

Teaching Methods

The Professional Experience of Women Landscape Contracting Graduates from The Pennsylvania State University

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SUMMARY. An undergraduate major in Landscape Contracting was established at The Pennsylvania State University in 1989. Since its inception, women have been consistently underrepresented (13%). From department records and a survey instrument, we examined the academic performance, postgraduate job perceptions, and gender related issues of 319 male and female graduates. Our results showed that women students academically outperformed their male peers in courses specific to the Landscape Contracting curricu-

lum. Survey results indicated that female graduates were represented in all job categories and performed similar types of work as their male peers. In addition, women did not differ significantly from their male peers in regard to job performance and satisfaction levels.

The Pennsylvania State University Department of Horticulture established an undergraduate major in Landscape Contracting in 1989. This was in response to requests from industry personnel, and in agreement with Reisch (1984), who proclaimed that the mission of higher education in agricultural sciences is to meet the expertise for the agricultural enterprise by developing rigorous academic programs. The Landscape Contracting program provides the industry with graduates who are not only trained in horticultural science, but who also have an appreciation for landscape design and are proficient in construction technology. The first Landscape Contracting class graduated in 1991 and included one woman among 23 men (4.2%). Since then the program has seen an overall increase in female graduates to a peak in 1997 (24%) and falling to 6 out of total of 53 (11.3%) in 2000.

The involvement of women in horticulture and landscape design is not new. In the late 19th century, upper-class women in the United States began designing and installing gardens for friends and family. As the social framework expanded, landscaping became a viable profession for women (Brown and Maddox, 1982). Nor is the matriculation of women at The Pennsylvania State University a new phenomenon. In 1872, The Pennsylvania State University started enrolling women students, and by 1915 the College of Ag-

riculture graduated its first female student. At that time, 3 more women were enrolled in the College of Agriculture, one of whom graduated with a degree in Landscape Gardening (Bezilla, 1987).

There are several explanations for women enrolling in the Landscape Contracting major. Changing attitudes by society towards women in the work place have encouraged women to seek academic degrees and careers in professions traditionally dominated by men. Economic factors have also made it necessary for many women to work in order to supplement family income. For others, personal fulfillment has motivated their pursuit of challenging employment. According to the U.S. Department of Professional Employees (1998), in 1900, women constituted 18.1% of the labor force. In 1997, their numbers rose to 46.2%. Likewise, the proportion of women working outside the home has risen from 20.4% in 1900 to 60% in 1997 (U.S. Department for Professional Employees, 1998). It is quite evident from everyday news media that women are expanding their professional horizons. No longer are they relegated to a certain professions like teaching and nursing. Consequently, the differences in fields of study pursued by men and women have narrowed since the late 1960s (Jacobs, 1999). Women have moved most rapidly into occupations where employment opportunities have been expanding. Agriculture is one field women have increasingly entered in recent years. The proportion of American women earning a Bachelor of Science in agriculture increased from 4.2% in 1970 to over 36% in 1995 (U.S. Department of Education, 1998).

The reasons for the unequal proportions of men and women in The Pennsylvania State University Landscape Contracting program had caused concern among some prospective female students and their parents. Their questions centered on issues such as the competitive disadvantages, limited career opportunities, diminished career satisfaction, and lower salaries for women than for men. In addition, a 1999 study of the graduate population in the landscape horticulture program at Ohio State Agricultural Technical Institute found that only 13% are women. A recommendation of that study was for further investigation of the reasons why there are not more female graduates (Voltz and Zimmerman 1999).

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Table 1. Comparison of mean grade point averages (GPA) among five courses completed by male (n = 278) and female (n = 41) graduates from the landscape contracting major at The Pennsylvania State University from 1991–99.

Course number and title	Mean GPA (0–4 scale)		P ^z
	Male	Female	
Hort 269, Residential Landscape Planning	3.31	3.59	0.002**
Hort 368, Planting Design	3.28	3.37	0.338 ^{NS}
Hort 464, Landscape Construction I	3.25	3.44	0.046*
Hort 466, Landscape Construction II	3.15	3.30	0.748 ^{NS}
Hort 468, Landscape Estimating and Bidding	3.14	3.24	0.346 ^{NS}

^zProbability used to compare means within rows were based on *t* tests.
^{NS}, **Nonsignificant, or significant at $P \leq 0.05$ or 0.01, respectively.

Table 2. Comparison by gender (male = 278, female = 41) of mean grade point averages (GPA) for five courses in the landscape contracting major and all courses at graduation for landscape contracting majors at The Pennsylvania State University from 1991–99.

GPA (0–4 scale)	Mean GPA (0–4 scale)		P ^z
	Male	Female	
Cumulative for five courses in the Landscape Contracting major	3.22	3.39	0.028*
At graduation	2.78	2.97	0.018*

^zProbability used to compare means within rows were based on *t* tests.
*Significant at $P \leq 0.05$.

To address these gender based employment and education issues, class records were examined and a survey of program graduates was developed. The objectives were as follows.

- 1) To compare final course grades earned by women and men in five courses specific to the Landscape Contracting major.
- 2) To compare overall academic performance of male and female graduates of the Landscape Contracting major.
- 3) To compare the professional attitudes and successes of female graduates to that of their male peers.
- 4) To compare job satisfaction between female and male graduates who are working in the landscape contracting profession.
- 5) To determine how female graduates perceive the effect of gender on career progress.

Methods

A list of male and female Bachelor of Science in Landscape Contracting graduates, from 1991 to 1999, was obtained from the Pennsylvania State Horticulture Alumni Association. From transcripts, we determined their graduating grade point average (GPA) and their final grades in five courses specific to the Landscape Contracting major. A cumulative GPA for these five courses was also calculated. To assess postgraduate perceptions, a mail survey was developed using methods described by Dillman and Salant (1994). Questions pertained to each of the objectives.

In June 1999, the survey was mailed to all 319 landscape contracting alumni, of whom 278 were male and 41 were female. The initial response rate was 63%, with 201 of the graduates responding. A second copy of the questionnaire was mailed to non-respondents in late August 1999. The response rate increased to 73%. In total, 208 of the men (74%) and 26 (63%) of the women responded.

Compiled data were analyzed using the Statistical Package for Social Sciences (SPSS for Windows; SPSS, Inc., Chicago, Ill.). Descriptive statistics were used in the analysis since the total study population was surveyed. Responses for each question were grouped and frequency scores, percentages, and means

were calculated for each gender. *T* tests were used to compare variables. Tests were set to the 0.05 significance level and 95% level of confidence.

Results

ACADEMIC PERFORMANCE. Evaluation of mean grade points in the five courses specific to the major indicated that female students significantly outperformed male students in two of these courses, and the trend was the same in all courses (Table 1). The cumulative GPA for the five courses specific to the major and the GPA at graduation were

Fig. 1. Occupational status of landscape contracting graduates of The Pennsylvania State University in the landscape industry, by gender.

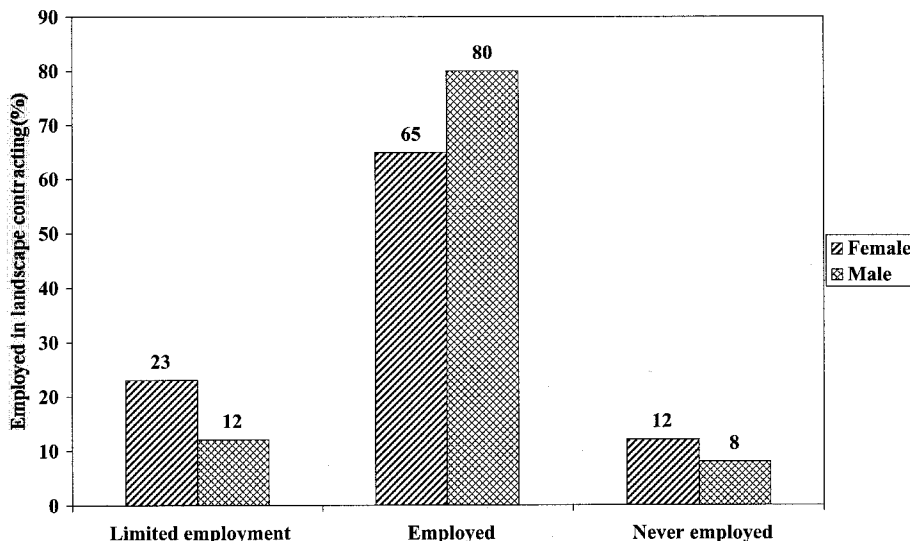


Table 3. Percentage of Landscape Contracting graduates (male = 208, female = 26) from The Pennsylvania State University employed by landscape contracting companies from 1991–99, according to position held.

Landscape contracting position held by graduate	Proportion of graduates responding (%)	
	Male	Female
Manager	31.6	14.3
Foreperson	19.9	9.5
Supervisor	17.6	14.3
Designer	14.7	33.3
Laborer	5.9	9.5
Other	10.3	19.1

significantly higher for women than that for men (Table 2).

WORKING IN THE LANDSCAPE INDUSTRY. The occupational status for both gender groups of Landscape Contracting graduates was similar (Fig. 1). About 80% of the men and 65% of the women are currently employed in the landscape industry. More women (23%) than men (12%) were employed for a period of time and later decided on a career change, and slightly more women (12%) than men (8%) were never employed in the landscape industry since graduation.

Of the graduates that are currently working in the landscape industry, 65.5% were employed by landscape contracting companies, 22% were self-employed, 4.9% were combining more than one of the listed types of employment, 4.6% were partners in landscape businesses, 2% worked for governmental agencies, and 1% worked as teachers. Men were more likely than women to be self-employed or partners in businesses. Few men or women worked for governmental agencies or in teaching. Consequently, the remainder of this study focused on the group of graduates that were employed by landscape contracting companies.

Women graduates were represented in all landscape contracting job categories (Table 3), although the highest percentage of women (33.3%) were in designer positions, while most men (31.6%) were in manager positions.

Women graduates performed all types of work within landscape contracting companies (Table 4). Significantly more women than men were employed in retail garden center and landscape design categories. There were no differences in the other categories.

The methods used by graduates to find their current jobs are illustrated in Fig. 2. While women relied heavily on advertisements (39%), such as those found in professional journals, World Wide Web Sites, etc., to find employment, men relied mainly on networking and referrals (41%). Both genders (33% of the women and 34% of the men) credited university placement services and on-campus recruiting as effective resources to find a job.

There was no significant difference in graduates' perception of difficulty of finding their jobs (Fig. 3). The majority of the graduates (70% of the women and 80% of the men) felt that finding jobs after graduation was quite easy or not difficult.

JOB AND CAREER SATISFACTION.

Based on a Likert scale (Likert, 1932), where responses ranged from strongly dissatisfied (1) to strongly satisfied (5), there were no significant differences between men and women in job and career satisfaction. Both men and women were equally satisfied with their current jobs (mean = 3.87) and with choosing landscape contracting as a career (mean = 3.72). Likewise, both men and women appeared to be equally satisfied with several aspects of job satisfaction including achievement (mean = 4.36), praise (mean = 3.96), and salary (mean = 3.27).

GENDER-RELATED ISSUES. Women were asked to rate the effect of gender on career success. Based on the following choices: easier, no difference due to gender, harder, or no opinion, 20% of the women respondents reported that their gender made it easier for them to succeed, but 30% did not perceive gender as a factor affecting their profes-

sional success, and, 45% indicated that gender made it harder for them to succeed in a male-dominated field. Whereas 5% had no opinion concerning the matter.

Working mainly with men in the landscape industry, 65% of the women graduates reported that they encounter gender related problems with laborers, supervisors, managers, and clients. According to their responses to an open-ended question, women perceived that men were uneasy with having them in the work place, especially if women were in middle and higher management levels. Women also indicated that they had to work hard to prove their abilities to perform as well as their male peers. However, once they succeeded in establishing professional respect, they did not encounter further problems.

Provided with a list of professionally related issues, women graduates were asked to choose the one item they perceived as the most important to women entering the profession. Job demands was the most frequently chosen (35.7%), followed by gender bias (17.9%), and third place was shared by interaction with coworkers and salary (14%).

As a final evaluation of women graduates' satisfaction with their career choice and professional success, using the Likert scale (Likert, 1932), they were asked to rate their level of agreement with recommending the landscape contracting profession to other women. About one-third reported that they would strongly recommend it. Likewise, 50% would moderately recommend, 17% would moderately not recommend, while none would strongly not recommend

Table 4. Comparison by gender (208 males, 26 females) of the type of work performed by graduates of the Landscape Contracting program at The Pennsylvania State University. Some respondents perform more than one type of work for their employer.

Type of work	Proportion of respondents (%)		P ²
	Male	Female	
Plant installation	60	68	0.473 ^{NS}
Landscape management	48	37	0.345 ^{NS}
Landscape design	47	74	0.028*
Hardscape installation	42	53	0.363 ^{NS}
Sales	42	74	0.087 ^{NS}
Public relations	34	32	0.863 ^{NS}
Pest management	26	21	0.463 ^{NS}
Nursery production	9	5	0.442 ^{NS}
Retail garden center	7	21	0.049 ^{NS}

²Probability used to compare means within rows were based on *t* tests.

^{NS}, *Nonsignificant or significant at *P* ≤ 0.05, respectively.

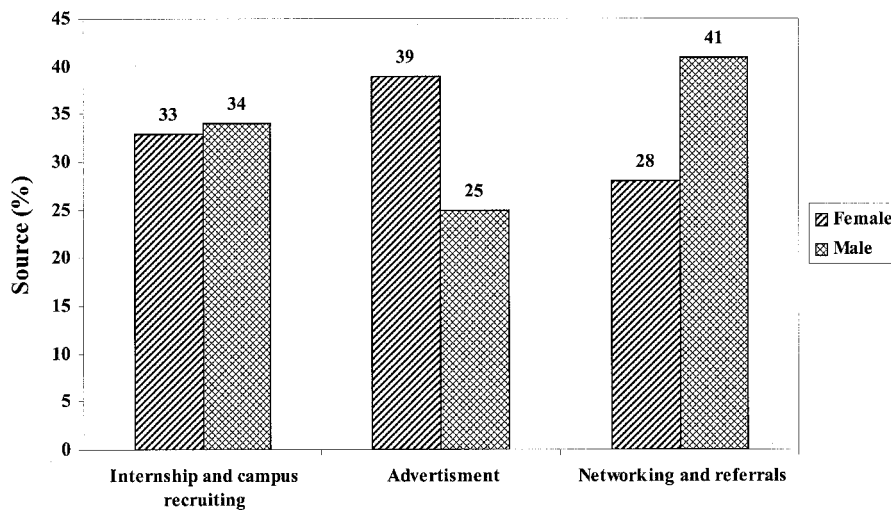


Fig. 2. Sources of jobs for male and female Landscape Contracting graduates of The Pennsylvania State University.

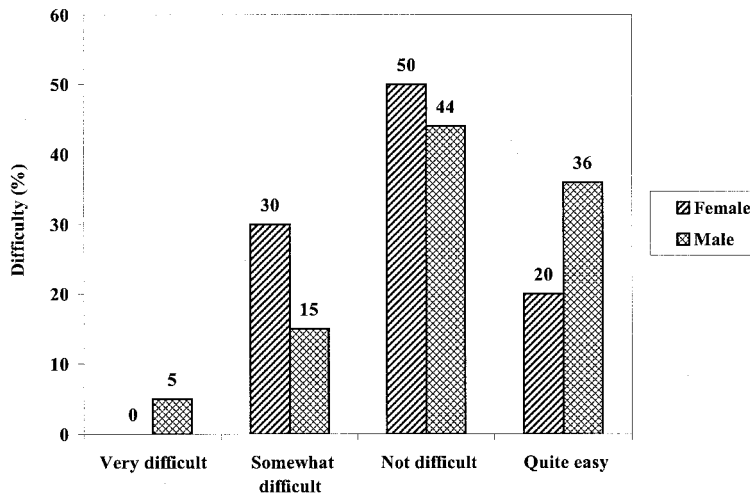


Fig. 3. Degree of difficulty in finding a landscape-contracting job after graduating from the Landscape Contracting program at The Pennsylvania State, by gender.

the profession to other women students.

Conclusion

To address concerns of incoming women students and their parents about low numbers of women in the Landscape Contracting major, we examined departmental academic records and surveyed graduates of the program. The academic records indicated that women outperformed men in courses specific to the major and had higher graduation grade point average.

Survey results showed that women graduates were represented in all job categories in the landscape industry. They performed similar types of work and had similar job responsibilities as their male peers. The highest percentage type of work for women was in

design positions (74%), while for men it was in management (64%). Women graduates did not differ from men graduates in regard to overall job satisfaction: specifically with praise or salary.

While about half of the women graduates perceived their gender to have positive or no effect on career success, the other half perceived their gender initially had a negative effect, but diminished after professional respect was earned. Further, women graduates listed job demands as the most important job characteristic that women entering this industry need to be aware of, especially long hours, seasonal demands, and physical effort. While women graduates perceived some problems, the majority would still recommend this profession to other women.

Through an open-ended question, the positive feedback from the women graduates in this study indicated that the program provided them with valuable training as well as realistic expectations of the landscape industry. Women graduates were not only able to work competitively with men, but also had similar satisfaction levels. And although they encountered problems, that did not deter the majority of them from recommending the profession to other women.

Our results indicated that while the numbers of women in Landscape Contracting may be low, these low numbers should not be misinterpreted by either potential students or their parents as to the inability of women to compete academically or to their post graduation satisfaction and success. It is important that women students' career choices are not based on gender stereotypes, but rather on their abilities and potential to succeed in this industry.

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