ways of overcoming those barriers.

Assessment for both men and women during their college years should be part of a full-fledged career counseling intervention. The values-based career counseling intervention developed for gifted college students (Kerr & Erb, 1991) and the gender equity options in science intervention (Kurpius & Kerr, 2002) include objective assessment of interests, needs, and values. This approach assumes that a gifted young woman's best defense against the culture of romance and a gifted young man's best defense against a culture of competitiveness is to develop a commitment to a deeply valued idea. The values-based approach also assumes that career development is not the search for an occupation but the search for meaning. Therefore, the assessment of interests, needs, and values is performed in the context of helping gifted students to discover the possibility of a meaningful lifestyle in which falling in love with an idea and expressing love with an intimate partner are equally important experiences of adulthood.

Cultural Issues

Self-efficacy is one of the major components for the successful career development of students from cultural groups that historically have been oppressed by racism. Self-efficacy is the perception of one's capabilities to successfully complete one's academic and career goals (Fisher & Griggs, 1995; Lent, Brown, & Larkin, 1986). For many minority gifted students, confidence can be undermined by expectations of others that they will fail to achieve their goals. Family traditions, parental influences, and community expectations can all negatively affect students' perceptions of their abilities (Carter & Swanson, 1990; Epstein, 1989; Hernandez, 1995). Teacher expectations and discriminatory practices also affect career development (Baly, 1989; Good, 1981). Psychosocial variables include student perception of opportunity structure, nontraditional learning styles, and the need for role models (Fisher & Griggs, 1995; Ford, 1995). Many gifted minorities have a deep concern for their communities. Many talented minority students often limit their career decisions to occupations that would

help service their communities (e.g., education, social sciences, law, etc.) (Locke & Parker, 1991). In addition, among gifted minorities there is a strong desire to return to one's community and become a role model for others (Fisher & Griggs, 1995; Kerr, 1995).

Similar to findings for gifted European American students, gifted students of color were more likely to plan to attend graduate school if they were from larger hometowns, had higher parental education levels, and possessed greater academic comfort (McWhirter, Larson, & Daniels, 1996).

The perception of limited career options is often maintained by the lack of minority role models in nontraditional fields (e.g., science, math, and technology) and low teacher/counselor expectations (Kirschenbaum, 1991). As the numerous research articles on teacher expectations reveal, gifted minority students need to be supported and encouraged by teachers and counselors to realize their full range of career options.

Use of Career Instruments

Instruments used to assess the career interests and career behaviors of gifted minority students should be used and interpreted cautiously (Kerr & Fisher, 1997). Most career development theories and assessments have been created for and normed on predominantly White middle-class populations. It is unlikely that the same factors that predict the career development and choice of majority students are applicable for minority students as well (Baly, 1989). The tendency to generalize from the majority population has created a misguided view of the career development profiles (e.g., interests, significant influences, work values) of gifted minority students (Fisher & Griggs, 1995; Kerr & Fisher, 1997).

There are few investigations of the validity and reliability of career instruments for multicultural populations (Koegel, Donin, Ponterotto, & Spitz, 1995). Studies of multicultural assessment have used the American College Testing Interest Inventory, Holland's Self-Directed Search, and the Strong Campbell Interest Inventory with minority populations (Carter & Swanson, 1990). Unfortunately, however, the results have been inconclusive; it is clear that modifications must be made in interpretations, if not in the instruments themselves. However, it is yet unclear about how that might be done. Although older studies insisted that most inventories are valid for minorities (Harrington & O'Shea, 1980; Kimball, Sedlacek, & Brooks, 1973; Lamb, 1976), more recent studies have demonstrated the lack of fit and inconsistencies in the career interest structures for minorities (Carter & Swanson, 1990; Koegel et al., 1995).

Many minority students may be responding to career interest measurements according to their aspirations or daydreams; however, these dreams may not be related to what they realistically intend to pursue because of their perceptions of the opportunity structure or their concerns for providing a service to their communities. Therefore, the predictive validity of these instruments is weak.

To increase the validity of career interests measures with gifted minority populations, more research on the psychometric properties of instruments is needed with individual multicultural groups to help determine if specific minority norm groups are needed to accurately interpret career interest measures. In addition, interpretations must take into account the impact of poverty, expectations, and community values on the scores that emerge.

Career Counseling Implications

Robinson and Janos (1986) outlined special issues related to this population of young gifted people. Despite their gifts, these students actively contend with issues of isolation from their cultures the more they achieve and the farther their careers take them from their homes. Counselors and educators must know the subculture of intellectual accomplishment and how to navigate the bureaucracy of higher education and understand the subculture of intellectual accomplishment.

Counselors must assess the concerns of gifted people concerning social rejection from family and friends, perfectionism, and high anxiety while at the same time be engaged with issues as a result of their minority group status—racism, discrimination, low teacher expectations, and so forth. These issues combined with normal developmental events can impede the academic, social, and emotional well-being of gifted minority students. Counselors can have a significant role in helping talented minority students effectively process their concerns, so they can successfully proceed with their career development.

Counselors must have high academic and career expectations for the students and be willing to challenge obstacles that block student progress while being respectful of their cultural values. Working with community members as well as family can help provide the emotional and social support gifted minority students need for their overall well-being.

Gifted minority students need encouragement, resources, and skills to effectively handle the social injustices they may encounter (Ford, 1995). To be of assistance in this regard, counselors will have to be knowledgeable of how race, ethnicity, culture, gender, class, and sociopolitical history can affect the career development of gifted and talented minority students. Counselors must also be prepared to explain to gifted minorities how bias can affect their test interpretations (Kerr & Fisher, 1997).

These are just a few issues for counselors to consider as they work with gifted minority students. The overall challenge is for counselors to include the role of advocate with their existing skills as they enhance the career development and choice of gifted minorities.

CONCLUSION

Although much has been learned about the vocational psychology of gifted and talented individuals, much remains to be explored. Multipotentiality will continue to be a problem for multitalented young people, and interventions that will help them to avoid vacillation and long-term indecision need further investigation. The career development of individuals with specific, extraordinary talents requires that we understand the choices that must be made in youth as well as the particular career ladders within the professions associated with each talent area. The career assessment and counseling needs of gifted women and gifted minority students must be explored in greater depth. At all levels of scholarly endeavor—conceptualization, descriptive studies of choices, and experimental studies of assessment and intervention—work can be done that will assist gifted and talented students in making informed and purposeful choices about their careers.

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