

Measuring Employment Success and Occupational Program Satisfaction

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Cabrillo College surveyed vocational education students who completed a program (Completers) and those who took substantial coursework in a field but did not receive a program award (Leavers). Students returned 579 surveys with a 37% response rate. Over 60% of Completers stated their goal was to obtain a vocational certificate or degree as compared to 40% of Leavers. Leavers stated lack of time, finances, job changes, and personal matters as top reasons for not continuing. Most respondents reported high satisfaction with all programs. Employment did not significantly differ by completion status. Unemployment of respondents was about twice that of Santa Cruz County. Our 1998 survey suggested that Completers earned significantly higher incomes than did Leavers but data from 1999 were inconclusive. Logistic regression showed that among respondents, program completion, higher program satisfaction, and more variable work hours planned per term increased the probability of working in their field (Nagelkerke $R^2 = 0.133$). Many unmeasured factors may contribute to the likelihood of working the field of study such as personality traits, level of social support, and job search skills. Computer and interpersonal skills were stated as most needed after leaving Cabrillo with much variability by program.

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Introduction

Vocational education programs receive public funding on the premise that society as a whole benefits from an educated populace through increased global economic competitiveness, reduced crimes of desperation, lowered need for public assistance, and more content workers (Fusch 1997; Masri 1999; CDE and CCCCCO 2000). This view is exemplified in research indicating that AFDC recipients who obtained college degrees had higher incomes, greatly reduced rates of being on aid, and higher job satisfaction, which leads to job retention (Kates 1996). In addition, job market predictions call for an increase in the level of skills needed for future jobs and therefore increase demand for quality training programs (Deavers and Hattiangadi 1998).

To promote the efficacy of public vocational education, Congress passed the Perkins Act in 1990 with amendments in 1992 and 1998. The requirements of this act included monitoring core measures such as program completion and placement in the field of training (Stecher and Hanser 1992; CDE and CCCCCO 2000). Cabrillo College's Dean's Office of Occupational and Community Development commissioned the Planning and Research Office to conduct annual follow-up studies of occupational program graduates and those who left the program before completion in response to Perkins Act reporting requirements. Follow-up studies occurred in 1998 and again in 1999. The study explores the core measures defined by Perkins and other measures including the reasons students chose Cabrillo and why they left if they did not complete the program, their satisfaction with the program and ideas for improvements, and employment and wage level with comparisons between Completers of a program and Leavers, or those who did not complete a program. The findings from this study will be useful for institutional planning at the program level.

Methods

A total of 1,557 surveys were administered by two mailings and three phone calls to 1512 occupational program students (41 students were enrolled in two programs and 2 were enrolled in three programs and received a survey for each program). None of the 43 students enrolled in multiple programs were program graduates. Occupational program students were those who completed an occupational program or who had completed at least 10 units of course work in a program. Students were divided into 313 (20.7%) Completers, those who received a program award, and 1199 (79.3%) Leavers, those who took at least 10 units but did not receive an award. Students surveyed in 1998 were excluded from this survey. For the 1999 study, all Leavers from other years were selected, which resulted in a larger number of Leavers than usual.

Students enrolled in multiple programs were counted only once for demographic data such as gender and employment but for program specific questions, the analysis included each response. In some cases, 1998 data is compared with 1999 data.

For hourly or annual wage information, some respondents only provided one or the other and not both. Annual wages for these cases were estimated by multiplying the hourly rate by 2080 hours (based upon a 40 hour work week and a 52 week year) and hourly wages by dividing the annual rate by 2080 hours.

Data were analyzed with SPSS 8.0.1 and 10.0.5.

Results

Students returned 579 surveys for a 37% return rate. Of those who returned surveys, Completers returned 190 (60.7%) of 313 surveys and Leavers returned 389 (31.3%) of 1244 surveys.

A significantly higher proportion of Completers indicated their goal was to obtain a transfer degree with or without transferring (63.2%) than Leavers (31.9%) ($z = 7.03, p < 0.0005$). The top reasons Leavers indicated that they left were time restraints, finances, job changes, and personal reasons. There is no significant difference between overall Completer and Leaver satisfaction in either year using the Mann-Whitney U-test at the 0.05 level of significance (Figure 1). Within departments, no significant differences were found between Completers' and Leavers' reported satisfactions using the Mann-Whitney U-test at the 0.05 level using Dunn-Sidak's method. Some comparisons were not carried out due to inadequate sample sizes.

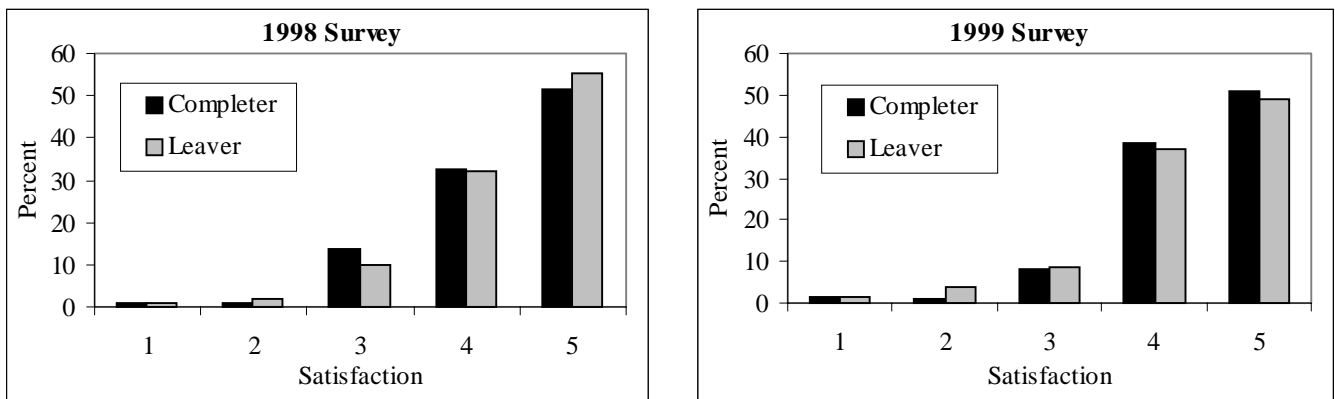


Figure 1. Proportion of satisfaction responses by completion status.

There is no significant difference in employment status between Completers and Leavers in either survey year (Table 1; $z = 0.38, p = 0.71$ for 1999; $z = 1.34, p = 0.18$ for 1998). Of those who were employed, 75.5% worked in Santa Cruz County where Cabrillo College is located. Unemployment for those who responded in 1999 was about 13.5%. California's seasonally

adjusted rate was about 6% in the Spring of 1999 (Bureau of Labor Statistics) and the County's rate of about 7% (California Employment Development Department).

Table 1. Employment Status.

	Completer		Leaver		All	
	#	%	#	%	#	%
1999 Survey						
Employed	145	76.7	259	69.4	404	71.9
Self-Employed	17	9.0	65	17.4	82	14.6
Unemployed	27	14.3	49	13.1	76	13.5
Total	189	100	373	100	562	100
1998 Survey						
Employed	79	85.9	295	79.7	374	81.0
Unemployed	13	14.1	75	20.3	88	19.0
Total	92	100	370	100	462	100

Median hours worked by Completers and Leavers were equivalent. Annual and hourly incomes are shown in Table 2. Using a one-tailed Mann-Whitney U-test, Completers current annual incomes are not significantly higher than Leavers in the 1999 survey year ($p = 0.159$). Significant differences do occur in annual incomes in 1998 ($p = 0.037$) and hourly incomes in both years ($p = 0.0251$ for 1999 and $p = 0.015$ for 1998). However, incomes for 1999 do not significantly differ between Completers and Leavers within each program where comparisons were possible (Figure 2).

A logistic regression model explored factors that increased the probability that a respondent would be working in their field of study. Using a likelihood-ratio forward stepwise selection, several variables were used as possible predictors of success defined as working in your field.

These predictors were Completer/Leaver status, occupational program, program satisfaction, GPA, mean units attempted per term, the standard deviation of units attempted per term, mean work hours planned per term, the standard deviation of work hours planned per term, gender, ethnicity, and age. Data were screened for multicollinearity.

Table 2. Annual and Hourly Income

Wages	Completer				Leaver				All			
	Mean	Median	sd	n	Mean	Median	sd	n	Mean	Median	sd	n
1999 Survey												
Beginning Hourly	14	11	9	143	12	10	10	226	13	10	9	369
Beginning Annual	26,903	23,227	18,364	142	22,041	17,680	15,276	221	23,943	20,280	16,698	363
Adj Beg Hourly	17	15	9	146	16	13	10	259	15	11	11	355
Adj Beg Annual	32,672	28,165	19,398	146	31,767	25,350	22,436	259	28,943	21,667	25,261	354
Current Hourly	17	12	12	141	14	10	10	214	16	13	10	405
Current Annual	31,620	24,765	27,594	141	27,171	19,915	23,490	213	32,093	26,478	21,370	405
1998 Survey												
Current Hourly	18	16	8	66	16	14	10	238	17	14	10	304
Current Annual	34,321	30,000	15,824	68	29,920	30,000	15,595	247	30,870	30,000	15,724	315

Adj Beg = Adjusted Beginning

Adjusted wages are in 1999 dollars using Urban Wage Earners' and Clerical Workers' CPI (Dept of Labor).

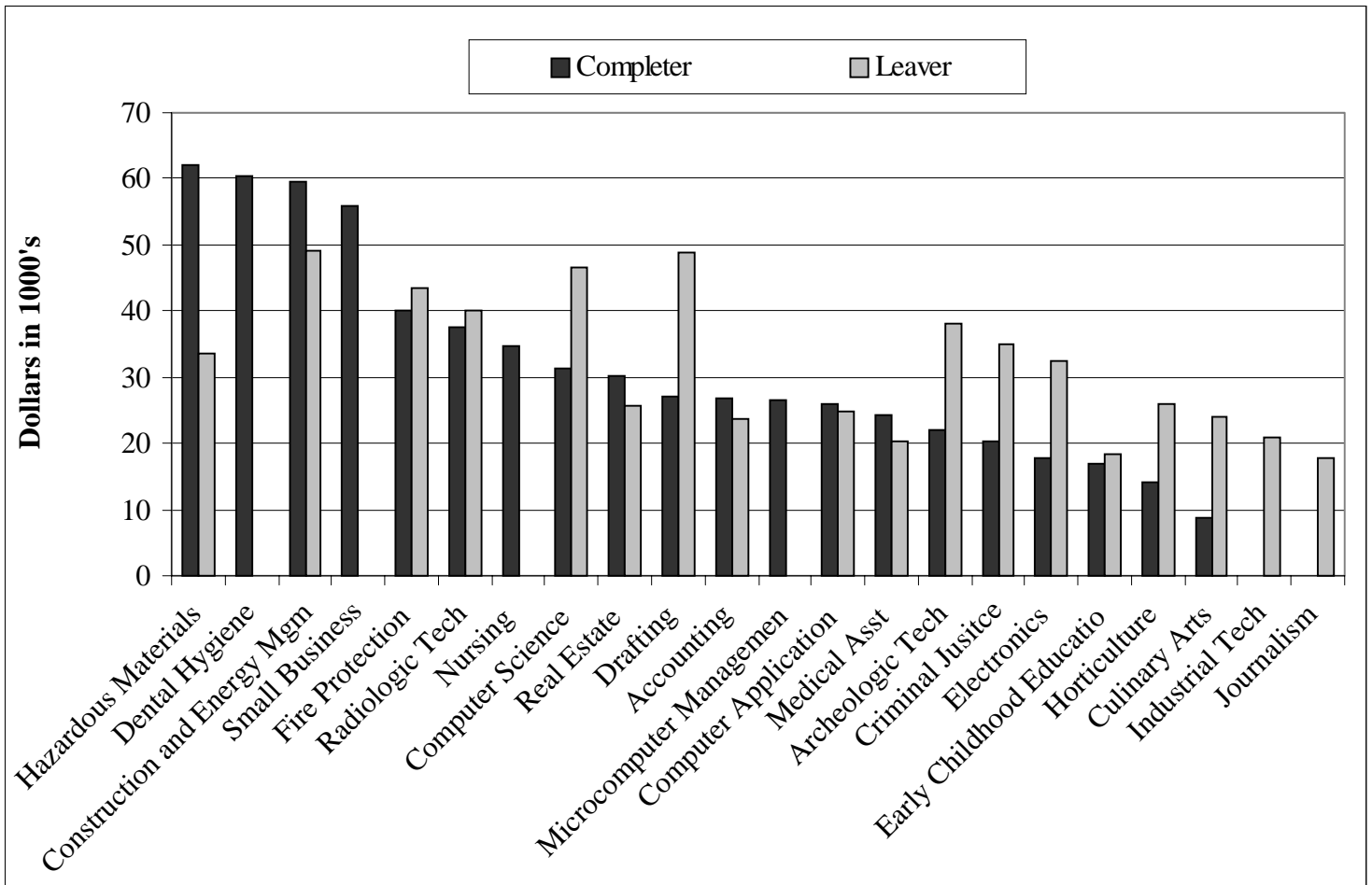


Figure 2. Current median annual incomes of respondents by program.

The final model had a Nagelkerke R^2 of 0.133 and utilized the standard deviation of work hours planned per term (X_1), Completer/Leaver status (X_2), and program satisfaction (X_3). Using the model, the probability of working in the field (P) is:

$$P = \frac{1}{1 + e^{(1.395 - 0.049X_1 - 1.121X_2 - 0.257X_3)}}$$

where,

X_1 , = standard deviation of planned work hours per term,

X_2 , = completion status where 1 indicates completion and 0 indicates lack of completion,

X_3 , = program satisfaction on a scale from 1 to 5 with 5 being highest.

Most (72.3%) respondents indicated that they were interested in taking more classes in the future. Respondents indicated that after leaving Cabrillo they needed computer skills most (42%) followed by interpersonal skills (39%), reading/writing skills (13%), and math skills (6%) with much variability within programs. For instance, those in computer related fields such as Drafting and Computer Science indicated computer skills much more frequently than other skills while service fields such as medical fields and Horticulture indicated interpersonal skills much more frequently than other skills. In no cases were reading/writing or math skills indicated with high frequency.

Discussion

One of the core measures of success is obtaining a degree or certificate. Having a student who is focused on that goal in one field may increase the likelihood of program completion. We observed that Completers were more likely to have obtaining a vocational certificate or degree as a goal and to have performed coursework in only one vocational area. Leavers stated personal enrichment goals more frequently and all multiprogram students were Leavers.

Employment did not differ significantly between Completers and Leavers and their unemployment rates were about double the prevailing rates in Santa Cruz County. For Completers and many Leavers, this high unemployment may be due to these students just entering the workforce.

Students and society in general may hold the expectation that completion of a program will lead to higher incomes than otherwise available. Completers had higher hourly incomes than Leavers did in both years but only higher annual incomes in the 1998 survey. Looking for income differences within department we do not see significant differences in those departments where comparisons were possible. On the other hand, our data is incomplete as we did not receive responses from all students. Based upon available data, it seems we cannot guarantee a higher annual income for program completers. However, the logistic model suggests that we can say that program completion can significantly enhance the probability of working in a student's chosen field. Other measured factors that increase this probability are increased satisfaction with the training program and increased variability in planned work hours. The influence of planned work variability is intriguing and may be related to a willingness and ability to adjust schedules as needed to attain desired outcomes, which in turn would depend upon financial and social resources.

While the model points out some important variables to consider, it does not account for the majority of variation in whether one is working in their field or not. Other possible influential variables not measured include factors such as motivation, self-confidence, effectiveness of employment contacts, job search skills, personal support and finances, availability of employment in a field, and desirability of pay rates in a field.

Computer and interpersonal skills rated very high as needed skills in the workplace with service jobs needing more interpersonal skills and technical jobs needing more computer skills. The academic skills of reading/writing and math were not strongly indicated as needed skills. However, it may be that the language skills of reading and writing feed into interpersonal skills and the analytic skills of math feed into computer skills and so have an indirect calling in many workplaces.

Limitations

When interpreting these data, it must be remembered that we only know about those who chose to respond. The majority of students did not respond and those that did respond did not always answer all the questions. Because of these concerns, caution must be exercised when using this data.

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