

## Children's Occupational Preferences: The Influence of Sex and Perceptions of Occupational Characteristics

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This paper uses multivariate techniques to examine the relationship of children's sex and their perceptions of occupations' difficulty, earnings, importance, and supervisory responsibilities to their preference for 21 different occupations. Data were gathered through personal interviews from a sample of 496 fourth graders from a working class, western Oregon community. Perceptions of supervisory responsibilities rarely influence children's preferences, and perceptions of the other dimensions tend to influence preferences only with occupations with relatively extreme scores on that dimension. The effect of students' sex is almost always independent of and more important than occupational perceptions. It is suggested that children learn about the sex-typing of jobs at the same time they learn about other occupational characteristics and that increased knowledge of occupations may do little to lessen sex differences in occupational preferences. Future research should include a variety of measures of occupational perceptions, avoid grouping occupations into categories, and employ longitudinal and applied experimental designs. © 1990 Academic Press, Inc.

One of the most striking characteristics of the occupational world is intense sex segregation. Men tend to work in some occupations, women in others, and from very early years, boys and girls tend to aspire to and prefer different occupations. While a great deal of time and money

The work reported in this paper comes from a study conceived and designed by Dr. McGee. The data were analyzed and the paper was written by Dr. Stockard. We are grateful to the Center for the Study of Women in Society and the Department of Sociology at the University of Oregon for support in completing this project. Any opinions or conclusions expressed are those of the authors and do not necessarily represent those of the Center or the Department. Requests for reprints should be sent to Dr. Jean Stockard, Department of Sociology, University of Oregon, Eugene, OR 97403.

in this country is devoted to career education and such programs are often viewed as a means of lessening sex differences in occupational preferences, we actually know very little about the extent to which boys' and girls' views or knowledge of occupations are related to their preferences. While several studies of children have looked at their perceptions of occupational characteristics, none has systematically examined how children's perceptions of occupational characteristics influence their occupational preferences and whether these perceptions can help explain sex differences in occupational preferences. This paper begins to fill that gap. We examine boys' and girls' preferences for a wide variety of occupations and the extent to which their perceptions of the occupations' difficulty, earnings, importance, and supervisory responsibilities are related to their preferences.

Extensive sex differences in occupational aspirations and preferences appear among children of all ages (Henderson, Hesketh, & Tuffin, 1988; Marini & Greenberger, 1978; O'Keefe & Hyde, 1983; Saltiel, 1988; Selkowitz, 1984; Vondracek & Kirchner, 1974). These differences are often explained, with varying success, by social psychological theories that focus on children's growing knowledge of sex typing in the adult occupational world and their tendency to model or try to adapt to that situation (e.g., O'Keefe & Hyde, 1983; Selkowitz, 1984; Tremaine, Schau, & Busch, 1982). Following the logic of career development theory, the learning of occupational roles is seen as a means of implementing one's self-concept and part of the overall process of developing role knowledge (Super, 1957, p. 196; Super, 1980; Super, Starishevsky, Matlin, & Jordaan, 1963). Sex differences in anticipated occupational roles appear to be especially salient (cf. Gottfredson, 1981; Vondracek, Lerner, & Schulenberg, 1983), undoubtedly because gender identity is so central to children's self-concepts (Stockard & Johnson, 1980).

Career development theorists also note that occupational choice is influenced by a greater knowledge of the characteristics of potential occupations. Several studies have examined children's perceptions of occupations, indicating that they perceive the status, earnings, and difficulty of occupations in ways that are similar to more objective measures or those obtained from adults. When sex differences appear in these perceptions, they tend to be related to the sex-typing of the occupation. (See McGee and Stockard, *in press*, for a summary of this work.) Yet, we found only three studies that looked at how children's perceptions of occupations affect their own occupational preferences (Barnett, 1975; Simmons, 1962; Slocum & Bowles, 1968). Each of these has a number of methodological drawbacks, and none of them included data that would allow one to know the extent to which perceptions of an occupation can account for sex differences in interests. None of the studies is recent. Simmons (1962) had a very small sample, and Barnett's work (1975) used

only a limited range of occupations. Only one of the three works (Simmons, 1962) actually examined children's own perceptions of the occupations and all of the studies looked only at the relationship between prestige and occupational preference, ignoring potentially other important influences on occupational choice such as earnings, job difficulty, and job responsibilities. None used nonverbal cues, an important factor if one hopes to minimize the extent to which a normative context influences students' responses (Nemerowicz 1979, p. 92; see also DeFleur, 1966; Goldstein & Oldham, 1979). All but Simmons' (1962) analysis were conducted at a group level, precluding the exploration of interoccupational differences. Unfortunately, Simmons gave no details regarding the interoccupational variation mentioned in his article, precluding its study even there. None of the studies used multivariate analyses.

The need is clear for a study that can counteract these problems and investigate whether children's perceptions of occupations are related to their occupational preferences and specifically whether these occupational perceptions can account for sex differences in occupational preferences. It would be important for such a study to assess students' perceptions of a wide variety of occupations on several different dimensions which can potentially influence occupational choice, and to avoid grouping occupations in ways that can disguise interoccupational variations in patterns of association. It would also be important to use a multivariate analysis to determine the extent to which perceptions of occupational characteristics can account for sex differences in preferences. Our study is an attempt to fill this gap.

While we found no study as extensive as our own, the literature can provide some guidelines for hypotheses. First, we would expect to find strong sex differences in students' occupational preferences, but somewhat smaller differences in their perceptions of occupations. Second, girls may be somewhat more likely than boys to prefer occupations typical of the other sex group (Archer, 1984; Henderson et al., 1988; Tremaine et al., 1982). Third, from the earlier work we would expect that children would generally be likely to prefer jobs which they perceive as being more important (Barnett, 1975; Simmons, 1962; Slocum & Bowles, 1968). It is not clear from the earlier work how children's views of the earnings, difficulty, and supervisory responsibilities associated with a position will affect their preferences. Intuitively, however, we expect that there would be a positive association between perceived earnings and preference, a potentially smaller positive association between perceived job authority and preferences, and a negative association between perceived difficulty and preference. Based on the work of Simmons (1962), we would expect the magnitude of these associations to vary from one occupation to another, although these earlier studies provide few clues as to the nature of the variations. Finally, while earlier

studies provide no clear guidance as to whether we should expect variation in perceptions of occupations to account for sex differences in occupational preferences, Post-Kammer and Smith's work with adolescents (1985) could suggest that children's perceptions of occupations' difficulty may help account for sex differences in preferences for traditionally male-typed fields.

## METHOD

### *Sample*

The data used to examine these expectations come from fourth grade students in a western Oregon school district. This age group was chosen because earlier studies indicated that students of this age are generally aware of a wide variety of occupations (DeFleur, 1966; Lauer, 1974; Simmons, 1962; Wehrly, 1973). The community has a population of approximately 40,000, is located in a standard metropolitan statistical area (SMSA), is highly dependent on the lumber industry, and is predominantly white and working class. While the data are clearly not generalizable to the nation as a whole, the community is typical of many small industrial or manufacturing cities throughout the country.

Students receiving permission to be in the study appeared to be similar to others in the classrooms in terms of demographic variables and represented about 85% of all students enrolled. Data available for this analysis come from 496 students.

### *Procedures*

Interviews with the children were conducted by trained interviewers in a room provided by the school. They focused on students' occupational knowledge and future plans and lasted for about 1 hr. Students were assured that their teachers and parents would not be told what they said.

A central part of the interview with each child was assessing their preferences for and perceptions of 21 different occupations. The occupations represent a broad range of types of work, prestige, required training, skills, and earnings. They also vary widely in their sex-typing. To minimize the normative context associated with job titles, each of the occupations was depicted in a drawing showing the worker at task. Parallel drawings for each occupation were developed with a male worker and a female worker and were extensively pretested to assure that children could correctly identify the occupations. Four decks of cards, each with pictures of workers in all of the 21 occupations, were used to gather the data. In two of these decks the sex of the job occupant was constant (either male or female). In the other two decks the sex of the job occupant was randomly assigned, but switched from one deck to the other. That is, jobs portrayed by men in one of these two decks were portrayed by

women in the other deck and vice versa. The deck with mixed-sex job occupants which was used in a particular interview was randomly assigned, and the order in which the cards were presented to the children was also randomized.

At various times during the interview the children were asked to sort the cards along selected dimensions. The deck of cards in which all of the portrayed job holders were of the children's own sex was used to assess job preference, while the deck of cards with mixed-sex job occupants was used to assess perceptions of jobs. An analysis not reported here indicates that the sex of the worker pictured did not significantly alter the influence of occupational perceptions on preferences. Thus the sex of the pictured worker is ignored in the analysis. (See McGee and Stockard, in press, for additional details on procedures.)

### *Measures*

Both preference for and perceptions of each occupation were assessed on 5-point Likert-type scales. To assess job preference the interviewers gave the following instructions to each child: "These cards show people working at different jobs. I want you to look at each job and think about how much you would like or dislike having that job yourself when you're grown up. Then put the card into the box that matches how you feel." The children were then shown a deck with mixed sex job occupants and were asked to sort them on the dimensions of difficulty, importance, supervisory responsibilities, and earnings. The order in which the dimensions were presented was reversed in one-half of the interviews to diminish any effect of the order of questions on responses. Each of the dimensions was measured on a 5-point scale where a higher score indicates a greater value (harder, more important, supervises more people, earns more money). (See McGee and Stockard, in press, for exact wording of these questions.)

## RESULTS

Table 1 gives the mean scores for the students on each of the dimensions studied. There are few sex differences in the children's perceptions. Rank order correlations (Spearman's rho) between the average scores of the boys and girls equal .98 for the supervision dimension and .97 for the other three. When sex differences do appear, they tend to be related to the sex typing of the occupation, with children perceiving jobs typical of their own sex group as more important and providing greater remuneration, but less difficult. (See McGee and Stockard, in press, for a complete discussion of sex differences in these areas.)

In contrast to the results with the dimensions measuring occupational perceptions, there are extensive sex differences in occupational preferences, with the rank order correlation between the boys' and girls' av-

TABLE I  
Average Ratings of Students on Earnings, Importance, Difficulty, Supervision, and Preference Dimensions

Occupation	Dimension				Preference	
	Earnings	Importance	Difficulty	Supervision	Girls	Boys
Airline pilot	4.1**	4.1**	4.1	2.9	2.6	3.5***
Air traffic controller	3.9**	4.4*	4.0	3.6	2.8	3.4***
Architect	3.9	4.1	3.8	2.5	3.1	3.7***
Artist	3.4	2.8	3.2	1.6	4.0	3.8
Carpenter	3.6	4.1	3.7	2.8	2.7	3.8***
Dancer	2.7	2.3**	3.2	1.7	3.7	1.7***
Dump truck driver	3.2	3.2*	2.8*	2.5	2.3	3.4***
Farmer	2.3	3.4	2.9***	2.0	4.1	3.8**
Fast food worker	2.9	3.2	2.4	2.1	3.9	3.5***
Firefighter	4.2	4.8	4.2	3.4	2.5	3.3***
Grocery clerk	3.1*	3.6*	2.4	2.0	3.9	3.2***
Hairdresser	3.0**	2.9	3.0*	2.1	3.8	2.2***
High school teacher	3.6**	4.3	3.6	4.0	4.1	3.1***
Judge	4.2	4.4	3.9	4.1	2.6	2.9**
Librarian	2.7	3.3	2.5*	2.4	3.8	3.1***
Nursery school teacher	2.8**	3.5	2.6*	3.1	4.2	2.8***
Police officer	4.2	4.8	3.9	4.0	3.3	3.7***
Scientist	4.2**	4.3*	4.2	2.5	3.1	3.9***
Secretary	3.5	3.6	3.3	2.3	3.9	2.8***
Surgeon	4.6	4.8	4.6	3.5	2.7	3.0*
TV repairer	3.4	3.5	3.8*	2.1	2.6	3.1***
MANOVA ( <i>F</i> )	2.2**	2.0**	1.89**	1.1	26.0***	

*Note.* Univariate *t* tests were used to examine the difference between average rankings of males and females for each occupation in each dimension. A multivariate *F* was used to test the probability that the group of results within each dimension occurred by chance. Nine of the 496 children could not correctly identify the scientist, 10 did not identify the nursery school teacher, 12 the secretary, 24 the air traffic controller, and 27 the architect. The remaining 16 occupations were correctly identified by all but 5 or fewer of the children. There was no identifiable pattern of sex differences in misidentifications. Cases were omitted from the univariate analyses only for the occupation for which subjects had misidentified the job.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

erage scores equal to only  $-.07$ . The most preferred occupations for the boys are scientist, police officer, artist, farmer, carpenter, and architect. The jobs most preferred by the girls are nursery school teacher, high school teacher, farmer, artist, secretary, and grocery clerk. The only jobs rated high by both groups are farmer and artist, perhaps reflecting favorite leisure activities and somewhat romantic ideas of the future. Girls are more likely than boys to prefer the job of farmer, and the only job without a significant sex difference in the average scores is that of artist. The least preferred jobs for boys are dancer, hairdresser, secretary, nursery school teacher, and judge. The least preferred jobs for girls are dump truck driver, tv repairer, firefighter, pilot, and judge. The only job that both boys and girls rate low is judge, although boys are more likely than girls to prefer that occupation.

The regression equations in Table 2 may be used to examine the association between occupational perceptions and preferences. Because of the large number of measures involved, intercorrelations among the various measures of perceptions of and preferences for each occupation are not reported here. None of these correlations is high. Only 6 of the 210 measures exceeds  $.30$  in size and none is larger than  $.42$ . Thus collinearity is not a problem. It should also be remembered that with the repetition of a test of significance over the 21 different occupations, at least one result significant at the  $.05$  level would be expected to occur by chance for each dimension. Thus, results of the inferential tests should be interpreted with caution.

The percentage of variation in preferences which is explained by the combination of sex and occupational perceptions varies widely from one occupation to another. Five percent or less of the variance is explained in preferences for air traffic controller, architect, farmer, judge, police officer, and surgeon, all male-typed jobs. Thirty percent or more of the variation is explained for preference ratings for only three occupations: dancer, hairdresser, and nursery school teacher, all of which are female-typed. None of the measures of perceptions of the occupations influences the students' preferences for air traffic controller, carpenter, librarian, or secretary; and only one of the dimensions significantly influences preferences for architect, dancer, firefighter, high school teacher, surgeon, and tv repairer.

The students' perceptions of how much money workers earn in an occupation significantly influences their preference for 13 of the 21 occupations studied (architect, artist, dump truck driver, farmer, fast food worker, firefighter, grocery clerk, hairdresser, high school teacher, nursery school teacher, police officer, scientist, and tv repairer). In each of these cases, as expected, students who believe that the job pays higher salaries are more likely to prefer it. With 4 of the 13 occupations with significant effects of earnings (dump truck driver, firefighter, scientist,

TABLE 2  
Regression of Occupational Preference on Ratings of Earnings, Importance, Difficulty, Supervision, and Gender

Occupation	Sex	Earnings	Importance	Independent variables		Constant	$R^2$
				Difficulty	Supervision		
Airline pilot	.19	.05	.27** (.02*)	-.12*	-.03	2.71***	.12***
Air traffic controller	-.50***	.10	.09	-.02	-.06	2.85***	.05***
Architect	-.52***	.15*	.05	-.04	-.03	3.13***	.05***
Artist	.50*	.10*	.20***	-.12**	.21** (-.02*)	3.01***	.07***
Carpenter	-1.10***	-.01	.06	-.04	-.08	3.92***	.16***
Dancer	1.85***	.03	.28***	.01	.03	.97***	.40***
Dump truck driver	-.15	.33*** (.09*)	.19***	.01	.04	1.54***	.19***
Farmer	-.16	.14**	.09	-.08	-.15* (.08*)	3.70***	.05***
Fast food worker	.37***	.19***	.19***	-.12**	.02	2.64***	.09***
Firefighter	.29	.35*** (.08*)	-.01	.01	-.07	2.08**	.11***



Grocery clerk	.62***	.16**	.04	-.11	.07	2.71***	.09***
Hairdresser	1.50***	.20***	.13**	-.07	.03	1.43***	.32***
High school teacher	.94***	.14**	.05	-.07	-.04	2.81***	.15***
Judge	-.28*	.11	.22**	-.16**	.03	1.99***	.04***
Librarian	.62***	.10	.08	-.08	.01	2.78***	.08***
Nursery school teacher	.70**	.19***	.15**	-.16***	-.14*	2.63***	.30***
Police officer	-.46***	.16*	.03	-.13*	(.03*)	3.64***	.04***
Scientist	.61	.32***	.15*	-.27***	-.05	3.14***	.12***
Secretary	1.07***	(.01**)	.05	-.09	.05	2.46***	.17***
Surgeon	-.33*	.11	.17	-.30***	.02	3.70***	.04**
TV Repairer	.48	-.03	.04	-.03	-.06	2.05***	.08***
		.34***					
		(.03**)					

*Note.* All coefficients are unstandardized regression coefficients (*bs*). These coefficients are comparable from one equation to the next and, because all of the rating scales are of the same length, the coefficients within an equation associated with these scales may be compared with each other. Variables are coded so that 1 = female, 0 = male, and higher scores on each dimension represent more of the given entity (e.g., harder, more important, supervises more people, earns more, likes more). When there are two regression coefficients in a column, the first is the one for males and the second (in parentheses) is the one for females. Interaction terms of each of the four rating scales with sex were added to the regression equations to assess whether or not the influence of a particular dimension differed for boys and girls. When the *t* coefficient associated with an interaction term was significant (at the .05 level), the term was included in the results presented below. The significance level given for the female term represents the significance associated with the interaction term, i.e., the difference between the coefficients for the males and the females for that variable. *R*<sup>2</sup> values are adjusted to take into account the number of independent variables relative to the sample size.

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

and tv repairer), all male-typed fields, the effect is significantly different for boys and girls. In each of these cases the coefficients are over .30 for boys, but close to zero for girls. Even if girls believe that workers in these areas earn more money, this does not affect their tendency to want the job.

The ratings of a job's importance significantly influence students' preferences for 9 of the 21 occupations (airline pilot, artist, dancer, dump truck driver, fast food worker, hairdresser, judge, nursery school teacher, and scientist). As expected, the effect is always positive, with students more likely to prefer these jobs if they believe they are important. With the regression involving airline pilot, a predominantly male occupation, there is a significant interaction effect, with the coefficient for boys being relatively high and the coefficient for girls being near zero. Thus, even if girls view the job of pilot as important, they, unlike boys, are not more likely to prefer it.

The ratings of perceived difficulty significantly influence preferences in 9 of the 21 equations (airline pilot, artist, fast food worker, grocery clerk, judge, nursery school teacher, police officer, scientist, and surgeon). In each case, as expected, the influence is negative, with students more likely to prefer a job if they believe that it is easier. There are no significant interactions with sex.

The ratings of supervision are a significant influence in only three equations and each of these involves a significant interaction (artist, farmer, and nursery school teacher). With the occupation of artist boys who give the occupation a higher authority rating are more likely to prefer it, while the coefficient for girls is near zero. With farmer and nursery school teacher, boys who believe that workers in these areas are less likely to supervise others are more likely to prefer the job, but the influence for girls is much smaller and in the other direction.

As shown in Table 2, the influence of sex on job preference, independent of perceptions of job characteristics, is significant for 15 of the occupations examined (air traffic controller, architect, artist, carpenter, dancer, fast food worker, grocery clerk, hairdresser, high school teacher, judge, librarian, nursery school teacher, police officer, secretary, and surgeon), and the direction of the significant sex effects parallels the sex differences shown in Table 1. In almost every case the probability level associated with sex is substantially larger than those associated with the other coefficients, indicating that the students' sex is a much more important influence on their preferences than their perceptions of the jobs.

The coefficients associated with sex are directly comparable to the difference between the mean preference scores given in Table 2. It may be seen that the significant coefficients vary from the difference between the means by more than .2 of a scale score in only two instances: artist and nursery school teacher. With artist, while there is no significant difference in the aggregate, once the students' perceptions of the oc-

cupations are controlled, girls are seen to have higher preferences by one-half of a scale score, when scores on each of the other dimensions equal zero. With nursery school teacher, if perceptions of the occupations are equal to zero the sex difference in preference drops to one-half its original magnitude. Both of these variations are caused by interaction effects with the supervision dimension, the area seemingly least understood by the children. With nursery school teacher the effect of supervision is negative for the boys, but slightly positive for the girls, thus yielding stronger sex differences at higher points along that dimension. With artist, the effect of supervision equals .21 for boys, but  $-.02$  for girls, yielding higher scores for boys than girls at higher points along the dimension.

With the six occupations for which there is no significant sex effect (airline pilot, dump truck driver, farmer, firefighter, scientist, and tv repairer), a significant interaction appears between sex and an occupational perception, and it is the differential effect of this perception, rather than the sex of the children themselves, which seems to account for sex differences in preferences for these jobs. All but the job of farmer are preferred much more by boys than by girls in the aggregate and the regression equations in Table 2 indicate that this sex difference can usually be explained by either the effect of the children's perceptions of the job's importance (pilot) or its earnings (dump truck driver, firefighter, scientist, tv repairer). In each of these cases the coefficient for boys is substantial, while the coefficient for girls is near zero, and as students give higher responses on the affected dimensions the sex gap in preferences is predicted to increase. In other words, boys are more likely to prefer these jobs if they perceive they are more important or have greater earnings. On the other hand, even if girls believe that the job of pilot is important or that dump truck drivers, firefighters, scientists, or tv repairers earn a great deal of money, this does not affect their preference for the job. It seems noteworthy that no similar pattern appears with any female-typed job.

The interaction with farmer involves the supervision dimension, with a coefficient for boys of  $-.15$  and for girls of  $.08$ . As scores on this dimension increase, the predicted preference scores for girls surpass those for boys. As noted above, given the few significant results with this dimension, we are reluctant to speculate about the meaning of this pattern. In contrast to the expectation derived from the work of Post-Kammer and Smith (1985), the childrens' perceptions of difficulty do not interact with sex in influencing any occupational preferences.

## DISCUSSION AND SUMMARY

The results lend some support to the expectations outlined above. While sex differences in the students' perceptions of occupations' earn-

ings, importance, difficulty, and supervisory responsibilities are small, there are strong sex differences in their occupational preferences. The sex differences in occupational preference parallel the adult occupational world and support the results of earlier studies of children's aspirations and preferences. Given that only scores of one or two indicate negative reactions, the averages in Table 1 also indicate that the children react negatively to only a few jobs. Only dump truck driver for girls and dancer and hairdresser for boys have average preference scores less than 2.5. This lends support to the suggestion that children may indicate a potential liking or preference for a wider range of occupations than those to which they claim to aspire (cf. Slocum & Bowles, 1968).

Girls' scores tend, on the average, to be slightly higher than those of boys across all the jobs studied. Thus, as expected, girls are not only slightly less likely than boys to avoid jobs typical of the other sex group, they also tend to give higher preference scores than the boys to same-sex typical jobs. Yet our finding that only one of the significant interaction effects in the regression equations occurred with female-typed jobs provides a note of caution. While girls may have a greater overall tendency to prefer various occupations, both same-sex and other-sex typed, boys, but not girls, may increase their preference for other-sex typed fields if they perceive they have certain desirable characteristics. This could suggest that boys' willingness to consider female-typed occupations may be more open to change than girls' and underlines the need for future work to examine occupational preferences as well as aspirations and to use multivariate analyses.

As expected, both boys and girls tend to prefer jobs which they believe are important, provide greater earnings, and are less difficult, although the impact of these dimensions tends to vary from one occupation to another and sometimes to influence boys' preference more than girls'. The jobs influenced by earnings represent both typically male and typically female occupations, but all except architect and scientist have relatively low pay. Perhaps students are more likely to prefer these jobs if they believe, however inaccurately, that they pay more, or conversely, students are less likely to prefer these jobs if they realize that they pay less. It is not clear, however, why perceptions of earnings would influence preferences for the relatively high paying fields of architecture and science, but not the relatively low paid occupations of carpenter, dancer, and librarian.

The occupations for which perceived importance is an important influence either have low earnings and are perceived by the children as low in importance (artist, dancer, dump truck driver, fast food worker, hairdresser, and nursery school teacher) or are relatively unpopular among the children (dancer, judge, dump truck driver, and hairdresser). The two exceptions are pilot and scientist, both male-typed occupations

which are relatively high on perceived importance, actual salaries, and student interest. We are unsure why perceived importance increases students' preferences for these fields when this is not the case for similarly rated occupations such as high school teacher, carpenter, and surgeon.

The occupations for which preference is influenced by difficulty seem to fall into three relatively distinct categories. Five of the occupations (surgeon, pilot, judge, scientist, and police officer) are predominantly masculine and are rated quite difficult on the average by the students. In addition, all of these but police officer have high standardized prestige scores, require a great deal of specialized training, involve work with complex data, and command very high salaries relative to the other occupations. Three occupations (fast food worker, grocery clerk, and nursery school teacher) are predominantly female, low paying, and might be characterized as stressful and/or tedious. The final occupation (artist) is mixed sex-typed, but may be seen as involving special talents and skills.

The supervision dimension rarely influences preferences, perhaps because fourth graders do not yet fully understand the dynamics of the employer-employee relationship. Given the small number of significant results with the supervision dimension and the strong possibility that these could have occurred by chance, we are reluctant to speculate on the meaning of the findings.

In general, children's perceptions of a job's earnings appear most often to influence their preferences for low paying jobs; perceptions of a job's importance tend to influence preferences for jobs with low perceived importance, earnings, or popularity; and perceived difficulty seems to influence preferences for jobs that are seen as quite difficult, stressful, or requiring special skills. In other words, children's perceptions of occupations tend to influence preferences only when a given occupation has relatively extreme scores on that dimension. There are, of course, exceptions to this generalization. For instance, the perception of earnings affects preferences for the jobs of architect and scientist, both relatively high paying; perceptions of importance influence preferences for pilot and scientist, neither of which is low in perceived prestige or popularity; perceptions of difficulty do not influence jobs such as dancer and firefighter, both of which may be considered difficult, stressful, or requiring special skills. In addition, there are some occupations (air traffic controller, carpenter, librarian, and secretary) for which none of the dimensions measured has a significant influence.

We believe that these results show how important it is to examine a variety of dimensions and occupations when studying children's occupational preferences and perceptions. Perceptions of earnings influence preferences for some jobs, perceived importance or difficulty may influ-

ence preferences for others, and other job-related characteristics not measured here may influence still others. Future researchers should be careful to measure a variety of occupational characteristics and to look at a number of occupations. No categorization of jobs based on sex-typing, status, or earnings can easily capture the multidimensional nature of the patterns of relationships found here. The use of grouped data, as occurred in all the earlier studies (Barnett, 1975; Post-Kammer & Smith, 1985; Simmons, 1962; Slocum & Bowles, 1968), would mask this complexity and should also be avoided.

The most important influence on the children's occupational preferences is clearly their sex, either directly or indirectly through interactions with one of the preference dimensions. It is not the students' perceptions of occupations that most influence their preferences, it is whether they are male or female. For most of the occupations, the influence of sex on preferences is totally independent of their perceptions of the jobs' characteristics. Perhaps as children learn about the occupational world, they learn about the earnings, importance, and difficulty of jobs, and they also learn about their sex-typing. In other words, the sex-typing of occupations may well be seen as simply another job characteristic which influences students' job preferences. Our results indicate that it is almost always a much more important influence on job preferences than other perceived characteristics of the job.

The cases where sex does not have a significant independent effect on occupational preferences do not contradict this conclusion, for in these cases it appears that the children's sex is indirectly associated with preferences through their perceptions of the occupations. If boys believe that the job of pilot is more important or that dump truck drivers, fire-fighters, scientists, and tv repairers earn more money, they are more likely to prefer these jobs. In contrast, even if girls believe pilots are important or that workers in the other fields make more money, this does not increase their preference for the job. Perhaps boys justify their greater interest in these fields through their perceptions of job characteristics; girls, even if they believe these male-typed jobs have objectively desirable characteristics, may not indicate a higher preference for them, perhaps because of another seemingly over-riding job characteristic—the sex typing of the fields.

It should be noted that four of the eight significant interactions with sex involve the earnings dimension, with a substantial impact for boys, but a coefficient near zero for girls. We are unsure why this result appears, but can hypothesize that it may be related to women's lower earnings in the labor force relative to men. Perhaps girls perceive that their earnings will never be extraordinarily high and that, if they marry, their spouse will almost certainly earn more than they. On the other hand, boys can realistically anticipate high earnings in occupations that

may be rated relatively unimportant and easy. Future research might address the extent to which boys and girls differentially value earnings in their future occupations and the extent to which these values can account for the sex differences in the relationship of earnings perceptions to occupational preferences. A fair amount of work (e.g., Beutell & Brenner, 1986; Neil & Snizek, 1987; Subich, Cooper, Barrett, & Arthur, 1986) has examined this question with adults and college students, but we know of none with children.

In addition, a great deal of evidence in the sex-roles literature indicates that the extent to which children adhere to and prescribe rigidly sex-typed roles tends to decline with age and cognitive maturity (Kohlberg, 1966; Maccoby & Jacklin, 1974; Stockard & Johnson, 1980). On the other hand, the career development literature suggests that children's occupational aspirations become considerably more circumscribed as they grow older, with perceptions of relative status and their own interests and talents adding to the limitations imposed by sex-typing in earlier years (e.g., Ginzberg, Ginzberg, Axelrad, & Herma, 1951; Gottfredson, 1981; Super, 1957, 1980). A reconciliation of these potentially conflicting perspectives might be attained by replicating the work presented here with older children and examining the extent to which job-related dimensions other than sex-typing become relatively more important influences on occupational preferences as students age.

It should be remembered that the percentage of variation explained by the variables included in this study rarely exceeds .30, and all four dimensions influence preferences for only two occupations (artist and nursery school teacher). Clearly many variables other than those examined here influence occupational preferences, and it will be important for future researchers to explore these relationships and how they are independent of or related to the influence of occupational perceptions and sex.

A great deal of time and money in this country is devoted to vocational guidance, career education is often a required subject in schools, and educational programs are often viewed as a means of lessening sex differences in occupational preferences. Yet, our findings would appear to suggest that greater awareness of occupational characteristics would not eliminate sex differences in occupational preferences. The children in our study, despite being presented with same-sex models, were well aware of the sex-typing of the occupations studied. Their perceptions of other occupational characteristics usually affected their preferences independently of their sex. Our evidence suggests that altering children's perceptions of occupations' earnings, importance, difficulty, or supervisory responsibilities would not alter sex differences in occupational preferences. Children's views of occupational sex-typing seem to be well established by the early years of elementary school. Attempts to coun-

teract these views without parallel changes in the actual composition of the labor force would appear to us to be relatively unsuccessful.

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Received: September 14, 1989.