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ABSTRACT

A study compared the occupational preferences of middle-school girls and boys and examined whether service learning influences students' career interests. The sample included 717 middle school students at pretesting and 583 students at posttesting. Boys comprised 49 percent of the sample and girls 51 percent. Students attended five different service learning schools located in or near New York City. Students worked at these types of service sites: preschools, elementary schools, senior centers, nursing homes, environmental and community projects, school-based projects, offices, and libraries. During 1992-95, the Student Service Learning Survey was completed by students before and after their service learning experience. It assessed students' beliefs and attitudes about service learning and school in three areas: psychosocial, job-related, and academic. Gender differences were found in the areas of sports, arts, medicine, and education. Service learning seemed related to girls' interests in the field of education but could not be strongly linked to pre-post participation shifts in career preferences. The geographical location of the school was less informative than particular school differences, such as number of male teachers and student selection on the basis of interests and academic histories, particularly in math and science. (Appendixes contain 3 data tables and 19 references.) (YLB)

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Occupational Preferences among Middle School  
Girls and Boys Participating in  
Service Learning  
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Paper presented at the annual meeting of the American Educational  
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Authors Note

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## Abstract

Many times the activities engaged in during childhood reinforce existing gender roles and limit the diversity of occupational skills and competencies learned. At a young age, girls play nurse and teacher while boys play firefighter, police officer, and superhero. While more and more women are choosing traditional 'male' careers, the percentage of males choosing 'female' occupations remains negligible from kindergarten through adulthood. Service learning provides students with diverse opportunities for developing career interests and skills not previously considered and learned. Service can incorporate a wide range of activities such as office work, child care, tutoring, working with senior citizens, planting a garden or cleaning a park. The purpose of the present paper was to compare the occupational preferences of middle-school girls and boys and to examine whether service learning influences students' career interests. In brief, gender differences were found in the areas of Sports, Arts, Medicine, and Education. Service learning seemed related to girls' interest in the field of education but could not be strongly linked to pre-post shifts in career preferences. Results are discussed in relation to the context of the school, its location (urban versus suburban), and the service learning program.

## Occupational Preferences among Middle School Girls and Boys Participating in Service Learning

Remarkable shifts in women's participation in the labor force have occurred over the last two decades. In 1991, for instance, 36% of new physicians were women, compared to 9% in 1971 (Eccles & Hoffman, 1984; Pion, et al., 1996). However, the labor force is still strikingly segregated by sex (Eccles & Hoffman, 1984; Reskin, 1993). While the percentages of women in both professional and technical fields continues to rise, women continue to dominate the service fields. In 1979, 97% of registered nurses were women; 84% of elementary school teachers were women; and 51% of secondary school teachers were women (Eccles & Hoffman, 1984). Men find jobs offering lucrative salaries and independence appealing and often opt for careers in business and technology (Gati, Osipow, & Givon, 1995). They are more likely than women to receive doctorates in engineering, mathematical, physical and computer sciences (Pion, et al., 1996). In 1991, while 37% of doctoral degrees in science were awarded to women, compared to 23% in 1980, women excel men in doctorates earned in psychology, education, and veterinary medicine (Pion et al., 1996). As David Sadker (1996) points out:

In computer science, physics, chemistry, engineering, and business courses, class attendance shows two, three, and even four times more male students. But in the lower-status (and lower-paying) college programs (education, library science, humanities, health care, and home economics) women are the vast majority of students, sometimes reaching levels of 10 and 12 women for each male enrolled (p. 49).

These preferences revealed in adults' participation in schooling and the work force are noticeable early on. As early as the age of five, children become aware not only of the biological differences between boys and girls but of their gender, that is, the socio-cultural-historical differences between men and women. Children at an early age begin to perform their gender roles by choosing gender-appropriate activities and same sex peers (Bem, 1981). In their play, girls play nurse and teacher while boys play firefighter, police officer, and superhero (Huston, 1983). The career stage has been set and the percentage of males choosing 'female' occupations remains negligible from kindergarten through eighth grade (Etaugh & Liss, 1992) and into adulthood (Eccles & Hoffman, 1984; Pion, et al., 1996; Reskin, 1993).

The question facing us is: What is the role of education in supporting young people to explore paths and engage in activities beyond those societally bound to existing gender roles and expectations?

### **The Role of Service Learning**

Service learning is a method by which young people learn through community participation (ASLER, 1993). Service learning is said to have its greatest impact when students engage in meaningful activities which meet real needs of the community, and when students are afforded the opportunity to reflect upon these experiences (Schine, 1989). Service can incorporate a wide range of activities such as office work, child care, tutoring, working with senior citizens, planting a garden or cleaning a park. As

such, young people often participate in activities that may be dissuaded in other contexts. Boys are seen comforting a preschool-aged child who scraped his/her knee. Girls are seen digging up worms to be used for mineralizing the soil for a garden.

After participating in service learning, girls state that they feel more prepared for the "real" world; boys report feeling good about themselves (Hecht & Fusco, 1995). How does service learning prepare students for the "real" world or help them feel good about themselves? Service learning can be viewed as the cross between school-to-work programs, civic education, and humanistic education. Through service, students have the chance to develop new occupational competencies and interests, responsibility and civics (Anderson, Kinsley, Negrone, & Price, 1991; Conrad & Hedine, 1991; Hamilton & Zeldin, 1987; Newmann & Rutter, 1983), as well as a sense of community and an ethos of caring (Diton & Levin, 1997; Harrington, 1992; Hedin & Conrad, 1987).

The purpose of the present paper was to address the following questions. Are the career preferences of middle-school students split along gender lines comparable to those of adulthood? Do similar gender differences exist across the urban landscape? Does service learning play a role in helping students' develop career interests not previously explored? Occupational preferences of girls and boys were compared and gender differences examined within the local context of the school, its

location (urban versus suburban), and the service learning program.

### Method

#### Sample

The sample included 717 middle-school students at pre-testing and 583 students at post-testing. Approximately 75% of the sample were in either the sixth or eighth grade. The total sample was close to equally split between boys (49%) and girls (51%). Students attended five different Service Learning schools located in or near New York City (two in the inner city, one in a borough of Manhattan, and two outside of the city). The types of service sites where students worked included preschools and elementary schools (65%), senior centers and nursing homes (7%), environmental and community projects (12%), school-based projects, such as working on a mural which represented students' ethnic backgrounds (14%), and offices or libraries (2%).

#### Procedure

During the years 1992 to 1995, the Student Service Learning Survey (SSLS) was completed by middle-school students from five different service learning schools both before and after their service learning experience. The SSLS assesses students' beliefs and attitudes about Service Learning and school in three areas: psychosocial, job-related, and academic. The focus here is on job-related responses, in particular, responses to the open-ended question, *What job would you like as an adult?*

#### Data Analysis

Responses were coded using the U.S. Department of Labor's Occupational Outlook Handbook, with modifications as noted below. The Handbook classifies jobs into twenty broad categories (see Appendix A). Within each broad category are listed specific careers. For instance, Veterinary medicine is a subtype of Health Diagnosing and Treating Practitioners. Data were coded according to both broad and specific job categories. Unlike the Handbook, in the present study, lawyers and social scientists were separated into two categories. Due to the infrequency of responses some categories were omitted or combined (Registered Nurses, etc. was combined with Health Technologists, now called Medical Assistants; Non-health Technologists was dropped; Marketing and Sales was combined with Managerial; Agriculture was dropped; Mechanics and Constructive Trades was combined; Production Occupations, Transportation, and Handlers were all dropped). Finally, five categories were added, 1) Undecided, 2) Unspecified, e.g., I want a well paying job, 3) Other, or responses which did not fit into the categories provided by the Handbook, 4) Sports and 5) Business. In short, thirteen of the original Handbook categories were maintained, and five were added.

Students who gave more than one choice were assigned as many codes as the number of choices given. Descriptive analyses were based on the total number of responses students gave. Chi-square statistics were used to compare the percentages of students (rather than responses) in each occupational category across gender, school location, and service learning program. To avoid a



possible gender X service-learning interaction, only pre-service responses were used to examine gender and school location differences. The impact of service learning on career preference was examined by comparing career choices before and after the service experience. Pre-post differences were explored in relation to the service site students worked.

### Results

Pre-survey responses were available from 717 students. Since some students (about 20%) gave more than one response to the question, *What job would you like as an adult?*, the total number of responses exceeded the total number of students. There were 893 career options cited by 717 students at pre-testing. Post-survey responses were available for 529 students who cited a total of 652 career options. As noted, post-survey responses were used only to examine the impact of service learning.

### Gender differences in occupational preferences

Educational research has often documented the stark differences between male and female college and graduate students enrolled in various disciplines (see above quote by Sadker, 1996). To determine whether career preferences for middle-school students were divided along the same gender lines typical in later academic years, the percentages of boys and girls citing computer science, physics, chemistry, engineering, and business versus education, library science, humanities, health care, and home economics were compared. Of the 406 career options cited by boys, 17% could be categorized as traditional male disciplines, 18% female traditions. Conversely, of 466 responses given by

girls, 7% fell into the above male-oriented practices, 44% female disciplines.

Specific differences in preference were significant in four of the eighteen areas - Sports, Medicine, Education, and Arts (see Table 1). Boys most frequently reported wanting a career as a professional athlete (18%). The most common responses were playing professional baseball, basketball, and/or hockey. Only one percent of girls' responses referred to sports, a significant seventeen percent difference, chi-square = 62.51,  $p = .001$ . Conversely, the top choice among girls was a career in medicine (22%). For boys, being a doctor (12%) was second to being an athlete (18%). There was a significant difference in the percentage of boys and girls choosing the medical profession, chi-square = 16.24,  $p = .001$ . Interestingly, while more girls than boys choose the medical profession, the particular type of medicine noted by girls was in closer approximation to that which might be expected on the basis of gender. While many students wrote that they wanted to be a 'doctor,' girls more often specified becoming a Pediatrician (7% for girls, 1% for boys) or a Veterinarian (5% for girls, 1% for boys). In addition, only one boy chose being a Medical Assistant, in particular a health technologist, while 12 girls (3%) preferred this path, most wanting to be a nurse. Four boys noted that they wanted to be a surgeon or cardiologist; only one girl specified being a 'heart surgeon.'

Differences were also found in the Arts and Education. Girls' second most frequent career choice was in the Arts (21%).

Only eight percent of boys' responses fell into this category (chi-square = 20.18,  $p = .001$ ). Arts included occupations in performance arts, visual arts, communications, and music/singing. The first preference of both boys and girls was visual arts, followed by performance arts. However, girls preferred music/singing (19%) over communications (7%) while the reverse was true for boys (3% and 12%, respectively). Girls also preferred a career in education over boys (chi-square = 49.11,  $p = .001$ ). Seventeen percent of girls expressed an interest in the field of education, compared to four percent of boys. Teaching or working with young children was girls' third top choice.

Several other differences are worth noting. First, girls were less likely than boys to choose occupations within Engineering (3% girls, 7% boys), Hard Sciences (4% girls, 8% boys), Service (3% girls, 6% boys) or Business (2% girls, 6% boys). Second, within the Service occupations, 5% of the boys responses included being a police officer, detective, or fire fighter while only 1% of girls' responses were related to 'protective services.' Finally, only two girls reported wanting a career in the Armed Forces or Trades, compared to seven percent, or 28, boys.

#### School and geographical differences in occupational preferences

The next step in the analysis was to determine whether the gender differences which appeared for the entire sample were consistent across schools and school locations. The five service learning schools were located throughout the New York area. Two of the schools were located within New York City (urban), one

school was located directly outside of the city (borough), and the two remaining schools were located in suburban areas (suburban). Career preferences were examined only in the areas where the greatest gender differences were found - Education, Medicine, Arts and Sports (see Table 2). The only significant difference by geographical location was in Education (chi-square = 11.17,  $p = .004$ ). At the suburban schools, 15% of student responses were in Education, compared to 7% at the urban schools and 10% for the borough school. A School difference in the percentage of students choosing education as a career was also found (chi-square = 14.56,  $p = .006$ ). The percentage of girls at one of the two urban schools was noticeably lower (5%) than the total sample of girls choosing education (17%), and the percentage of boys at one of the two suburban schools (9%) was highest in comparison to the total sample of boys choosing education (4%). At neither of these schools were the percentages of boys and girls choosing Education significantly different (urban school, chi-square = .95,  $p = .33$ ; suburban school, chi-square = 2.45,  $p = .12$ ).

School differences were also found in Medicine (chi-square = 24.42,  $p = .001$ ) and the Arts (chi-square = 12.31,  $p = .02$ ). The same urban school with a low preference for careers in education had a low preference for careers in the arts (7%) and the highest percentage of students preferring a career in medicine (30%). In particular, thirty-seven percent of the girls at this urban academy (compared to 22% for the entire sample of girls) chose a

medical profession, a significant gender difference, chi-square = 15.17,  $p = .004$ .

#### Occupational preferences as related to service learning

The final analysis involved examining shifts in students' career preferences after participating in service learning. Percentages of student responses in each of the occupational categories were compared from pre to post testing. Table 3 shows the differences, in percentage, between these two intervals. The only noticeable shift in occupational preference from pre-to-post testing was a six percent increase in girls' responses related to a career in Education (17% at pre, 23% at post). This change was not evident for the boys (4% at pre, 3% at post). Of 108 girls who reported that they would like to be a teacher, 37 (34%) chose an educational career *both* before and after service learning, while 71 (66%) changed their response from pre to post testing (28 chose education *before but not after* service learning, and 43 chose education *only after* participating in service learning.

While this 66% shift cannot be causally linked to service learning, the characteristics of the service experience which *might* be related to this change were explored. Specifically, it seemed plausible that girls who worked in educational service site would be more likely to recognize their preference (or lack of) for a career in the educational field. Differences between students who chose a career in education before and after service, only after service, and only before service were examined in relation to the site (educational or noneducational) that they worked. There was no significant difference between a

these groups of students (chi-square = 5.74,  $p = .13$ ). Working at an educational service site did not appear related to students choosing (or not choosing) a career in education. Characteristics of the service experience which might be related to changes in career interests are still under exploration.

#### Discussion

Labor force trends indicate the rise of women in the fields of science and medicine and the scarcity of men in the field of human services. The findings of the present study concur and offer interesting insights into the career preferences of urban and suburban middle-school students. The top choice of middle-school girls was to become a physician. Interestingly, while more girls than boys chose the medical profession the particular aspect of medicine chosen was in closer approximation to that which might be expected on the basis of gender. A closer examination of girls' responses revealed their preference for pediatrics and veterinary medicine. This finding illustrates the advantage of maintaining the specificity of qualitative responses. A global category, such as medicine, would have masked revealing gender differences. Boys were less likely to specify the branch of medicine preferred, though several cited being a surgeon or cardiologist. Boys were primarily seduced by the public glamour and status of professional athletics, and few chose traditional 'female' careers such as teaching or health care.

The role of service learning in developing students' career interests was difficult to ascertain. An increase in the

percentage of girls choosing a career in education was found after service learning yet this change was not easily accounted for within the context of the specific service experience. Working with young children did not inspire boys to think about a career in education. Teaching as a female profession has a long history. For instance, women's entry into higher education occurred simultaneously with the advent of teacher colleges; the progressive education movement reinforced in teachers the necessity to understand and meet the needs of children - a job designed for women; the end of the school day never coincided with the end of the work day; and teaching remains one of the lowest salaried professional positions (see Walkerdine, 1990). As such, few men are willing to accept the terms, financial, social or otherwise, of teaching as a profession.

The expectation that service learning will impact students' occupational decisions, at least during the middle school years, may be too ambitious a goal. While students may learn about careers through service learning, occupational decisions are complexly linked to societal expectations and norms, cultural and parental values, and students' perceived opportunities and competencies. In fact, recent work illustrated that only 27% of students who participated in service learning during a school semester felt that service learning helped them decide on the job that they were interested in pursuing as an adult. During the first term of the 1996-1997 school year, we added a follow-up question to, what job would you like as an adult?, did service learning help you decide on this job? Of the 70 students who

stated that service learning did help them decide upon the job cited, 31 (44%) wanted to be a teacher or work with children.

Interestingly, boys from one of the two suburban schools in this study had an unusually high preference for teaching and girls at one of the urban schools had a low percentage preferring a career in education and a high percentage choosing the field of medicine. While speculative, the percentage of male teachers at the suburban school was also unusually high (38%), particularly for a middle school. At the urban school, students apply and are selected on the basis of their interests and academic histories, particularly in math and science.

In short, the geographical location of the school was less informative than particular school differences. The role of service learning is yet to be determined and may impact career decisions over time. Longitudinal studies of service learning are scarce and would be beneficial for examining long-range impact. Also, students' perceptions of service learning as related to their career futures is probably best examined through interviewing techniques. Programs which emphasize service learning as an introduction to the world of work may have greater impact in this area, particularly if reflection deliberately links students' service experiences with their job expectations, values, and interests.



Table 1

Career Choices for Boys and Girls

CATEGORY	FREQUENCY / PERCENTAGE		d*
	Boys (n=347)	Girls (n=355)	
Not sure	36 (.09)	24 (.05)	.04
Unspecified	10 (.03)	08 (.02)	.01
Management	04 (.01)	07 (.01)	.00
Engineer/Architect	28 (.07)	12 (.03)	.04
Hard Sciences	34 (.08)	19 (.04)	.04
Lawyer	29 (.07)	43 (.09)	.02
Social Sciences	08 (.02)	15 (.03)	.01
Education	14 (.04)	80 (.17)	.13
Medical	50 (.12)	103 (.22)	.10
Medical Asst.	01 (.002)	14 (.03)	.028
Arts	34 (.08)	96 (.21)	.13
Sports	75 (.18)	07 (.01)	.17
Administrative	03 (.01)	12 (.03)	.02
Service	23 (.06)	14 (.03)	.03
Mechanics & Trades	12 (.03)	02 (.004)	.026
Armed Forces	16 (.04)	00 (.00)	.04
Business	24 (.06)	10 (.02)	.04
Other	05 (.01)	00 (.00)	.01
TOTAL	406	466	

\* d - percentage differences between boys and girls

Table 2

Career Differences across Schools

Category	School			
	Suburban	Urban	Borough	TOTAL
Education	55 (.15)	28 (.07)	12 (.10)	95 (.11)
Medicine	54 (.15)	73 (.18)	28 (.24)	155 (.17)
Arts	50 (.13)	63 (.16)	18 (.15)	131 (.15)
Sports	33 (.09)	42 (.10)	09 (.08)	84 (.09)
Unsure	34 (.09)	18 (.04)	08 (.07)	60 (.07)
Unspecified	08 (.02)	08 (.02)	03 (.03)	19 (.02)
Management	04 (.01)	06 (.01)	01 (.01)	11 (.01)
Engineering	13 (.03)	24 (.06)	05 (.04)	42 (.05)
Hard Sciences	21 (.06)	28 (.07)	06 (.05)	55 (.06)
Law	30 (.08)	35 (.09)	09 (.08)	74 (.08)
Social Science	14 (.04)	08 (.02)	01 (.01)	23 (.02)
Med Assistant	08 (.02)	05 (.01)	03 (.03)	16 (.02)
Administrative	03 (.01)	12 (.03)	01 (.01)	16 (.02)
Service	13 (.03)	17 (.04)	08 (.07)	38 (.04)
Trades	11 (.03)	01 (.002)	03 (.03)	15 (.02)
Armed Forces	06 (.02)	08 (.02)	02 (.02)	16 (.02)
Business	13 (.03)	23 (.06)	02 (.02)	38 (.04)
Other	02 (.01)	03 (.01)	00 (.00)	05 (.01)
TOTAL	372	402	119	893

Table 3

Career Choices for Boys and Girls after Service Learning

CATEGORY	Percentage Difference from Pre-Response*	
	Boys (n=260)	Girls (n=296)
Not sure	3	0
Unspecified	0	0
Management	0	0
Engineer/Architect	-2	-2
Hard Sciences	-1	0
Lawyer	0	-1
Social Sciences	1	-1
Education	-1	6
Medical	2	0
Medical Asst.	0	1
Arts	-2	-3
Sports	2	-1
Administrative	0	0
Service	-1	0
Mechanics & Trades	-1	0
Armed Forces	1	0
Business	-2	1
Other	1	1

\* Calculated by subtracting percentage of responses on the pre from the post; a negative percentage represents a drop in the percentage from pre-to-post.

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Appendix A

Occupational Outlook Handbook

Broad Categories

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Managerial and Management Related Occupations

Engineering, Surveyors, and Architects

Natural, Computer, and Mathematical Scientists

Lawyers, Social Scientists, Social Workers, and Religious Workers

Teachers, Librarians, and Counselors

Health Diagnosing and Treating Practitioners

Registered Nurses, Pharmacists, Dietitians, Therapists and  
Physician Assistants

Health Technologists and Technicians

Writers, Artists and Entertainers

Technologists and Technicians, except Health

Marketing and Sales Occupations

Administrative Support Occupations, including Clerical  
Service Occupations

Agriculture, Forestry, Fishing and Related Occupations

Mechanics, Installers and Repairers

Constructive Trades and Extractive Occupations

Production Occupations

Transportation and Material Moving Occupations

Handlers, Equipment Cleaners and Laborers

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