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Assessing Gender-Based Circumscription of Occupational Aspirations

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The circumscription and compromise theory of vocational aspirations draws attention to the possibility that many adolescents may unnecessarily limit their vocational options. This article describes key elements of the theory, particularly its emphasis on children's perceptions of occupational sextype, and the changes the theory requires in how to conceptualize and assess vocational aspirations. It also describes a theory based Mapping Vocational Challenges[1] (MVC; Lapan, Loehr-Lapan, & Tupper, 1995) activity that helps adolescents map and discuss the beliefs and background factors that can lead them to rule out careers they might actually find interesting and perform well.

Perceptions of, and preferences for, gender roles are central to the circumscription and compromise theory of occupational aspirations. The theory postulates that gender is (a) the first element of self-concept against which children judge the desirability of different occupations for people like themselves and (b) the aspect of self that young people are generally least willing to violate when they have to make major compromises in their vocational choices (Gottfredson, 1981, 1996).

The theory therefore treats gender self-concept as one among other key individual differences (e.g., Holland, 1997, category of interests, intelligence) that shape young people's vocational aspirations. Indeed, the theory attributes special salience to gender self-concept in explaining those

[1]The MVC activities are copyrighted material. Additional information on these activities as well as permission to use them can be obtained from Dr. Richard Lapan, 16 Hill Hall, University of Missouri–Columbia, MO 65211.

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preferences. However, it simultaneously raises the question of whether many youngsters attribute too much salience to gender, thereby unnecessarily restricting their options.

We first briefly review the key claims of the theory in order to illustrate how gender self-concept not only shapes occupational aspirations, but also may overly constrict them. We next show how the theory creates new demands and opportunities for assessing career development. Finally, we illustrate how the theory suggests ways to prevent or reverse inappropriate circumscription and compromise of vocational opportunities. In particular, we describe a theory based classroom activity (Lapan et al., 1995) in which middle school and high school students are encouraged to examine whether their occupational choices are unnecessarily gender restricted and why.

Key Elements of the Theory

The theory posits three developmental processes: (a) the development of *images* or perceptions of one's self and of the occupational world, (b) the progressive *circumscription* or narrowing with age of the career options children consider acceptable for themselves, and (c) *compromise* in the face of reality. These processes begin in early childhood to shape the occupational aspirations that adolescents and young adults later attempt to implement.

Images

The circumscription and compromise theory follows earlier theories in emphasizing that career choice reflects people's efforts to implement their preferred self-concepts and that satisfaction with career choice depends on how well that choice fits or matches the self-concept. The theory differs from others in viewing career development as an attempt to implement primarily a social self and only secondarily a psychological self. That is, it is an attempt to place oneself in the broader social order. The theory therefore emphasizes the most public, social aspects of self (such as gender and social class), rather than the more private, personal elements (such as personality) that we acknowledge to be important. Gender is a core element of one's social image and one about which adolescents are acutely sensitive.

Individuals differ greatly in their self-concepts (their images or assessments of themselves), but much research shows that they share remarkably similar images of the occupational world. Figure 1 was developed from that research. As it indicates, adults distinguish occupations along two major dimensions—sextype (along the horizontal axis, with feminine jobs to the right) and prestige level (the vertical axis), which largely coincides with the intellectual complexity level of work (r = .8; Gottfredson, 1997, Table 7). As can be seen in the figure, building contractor is rated as very masculine and secretary as very feminine, but both are moderate in prestige. Psychologist and short-order cook are both gender neutral, but the former is higher and the latter lower in prestige. By adolescence, young people have developed the same complex cognitive map of the occupational order that adults possess.

As Figure 2 shows, different Holland fields of work cluster in different sectors of this cognitive map. For example, Realistic work is perceived as highly masculine and Conventional work as highly feminine, with Investigative, Artistic, and Enterprising being less sextyped. The more sextyped fields of work also tend to include the least prestigious work. It should be noted, however, that some of the Holland categories still overlap considerably in prestige and sextype.

What is less well established, but a central concern of the theory, is how images of self and of occupations develop during childhood. Preschool children have relatively simple or crude conceptions of people and jobs—certainly nothing as complex as Figure 1—because they are aware of only the most concrete and observable attributes of occupations and people and have limited ability to categorize. The theory posits that children's images of self and the social world become more comprehensive, complex, and accurate with age. As they increase in mental age, children become better able to process the often complex and abstract information in their environments. The images of self and occupations that develop first are based on the most external, observable, and concrete aspects of self and jobs. What is important here, as is described further, is that youngsters perceive the sextype dimension of occupations (and self) at younger ages than they perceive the other dimensions of work (and self) described in the theory.

As shown in Table 1, the theory describes four stages in the development of images of self and occupations. In Stage 1, orientation to size and power, preschoolers begin to classify people in the most obvious ways—as big (and powerful) versus little—and to realize that jobs are adult roles. In Stage 2 (roughly ages 6-8), orientation to sex roles, youngsters are able to make simple, unidimensional distinctions among people and jobs. Most importantly, they have begun to understand and apply the concept of sex roles. However, they focus primarily on the visible cues of gender (clothing and overt activities). The major distinction among occupations they notice and concern themselves with is their sextype (whether they employ mostly men or women and involve sextyped activities). Not being able to make fine distinctions, they classify jobs and personal traits dichotomously, in this case, as simply male versus female. Being inflexible thinkers, they also tend to treat adherence to sex roles as a moral imperative; that is, they tend to view same-sex behavior as obligatory and cross-sex behavior as wrong or morally deficient.

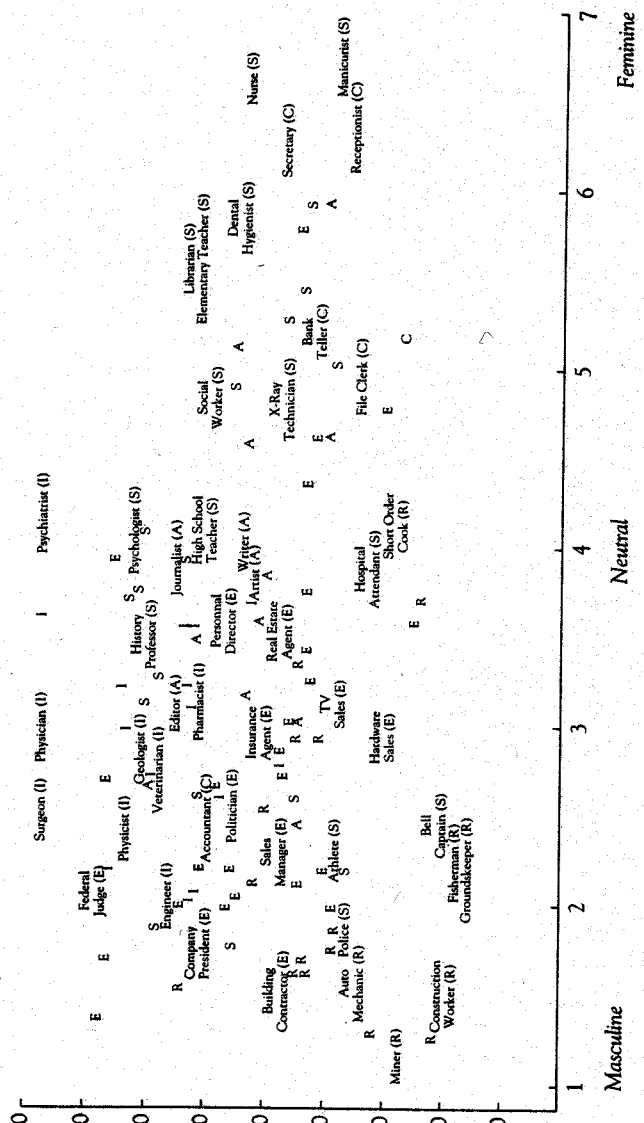

Figure 1. Map of occupations according to prestige and sextype ratings. Occupations are denoted by a letter indicating their Holland field: R = Realistic, I = Investigative, A = Artistic, S = Social, E = Enterprising, C = Conventional. From "Circumscription and Compromise: A Developmental Theory of Occupational Aspirations," by L. S. Gottfredson, 1981, *Journal of Counseling Psychology,* Monograph, 28(6), p. 545. Copyright © 1981 by the American Psychological Association. Reprinted with permission.

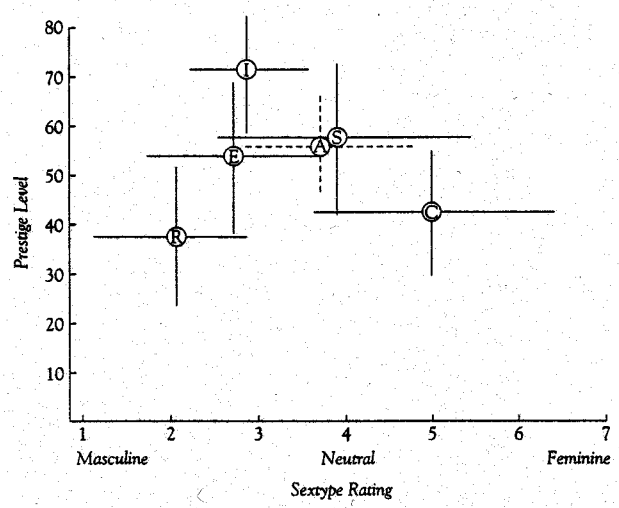

Figure 2. Prestige and sextype ratings of occupations in the different Holland fields of work. From "Circumscription and Compromise: A Developmental Theory of Occupational Aspirations," by L. S. Gottfredson, 1981, *Journal of Counseling Psychology,* Monograph, 28(6), p. 545. Copyright © 1981 by the American Psychological Association. Reprinted with permission.

By ages 9 to 13, most youngsters have entered Stage 3, orientation to social valuation. Now being better able to comprehend abstract ideas, they begin to recognize the more complex, socioeconomically significant differences among people and jobs and how keenly important they are to adults. In particular, they begin to recognize that occupations differ in the social status they confer and that people differ in general academic ability (intelligence) and, thus, in their abilities to obtain prestigious jobs. Having now become more cognizant of the key distinctions among occupations, including their requirements and rewards, these youngsters will also score higher in vocational maturity.

Only in Stage 4 (usually age 14 and older), orientation to the internal, unique self, do most adolescents begin to focus less exclusively on what is external and social and become increasingly aware of the more subtle and psychological aspects of self and occupations (involving interests, personality, values, and specific abilities). Vocational counseling has traditionally concentrated on this stage of career development, largely taking for granted the earlier process of social self-definition.

Table 1
Summary of Four Stages in the Development of Self-Concept and Occupational Preferences

Characteristic	Stage			
	1. Orientation to size and power	2. Orientation to sex roles	3. Orientation to social valuation	4. Orientation to internal, unique self
Ages (years)	3–5	6–8	9–13	14 and over
Grades	Nursery school and kindergarten	1–3	4–8	9 and over
Thought processes	Intuitive	Concrete	Less concrete	Abstract
Ability to classify objects, people, occupations	Has not achieved object constancy	Simple groupings	Two-factor groupings	Complex groupings
New elements in perceptions of self and others	Little vs. big	Gender	Social class and intelligence	Personal interests, values, and competencies
New elements in occupational perceptions and preferences	Occupations as adult roles	Sextype	Prestige level	Field of work

By adolescence, then, youngsters have developed not only the same cognitive map of the occupational world that adults share (see Figure 1), but also a sense of where they fit into that world by virtue of their own social and psychological characteristics. Stated another way, they have identified the occupational roles that would allow them to project what they consider to be a suitable image of themselves.

Circumscription

Circumscription is the developmental process by which youngsters progressively eliminate from further consideration whole sections of the occupational world as incompatible with their developing self-concepts—that is, as socially unacceptable for people like them (of their gender, social class, intelligence, etc.).

As they come to recognize adult roles in Stage 1, children limit their occupational aspirations to adult roles, ruling out futures that involve fantasy (princess) or nonhuman states of being (bunny rabbit). By the end of Stage 2 (generally about age eight), children have become aware of and concerned with maintaining what they consider to be proper sex roles. They therefore set a *tolerable-sextype boundary* (see Figure 3) and eliminate from further consideration all jobs that project the wrong sextype. Boys begin actively to reject the feminine jobs to the right side of Figure 1, which includes most Conventional or clerical jobs, as shown in Figure 2. Girls tend to eliminate the most masculine or Realistic jobs, to the left in Figure 1, never to spontaneously reconsider them unless prompted by circumstances to do so.

By age 13 (end of Stage 3), most children have become acutely aware of social class and ability distinctions among people and jobs. Most have accordingly set a floor on their aspirations (a *tolerable-level boundary*) by eliminating from further consideration all those jobs that they or their families consider beneath them in prestige. Most middle class adolescents, for example, will no longer consider jobs in the lower half of the prestige hierarchy (such as welder, bus driver), many of which children and parents from poorer families would consider quite respectable. Some children also set a ceiling on their aspirations (a *tolerable-effort boundary*), based on what they think is beyond their level of ability or the degree of effort they could realistically put forth. Greater overall self-efficacy or self-confidence, for example, might be expected to raise the tolerable effort boundary.

Only after adolescents have carved out a smaller set of acceptable options—their social space (or *zone of acceptable occupational alternatives*)—do they begin to engage in what we typically label as vocational choice, namely, to focus on their vocational interests (e.g., mechanical, social

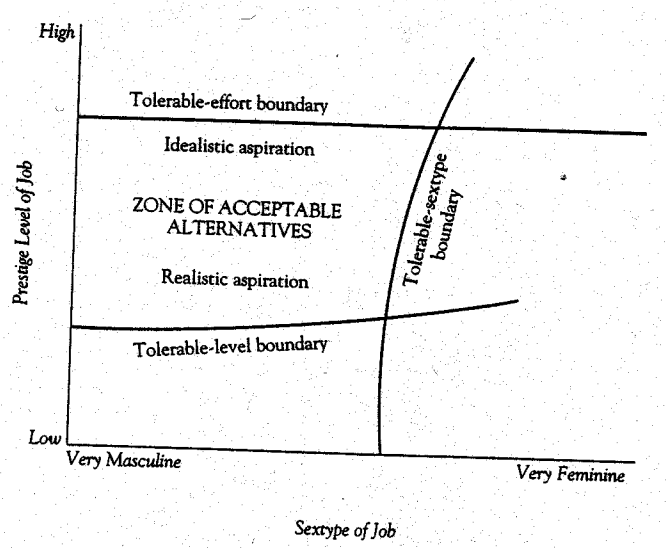

Figure 3. Circumscription of aspirations according to perceptions of job-self compatibility. From "Circumscription and Compromise: A Developmental Theory of Occupational Aspirations," by L. S. Gottfredson, 1981, *Journal of Counseling Psychology,* Monograph, 28(6), p. 545. Copyright © 1981 by the American Psychological Association. Reprinted with permission.

service, artistic, vs. clerical) and to weigh the pros and cons of their remaining, acceptable alternatives. Many young people seem to have needlessly and inappropriately narrowed their options at an earlier age, leaving them with only the remnants of choice.

It is essential, of course, for people eventually to narrow and focus their vocational searches. Indeed, promoting such focus is a traditional aim of interest measurement. It is also true that most people are to some extent multipotential, meaning that they necessarily have to forgo some options in life to pursue others. The issue here is simply that many young people turn their attention away from good options for bad reasons.

Compromise

Whereas circumscription involves identifying one's most desirable options, compromise is the process by which individuals relinquish their most preferred futures. It is the process by which individuals settle for less compatible, less preferred options (say, auto mechanic, high school music teacher or coach, salesperson), because the most compatible, attractive ones (mechanical engineer, professional musician or athlete, small business

owner) seem less accessible. As people approach the need to implement a choice, they begin to pay more attention to the accessibility of the options they most prefer. Judgments of accessibility, which may be based, among other things, on the perceived availability of training and jobs in the local area, financial or family constraints, and discrimination, then begin to moderate youngsters' preferences. Of course, assessments of accessibility may be distorted in various ways, for example, by people over- or underestimating their aptitudes, ambitions, parental support, and other available resources.

The important point here is that perceptions of accessibility, accurate or not, lead people to abandon their idealistic preferences in favor of more realistic alternatives. They settle for pursuing something that is less desirable and more available but, if possible, still good enough.

The original formulation of the theory (Gottfredson, 1981) hypothesized that, when faced with the need to compromise, individuals tend to relinquish compatibility with their vocational interests first, their goals for prestige second, and their preferred sextype last of all. The revised version of the theory, which is more in accordance with newly accumulated evidence (Gottfredson, 1996), proposes instead that the kinds of compromises people make depend on the degree of compromise required—*major*, *moderate*, or *minor*. That is, what they opt to give up depends on how deeply a compromise threatens the self-concept. As will be explained, priorities in compromise shift as the degree of threat shifts. The desired presentation of self is most threatened by occupational choices that signal an unacceptable sextype and least threatened by ones that are incongruent with one's vocational interests. Stated another way, different criteria become important in choosing among negative, versus positive, outcomes.

Major compromises involve having to choose among options that are all clearly unacceptable in some way—wrong sextype, low prestige, or incompatible interest type. In this most threatening situation, the theory posits that individuals, especially boys (see Gottfredson, 1996), will usually settle for unsatisfactory prestige and field of work rather than the wrong gender. If the degree of compromise required is only *moderate*, and all the options are at least tolerable in terms of sextype, prestige, and interests, then people will consider the sextype good enough and will opt to enhance social prestige, rather than congruence in vocational interest type. Finally, if the compromises among which they must choose are relatively minor, that is, all the options are reasonably attractive, most people will consider both prestige and sextype to be good enough and will give top priority to enhancing fit with their vocational interests. What vocational psychology most often studies as vocational choice or decision making, especially among college students, seems to be this low compromise, low threat situation. In

short, the theory argues that gender self-concept becomes salient in the compromise process to the extent that it is threatened. If there is no threat, it has no salience. If gender self-concept is deeply threatened, its salience will be overriding.

Challenges for Assessment

There exist many methods for assessing people's images of themselves. They include interest inventories, measures of self-efficacy, and the like. The development of images of self and occupations has not been well documented, although chronicling such development would not seem to pose special new problems in assessment. On the other hand, circumscription and compromise require new ways of conceptualizing and measuring vocational aspirations.

Circumscription

Circumscription is the process of identifying one's preferred social space, of drawing boundaries around a smaller occupational territory within the larger social terrain. Thus, the first conceptual shift that circumscription requires in assessing the development of occupational aspirations is that preferences must be viewed as areas or gradients, not as points, of preference. We must construct the equivalent of relief maps that show the rise and fall—the peaks and valleys—of individuals' preference levels across a job landscape defined by sextype and prestige. The location of occupations in that landscape—the common cognitive map of the occupational world that adults share—is reasonably well known and has been graphically portrayed in several ways. Figures 1 and 2 array occupations according to the two dimensions of sextype and prestige (or intellectual complexity). The Occupational Aptitude Patterns Map (Gottfredson, 1986) provides a similar, but perhaps more user-friendly, depiction of how the occupational world is organized. What differs for each individual is how much he or she is attracted or repelled by different segments of this world.

The major challenges in measuring social space are to (a) depict the gradient of preference levels across the full terrain of occupations and then (b) delineate the contours (the size and location) of an individual's zone of acceptable alternatives within that terrain. Alvin Leung and his colleagues (e.g., Leung & Harmon, 1990), like Beryl Hesketh and hers (e.g., Hesketh, Pryor, & Gleitzman, 1989), have developed ingenious ways of tackling the latter, but no one has yet satisfactorily solved the problem of depicting three-dimensional subspaces of preference within the larger world of work. Within the circumscription and compromise theory, this remains the greatest challenge in studying the development of vocational aspirations.

Depicting a social space requires, at a minimum, identifying the boundaries between acceptable and unacceptable options, if indeed there are

reasonably clear and stable (or steadily evolving) boundaries. This brings up the second major conceptual shift required by the theory. The theory's account of circumscription stresses that early vocational development is really a process of rejection, not selection. It is, as Itamar Gati (e.g., 1986) has long argued, a process of elimination, of people deciding what they *don't* want to be. Early vocational choice is the rejection of unacceptable alternatives, of identifying what is most repellent and threatening to the self, not what is most attractive. In short, it is deciding what one wants to avoid.

If early development of occupational aspirations proceeds by a process of rejection, rather than selection, this means, among other things, that it cannot be charted by asking people to list the few occupations they most prefer, which is what we often do. Such highly specific preferences can be volatile, especially among comparably attractive alternatives near the center of one's zone of acceptable career alternatives. The major problem, however, is that this small set of most preferred options does not reveal the boundaries of what people consider acceptable versus unacceptable. That is, it does not reveal the dividing line between the occupations that individuals consider minimally acceptable for themselves and the ones that threaten or repel them. It is important to know what young people have rejected, because they may have ruled out appropriate options at earlier stages of development. They may also make less favorable compromises if they unthinkingly have ruled out good possibilities.

It is not particularly useful, however, to ask people to list the occupations they dislike or have rejected. They do not seem to be able to do so spontaneously. For example, if college women are asked which occupations they like least, many will list clerical work, because it is among the least preferred of the options they would consider minimally acceptable. It would never occur to them to mention as rejected options those that seem to them patently silly or unsuitable—like maid, construction worker, electrical engineer, or short-order cook. Such dislikes go without saying. It is possible, then, that spontaneously volunteered dislikes may actually be occupations just within the boundaries of the zone of acceptable alternatives.

It is important, however, to identify the unacceptable alternatives that individuals have rejected, because the effort to avoid them drives much vocational development. One has to confront people with the big picture of work, with all its various sectors (e.g., Figure 1 here or the Occupational Aptitude Patterns Map in Gottfredson, 1986) in order to determine which ones they no longer entertain seriously and why. People do not, and perhaps cannot, report such information spontaneously. It is literally out of mind. If counselors want to determine whether inappropriate circumscription has occurred, they have to help counselees unearth and reassess their buried decisions.

In short, the challenge in assessing and reversing inappropriate circumscription is to begin measuring gradients, not points, of preference, and to measure those gradients across their full range, from highly positive to highly negative, in order to identify boundaries, their sources, and their stability. Only then can we gauge individual differences in youngsters' preferred social spaces or zones of acceptable alternatives, why they set the boundaries of unacceptability where they do, and whether those boundaries ought to be challenged.

Compromise

The theory's hypotheses about priorities in compromise have stimulated considerable research (see Gottfredson, 1996, for a review). Rather than answering questions about the compromise process, however, the value of that research has been primarily to reveal the difficulties in conceptualizing and assessing when compromise has occurred. Not all changes in aspirations are compromises. Assessing the occurrence and timing of compromise therefore involves distinguishing between changes that represent giving up what one most prefers (compromise) and changing one's mind about what is most desirable.

As noted in the theory, expressed vocational aspirations are simply statements at a given time about the few occupations individuals can most imagine themselves seeking. As the time to actually begin implementing a choice approaches, hopes and dreams are moderated by a sense of reality concerning what is, or is not, actually possible. As the theory states, aspirations are some unclear combination of individuals' judgments of how suitable and how accessible different options actually are for them. When based solely on judgments of suitability or preference, aspirations are termed *idealistic*. When moderated by assessments of accessibility, they become more realistic. The term *expectations* refers to choices that youngsters consider realistic enough to be probable. Circumscription involves rejecting options judged least suitable, regardless of their accessibility. In contrast, compromise involves giving up the most suitable or preferred options, precisely because they seem inaccessible.

The point here is that changes in aspirations may signal changes in either perceived suitability, accessibility, or both. One cannot, as some research has attempted to do, infer that compromise has occurred simply because people voice new aspirations. As already noted, the change may be due to shifting judgments of which acceptable occupations are most compatible. For example, an adolescent may have gained new experiences

that allowed latent interests to develop. Errors in understanding self or work may have been corrected. In some cases, the change in expressed aspiration could simply be due to the volatility in which comparably attractive occupations (that is, occupations at the center of the person's zone of acceptable alternatives) are mentioned at any particular time by a young person, still unconstrained by any sense of reality. Perceptions of accessibility may also have changed, perhaps even opening up more options. For example, new experiences may have enhanced self-efficacy or, once again, cognitive errors may have been corrected.

To return to the point at issue, compromise has occurred only when individuals feel forced to back away from or relinquish what they most prefer. If it cannot be shown that people have relinquished what they preferred most due to perceived inaccessibility, then it cannot be assumed that they have compromised their aspirations.

Research must distinguish perceptions of compatibility from perceptions of accessibility (e.g., see Johnson, 1995) and trace their separate developments. Perceptions of compatibility and accessibility are distinct sources of inappropriate or constricted choices and, therefore, different points for counseling intervention. If compromise is indeed a special problem for women, then distinguishing perceptions of suitability and accessibility would seem to be critical in tracing the sources of gender differences in career choice and development. This would also help determine whether unnecessarily restricted choices for the two sexes originate more in distorted circumscription or unnecessary compromise.

In the following, we focus on assessing the circumscription process, which pertains only to perceptions of suitability. The assumption here is, first, that young people rule out many occupations (for example, of the opposite sex or another social class) due to perceived unsuitability even before they consider the accessibility of those occupations and, second, that some of that circumscription may be unwise or overly restrictive. In other words, some barriers to the optimal career development of women and men are internal and are therefore in some sense self-imposed. This is not to deny that external barriers exist. Indeed, inappropriate circumscription can reflect the internalization of perceived external barriers. The point here is simply that young people might usefully be helped to reflect on whether they are unknowingly and unnecessarily constricting their own options by failing even to entertain many of them. Challenging youngsters' preferences must be done with care, however, precisely because the barriers in question are internal and involve fundamental conceptions of self.

Mapping Vocational Challenges (MVC): An Example of Theory-Based Assessments and Interventions to Counteract Inappropriate Circumscription

The circumscription component of the theory draws attention to the very real possibility that many adolescent girls and boys have unnecessarily and unwittingly constricted their occupational preferences in the process of defining their social selves. That is, the narrowed zone of possible choices they develop in childhood may exclude options they might enjoy and perform well as adults.

To a great extent, traditional measures of vocational interests assess the outcome of this social learning and decision-making process but do not focus on the learning itself or challenge adolescents to understand how it may have circumscribed their preferences during development. Traditional measures of vocational interests therefore run the risk of inadvertently reinforcing unnecessary limits on development.

School counselors who work within a comprehensive guidance program framework (Gysbers & Henderson, 1994) have moved toward emphasizing career development activities in their work (Lapan, Gysbers, & Sun, 1997). Also, with the passage of the School-to-Work Opportunities Act of 1994, school counselors are attempting to develop and implement career counseling interventions that enable adolescents to focus more quickly on particular career paths, which can then be used to guide students' high school curricula choices and post-high-school planning. However, if crystallizing preferences are not examined for unnecessary or inappropriate circumscription, counselors may inadvertently reinforce overly narrow bands of preferences. For these reasons, it seems wise to ascertain circumscription in early adolescence. Given the high student-to-counselor ratios in our public schools, assessments and interventions for doing so should also allow counselors to reach a large and diverse student body.

MVC is meant to be one such assessment. It is a small-group or classroom vocational exploration activity that allows middle school and high school students to create a three-dimensional map of how their beliefs, attitudes, and backgrounds may be shaping and constricting their vocational aspirations. The procedure focuses on the attributes of self and jobs identified as most important in the work of Gottfredson (1981, 1996) and Betz and Hackett (1981), foremost among them being perceptions of sextype and self-efficacy.

Two versions of the general MVC mapping procedure have been developed. The more elaborate high school version allows students to construct a map that highlights the impact on vocational aspirations of beliefs relating to occupational prestige levels, sextyping of careers, the perceived self-efficacy

students have for different careers, and the support and encouragement students expect from parents for pursuing different careers.

The middle school version of the mapping exercise is simpler (it excludes prestige and parental support) but is part of a longer workbook that helps students gather occupational information and examine further the influence of their occupational sextyping and self-efficacy on their three-dimensional maps of vocational preferences. The workbook also includes activities relating to students' work values and parental support.

Descriptions of the high school and middle school versions of the MVC and initial data supporting their use follow. The MVC was designed to be both an intervention and an opportunity to gather quantitative and qualitative research data. As will be apparent, the MVC procedure can be readily modified, depending on the needs and capabilities of the students, the time available for career intervention, and the interests of the researcher.

MVC Activity for High School Students

The high school version requires three 45- to 60-minute class periods to complete the assessment activities. Ideally, counselors would implement the MVC activity at the beginning of a longer career exploration unit. This would allow additional time for students and parents to reflect on the results of the assessment activities.

The first 45-minute session requires students to study information on a broad set of 42 careers. Each of these 42 occupations, 7 each from Holland's (1997) six themes, has its own 3" by 5" index card. The cards provide an overview of each job's duties, national salary range and employment outlook as well as high school classes that would help students gain entry into the career. Occupational information is presented in such a way as to provide students a brief "snapshot" of relevant information for each career. After studying the cards, students are instructed to make a series of decisions about each career, which they record on a grid, described as follows.

Students are provided a one-page grid whose y-axis is divided into three levels of prestige (low, medium, and high) and whose x-axis is divided into five levels of sextype (labeled from left to right, *mostly men*, *more men*, *both men and women*, *more women*, and *mostly women*). These two axes produce a grid that contains 15 boxes (three prestige levels by five sextype levels). Each box is further subdivided to create small rectangles in which students can write the names of individual careers.

Students are asked to assign each career to a box in the grid, based on their assessment of its prestige level and the relative proportions of men and women it currently employs. For example, a student may believe that biologist is a high prestige career and contains an equal number of men and

women. On the *x-y* coordinate system, only one of the 15 boxes corresponds to this judgment, and the student would write *biologist* in one of the smaller rectangular boxes within that area of the grid. Students make such judgments about each of the 42 jobs, thus mapping the careers across the two-dimensional (prestige by sextype) grid. This first session thus elicits students' images of occupations along the two dimensions of work the theory posits are most important in the circumscription process. (The method can be used to test other hypotheses, however, by substituting variables. For example, instead of asking students to report perceived prestige level, Lapan, Adams, and Turner [1996] asked students to rate occupations for the personal importance and value each held for them.)

The second 45-minute session requires students to make interest and self-efficacy decisions about each of the 42 careers, thus eliciting key images of self. Students are given yellow markers and are instructed to color over the small rectangular boxes containing the names of the 14 careers in which they are most interested. Students are then given a pink marker and asked to color over the names of the 14 careers in which they are least interested. This leaves 14 careers, in white, in which the students are neither interested nor disinterested. Each student next places a clear laminate over the grid.

The counselor presents students with a brief overview of the self-efficacy construct (Bandura, 1986) and provides them with a written definition and instructions for using it. The instructions direct students to decide, keeping in mind the previous definition of self-efficacy, whether or not they believe themselves capable of successfully performing the educational and job duties for each career. Students are provided an opportunity, and are encouraged, to review the occupational information provided on the career cards. If they feel confident of their ability to be successful in a particular career, they use a blue marker to color over, on the clear laminate, the name of that career. An efficacy decision is made in this way for each of the 42 careers.

The interaction between the primary colors on the grid with the first laminate on top creates six color-coded categories. Students will see green-colored careers, which represent a combination of high interest (yellow) and high efficacy (blue). Yellow-colored careers would represent ones in which students had high interest (yellow) but low efficacy (clear). Blue represents moderate interest careers (white) about which students feel efficacious (blue), while white indicates moderate interest (white) but low efficacy (clear). Purple highlights those careers that students feel efficacious about (blue) but in which they have no interest (pink), whereas pink includes low interest careers (pink) that students do not feel efficacious about (clear). A preponderance of green and pink over yellow and purple would signal that

interests and efficacy are more consistent than inconsistent; the amount of blue, green, and purple versus yellow, white, and pink would indicate the general degree of self-efficacy.

The location of the colors on the grid shows how perceptions of self relate to students' images of job prestige and sextype. For example, one might check whether high self-efficacy (blue, green, purple) or high interests plus efficacy (green) are segregated mostly in particular ranges of prestige or sextype. The colored grid thus can be used to explore the interplay of four key influences on career choice: perceived prestige, sextype, interest, and self-efficacy.

During the third session, students are given a second laminate that fits over the grid and the first laminate. This second laminate allows consideration of an additional variable, in this case, perceived parental support. With a red marker, students are asked to color over the small rectangles containing the names of those careers they feel their parents would not actively support or encourage them to pursue. Each rectangle colored in red visually blocks out the prior color-coding of that career. At this point, one can examine which locations or colors, if any, the red markings tend to most obscure: that is, which vocational options and self-concepts does parental nonsupport tend to discourage?

Each student has now created a colorful, three-dimensional map (the *x-y* coordinate and two laminates) that provides a concrete and coherent picture of how their vocational interests interact with the perceived sextyping of current employment patterns, prestige levels, efficacy expectations, and perceived parental support and encouragement to pursue a wide range of careers across the six Holland themes. For example, a young woman looking at a career as an engineering technician might first see red over this career on the outside laminate, indicating that she did not think her parents would support her becoming an engineering technician. Also, the student could see by the occupation's location on the grid that she believes that mostly men currently work as engineering technicians (position on *x*-axis) and that she feels that this occupation possesses little prestige or status (*y*-axis). By lifting the top laminate, the student might see engineering technician colored in purple. This would be due to her rating engineering technician low in interest (colored pink on the *x-y* grid) but feeling efficacious about becoming an engineering technician (colored blue for high efficacy on the first laminate).

This graphic display of information can then be used by the student, school counselor, teacher, and parents to explore the extent to which the student's lack of interest in becoming an engineering technician may be related to the variables displayed on the map: her lack of perceived parental support, her belief that mostly men work in this career, and her perception

that the career lacks prestige or status. A more in-depth discussion about engineering technicians and related career specialties could be initiated, for example, by having the student job-shadow women who work in such nontraditional careers. The student could in this way be challenged to reconsider the extent to which she may be prematurely eliminating a whole range of relatively high paying, high demand technical careers because of issues related to the circumscription process.

MVC Activity for Middle School Students

Middle school is a good point at which to have students begin reflecting on the circumscription process. By then they not only have the mental capability to handle the abstract thinking involved, but also they stand on the threshold of making decisions that will affect their educational trajectories and, thus, their career options. Moreover, our experience confirms surveys suggesting that young adolescents are more sophisticated and concerned about career development issues than often assumed.

The MVC mapping procedure is somewhat simplified for middle school students, with a reduced number of variables (and laminates) involved. It is, however, accompanied by a more extended set of workbook activities (Lapan et al., 1995) based on prior research on the circumscription process among eighth graders (Lapan & Jingeleski, 1992). Middle school students can complete the mapping exercise and self-assessments in the workbook in approximately four 45- to 60-minute class periods.

During the first class period, the workbook introduces students to the idea that examining a wide range of career options and actively exploring their vocational interests are important activities. Students then study occupational information on 45 careers representing Holland's six occupational themes.

Occupational information for these 45 careers is presented to students on pages 3 to 13 of the workbook. Each page is divided into four 3" by 4" boxes, one for each career. The boxes contain information for that career on expected work activities, necessary skills and training, helpful high school classes, employment outlook, and expected median or mean national salary. To focus student attention during the exercises, a student volunteer can read aloud the occupational information for the first of the four careers on a page. Then time is provided for students to read the remaining three on their own, to ask questions, and to discuss these four careers before moving on to the next page of careers. After all the careers have been discussed, students fill in blank career boxes with comparable information for their mother's career, father's career, and their fantasy careers.

During the second class period, students are instructed to complete an interest inventory on pages 15 to 16. This inventory lists the 45 careers along with the parents' and fantasy careers. A smiling face and a frowning face appear next to each career. Students are asked to color in the smiling faces for the 15 careers they like best and then the frowning faces for the 15 careers they like least. As in the high school exercise, students are reminded to use the occupational information about each career to assist them in making decisions.

After completing the interest inventory, students turn to an already color-coded *x*-*y* coordinate grid on page 18 of the workbook. The grid's *y*-axis is divided into three levels of interest (high, medium, and low). The high interest segment of the page is already colored yellow. The medium interest area is white, and the low interest area is pink. The *x*-axis is divided into the same five sextype categories as was the high school version of the MVC (from *mostly men* to *mostly women*). Students are then asked to assign each of the 45 careers to one of the 15 interest-by-sextype boxes on the grid, based on their level of interest in that career and their judgment of the relative proportions of men and women currently employed in it.

During the third session, students are given a blue marker and, as in the high school version, asked to decide whether or not they believe themselves capable of successfully performing the educational and job duties for each career. Students are provided an opportunity, and encouraged, to review the occupational information provided for each career. If they feel confident of their ability to be successful in a career, they are instructed to use the blue marker and color over the small rectangular box containing the name of the career. An efficacy decision is made in this way for each of the 45 careers.

The interaction between the colors used creates the same six color-coded categories as did the exercise for high school students. For example, the green-colored careers represent a combination of high interest (yellow) and high efficacy (blue), whereas purple represents low interest (pink) careers that students feel efficacious about (blue). This grid differs from the high school grid, however, in omitting prestige. Vertical location now coincides with the color-coded interest levels and thus provides no additional information. Horizontal location remains an indicator of perceived sextype.

During the fourth session, students read page 19 of the workbook, "A Time for Opportunity." This page highlights the increasing gender and racial diversity of the United States Senate and House of Representatives as an example of current occupational opportunities that have traditionally been closed to certain groups in our society. The issue of women and men narrowing vocational interests because of gender stereotypes, bias, and

discrimination is then introduced. Students are directed back to the occupational information provided in the first part of the workbook. At the bottom of each career information box, the actual percentages of women, African Americans, and Hispanic Americans currently employed in that career are reported. For example, the last line of the computer service technician information box shows: W: 10.7% B: 10.2% H: 5.0%. This is interpreted to students as meaning that the U.S. Department of Labor reports that 10.7% of computer service technicians in today's U.S. economy are women, 10.2% are African American, and 5% are Hispanic American. This information was not previously explained to students so that it would not influence their sextype ratings of each career.

The second part of the workbook provides a series of open-ended questions that have students reflect on the relationship between their interests, perceptions of sextype, efficacy expectations, work values, and parental support. That section also includes a brief work values inventory that introduces occupational status attainment as one among other prominent work related values. (Recall that prestige was not one of the variables included in the mapping exercise for middle school students.) Students mark those values that are most important to them, for example, helping others. The workbook questions then prompt students to examine their color-coded occupations for how their aspirations may be circumscribed. Space is provided under each of the six color categories for students to write about their perceptions of parental support for that career category and for parents to react to what the children have written. The goal of this part of the workbook is to engage students, counselors, teachers, and parents in extended discussions of the meaning of student responses.

Summary of Initial Findings for the High School and Middle School Versions of the MVC

Two studies, one with rural high school students (Lapan, Hinkelman, & Adams, 1996) and one with urban and suburban seventh graders (Lapan, Adams, & Turner, 1996), provide some initial support for both the high school and middle school MVC versions. Students' prestige and sextype ratings of occupations on the *x*-*y* grids in both studies replicate the prestige by sextype occupational coordinate system suggested in Figure 1. Both high school and middle school boys and girls agreed in their ratings of sextype for different Holland types of work. For example, both genders perceived Conventional occupations to be currently dominated by women and Realistic careers by men. Further, interest patterns for both girls and boys at each age were highly related to their sextype ratings: boys were more interested in jobs where they expect more men to be working and girls in careers where they expect more women, with both boys and girls expressing

equal interest in careers containing relatively equal numbers of men and women. Also, the correlation between efficacy ratings and interest level closely replicated findings from prior vocational research on self-efficacy (Lent, Brown, & Hackett, 1994).

Students at both age levels appeared to enjoy the MVC activity, especially the coloring. It was engaging as well as readily comprehensible for younger and older adolescents. It made sense to both the teachers and counselors who guided the exercise and to the students who participated in it, perhaps because it introduces career concepts in a natural and realistic manner.

Counselors and research assistants who led the MVC activities were able to use the three-dimensional maps to engage students in extended discussions of issues relating to the circumscription process and future career planning. Same-sex focus groups, which were run to gather student reactions to the mapping activity and its results, uncovered a number of unexpected substantive issues. For example, one group of seventh grade girls linked their avoidance of careers currently dominated by men to their fears about encountering sexual harassment on the job. They connected these concerns to problematic interactions with more aggressive boys in classroom and unstructured settings. These young women seemed to be eliminating a range of potential options out of fear and avoidance of men, with little thought to what they might be losing and how their skills and talents might actually match the very well paying, relatively high demand jobs they were avoiding.

Conclusions

Circumscription by gender has long been an implicit theme in interest measurement. The gender-norming controversy of the 1970s is one example. Women differ substantially from men in their distributions of interests, and many in the field have presumed that this difference originates in gender based socialization. That is, counselees' interests and aspirations have been circumscribed by gender linked expectations and experiences. Those who advocated gender-norming interest inventories feared that unnormed inventories would reinforce stereotypical sex roles. Opponents of norming argued that it is better to open the differences to scrutiny, whatever their source. One compromise has been to report scores on both same-sex and opposite-sex scales.

None of these approaches directly confronts circumscription, however. For instance, gender-norming simply alters the scores that counselees see, indiscriminately so for all individuals, to make the average gender differences in vocational interests seem to disappear. Many young people already aspire to occupations that do not reflect their assessed interests

because they wish to project a desired prestige level or sextype. Changing their scores on interest assessments will not change that. The point is that assessed and expressed interests are often discrepant (e.g., individuals' assessed personality traits or basic interests often differ from those associated with the occupations to which they aspire). Changing the way that assessed interests are calculated and reported by gender does not confront the beliefs and circumstances that cause many adolescents to give greater weight to the social (sextype, social class) than psychological aspects of self-concept (e.g., assessed interests) in their vocational aspirations (their expressed interests).

By contrast, when the MVC exercise asks students about their interests, it elicits expressed interests, which it then graphically organizes according to their perceived sextype (and prestige, in the high school version). Current inventories neither elicit students' perceptions of the social dimensions of jobs nor organize interest scores to reveal their relation to those social dimensions. Unless interpretive materials systematically expose and examine those social concerns, interest inventories leave their influence hidden and undisturbed.

The MVC also makes more use of dislikes than do interest inventories and their interpretative materials. It gives dislikes as much attention as likes, because the reasons that students offer for dislikes can reveal factors producing inappropriate or unnecessary circumscription and compromise (recall the previous discussion of girls avoiding occupations dominated by men for fear of sexual harassment). It would, of course, be unwise to encourage blanket exploration of students' dislikes, but discussing them and exploring a few can reveal whether promising segments of the occupational world have been pushed aside and out of mind during circumscription. Current interest inventories assume that what is out of mind is appropriately so. That is true for some students but perhaps not for others, especially when they face the need to compromise.

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