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AUTHOR Norris, Lila; Katz, Martin R.
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ABSTRACT

Observations of the career decision-making (CDM) behaviors of college students were analyzed to investigate how variations in the CDM process may be associated with sex and "sex-typed" values. Data were collected from records of students' interaction with the computer-based System of Interactive Guidance and Information (SIGI) to look into the process of CDM. First, sex differences in values were examined. Then, for groups classified as having values "typical" or "atypical" of each sex, analyses were made of differences and similarities in such behaviors as preferences for major fields of interest and kinds of occupations chosen. While identified sex differences tended to confirm the stereotype of the striving, active, positive male and nurturant, passive female, the two "typical" sub-groups accounted for many of these differences. Furthermore, differences between the "typical" and "atypical" sub-groups within each sex often paralleled those between the sexes. Results suggest that similarities between the sexes in the CDM process outnumber differences and justify "sex-blind" guidance. (Author)

Sex Differences in the Career Values, Interests, and Choices of College Students

by

Lila Norris and Martin R. Katz

Educational Testing Service
Princeton, New Jersey

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It has often been noted in various research studies--and even in every day observation--that males are different from females. The question considered in this report is: Do the differences between the sexes make a difference in career decision-making? More specifically, how much and what kind of differentiation can be seen in the processes by which males and females make their career decisions? What plausible alternative explanations may be offered for perceived differential effects of sex? What implications do the findings have for guidance?

A number of reviews have summarized findings from scores of studies on sex differences related to variables associated with career decision-making--such as interests, values, and occupational preferences (Brief & Aldag, 1975; Norris, Katz, & Chapman, 1978; Tittle, 1979). Most of the studies contribute to or corroborate the stereotypes--for example, that females tend to be more "social" and altruistic, while males tend to be more concerned with money and power. These characteristics are often said to be functions of child-rearing and socialization practices. But countervailing forces have been recognized. Role models with non-traditional characteristics have become highly visible during the last decade. Affirmative action has helped open up more occupational options for women. Have such phenomena brought about corresponding changes in the prevalence of sex-stereotyped career decision-making among college students?

METHOD

Writings about career development and guidance often refer to the process of career decision-making, but a process is very difficult to observe. It is not surprising, therefore, that attempts to describe the career decision-making process more frequently focus on the content of decisions. Thus, career-related choices or preferences are commonly related to antecedent or concurrent characteristics of persons. Project TALENT represents this kind of research on a massive and comprehensive scale (e.g., Flanagan, Tiedeman, and others, 1973; AIR, 1976). But the content of decisions and the characteristics of decision-makers are not the same as the process of career decision-making, nor are they adequate for inferring process. Nowhere do such studies provide a description of the behavior of persons actively engaged in deciding about careers; they miss the dynamics of the decision process.

This report on sex differences in the career values, interests, and other behaviors of college students has been derived from a more comprehensive study of age and sex differences in the career decision-making process (Norris, Katz, & Chapman, 1978). The collection of data capitalized on unique sets of observations already being collected in the course of a clearly defined intervention. The intervention is the computer-based System of Interactive Guidance and Information (SIGI), developed to help students in or about to enter college make informed and rational career decisions—and also to increase their freedom of choice, develop their understanding of the elements involved in choice, and improve their

competencies in the CDM process. In short, students engage in a dialogue with the system to examine their own values, identify and explore options, receive and interpret relevant data, master strategies for decision-making, and formulate tentative plans that can be modified as they gain new insights, experience, and information.

The intervention is specified, in part, by the structure and content of SIGI--the model of CDM it employs, the scripts, the data bases, the format of displays on a cathode-ray tube, the response mode on the keyboard, and so on. These resources are accessible to all users. The intervention is further specified by the distinctive way in which each user interacts with the structure and resources of the system. These distinctive interactions are automatically recorded by the computer for research purposes and can be printed in compressed form. Through this "window" on the CDM process, we can observe individual variations in CDM behavior (within the common framework of the system).

Thus, an important point to bear in mind is that the findings in this study are based on college students observed in the act of making career decisions. These observations are not to be confused with responses derived from surveys of people who may or may not be actively engaged in career decision-making (CDM) at the time they are questioned. The variables in this report are elements in a process, not made-up answers to questions that may or may not have been salient to the respondent.

Among the variables are values profiles, interest preferences, and behaviors involved in seeking information, getting predictions, making plans, and using decision rules to evaluate occupations for choice. The

study is descriptive rather than an experimental testing of hypotheses. It controls for the initial status of individuals as they embark on a formal, systematic CDM process and compares males and females on the above-mentioned variables. In addition, sex-typical and sex-atypical groups are defined for each sex. These derived-group comparisons help to illuminate a number of the sex differences and similarities found.

Sample

As part of a field test of SIGI, individual records of interactions were automatically collected during a fixed period in 1976 on a five percent random sample of SIGI users at six colleges in different regions of the country, varying in size, setting, nature of population, and so on. Five of these colleges are two-year institutions (Pasadena City College in California, Mercer County Community College in New Jersey, Eastfield College in Texas, Santa Fe Community College in Florida, and Delta College in Michigan), and one is a four-year college (Illinois State University).

A total sample of 433 complete individual records was drawn from the automatically collected data set. In drawing records from the five percent random sample at a college, consideration was given to obtaining adequate (though not necessarily equal) numbers of records in each age/sex group. The age and sex distribution of the sample and the number of records drawn from each of the six colleges are presented below:

SAMPLE SIZES (a) by Age & Sex
(b) by school

(a)

		SEX		
		Male	Female	
AGE	18 & under	46	94	140
	19 to 24	60	77	137
	25 & over	70	86	156
		176	257	433

(b)

School	N
Delta	97
Eastfield	60
Illinois	56
Mercer	70
Pasadena	64
Santa Fe	86
	433

There is little reason to suspect that SIGI users differ from the general college population in ways unrelated to career decision-making; no special screening procedures were used nor were special incentives provided. Therefore, our sample is likely to be a good representation of the population of college students who are ready and willing to engage in career decision-making activities.

Data

Summary statistics are reported in Norris, Katz, & Chapman (1978) for some 50 variables derived from the records of students' interactions with SIGI. These records represent, on the average, about four hours of interaction. Variables discussed in this report will be defined within the context of the analyses and findings.

FINDINGS

Similarities and differences between sexes will first be reported in respect to values, interests, occupations planned for, occupations preferred, and the relative "desirability" of occupations.

Value Profiles

What, if any, are the differences in value profiles for males and females? For younger and older students? As a first step in answering this question, a two-way multivariate analysis of variance (MANOVA) was run on the weights that students assigned to the ten values in SIGI. Sex, with two categories, was one factor; age, with three levels (19 and under, 19-24, 25 and over) was the second factor.

The results of the MANOVA on the value weights are presented below (Table 1).

Table 1

MANOVA for Age and Sex Differences in 10 Values

Source	#Dep Var.	Hyp D.F.	Approx. F Ratio	Probability of Larger F
Mean	10	1	1832.0146	0.0
Age	10	2	2.0662	0.0041
Sex	10	1	9.0089	0.0
Age X Sex	10	2	1.0012	0.4581

As the MANOVA table shows, there are significant age and sex effects with no significant interaction.

Since there are significant age and sex main effects, the value profiles for the two sex groups and the three age groups were examined more closely to determine the nature of the group differences.

Figure 1 presents plots of mean values weights for males and females (ages combined). It gives a quick way to see which values are weighted high and which ones are weighted low. To provide an indication of whether or not the differences in mean values weights for males and females are significant, a t-test was run for each value. The significance levels associated with the obtained t's are indicated by the number of asterisks next to each value. (The absence of asterisks indicates that the probability level is greater than .05).

Referring to Figure 1, then, we see that:

(1) All values, with the exception of Early Entry for males, are considered at least of moderate importance (scale weight = 4).

(2) For males, the three top weighted values are Security, Income, and Work in Major Field of Interest; for females, the correspondingly ranked values are Work in Major Field of Interest, Security, and Helping Others.

(3) Large sex differences are noted for the values Helping Others, Early Entry, Leadership, and Income. Females weight Helping Others and Early Entry higher than do males, while the reverse is true for Leadership and Income.

(4) Somewhat smaller, but still significant, sex differences are noted for Work in Major Field of Interest and Independence. Females weight Interest Field higher than males weight it; males weight Independence higher than do females.

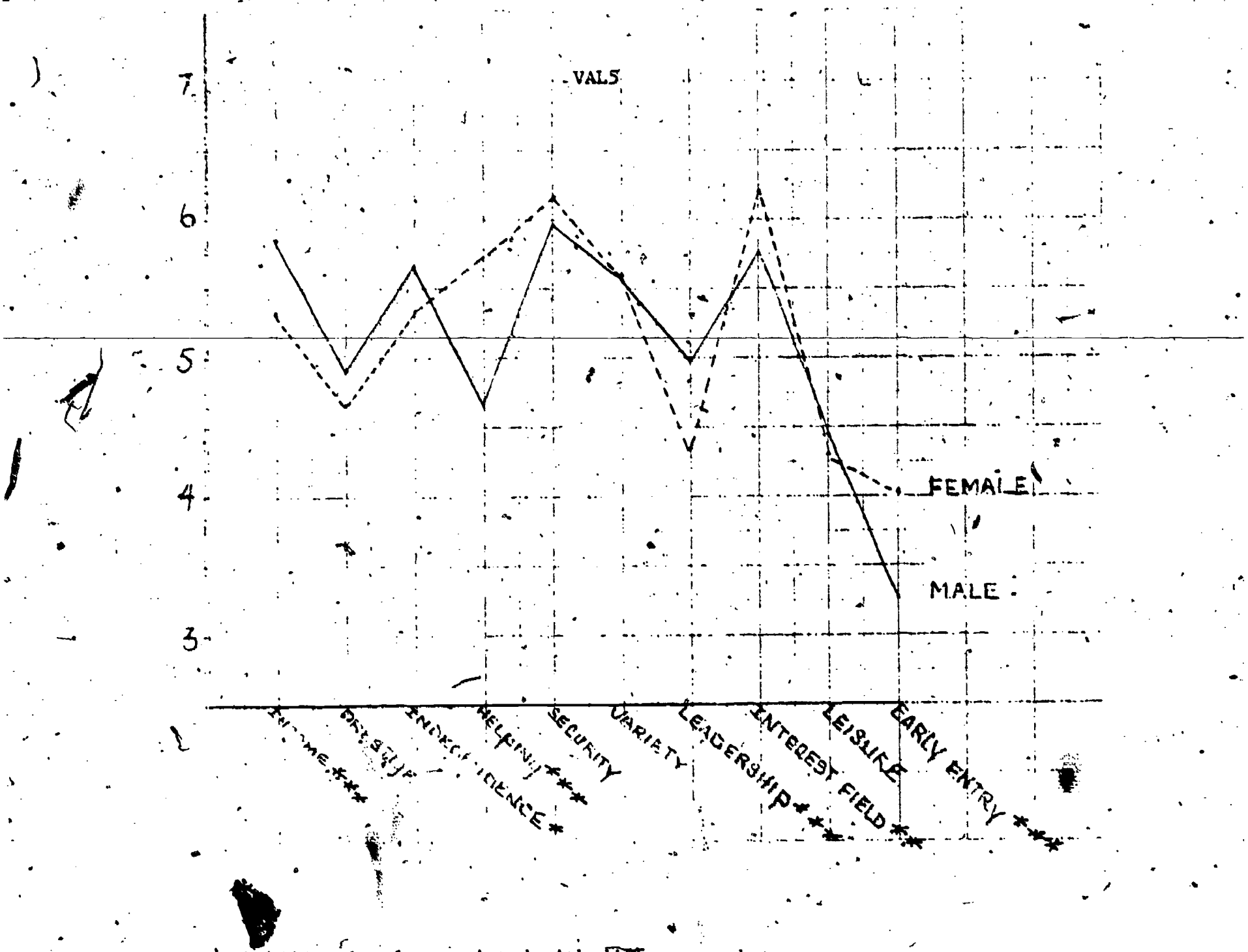
(5) No significant sex differences are noted for four of the ten values: Prestige, Security, Variety, and Leisure.

The picture that emerges from differences in values between males and females is consistent with the long-standing sex stereotype of the nurturing female and the striving male. Females rank Helping Others third in importance out of ten occupational values, whereas males rank it eighth; the greater importance to Early Entry for females is likely associated not only with lower aspiration levels attributed to women but also with their primary concern for current or prospective marriage and family. Males, on the other hand, rank Income second in importance, whereas females rank it sixth. This difference can also be seen as a reflection of the males' traditional role as the major provider for the family.

Although the findings regarding sex differences in values are not surprising, it is interesting to note that while the social revolution of the sixties may have had great impact on some individuals' perceptions of sex roles, values reflecting old sex stereotypes still exist among college students when group means are compared.

Field of Interest, Occupation Planned for, and Occupation Preferred

In the Values system, students indicate in which one of six interest fields they prefer to work. Later, after exploring and considering a variety of occupations in their course through SIGI, they select an occupation (in the Planning section) to study the paths to entry, and eventually (in the section called Strategy), they designate an occupation



Probability level associated with differences between groups

* = .05
** = .01
*** = .001

Figure 1: Value profiles for males and females (all ages)

that they prefer. It is useful to examine the persistence or consistency with which students pursue an early-stated choice of interest field as they go on to make plans and express preferences.

Figures 2 and 3 show the percentages of male and female students, respectively, who chose occupations which were consistent or inconsistent with the interest field they had selected previously. The figures are presented in the form of a "tree," with branches that trace consistencies and inconsistencies across the three columns (labeled "Field of Interest," "Occupation Planned for," and "Occupation Chosen in Strategy"). Each branch of the tree gives the percentage of students entering from the prior branch. Thus, it is the conditional probability of a choice given the previous choice made, that is presented at each branch.

The variable in the first column, Field of Interest (VAL3), refers to the response in the Values section, where a student selects a field of work most interesting to him/her. The number of students choosing the field is shown in parentheses; the corresponding percentage is given as a decimal. In Figure 2, for example, of all males in the sample, 26% (4[illegible] chose the Scientific field of interest.

The second variable, Occupation Planned for, represents the first occupation chosen by students in the Planning section when they investigated educational and training requirements for entry. The figures show the numbers and percentages of males (Figure 2) and females (Figure 3) who selected an occupation classified either in the same field of interest

chosen in VALUES, or in a different field.*

The last variable, Occupation Chosen in Strategy, represents the occupation for which the student indicates a preference (in STRATEGY), after having received information about the desirability (in terms of the student's values) of three different occupations and having estimated the probability of entering them. In the third column, each branch shows the number and the corresponding percentage of students from the previous branch who chose an occupation in STRATEGY that was either in the same or a different field of interest as that originally chosen in VALUES. In Figure 2, for example, we find that of the total number of males (175), 26% (46) chose the Scientific field of interest in VALUES. Of this group, 80% (37) planned for a Scientific occupation in PLANNING. Of these 37 males, 95% (35) again chose a Scientific occupation in STRATEGY, while 5% (2) chose a non-Scientific occupation. Similarly, of the 9 males from the Scientific field of interest group who planned for a non-Scientific occupation in PLANNING, 11% (1) chose a Scientific occupation in STRATEGY, while 89% (8) again chose a non-Scientific occupation.

To determine the probability of a series of choices made, the conditional probabilities along each branch of the path followed must be multiplied. Using the above example for the topmost branch of the tree

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*An occupation may be classified in as many as three different fields of interest. In order for the student's response to be coded as 'Same,' the preferred interest field must be one of the fields in which the chosen occupation is classified and the occupation must rate high (3 or 4 on a scale extending from 1 to 4) on the degree to which its activities are appropriate to that field.

in Figure 2, the probability of a male choosing the Scientific field of interest in VALUES (.26), and planning for a Scientific occupation (.80), and then choosing a Scientific occupation in STRATEGY (.95) is .26 x .80 x .95 = .20 or 20%. In other words, of the total number of males (175), 20% (35) were interested in the Scientific field and twice made occupational choices consistent with their interests.

An examination of the percentages of students preferring each of the six interest fields (the first column in Figure 2 and 3) indicates that (1) there is a significant relationship between sex and choice of field of interest (chi-square significant at .001 level); (2) more male students chose the Scientific field (26%) than any other field; (3) females chose the field of Personal Contact (35%) more frequently than any other field; (4) preference for Scientific, Technological, and Administrative fields was greater among males than females (differences in percentages are 13, 7, and 3, respectively); (5) preference for Personal Contact, Verbal, and Aesthetic fields was greater among females than males (differences in percentages are 13, 6, and 4, respectively). Thus, the greatest differences in preference were found in the Scientific and Personal Contact fields, with males preferring the former and females the latter.

In the second column in each figure, it is seen that large percentages of students planned for occupations that are consistent ("same") with a field of interest indicated earlier in VALUES. Only small differences are noted between males and females in the frequency with which they made consistent or inconsistent choices. For four of the six interest fields (the exceptions being the Verbal and Aesthetic fields), at least 72% of

the choices are consistent with previously indicated interest field selections. A factor contributing to the smaller percentages of consistent choices for the Verbal and Aesthetic fields may be the relatively small number of occupations in SIGI for these fields. At the time of this study, 21% of the occupations in SIGI were classified in the Verbal field (i.e., given a rating of either 3 or 4 for this interest field) and only 12% were classified in the Aesthetic field. The percentages for the other fields were Scientific (36%), Technological (37%), Administrative (27%), and Personal Contact (45%). In addition to base rate considerations, it is quite likely that factors other than major field of interest were affecting students with a preference for the Verbal and Aesthetic fields. For example, they may have perceived the market for jobs in these fields as particularly unfavorable.

A quick scan of the percentages in column 3 indicates high consistency in the interest field of occupations chosen in PLANNING and those chosen in STRATEGY—even for the Verbal and Aesthetic fields. Students who selected occupations in PLANNING that are consistent with their original interest field choices also tended to select occupations in STRATEGY that are in the same field of interest; students who planned for occupations in different interest fields tended also to select, in STRATEGY, occupations that are in interest fields different from their earlier stated interest preference. This tendency in persistence of interest field choice does not appear to be related to sex. That is, a chi-square computed on a decomposition into male and female components of the contingency table of the frequency of "same" and "different" choices made in PLANNING and

STRATEGY is found not to reach significance ($p > .05$).

A chi-square test of interest field and sex differences in the choice of occupations selected in STRATEGY (column 3 of Figures 2 and 3) shows that (1) there is no relationship between sex and the selection of "same" and "different" occupations in STRATEGY (independent of the choice made in PLANNING); and (2) for both males and females, separately, there is no relationship between interest field and the selection of "same" and "different" occupations in STRATEGY.

A closer look at the percentages in column 3 does, however, reveal an interesting point. If the interest fields most preferred by both sexes--Scientific for the males and Personal Contact for the females--are viewed separately, we find that, for females but not males, there is a significant difference in relationship between preference for one of these two interest fields and the selection of occupations in STRATEGY. (Strictly speaking, a chi-square test on a part of the "tree," particularly a part selected after viewing the data, is not appropriate.) Thus, females who prefer the Personal Contact field of interest are more likely to choose, in STRATEGY, an occupation which is consistent with their interest field choice than are females who prefer the Scientific interest field.

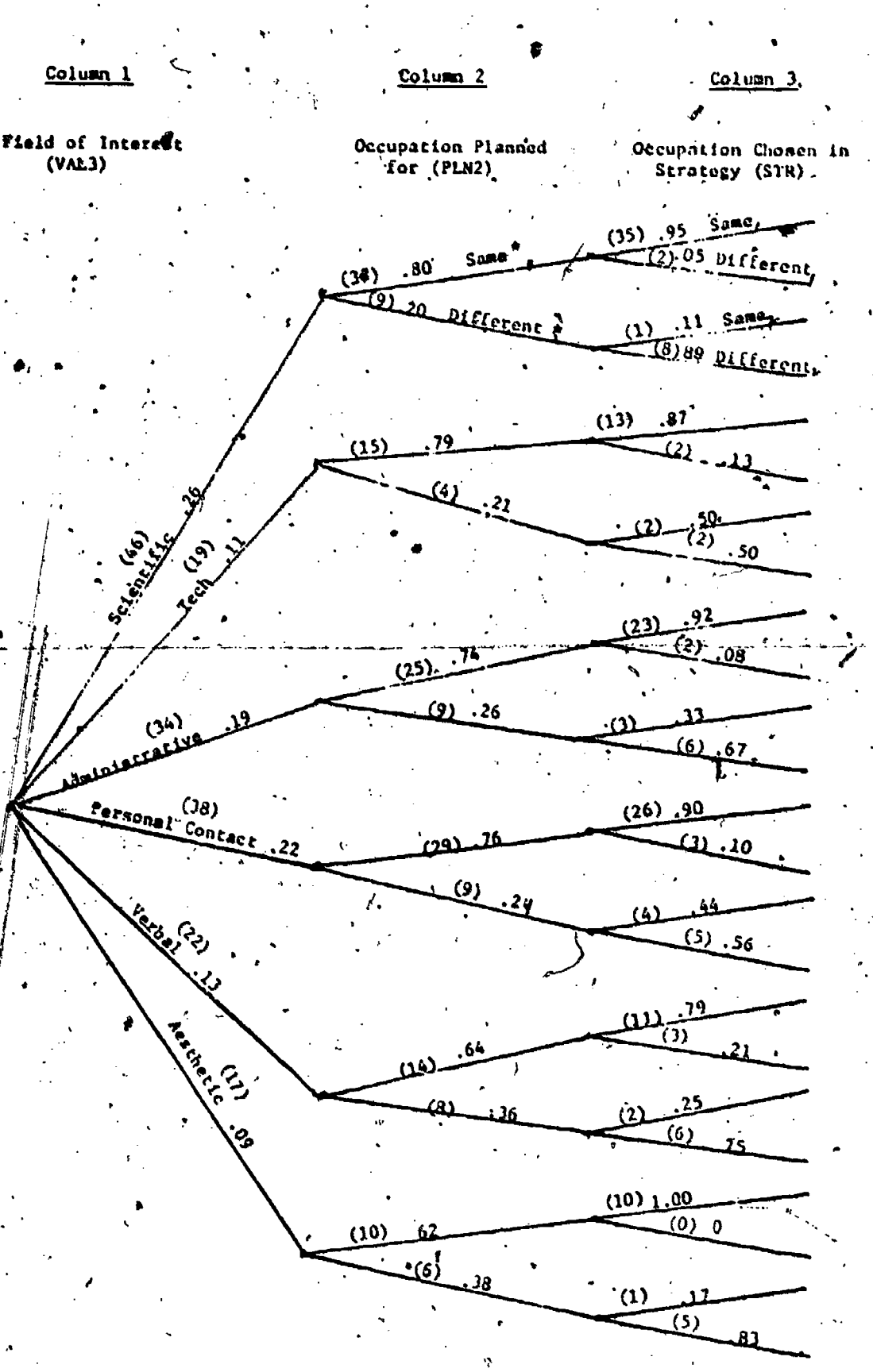
One explanation to account for this behavior on the part of females, and only females, is related to the degree of commitment involved at the three stages of choice. In Values, students expressed a preference for a given field of interest. In Planning, they investigated in considerable detail the educational requirements and other steps for entry into a

specified occupation. Since the occupations in the Scientific interest field seem likely to require a heavier concentration of courses in the technical, scientific, and mathematical fields than do occupations in the Personal Contact interest field, females may have tended to be deterred by the prospect of actually enrolling in such courses. The preference in Strategy may also have reflected the impact of other values besides interest. An additional point is that many of the occupations in the Scientific field (30%) require a Ph.D. for entry. That this may have been a greater drawback for females than males is consistent with what we found when examining sex differences in values. A higher weight was attached to the value Early Entry by females than males.

It might be hypothesized that students who choose occupations consistent with their preferred interest field would give a higher weight to the value Interest than students who are not consistent in their choices. As can be seen from the pattern of Interest means below, by and large this hypothesis appears to be confirmed. As can be seen in Table 2, students who choose an occupation in STRATEGY that is consistent with their preferred interest field do indeed tend to assign a higher weight to Interest than do students whose choice in STRATEGY is inconsistent with their preferred interest field ($p < .05$).

This finding is true for both males and females considered separately.

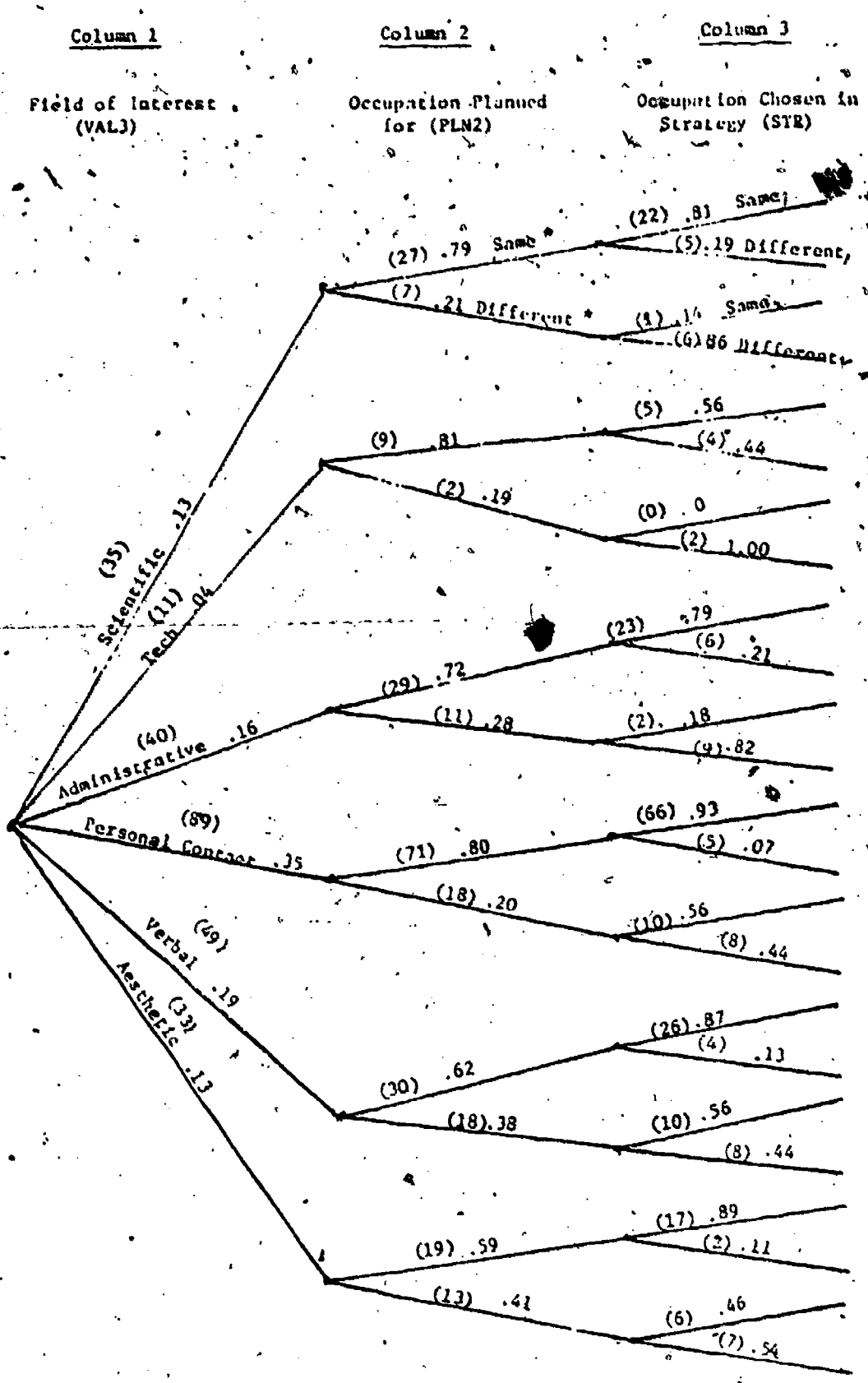
(Males)



* 'Same' and 'Different,' in Columns 2 and 3, are used to identify students whose choice of occupation is consistent or inconsistent with their preferred Field of Interest. To avoid crowding, these labels are filled in only for the branches in the Scientific field. They should be understood, following the same order branch by branch, for each of the other fields.

Figure 2: Probability tree for field of interest, occupation planned for in Planning, and occupation preferred in Strategy

(Females)



* 'Same' and 'Different,' in Columns 2 and 3, are used to identify students whose choice of occupation is consistent or inconsistent with their preferred Field of Interest. To avoid crowding, these labels are filled in only for the branches in the Scientific Field. They should be understood, following the same order branch by branch, for each of the other fields.

Figure 3: Probability tree for field of interest, occupation planned for in Planning, and occupation preferred in Strategy

Table 2

Interest Field Group Means

for Students with Consistent and Inconsistent Choices in

	PLANNING		STRATEGY	
	Consistent	Inconsistent	Consistent	Inconsistent
Males	5.84	5.44	5.92	5.20
Females	6.30	6.00	6.36	5.86

Though the pattern of means is the same for PLANNING as it is for STRATEGY, the differences between group means are smaller and not statistically significant ($p > .05$). This is not surprising, since the occupation chosen in STRATEGY represents a more considered and analytical preference than the occupation selected in PLANNING.

Desirability Sums

As another way of comparing "male" vs. "female" occupations, Desirability Sums for all SIGI occupations were computed for an average male values profile and a female values profile.

A "Desirability Sum" is arrived at in the following way: The occupations in SIGI have been rated in accordance with their capacity to satisfy each of the ten values. This rating is expressed as a number ranging from 1 (low) to 4 (high)--except for Income, which ranges from 1 to 5. For example, at the time of the study, X-ray Technologist carried a rating of 2 on Income (median income of $8000-$10,999 per year) and a

rating of 3 (more than average) on Prestige. Mathematician had ratings of 5 (more than $20,000 per year) and 4 (a great amount) on these two values. When a student's restricted value weight is multiplied by the occupation's rating on that value and the resulting products for all ten values are summed, the result is a "Desirability Sum" that expresses numerically the relationship between what the student wants and what the occupation offers.

For present purposes, for all the SIGI occupations, Desirability Sums were computed using average male and average female value weights. In computing Desirability Sums, only nine of the ten values were used. Interest Field was excluded because its rating in SIGI is associated with a particular field. Table 3 shows the ten highest and the ten lowest sums when the value weights were restricted to a total of 40 points. Corresponding sums using the unrestricted value weights are not presented since they closely resembled those in Table 3.

With the above-mentioned exclusion of differences in weights assigned to Work in Major Field of Interest, the ten occupations with the highest Desirability Sums are found to be the same for both the average male and the average female and their rank orders are the same. The ten least desirable occupations are also the same for the average male and the average female, although their rank order is slightly different. Keypunch Operator and Model were the least desirable for both the sexes, followed for the average male by Stenographer, Typist, Avionics Technician, Library Technician, Computer Operator, Medical Lab Technician, Receptionist, and Accounting Clerk, in that order. For the average female Library

Technician was third least desirable, Stenographer fourth, Typist fifth, Avionics Technician sixth. The rest were ranked the same as for the average male.

It is interesting that for the most desirable occupations, Desirability Sums are consistently higher for the average male than for the average female, with differences that range from 3.4 to 5.1 points. For the least desirable occupations, however, differences in Desirability Sums for males and females tend to be much smaller (.1 to 1.1 points); and for four occupations the sums are slightly higher for the average female than for the average male (Keypunch Operator, Computer Operator, Stenographer, and Accounting Clerk). The differences in Desirability Sums for the average male and female can, in large, be explained by the fact that occupations with high sums tend to have high ratings for the characteristically male value of High Income and low ratings for the characteristically female value of Early Entry. The reverse situation is true for occupations at the lower end of the desirability scale.

In short, when interests are excluded, the differences between average values weights assigned by males and those assigned by females have relatively little effect on the designation of occupations at the extremes of the Desirability scale. Those occupations that would be rated as most desirable for the "average" male configuration of values would also be rated as most desirable for the "average" female configuration of values.

Table 3

Comparison of the Desirability Sums for the Average Male and Average Female

Occupations with the 10 Highest Desirability Sums

Occupation	Average Male	Average Female
Lawyer	131.6	126.5
Physician	131.6	126.5
Psychologist	130.2	125.1
Dentist	128.0	123.5
Teacher, Voc/Tech	126.1	122.8
Teacher, Ele/Sec	125.5	121.2
Political Scientist	123.6	119.9
Teacher, Spec. Ed.	123.4	118.7
Veterinarian	120.3	115.3
Speech Pathologist	117.5	113.2

Occupations with the 10 Lowest Desirability Sums

Occupation	Average Male	Average Female
Keypunch Operator	50.2	51.2
Model	60.1	59.1
Stenographer	62.5	62.8
Typist	63.5	63.3
Avionics Technician	63.5	63.4
Library Technician	63.5	62.6
Computer Operator	63.8	64.1
Medical Lab Technician	65.7	65.0
Receptionist	67.1	66.7
Accounting Clerk	67.4	67.5

So far this report has presented differences and similarities between sexes in occupational values and in other variables related to the CDM process. (Not reported here are sex differences in such variables as high school English grades and counts of the number of times students interact with various components of SIGI.) These differences make it possible to formulate sex-typical and sex-atypical groups, which will serve as a focus for the findings to be reported below.

Formation of Sex-Typical and Sex-Atypical Groups

The general approach followed in the development of sex-typical and sex-atypical groups was to run a regression analysis in which sex, scored dichotomously, was the dependent variable, and variables previously found to show sex differences were the predictors. A separate analysis was based on values alone; for the sake of brevity, only this analysis is presented here. From the regression analysis, predicted sex "scores" were computed. The distribution of predicted sex scores was then cut to match the actual sex distribution (41% males, 59% females). Scores above the cutoff point were designated "predicted male" and those below "predicted female." Students for whom the predicted and actual sex agreed were classified as sex-typical; those for whom there was disagreement were clasified as sex-atypical. The four-variable solution was Sex = .068 (Helping) -.046 (Lead) + .040 (Early Entry) -.040 (Income), with the multiple R = .38.

The four variable solution was found to be the highest order solution for which all beta weights are significant. This equation was used to

compute predicted sex scores. The variables included in this equation are, as expected, those showing greatest sex differences in the first part of the study.

The number of students classified into each of the sex-typical and atypical groups is shown in Table 4.

Table 4

Classification of "Typical" and "Atypical" Groups

Predicted	Actual Sex	
	Male	Female
Sex-	(MT)	(FT)
Typical	104	184
Sex-	(MA)	(FA)
Atypical	72	73

There is a slight bias in this procedure as evidenced by the higher percentage of females classified as sex-typical than males so classified (72% and 60%, respectively). This bias is, at least in part, due to the greater number of females in the sample and therefore their over-representation in the regression analysis.

Interest Field Choices for Sex-Typical and Atypical Groups

Earlier it was noted that there is a significant relationship between a student's actual sex and the interest field that he/she prefers to work in. Largest sex differences, in the expected direction, were noted for the Scientific and Personal Contact fields. Now the question arises as to whether interest field differences can be further explained in terms of sex-related values.

Table 5 gives distributions of interest field preferences for males and females classified as sex-typical or -atypical using the values classification procedure described above.

Partitioned chi-squares were computed on the frequencies in these tables and the results set out below in Table 6. The findings from Tables 5 and 6 are summarized below.

(1) As discussed previously, there is a relationship between students' sex and their interest field preferences. What Table 5 shows, however, is that this relationship is largely due to the sex-typical groups (MT & FT). A relationship generally noted between the interest field preferences and sex for sex-typical students often does not hold for sex-atypical students. Thus, the over-all difference in interest preferences is significant at the .001 level between typical males and typical females. The differences between MA and FA and between MA and FT, however, are not significant.

(2) Typicality is related to the over-all distribution of interest field preferences for males but not for females.

(3) Distinctions in typicality are most useful when focus is on selected interest field preferences on which the sexes tend to be most sharply differentiated. For the two groups of male students, i.e., MT & MA, we find differences that parallel those noted between males and females. That is, the largest differences between typical and atypical males in Table 5 are evidenced in their preferences for the Scientific, Personal Contact, and Aesthetic fields, with typical males preferring the Scientific field (33% vs. 17%) and atypical males preferring the Personal Contact field (31% vs. 15%) and the Aesthetic field (15% vs. 6%). Similar differences are found between typical and atypical females, with a larger proportion of atypical females preferring the Scientific field (19% vs. 11%) and a larger proportion of typical females preferring the Personal Contact field (38% vs. 27%).

Table 5

Preferred Interest Fields for Sex-Typical and -Atypical Groups Formed Using Values

(Numbers in Parentheses are Percents of Columns)

	MT	MA	FA	FT
Scientific	34(32.7)	12(16.7)	14(19.2)	21(11.4)
Technological	10(9.6)	9(12.5)	2(2.7)	9(4.9)
Administrative	24(23.1)	10(13.9)	13(17.8)	27(14.7)
Personal Contact	16(15.4)	22(30.6)	20(27.4)	69(37.5)
Verbal	14(13.5)	8(11.1)	15(20.6)	34(18.5)
Aesthetic	6(5.7)	11(15.2)	9(12.3)	24(13.0)

Table 6

Partitioned Chi-Squares From Table 5

Partition	Chi-Square (df=5)	Signifance Level
Male/Female	25.7	.001
Typical/Atypical	1.4	n.s.
MT/MA	15.0	.01
FT/FA	6.3	n.s.
MA/FT	8.0	n.s.
MT/FA	13.0	.05
MT/FT	36.0	.001
MA/FA	7.4	n.s.

Information-Seeking

In the SIGI subsystem called COMPARE, students may select questions from a list of 28 and get answers to these questions about occupations of interest to them. These questions, as shown in Figure 4, are grouped into six categories.

DEFINITION AND DESCRIPTION
(1) Definition of occupation?
(2) Description of work activities?
(3) Level of skill in interacting with data, people, things?
(4) Where to get more information?

EDUCATION, TRAINING, OTHER REQUIREMENTS
(5) Early Entry: Education required?
(6) Specific occupational training?
(7) Examples of college courses?
(8) Personal qualifications?
(9) Other requirements?

INCOME (National figures)
(10) Beginning salary?
(11) Average income? (Shows the mid-point of salaries nationwide)
(12) Top salary possibilities?
(13) How salaries vary?

PERSONAL SATISFACTIONS
(14) Help others: Chances to help?
(15) Leadership: Chances to lead?
(16) Interest Field: Which field?
(17) Prestige level?
(18) Special problems?

CONDITIONS OF WORK
(19) Physical surroundings?
(20) Leisure: hours, vacation?
(21) Independence on the job?
(22) Variety?
(23) Fringe benefits?

OPPORTUNITIES AND OUTLOOK
(24) National employment outlook?
(25) Where are the jobs (U.S.)?
(26) Security in the occupation?
(27) Advancement?
(28) How many women?

Figure 4. Questions the student can ask in Compare.

Table 7 shows the mean number of questions in each of the six categories asked by males and females classified as sex-typical or -atypical on the basis of values. The most popular categories of questions asked, by all groups, are Definition and Description; Education, Training and Other Requirements; and Opportunities and Outlook. The least popular category is Personal Satisfactions. It should not be inferred that the relatively few questions asked by students about personal satisfactions reflects a lack of concern with these kinds of data. Rather, this behavior is probably a result of having already covered much of this category in a preceding subsystem of SIGI called LOCATE. In LOCATE, students select values for retrieving occupations and specify a minimum return they would like on each value. Thus, as they inspect the occupations retrieved for them in LOCATE, they learn much about the personal satisfactions the occupations offer. It is likely that they carry this information into COMPARE and therefore ask fewer additional questions of this nature.

Although the rank ordering of the within-group means in Table 7 are quite similar, there are significant differences between the groups. Two-way ANOVAs (sex by typicality), run separately for each category of questions, showed significant sex differences for three of the six categories--Income, Conditions of Work, and Opportunities and Outlook. Having learned previously that males asked more questions about occupations, we can now expand that finding to include areas of information-seeking: (1) Males, more than females, ask questions about Income, Conditions of Work, and Opportunities and Outlook; (2) no sex difference is noted in the number of questions asked about Definitions and Descriptions; Education, Training and Other Requirements; and Personal Satisfactions.

Table 7

Mean Number of Questions Asked in 6 Categories Used in COMPARE
(Sex-Typical Groups Formed Using Values)

Category of Questions in COMPARE	Group Means MT	MA	FA	FT
Definition and Description	4.1	4.4	4.2	3.8
Education, Training, & Other Requirements	4.0	4.6	4.3	3.7
Income	3.0	3.6	2.5	2.5
Personal Satisfactions	1.5	1.2	1.5	1.4
Conditions of Work	2.8	3.2	3.1	2.5
Opportunities & Outlook	4.1	3.7	3.1	3.2

Value Profiles for Occupations Selected in PLANNING

A question of some importance is whether the occupations students plan for are consistent with their occupational values and whether the degree of consistency varies with sex and/or typicality. To provide the data necessary to examine this issue, mean value ratings of occupations selected by students in PLANNING were computed. Comparisons were then made between these means and the value profiles of students. The ratings of occupations come directly from SIGI. Every occupation in SIGI is rated on ten values dimensions: High Income, Prestige, Independence, Helping Others, Security, Variety, Leadership, Interest Field, Leisure, and Early Entry. A rating indicates the opportunity an occupation provides for the kind of satisfaction represented by each value. Ratings were made on a scale from 1 to 5 for "Income" and 1 to 4 for all other values. (Method of rating is described, and precise scale demarcations are defined and illustrated in Pears & Weber, 1976, 1978.)

Table 8 shows the mean rating on each value of occupations selected in PLANNING by male and female students classified as sex-typical and sex-atypical on the basis of values. (The value "Interest" is omitted since its categories are not ordered. It was discussed above in the section headed, "Interest Field Choices for Sex-Typical Groups.") Results of an F test run on the group means are indicated by asterisks. In comparing the nine value ratings within each group, the Income mean should be considered as four-fifths its size to put it on the same scale as the other ratings.

It is useful here to introduce some statistics which describe the pool of occupations from which these selections were drawn. Tables 9a and 9b give the means, standard deviations, and intercorrelations among the values ratings for the entire pool of 155 occupations that were then in SIGI. These statistics are presented here mainly as a background against which the group profile can be interpreted. Obviously, it would be difficult to draw conclusions from the rank orders of mean values down the columns of Table 8 without taking some account of the effects of the means presented in Table 9. Thus, we may note in Table 8 that the males and the atypical females plan for occupations that have highest ratings on Variety, Income, Prestige, and Independence and lowest ratings on Early Entry, Leisure, and Helping Others. With the exception of Early Entry, this rank order seems consistent with the "base rate" in Table 9a. Typical females, however, plan for occupations with highest ratings on Variety, Helping Others, and Early Entry; Leisure and Income (rescaled) have the lowest ratings. Occupations chosen in Planning by all four

groups have highest ratings on Variety, which is the only one of the above-mentioned value dimensions that does not show significant group differences. For each of the value dimensions which do exhibit significant group differences, it is the two typical groups (MT & FT) that have the extreme mean ratings. The progression tends to run consistently in the order MT, FA, MA, FT. Thus, in this manifestation of CDM behavior, atypical females tend to be "closer" to typical males than to typical females. The two atypical groups match each other rather closely, and the two typical groups are the farthest apart.

How well do these ratings of occupations match with self-expressed value needs? As previously discussed, one of the procedures for classifying students into sex-typical and sex-atypical groups uses value weights assigned to four values, namely Helping Others, Early Entry, Leadership, and Income. The first two values are associated with females and the last two with males. The value weight profiles for these groups, presented in Table 10, show the results of the classification procedure.

If, as we expect, students' values are reflected in their occupational choices, the mean values ratings of occupations chosen by each of the four groups should show a pattern similar to the pattern of mean values weights of the respective groups. From Tables 8 and 10, we can see that on three of the four values dimensions used in classifying students there is a close correspondence between the patterns of values ratings and weights.

Specifically, we find that:

(1) The occupations planned for by typical males and atypical females offer very significantly ($p < .001$) greater opportunities for

high income than do the occupations selected by typical females and atypical males.

(2) Typical females, to a greater extent than other groups of students, plan for occupations that offer an opportunity for helping others; atypical males, when compared to typical males, can also be seen to pursue occupations that are oriented toward helping others. In view of the relatively high value weights assigned to this dimension by atypical males (it is the top ranked value along with Interest), one might expect the occupations they select in Planning to have an even higher ranked group mean rating for Helping Others. The statistics for the entire pool of occupations show that this apparent anomaly is probably an artifact of the "base rate." Note in Table 9 that the occupations in SIGI have their lowest mean ratings for Helping Others.

(3) Typical females comprise the only group who plan for occupations with a high mean rating for Early Entry.

(4) The mean value ratings for Leadership show little difference across groups. Why typical males and atypical females fail to plan for occupations that have high opportunities for leadership, as their values weights would suggest, is not known. It may be noted that the mean rating for Leadership in Table 9 is next lowest in rank to that for Helping Others. A further clue from interviews is that, in assessing the importance of this occupational value, many students consider a moderate amount rather than a great amount of opportunity for leadership as highly desirable. (The definition of Leadership includes "responsibility.")

(5) The value dimension, Prestige, shows significant group differences in mean ratings even though the group differences in mean value weights are not significant. This phenomenon may be a result of the intercorrelation of Prestige with Early Entry, Independence, and Income (Table 9b). Prestige has a high negative correlation with Early Entry (-.79) and also quite high positive correlations with Independence and Income.

(6) In addition to Leadership, the mean values ratings for Variety and Security also fail to show differences in group means. In part, these mean value ratings are consistent with the values weights. From Table 9 we see that the mean values weights for all four groups do not show significant differences on either of these dimensions. What is surprising, however, is the consistent difference noted for all the groups between the rank order of the mean weights and ratings for Security. All groups assign Security a high weight, while the occupations that they plan for have ratings for this dimension that have a rank order of 5 or 6. This situation does not appear to be an outgrowth of the interdependence of the ratings themselves, but again may reflect the "base rate" (security ranks 5th in Table 9a). In general, the ratings for Security are independent of the ratings for the other diensions. The one notable exception is for Helping Others, which has a moderate correlation with Security (.45). Leisure, on the other hand, which does not show a significant sex difference for value weights, does have a somewhat higher mean rating for the occupations planned for by typical females than it does for the other groups.

Table 8

Mean Value Ratings of Occupations Planned for by Sex-Typical Groups[a]

	MT	FA	MA	FT
*** Income	4.2	4.0	3.6	3.1
*** Prestige	3.2	3.0	2.9	2.6
*** Independence	3.0	3.0	2.9	2.6
*** Helping	2.1	2.5	2.5	2.9
Security	2.6	2.6	2.6	2.6
Variety	3.2	3.3	3.2	3.1
Leadership	2.6	2.7	2.7	2.6
*** Leisure	2.0	2.2	2.2	2.5
*** Early Entry	2.2	2.2	2.3	2.7

[a] Sex-Typical groups formed using values.
*** $p < .001$

Table 9

Summary Statistics for Ratings of SIGI Occupations

(a) Means and Standard Deviations

Rated Value	Mean	S.D.
Income	3.35	1.11
Prestige	2.53	.97
Independence	2.63	.90
Helping Others	2.19	1.19
Security	2.53	1.02
Variety	2.95	.89
Leadership	2.29	1.02
Leisure	2.29	.94
Early Entry	2.80	1.10

(b) Intercorrelations

(1)	Income	1.00							
(2)	Prestige	.56	1.00						
(3)	Independence	.68	.61	1.00					
(4)	Helping Others	-.22	.10	.10	1.00				
(5)	Security	-.09	.14	.08	.45	1.00			
(6)	Variety	.34	.43	.63	.42	.09	1.00		
(7)	Leadership	.30	.47	.54	.62	.28	.65	1.00	
(8)	Leisure	-.26	-.06	-.19	.24	.12	.06	.06	1.00
(9)	Early Entry	-.58	-.79	-.67	-.27	-.28	-.47	-.53	-.02	1.00

Table 10

Value Weight Profiles for Sex-Typical Groups

	Mean Value Weights			
	MT	FA	MA	FT
***Income	6.2	6.0	5.4	5.1
Prestige	5.0	5.0	4.7	4.6
**Independence	5.7	5.8	5.6	5.2
***Helping	3.8	4.3	5.9	6.3
Security	6.1	6.0	5.7	6.2
Variety	5.6	5.8	5.5	5.5
***Leadership	5.5	5.2	4.3	4.0
*Interest	5.6	6.1	5.9	6.3
Leisure	4.6	4.6	4.2	4.2
***Early Entry	2.6	2.8	4.1	4.5

* $p = <.05$
** $p = <.01$
*** $p = <.001$

Predominant Sex Membership of Occupations Chosen by Sex-Typical and Atypical Groups

It is of interest to note the kinds of occupations chosen by the four groups that have been defined and classified as sex-typical or -atypical. For purposes of this section, "chosen" is defined as the first occupation selected in Planning. "Kinds of occupations" are represented by a three-way classification according to predominant sex membership in each SIGI occupation. (Data in SIGI include percentage of women in each occupation.) More specifically, occupations with 66% or more women were designated Predominantly Female; 33% or fewer women, Predominantly Male; between 33% and 66% women, Neutral.

According to these demarcation points, 60% of the 155 occupations in SIGI at the time of the study were found to be Predominantly Male (M), 22% Predominantly Female (F), and 18% Neutral (N), in terms of data then current.

Table 11 shows these percentages as the "base" for each of the three occupational classifications. As a rough indicator of an expected distribution, this "base" provides a context for reading the frequency of choice of each kind of occupation (M, F, or N) by each of the four groups, when the groups are formed on the basis of values, as described previously.

It is clear from Table 11 that there are notable differences in the kinds of occupations (classified by sex membership) chosen by the four groups (classified by values profiles). These differences are in the direction that would be anticipated. For example, typical males overwhelmingly plan for occupations that are Predominantly Male, 83% of them

making this choice, compared with a "base" of 60%. They tend to ignore occupations that are Predominantly Female (6%). Typical Females, on the other hand, tend to choose Predominantly Female occupations--41% compared with a base of 22%. The choices of the other two groups, atypical males and females, tend toward more closely matching the base.

Summarizing other major between-group differences, we find that (1) typical males plan for more M and fewer N occupations than atypical males do; (2) typical females plan for more occupations that are F and fewer occupations that are M than do atypical females; (3) the distributions for atypical males and atypical females are quite similar, with distributions for each group showing movement away from the extreme position of the "typical" counterpart toward the "base" distribution; (4) the difference between the two female groups in choosing F occupations (41%-18%=23%) is greater than the difference between the two male groups in choosing M occupations (83% - 65% = 18%). (Bear in mind that the base is 22% for the F occupations and 60% for the M occupations); and (5) females with atypical values profiles exceed typical females in tendency to choose M occupations by a rather wide margin (54% vs. 30%). The two male groups do not differ so noticeably in choosing F occupations (10% vs. 6%), but atypical males are quite a bit more likely than typical males to choose N occupations (25% vs. 11%).

Table 11

Kinds of Occupations Selected in PLANNING

by Four Groups Classified by Values

(Numbers in parentheses are percents of column totals)

	Group				
	MT	FA	MA	FT	Total
Predominantly Male (Base=60%)	86 (83)	40 (55)	47 (65)	54 (30)	227 (52)
Predominantly Female (Base=22%)	6 (6)	13 (18)	7 (10)	76 (41)	102 (24)
Neutral (Base=18%)	12 (11)	20 (27)	18 (25)	54 (29)	104 (24)
Total	104	73	72	184	433

Summary and Discussion

For the sake of coherence, the following discussion includes reference to a few findings of the study that, for reasons of space, were omitted from this report.

Inter-Group Similarities and Overlap

A major conclusion which might be overlooked just because it is so obvious warrants mention first. Since this study focuses on sex differences, it would be easy to lose sight of the many similarities between groups in CDM, reflected in a large number of the findings. The main point of these findings is to justify "sex-blind" guidance. Notwithstanding significant sex differences that were found, students from every age-sex group found the structure and process of CDM embodied in SIGI quite relevant and congenial. Their interactions with various subsystems were not strikingly distinctive. Both sexes showed similar consistencies between interests and occupations chosen; tended to select occupations of equal desirability, probability, and utility; and the profile of mean values weights for each sex (excluding the weights for Work in Major Field of Interest) would identify the same lists of ten "most desirable" and ten "least desirable" occupations. Thus, there is no apparent justification for routing males and females to distinctive guidance "treatments" on the basis of sex.

CDM is a highly individualistic enterprise, and individual differences are ubiquitous. But these variations are often independent of group membership. Even when significant differences are found between groups,

there is always considerable overlap. Thus, college students of different ages and sex are not making career decisions in grossly different ways. Some members of each age-sex group resemble some members of other groups in the CDM process.

In some instances, similarities may be attributed to development of understandings and competencies that generally result from use of SIGI. For example, the consistent increase in frequency of high scores on indexes of desirability and utility for occupations chosen is clearly a function of systematic consideration of desirabilities, probabilities, and decision rules associated with a set of occupations. The exercise that intervenes between the first and second score in each instance has had a leavening effect. All students have been helped to discover the extent to which each occupation provides the configuration of rewards and satisfactions that best fit their individual profile of values and have learned to balance rewards and risks. Consequently, there is a notable gain in the number of "ceiling" scores for all students regardless of age or sex. (Obviously, large numbers of scores at the "ceiling" of a scale tend to constrain findings of differences between groups.)

Effects of Initial Status

As would be expected, covariate effects were sometimes found in the absence of age or sex effects. This simply means that in certain respects initial status vis-a-vis CDM may affect CDM behaviors regardless of age or sex. For example, students who regarded themselves as poorly informed about occupations when they entered the interaction with SIGI engaged in

more information-seeking activity than students who felt well informed. Those who did not initially know how to predict grades asked more questions about prediction than those who did, and those who were at the outset uncertain of plans explored a greater number and variety of occupations in Planning. By the same token, the students who were relatively confident of their ability to predict grades were more likely to choose in STRATEGY the occupation with the most favorable chances for entry. Those who felt that they knew their values well were more likely to select as their initial choice in STRATEGY the occupation with the highest utility. This effect did not carry over to the final choice because of the "ceiling" effect mentioned above (about two-thirds of all students scored at the "ceiling" on the final "utility" index). This ceiling phenomenon, as pointed out above, is attributable to the treatment, and tends to wash out effects of initial status.

Sex Differences

Having previously emphasized inter-group similarities, we can now turn, without fear of being misunderstood, to the sex differences that did appear. Straightforward comparisons between the sexes seem to confirm many prevalent stereotypes of sex roles and behaviors.

In general, males were more active and positive than females in their CDM behaviors. They tended to give higher weights to values, engaged in more occupational information-seeking, asked for more predictions, evaluated more occupations in STRATEGY, and sometimes appeared to act more logically in respect to their initial status.

The main differences between sexes in the values domain--emphasizing higher weights on Leadership and Income for males and on Helping Others and Early Entry for females--are consistent with the stereotype of the striving male and the nurturant female.

Interest preferences were also in accord with longstanding cultural expectations: the Scientific field was the one most frequently chosen by males, and the Personal Contact field by females. Technological and Administrative fields were also more popular among males than among females, and the Verbal and Aesthetic fields were preferred more often by females than by males. Adherence to the stereotype extended beyond expressions of preference and into behavior: Although a high proportion of <u>all</u> students tended to choose occupations in PLANNING and in STRATEGY that were consistent with their interest field preferences, females who preferred the Personal Contact field were more likely than females who preferred the Scientific field to choose an occupation in STRATEGY that was consistent with their interest field preference.

It is not surprising to see these corroborations and supplementations of previous findings of sex differences. Again, however, we must not fail to call attention to the preponderance of similarities found between the sexes in CDM variables. Given the considerable degree of overlap, we sought to clarify the similarities and the differentiations by further classification of each sex into two groups.

<u>Sex-Typical and Sex-Atypical Groups</u>

We reasoned that if sex stereotypes are in the process of breaking down, clearly the change would not affect all members of each sex equally

and simultaneously. Some males and some females would respond rather quickly to the new influences, others more slowly, and still others not at all. The question then was one of choosing variables for classification of sub-groups to be compared successively on other variables. Having often emphasized the primacy of the values domain in CDM, our preference was to try sorting first on values. Since an empirical test proved this to be more efficient and more valid than use of "activity" variables, we followed the procedure of regressing sex on values, as described, to identify those members of each sex whose values we called, for lack of better words, "typical" or "atypical" of their sex. These sub-groups based on a composite of four values dimensions provide a key to sex differences and similarities on a substantial array of other variables.

The two "typical" groups turn out to account for many of the sex differences found, and differences between the "typical" and "atypical" sub-groups within each sex often parallel those between the sexes. For example, sex differences in choice of interest field are largely attributable to differences between "typical" males (MT) and "typical" females (FT). There are no significant differences in interest preferences between the "atypical" groups (MA and FA) or between MA and FT. Focus on the interest fields that most sharply differentiate the sexes--Scientific, Personal Contact, and Aesthetic--shows parallel differences between the "typical" and "atypical" male groups, with MT preferring the Scientific field and MA the Personal Contact and Aesthetic fields. There is an analogous differentiation between "typical" and "atypical" females, with more FA preferring the Scientific field and more FT preferring the Personal Contact field.

Classification of sex-typical and -atypical groups on the basis of values is enlightening not only in respect to preferences for interests but also in respect to further actions in CDM, such as the characteristics of occupations chosen in PLANNING. When mean ratings (exclusive of Interest Field) are computed for those occupations selected in PLANNING by members of each of the four groups, highly significant differences are found on Income, Prestige, Independence, Helping Others, Leisure, and Early Entry. The two "typical" groups (MT and FT) choose occupations with the extreme mean ratings on these six values dimensions, and the progression tends to run MT, FA, MA, FT, with the two "atypical" groups closer to MT than to FT. Thus, we see an interlocking or alternation of sex groups, with "atypical" females positioned between "typical" and "atypical" males, and "atypical" males between "typical" and "atypical" females.

In short, the sub-classification of each sex by "typicality" is not merely academic. All four groups act consistently with their values in an important aspect of CDM--the choice of occupations to plan for. Sex per se does not appear to be a major barrier to selecting occupations that will be instrumental in providing the satisfactions and rewards that are deemed important by each group. Thus, "atypical" females, like "typical" males, engage in planning for occupations that offer good opportunities for high income, prestige, and independence. While "typical" females lead all other groups in planning for occupations that offer good opportunities to help others, such occupations are as popular with MA as with FA.

Having established that groupings based on values, rather than sex alone, provide finer differentiations on interest preferences and on selection of occupations according to instrumentality, we next looked at occupational choices classified on a highly objective, external criterion of predominant sex membership. Again, the kinds of occupations chosen by the four groups are consistent with the characterization of each group. "Typical" males overwhelmingly chose occupations with predominantly male membership and rarely chose either of the other two categories. The occupations with predominantly male membership were also more popular with "atypical" females. The distributions for the two "atypical" groups are quite similar, each showing movement away from the "typical" group of the same sex and toward the "base rate" distribution of occupations in SIGI with respect to sex membership. All but the MT group tended to choose occupations in the middle category (with a roughly balanced proportion of males and females) more frequently than the "base rate" might suggest. The occupations with predominantly female membership were most popular only with the "typical" females. So here again we see the widest gap between the MT and FT groups, with the FA and MA groups occupying the middle ground.

A Concluding Word

All these findings of similarities and differences among groups are essentially liberating. They show there is a precedent for people of either sex who want to escape from sex-role stereotypes and seek career satisfactions in terms of their own values. There is ample demonstration

that people are not locked into sex roles but are capable of entertaining and acting on self concepts that reflect their own values.

The remaining question is, granted the crucial importance of values that is confirmed in this study, are people equally free to develop value systems that are not sex-bound? Certainly, we can not ignore the statistically significant differences between means of value weights assigned by males and females on six of the ten values dimensions. But we have also noted the great degree of overlap between distributions for the sexes and the high standard deviations on every dimension. We know very little about the ways in which values are introcept[illegible]except in general terms. Clearly, an individual's values come from family, from the culture at large, and from specific environments. But these sources may diminish in importance with maturation. Their impact in formative years can be acknowledged, but we can also recognize that there is considerable space for conscious, intentional development and even change in values: one can "take thought" about where one's values have come from and where they are taking one (Katz, 1963, p. 22). This is consistent with the maturational trend in the attainment of autonomy. As people progress through various stages toward maturity, their behavior

> ...seems capable of variation up to the limits established by preceding stages. Thus, within whatever constraints are allowed by being a member of the human species, having inherited a given set of genes, being brought up in a certain culture, and being subjected to selected arrays of reinforcements, most young men and women seem to want to become as independent as possible. They seem to want to use as much space as is left them for making their own decisions, for determining their own behavior--even those who decide to become behaviorists. We have not yet progressed, if that is the word, entirely "beyond freedom and dignity."

> It is to this striving for individual freedom in decision-making that our computer-based System of Interactive Guidance and Information (SIGI) addresses itself, specifically in the area of career decision-making. But freedom without competence may be frustrating. We have set out to enhance the freedom of the decision-maker[s] by helping [them] to increase [their] competence in the process of making informed and rational decisions. (Katz, 1974, pp. 44-45).

The evidence in this study of age and sex differences in the career decision-making process speaks strongly to the effect that neither age nor sex is a necessary deterrent to realization of the ideals of freedom and competence in GDM that we have attempted to implement in SIGI.

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