

## **Understanding Females' Occupational and Educational Choices.**

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### **Abstract**

Educational expectations and occupational aspirations were examined in a predominately white (90%), lower-middle to middle class sample of 603 female eleventh and twelfth-grade students from 10 high schools. Adolescent values and beliefs were used to discriminate between those female adolescents aspiring to each of 9 occupational categories. The results indicate that it is important to consider self perceptions of skills, expectancies, and values when trying to understand the career development process for adolescent females.

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Why is it important to understand the educational and occupational choice process for females? Although this question can be addressed in many ways, one apparent reason is that the labor market continues to be gender-segregated in ways which place females at a disadvantage. For instance, whether you are talking about blue-collar/skilled labor types of occupations which require less formal training or professional occupations which require more formal schooling, females in general tend to be concentrated in the lower paying, less prestigious jobs (Eccles & Hoffman, 1984; Eccles, 1987). More specifically, females are particularly under-represented in those occupations associated with technology, physics, and applied mathematics (Eccles & Harold, 1992). Although sexism and, for women of color, racism contribute to these gender differences and should not be overlooked, today I would like to focus on a social-psychological model of educational and occupational choice. This model focuses on why females tend to *choose* occupations that pay less and are less prestigious in comparison to their male counterparts. First, I will present an expectancy-value model of educational and occupational choice. Second, I will describe a study used to test the model. And finally, I will present results which provide support for the model.

The model I will be describing today was developed by Jacquelynne Eccles and her colleagues. As can be seen in Figure 1, educational and occupational choices are believed to be influenced by a) the individual's expectations for success; b) the importance or value the individual attaches to the various options; c) the individual's self perceptions of abilities of skills; and d) the individual's educational and occupational expectations and aspirations. Previous models, such as status attainment models of educational and occupational attainment (e.g., Sewell, Haller, & Portes, 1969),

have typically emphasized only 2 of these dimensions. Namely, self perceptions of ability and educational and occupational expectations. The Eccles et. al. model (i.e., Eccles, Adler, Futterman, Goff, Kaczala, Meece, & Midgley, 1983), however, places emphasis on BOTH expectancies and values in determining aspirations and eventual choices. In addition, the model differs from previous models in that it focuses on choice and not deficits in abilities in order to explain gender differences in educational and occupational behavior. For instance, one traditional explanation used to explain why females do not go into the physical sciences is that they are less capable or perceive themselves as being less capable than their male counterparts in these areas. However, an alternative explanation could be that females are just as capable and perceive themselves as being just as capable in the physical sciences, but they do not like the job tasks they associate with physical science occupations, which would "push" them away from such occupations, or they place high value on job tasks associated with other occupations, which would "pull" them towards those jobs. Thus, this model highlights both approach and avoidance aspects of choice, taking into account that expectancies, self-perceptions of abilities, and values must all be included in the model in order to paint a more accurate picture of the choice process.

## Methods

### Study Overview

Data used in the present study were collected as part of an ongoing multi-wave, longitudinal examination of adolescent development which began in 1983 (MSALT). Survey data collected during the participants 11th and 12th grade years from 10 high schools in Southeastern Michigan were examined.

## Subjects

The sample consisted of 603 females from lower-middle to middle class backgrounds. Ninety percent of the females were white. Females who reported belonging to other racial or ethnic groups were included in the analyses. However, potential differences based on race and ethnicity will not be addressed in the present study.

## Measures

Students responded to a number of 7-point Likert scale items. These included: 1) **lifestyle values** - values regarding work, future success, relationships, and leadership ; 2) **valued job characteristics** - specific job characteristics adolescents may desire in their future occupational settings ; 3) **expected efficacy in jobs** - estimates of future success in different categories of occupations ; and 4) **self perception of skills** - self-ratings of job relevant skills. Each of the four sets of items were factor analyzed. Factors obtained from the analyses were further broken down based on theoretical and conceptual grounds.<sup>1</sup> **Occupational aspirations** were assessed using the following open-ended probe: "If you could have any job you wanted, what job would you like to have when you are 30?". Standard U.S. Occupational Classification codes were used and each code was categorized into 1 of 9 general occupational categories (see Figure 2). **Educational expectations** were assessed using the following four 7-point Likert scale items: "When you think about your future, how likely do you think each of the following will be in the next 10 to 15 years: 1) you will graduate from high school or get a G.E.D; 2) you will graduate from a two-year community college program; 3) you will graduate from college (four year program); you will attend graduate or professional

<sup>1</sup> For scale items, alphas, means on standard deviations based on both male and female data, see Jozefowicz, Barber, and Eccles (1993).

school after college". These items were not mutually exclusive: participants responded to each educational expectation item.

## **Results**

### Data Analyses

Non-parametric statistical procedures (chi-square analyses) were used to determine whether females aspired to some occupations more than others. Analysis of variance (ANOVA) was used to examine whether females' educational expectations differed based on the occupation they aspired to. Discriminant analyses were run in order to determine which values, job characteristics, skills, and efficacy expectations best discriminated between female adolescents who aspired to each of nine occupational categories.

### **Occupational Aspirations**

Figure 2 shows the percentage of females who aspired to each of the nine occupational categories. A single chi-square test was used to determine whether the actual percentage of females aspiring to each of the nine occupations differed significantly from the percentage expected by chance (11%). The overall chi-square analysis was significant ( $\chi^2=316.06$ ;  $p < .001$ ), indicating that the females aspired to some occupations more than others. Based on the percentage of females aspiring to each category, it appears that more females aspired to business and law occupations (30%) and fewer aspired to male-typed skilled labor and protective services (2%) in comparison to all other occupational categories.

### **Educational Expectations**

Figure 3 depicts the mean level responses on each of the four educational expectation items. The female adolescents in this sample consider it very likely that they will graduate from high school (mean = 6.6) and that they will graduate from a 4 year college program (mean = 5.8). They

are less likely to expect to graduate from a 2 year community college program (mean = 3.9) or to attend graduate or professional school (mean = 4.2).

#### **Educational Expectations by Occupational Aspirations**

Figures 4-6 show the mean educational expectancies of the adolescent females by those who aspired to one of the nine occupational categories and those who did not aspire to those categories. With regard to expectations to graduate from a 2 year community college program (Figure 4), females who aspired to science/math-related occupations were less likely to expect to graduate from a 2 year community college than females who did not aspire to such careers. In addition, females who aspired to female-typed skilled labor jobs were more likely to expect to graduate from a 2 year program than those who did not. Similar results were found with regard to expectancies to graduate from a 4 year college program (Figure 5) and expectancies to attend graduate or professional school (Figure 6). Those female who desired female-typed skilled labor jobs were much less likely to expect to graduate from a 4 year program and less likely to expect to attend graduate school than females who aspired to other occupations. Those who aspired to health-related occupations were more likely to expect to graduate from a 4 year program and to attend graduate school in comparison to those who did not aspire to such careers.

#### **Discriminant Analyses**

Discriminant analysis results are presented in Table 1. In general, efficacy beliefs and valued job characteristics were the strongest discriminators between females who aspired to particular occupations and those who did not<sup>2</sup>. That is, those who felt they would be efficacious in certain occupations

tended to aspire to those occupations and those who valued certain job characteristics tended to aspire to occupations consonant with those values. In particular, it is interesting to note that both females aspiring to science-related and females aspiring to health-related careers felt they would do well in science-related occupations. However, females aspiring to science-related careers tended to devalue people/society oriented job characteristics while females aspiring the health-related careers tended to value people/society oriented job characteristics in comparison to all other females.

#### **Conclusion**

In conclusion, the results presented today demonstrate that self perceptions of skills, perceptions of future efficacy in careers, and lifestyle and job values all contribute to the occupational aspiration process. More specifically, both efficacy perceptions and job values appear to be particularly influential in the process. These findings are informative in light of issues presently being debated in the field of education. For instance, based on results that look only at perceptions of ability or efficacy, recommendations are being made about how to increase female representation in occupations such as engineering. These recommendations have typically focused on increasing perceptions of ability and efficacy. However, when considering the results of the present study, interventions that focus exclusively on perceptions of ability or efficacy could be ineffective in persuading females to go into the physical sciences or related fields. What may be more effective are interventions which emphasize the people/society oriented job characteristics that are associated with these occupations or, in the case where these job characteristics are absent, altering the tasks associated with the jobs themselves.

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<sup>2</sup> For a more detailed discussion of the discriminant function results see Jozefowicz, Barber, and Eccles (1993).

Finally, future research needs to address the socialization factors that influence the formation of these beliefs and values. In addition, follow-up research should examine the relation of these psychological factors, in addition to other potential resources and barriers, to actual occupational attainment.

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**Table 1.**  
**Discriminant Function Analyses.**

Occupation	Discriminating Variables	Structure Coefficients
<b>Skilled Labor: Female-typed</b>	<b>(N=48/533)</b>	
	Efficacy - Health-related	-.55
	Efficacy - Science-related	-.52
	Efficacy - Business/law	-.47
	Lifestyle Value - High Status	-.46
	Job Value - Prestige	-.33
	Skills - Leadership	-.26
	Lifestyle Value - Family	.25
<b>Skilled Labor: Male-typed</b>	<b>(N=12/569)</b>	
	Efficacy - Male-typed	.59
	Job Value - Machinery	.59
	Skills - Mechanical	.44
	Job Value - Math/Comp.	.28
<b>Protective Services</b>	<b>(N=11/570)</b>	
	Efficacy - Male-typed	.58
	Lifestyle Value - High Status	.40
	Lifestyle Value -Family	-.38
	Job Value - Machinery	.35
	Lifestyle Value - Risk Taking	.34
<b>Human Services</b>	<b>(N=74/507)</b>	
	Skills - Work with others	.48
	Job Val. - People/Society	.42
	Job Value - Prestige	-.40
	Efficacy - Female-typed	.37
	Job Value - Machinery	-.34
	Job Value - High Status	-.26

**Table 1., cont.**

Occupation	Discriminating Variables	Structure Coefficients
<b>Writer/Artist</b>	<b>(N=69/512)</b>	
	Efficacy - Artist	.68
	Job Val. - Math/Computer	-.43
	Job Value - Creative	.30
	Efficacy - Health-related	-.29
	Efficacy - Science-related	-.28
<b>Health Professional</b>	<b>(N=65/516)</b>	
	Efficacy - Health-related	.72
	Job Val. - People/Society	.39
<b>Business/Law</b>	<b>(N=174/407)</b>	
	Efficacy - Health-related	-.49
	Efficacy - Business/Law	.45
	Job Value - People/Society	-.32
	Job Value - Prestige	.30
	Job Value - Machinery	-.29
	Efficacy - Science-related	-.26
<b>Science-Related</b>	<b>(N=45/536)</b>	
	Efficacy - Science-Related	.61*
	Job Value - People/Society	-.40*
	Efficacy - Male-typed	.27
	Job Value - Math/Computers	.27
<b>Health-Related</b>	<b>(N=56/525)</b>	
	Efficacy - Health-related	.81
	Efficacy - Science-related	.56*
	Job Value - People/Society	.29*

Figure 1. Psychological Components of the Eccles, et. al. Model of Educational and Occupational Choice.

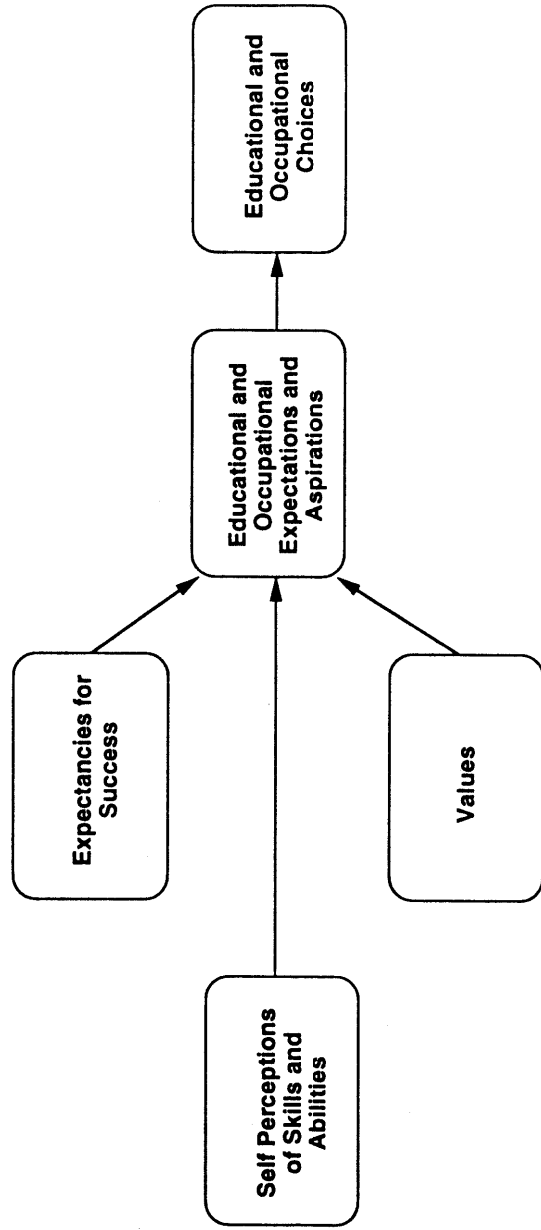
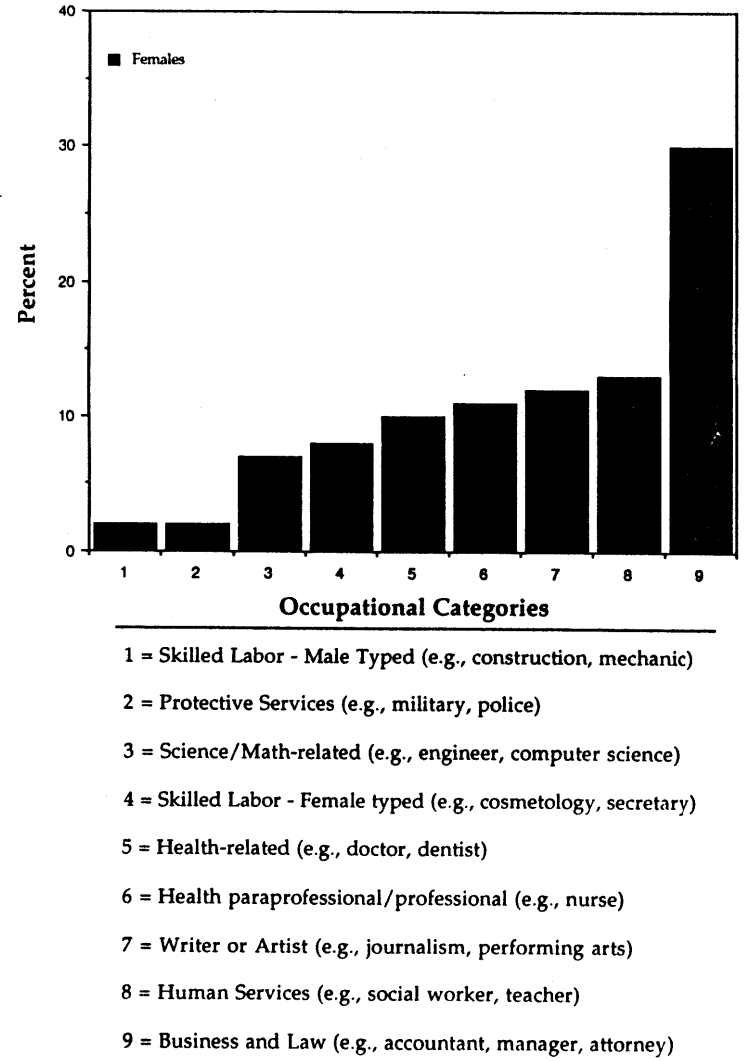
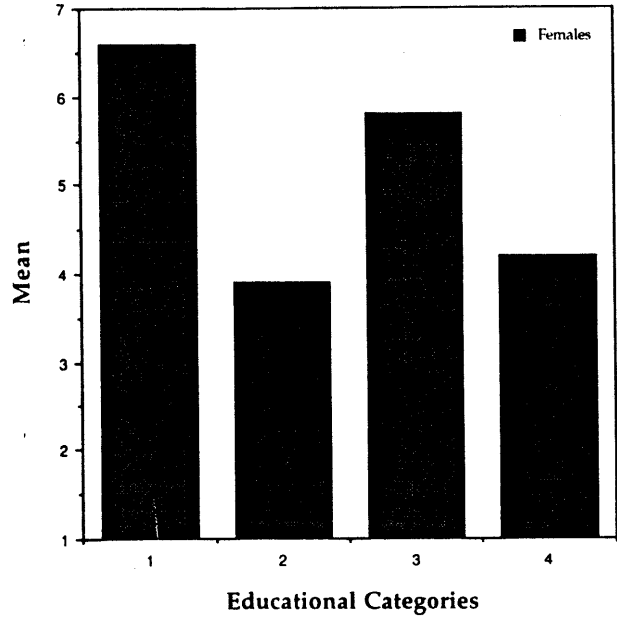


Figure 2. Percentage of Females Aspiring to 9 Occupational Categories.

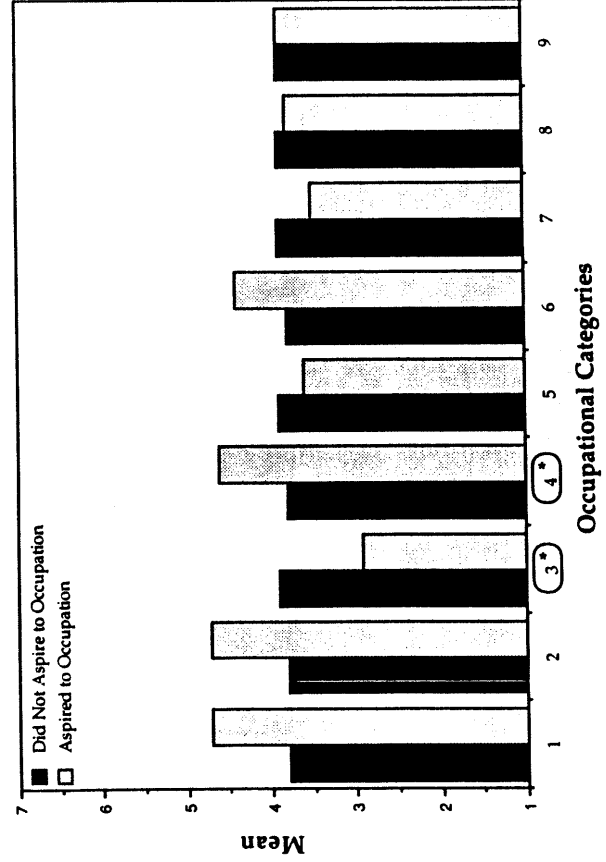


**Figure 3.**  
**Mean Educational Expectations of Females.**



- 1 = Graduate from high school or get a GED
- 2 = Graduate from a 2 year community college program
- 3 = Graduate from college (4 year program)
- 4 = Attend graduate or professional school

**Figure 4.**  
**Mean Expectancies to Graduate from a 2 year Community College Program.**

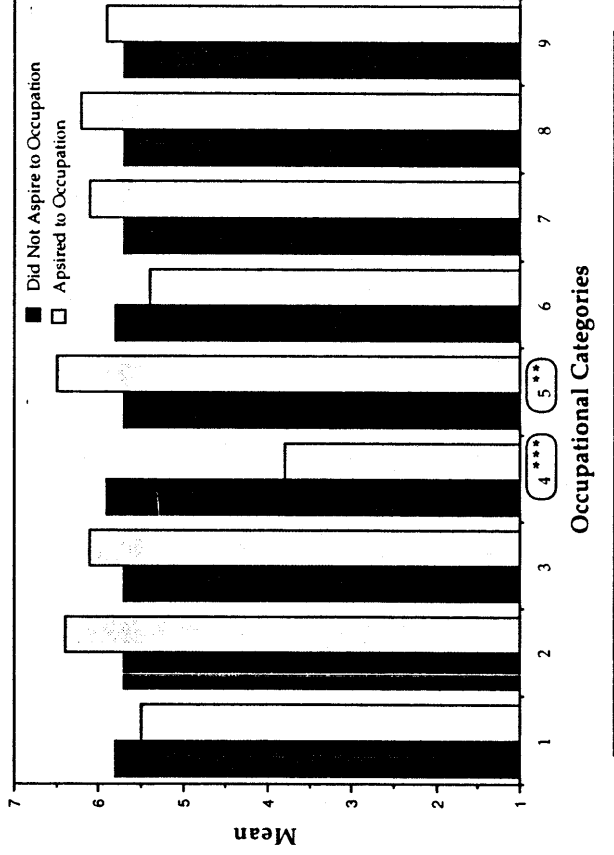


- 1 = Skilled Labor - Male Typed; 2 = Protective Services; 3 = Science/Math-related;
- 4 = Skilled Labor - Female typed; 5 = Health-related; 6 = Health paraprofessional/
- professional; 7 = Writer or Artist; 8 = Human Services; 9 = Business and Law

\* p < .05; \*\* p < .01; \*\*\* p < .001



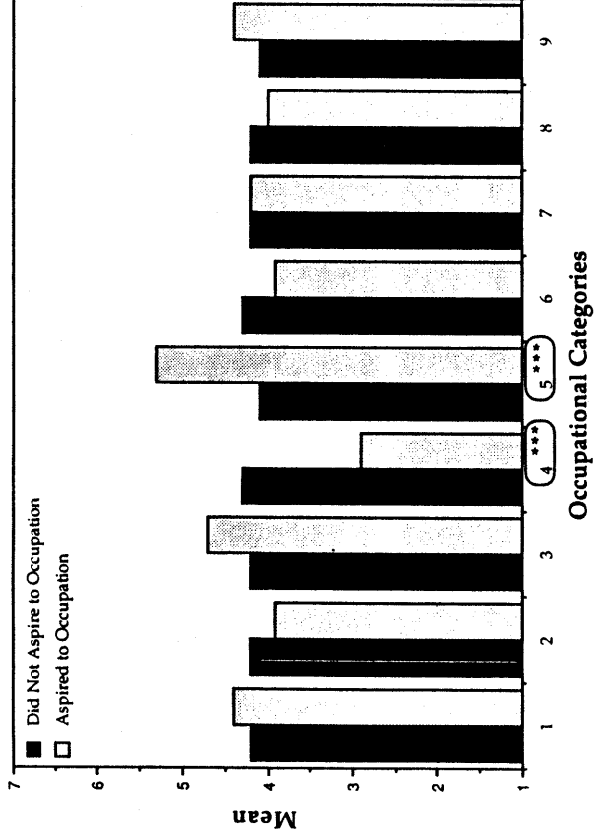
**Figure 5.**  
**Mean Expectancies to Graduate from a 4 Year College Program.**



1 = Skilled Labor - Male Typed; 2 = Protective Services; 3 = Science/Math-related;  
 4 = Skilled Labor - Female typed; 5 = Health-related; 6 = Health paraprofessional/  
 professional; 7 = Writer or Artist; 8 = Human Services; 9 = Business and Law

\* p < .01; \*\* p < .05; \*\*\* p < .001

**Figure 6.**  
**Mean Expectancies to Attend Graduate or Professional School by Occupational Aspirations.**



1 = Skilled Labor - Male Typed; 2 = Protective Services; 3 = Science/Math-related;  
 4 = Skilled Labor - Female typed; 5 = Health-related; 6 = Health paraprofessional/  
 professional; 7 = Writer or Artist; 8 = Human Services; 9 = Business and Law

\* p < .05; \*\* p < .01; \*\*\* p < .001