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ABSTRACT

Fitchburg State College, Massachusetts, conducted a study to determine the relationship of undergraduate degree work with the actual career choice of students. Study instruments were: a revision of the "Occupation and Career Interest Survey" developed in Indiana, a test of major fields of study based upon the "Higher Education General Information Survey Taxonomy," and a list of occupation and career titles and groupings, based upon the occupational listings of the Bureau of the Census. The survey population included all bachelor degree recipients for June 1978 at Fitchburg State College. Usable responses were obtained from 404 students. Data and analyses are presented on the following areas: respondent's age and marital status, high school location, parents occupation and educational attainment, grade point averages, major fields of study, expected highest level of education, career plans and aspirations, undergraduate major and career relatedness, desired career work environment, factors involved in career decision, reasons for changing career choice, expected career residence location, and evaluation of career counseling received. The findings suggest that the concept of career guidance and how students receive information should be reexamined, especially since 44 percent seek careers in education and previous year graduate studies show that only 27 percent gained employment in education. (SW)

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EDUCATIONAL PLANS AND CAREER CHOICES OF BACHELOR'S DEGREE RECIPIENTS AT FITCHBURG STATE COLLEGE

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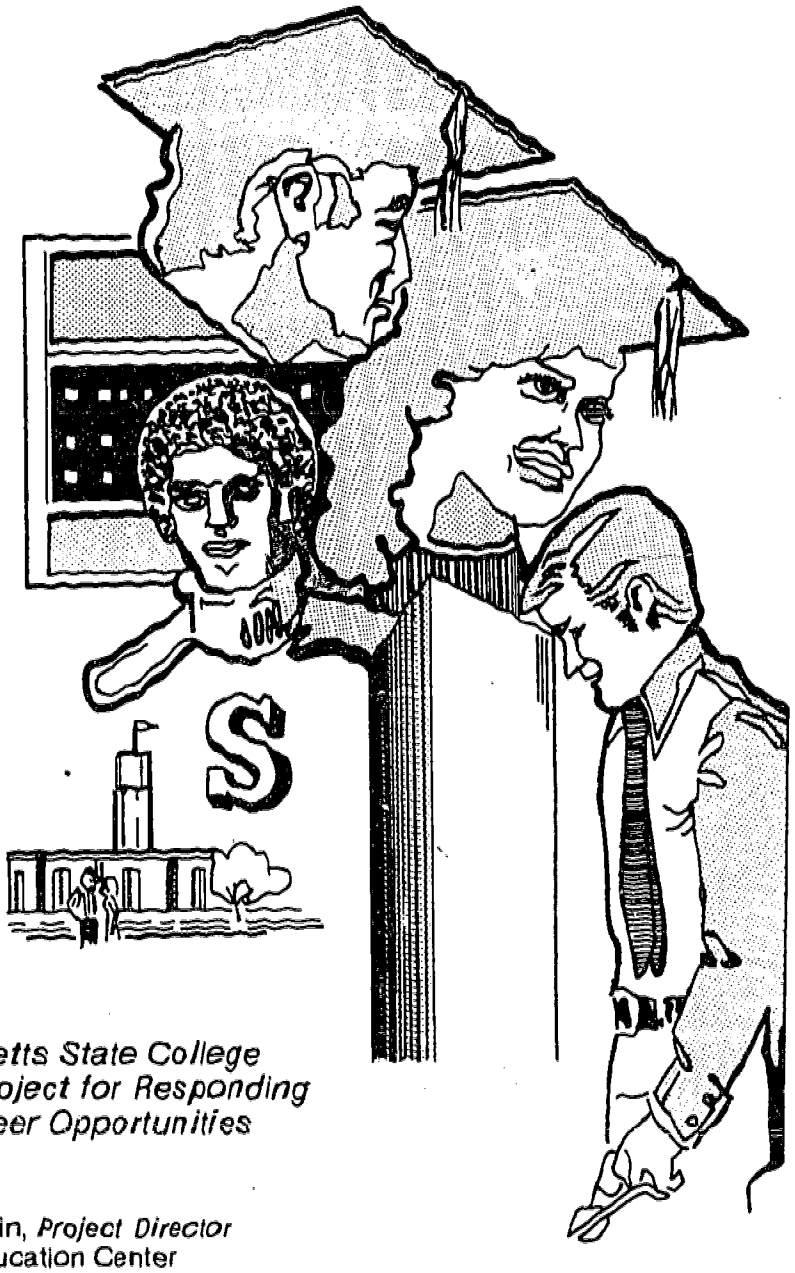

Massachusetts State College
Planning Project for Responding
to New Career Opportunities

Richard J. Lavin, *Project Director*
Merrimack Education Center
101 Mill Road
Chelmsford, Massachusetts 01824

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Prepared by:

Merrimack Education Center
101 Mill Road
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PREFACE

Volumes have been written on the subject of work and all the tangential factors involved. In this highly technologically-oriented society, the entire fabric of citizenry seems to be enmeshed in the need for the work force to adapt to new jobs seemingly as quickly as the very development of the technology that creates them.

The problems that result are significant and complex. These include worker productivity, motivation, dissatisfaction, and ever present unemployment. There is a growing sense of the need for a satisfaction of individual as well as organizational needs in accomplishing the task.

One of the partners in the collaborative study of the field of work is the higher education sector. Not only are colleges and universities involved in "in-service" education of managers and employees in industrial and commercial areas, the higher education sector is a prime preparatory or "pre-service" base for many professional and career areas.

In the forefront of this pre-service training are the public colleges and universities which, perhaps by virtue of their history, have evolved to show concern for the employment needs of their student clientele.

Therefore, it is appropriate that within the Commonwealth, Fitchburg State College, with a long history among the numerous institutions of higher education in this State, has initiated a study that attempts to relate the pre-service, or the undergraduate degree program of studies with the actual career choice.

There is real significance in this study. First, some of the data has meaning in relation to the numbers of students and the programs offered on the campus. Based on the results of the study, the Commonwealth has some meaningful information as to projections and background training of manpower in a number of areas.

Secondly, the study which follows is a pilot study of a more comprehensive study that is recommended for implementation among all the ten state colleges. Since the state college segment of the public sector includes more than thirty thousand students, nearly all of whom are residents of the Commonwealth, the synthesis of data from the more comprehensive study will show significant planning bases for State agencies and industries alike.

The study was conducted for Fitchburg State College by the Merrimack Education Center, itself a pioneer in collaborative research and training, of Chelmsford, Massachusetts. Dr. Robert Greenberg of Indiana University coordinated the study for the Center, and Mr. Mark Whitmore of the College Admissions Staff was responsible for support at the College. Other College staff who cooperated included Mr. Roy Hall, III, Mr. Ray Bryant, and Ms. Pamela Fiorentino.

Through these combined efforts we hope that the results of this study are of value in both application on this Campus and systemwide.

Francis J. Pilecki
Academic Dean
Fitchburg State College

INTRODUCTION

College-level manpower analysis involves, at some point, the investigation of the supply of college graduates for the work force. Projections of enrollments or degrees granted are generally used to estimate this supply factor. However, when the manpower analyst attempts to relate degrees granted to the labor market, he finds that there are few one-to-one relationships between a college degree and a career.

Even where a degree appears to be closely related to an occupation, we are not certain what proportion of the recipients of the degree aspire to that occupation. For example, the assumption that all elementary education majors plan to become teachers might result in an overestimation of the teacher supply. Attempts to relate more general degrees, such as those in the liberal arts, to specific occupations become even more problematic.

A 1974 survey of new chemistry bachelor's degree recipients, conducted by the American Chemical Society[1], found that only 24.5 percent of the respondents had found full-time employment in their field. An additional 28.1 percent had become graduate assistants, 17.3 percent had engaged in part-time or summer employment, 7.3 percent were employed outside their fields, 4.9 percent were unemployed, 2.0 percent were in the military, Peace Corps, etc., and 15.3 percent were not seeking employment. The data of the survey indicate that only about one-quarter of the chemistry graduates had found employment in their field, but give no indication as to how many other chemistry majors had sought or desired such jobs.

The vagaries of labor market demand are not, by any means, the only factors influencing whether or not an individual's career is highly related to his postsecondary education. Indication that the intentions or aspirations of college graduates themselves are important factors in determining supply is contained in a recent research report by Bisconti titled College Graduates and their Employers.[2] Bisconti found that of 1961 freshmen who had completed bachelor's degrees, nearly two-thirds of the male business administrators had not majored in business and four-fifths of the teachers had not majored in education. It was also found that the career aspirations of students shortly before graduation were highly correlated to the careers they eventually pursued.

A follow-up study of the graduates of Saint Peter's College by Malnig[3] and Morrow found that there was a wide variety of occupations pursued by bachelor's degree recipients from all academic areas. Not only liberal arts and social science graduates, but also those from business and other more traditionally job-related programs had become occupationally dispersed.

This is not to say that there are not identifiable relationships between college degrees and career aspirations. In The Market for College-Trained Manpower,[4] Freeman reported that, at the graduate level, there was a relationship approaching a one-to-one correspondence between educational preparation and work. Freeman also found that a majority of undergraduates expected to work permanently in the area of their college major. However, such career aspirations and future plans for education differed markedly when the undergraduate major field of study was taken into account.

The value of follow-up studies of college graduates is becoming increasingly recognized. Some are conducted by professional organizations such as the Engineers Joint Council, the American Chemical Association, and the Association of American Geographers. Follow-up studies are also frequently conducted by individual colleges and universities, or by specific departments within the institutions. Such studies, particularly those conducted on a regular basis (e.g., annual surveys of graduates) or those of a longitudinal nature (e.g., studies conducted on the same group of graduates over a long period of time) provide useful information concerning the workings of the labor market.

In order to assess the implications of college enrollments and degrees for manpower supply in Massachusetts, it is of value to identify the immediate and long-range occupations, educational, and career plans and aspirations of students about to graduate. As these plans and aspirations are related to number of degrees granted, estimates of manpower supply can be more meaningfully developed.

The Instrument

In 1975 the "Occupation and Career Interest Survey" was developed as a part of the Indiana College-level Manpower Study. The Survey was used on a statewide basis in Indiana and was found to provide information which was useful in the analysis of manpower supply as well as in providing information for academic planners and career planning and placement counselors.

It was determined that, with appropriate revisions, this questionnaire could be administered successfully within the Massachusetts State College System. Fitchburg State College was

chosen as the site for a pilot run of the "Occupation and Career Interest Survey" and the Indiana Questionnaire was revised with the consultation of the director of the Indiana project.[5]

Two detailed lists accompanied each questionnaire. The first dealt with major fields of study and was based upon the HEGIS* Taxonomy for programs currently available at Fitchburg State. The second list concerned occupation and career titles and groupings, and was based upon the occupational listings of the Bureau of the Census. A copy of the complete questionnaire is contained in the Appendix to this report.

The Survey Population

The survey population for this study included all the students at Fitchburg State College who received a bachelor's degree in June, 1978. They were to complete the questionnaire as part of the procedures required for graduation. Out of a total population of 587 graduates, 404 or 68.8 percent responded to the questionnaire in a usable manner.

Analysis of the Data

Responses to the questionnaire were computer coded and analyzed by means of the Statistical Package for the Social Sciences (SPSS) at Boston College. In some cases it is particularly interesting to compare the Fitchburg State College responses with those of the 1975 Indiana findings.

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*HEGIS = Higher Education General Information Survey

DEMOGRAPHICS

A total of 404 usable questionnaire responses were received from the 587 bachelor's level June graduates of Fitchburg State College, a response rate of 68.8 percent. Of these, 100 respondents were male (24.8 percent) and 304 were female (75.2 percent). The following report is based upon the responses of those 404 graduates and, because of the high response rate, should be highly representative of the entire population of the College's graduates.

* * * * *

TABLE 1: AGE OF RESPONDENTS

	Male		Female		Total	
Age Range	N	%	N	%	N	%
20-21 yrs	31	31.0	114	37.5	145	35.9
22-23 yrs	37	37.0	155	51.0	192	47.5
24-29 yrs	22	22.0	17	5.6	39	9.7
30 or older	10	10.0	18	5.9	28	6.9
Total	100	100.0	304	100.0	404	100.0

Table 1 represents the age ranges of the graduates of Fitchburg State College. As can be seen, there is a fairly wide variety in the ages of the graduates with the males significantly older than the females of the group.

* * * * *

TABLE 2: MARITAL STATUS OF RESPONDENTS

	Male		Female		Total	
Marital Status	N	%	N	%	N	%
Not Married	80	80.0	262	86.2	342	84.7
Married	20	20.0	42	13.8	62	15.3
Total	100	100.0	304	100.0	404	100.0

Table 2 presents the marital status of the survey respondents. Only 15.3 percent were married at the time of graduation.

* * * * *

TABLE 3: LOCATION OF HIGH SCHOOL RESIDENCE

	Male		Female		Total	
Location	N	%	N	%	N	%
Within Mass.	90	90.0	281	92.4	371	91.8
Outside Mass.	9	9.0	20	6.6	29	7.2
Outside U.S.A.	1	1.0	3	1.0	4	1.0
Total	100	100.0	304	100.0	404	100.0

Table 3 presents the locations of the graduates' homes while they were attending high school. Over 90 percent of both males and females had lived in Massachusetts during their high school years with 7.2 percent from out of state and only one percent from other countries.

* * * * *

TABLE 4: PARENTS' OCCUPATIONS, BY OCCUPATIONAL CATEGORY

	Fathers' Occupations		Mothers' Occupations	
Occupational Category	N	%	N	%
Professional, technical, kindred	110	30.9	87	24.0
Managers, officials, proprietors	37	10.4	9	2.5
Sales workers	25	7.0	20	5.5
Clerical workers	5	1.4	79	21.8
Craftsmen, foremen, kindred	86	24.2	3	0.8
Operatives	20	5.6	8	2.2
Service workers	37	10.4	34	9.4
Laborers	26	7.3	5	1.4
Farmers, farm workers	2	0.6	0	0.0
Military workers	8	2.2	0	0.0
Housewives	---	---	118	32.5
Total	256	100.0	363	100.0

The data of Table 4 present the primary occupations of the respondents' parents, classified by Census Bureau occupational categories. Slightly more than 30 percent of the fathers were in professional, technical, or kindred fields while 24 percent of the mothers were in this category. The most frequently reported specific occupations were as follows:

Fathers		Mothers	
Foremen	28	Housewife	118
Nonfarm labor	26	Secretary/stenography	42
Engineer	24	Registered nurse	33
Protective service	17	Elementary school teacher	17
Secondary school teacher	16	Sales clerk (retail)	15
Sales (other)	14	Clerical (other)	12
Metalworker	12	Food service	12
Electrician	11	Bookkeeper	11
Construction (other)	11		
Office manager	10		

* * * * *

TABLE 5: PARENTS' EDUCATIONAL ATTAINMENT

	Fathers		Mothers	
Educational Level	N	%	N	%
Less than high school diploma	93	23.7	80	20.6
High school diploma	144	36.6	191	49.1
Associate degree	56	14.2	50	12.9
Bachelor's degree	52	13.2	47	12.1
First professional degree	10	2.5	9	2.3
Master's degree	27	6.9	4	1.0
Specialist degree	5	1.3	8	2.1
Doctorate	6	1.5	0	0.0

The data of Table 5 report the highest levels of education attained by the respondents' parents. A large percentage, over 20 percent of both fathers and mothers, had not received high school diplomas while an additional 36.6 percent of the fathers and 49 percent of the mothers had not received degrees beyond high school. Approximately one-fourth of the fathers and 17.5 percent of the mothers had received bachelor's degrees or higher.

* * * * *

TABLE 6: INTERRUPTION OF FORMAL EDUCATION

	Male		Female		Total	
	N	%	N	%	N	%
Interrupted	44	44.0	54	17.7	98	24.3
Not interrupted	56	56.0	250	82.2	306	75.7
Total	100	100.0	304	100.0	404	100.0

The data of Table 6 indicate that 44 percent of the male respondents had interrupted their formal education for an extended period of time. (The corresponding figure for the males of the Indiana public institutions was 27.7 percent.) A far lower proportion of the females, only 17.7 percent, had done so. It would appear then that nearly half the males would have had some type of full-time work experience before completing the bachelor's degree.

* * * * *

TABLE 7: GRADE-POINT AVERAGES

	Overall GPA				Major Field GPA			
	Male		Female		Male		Female	
GPA	N	%	N	%	N	%	N	%
3.51-4.0	13	13.0	78	25.7	24	24.0	135	43.8
3.01-3.5	37	37.0	135	44.4	44	44.0	130	42.8
2.51-3.0	41	41.0	86	28.3	27	27.0	39	12.8
2.01-2.5	8	8.0	5	1.6	4	4.0	2	0.7
Below 2.0	1	1.0	0	0.0	1	1.0	0	0.0

Table 7 represents the respondents' overall grade point averages as well as that in their major fields of study. As is readily apparent, the females reported far higher grades than did the males. Also, grades earned by the respondents in their majors were far higher than the overall averages. Sixty-eight percent of the males and 86.6 percent of the females reported GPA's in their majors to be over 3.0.

* * * * *

TABLE 8: MAJOR FIELDS OF STUDY

Field of Study	Earliest Declared				Current			
	Male		Female		Male		Female	
	N	%	N	%	N	%	N	%
Biology	7	7.0	13	4.3	7	7.0	11	3.6
Business	2	2.0	1	0.3	2	2.0	2	0.7
Chemistry	1	1.0	2	0.7	0	0.0	2	0.7
Communi-cations	1	1.0	0	0.0	1	1.0	0	0.0
Computer Science	1	1.0	0	0.0	1	1.0	0	0.0
English	2	2.0	7	2.3	3	3.0	8	2.6
Industrial Science	4	4.0	0	0.0	4	4.0	0	0.0
Mathematics	3	3.0	0	0.0	3	3.0	2	0.7
Physics	1	1.0	0	0.0	1	1.0	0	0.0
Early Childhood	1	1.0	32	10.5	0	0.0	30	9.9
Elementary Education	8	8.1	30	9.9	9	9.0	19	6.3
Industrial Arts	32	32.0	0	0.0	33	33.0	0	0.0
Secondary Education	3	3.0	4	1.3	1	1.0	6	2.0
Special Education	11	11.0	68	22.4	11	11.0	67	22.0
Medical Technology	1	1.0	5	1.6	0	0.0	0	0.0
Nursing	0	0.0	85	28.0	0	0.0	90	29.6
Other Health	0	0.0	1	0.3	0	0.0	0	0.0
Geography	1	1.0	1	0.3	1	1.0	3	1.0
History	2	2.0	3	1.0	3	3.0	3	1.0
Human Services	2	2.0	12	3.9	6	6.0	25	8.2
Psychology	3	3.0	9	3.0	4	4.0	9	3.0
Sociology	0	0.0	5	1.6	2	2.0	3	1.0
Other	5	5.1	2	0.7	1	1.0	0	0.0
No response	9	9.0	24	7.9	7	7.0	24	7.9

Table 8 reports the earliest declared major fields of study of the respondents along with their current majors. As can be seen, large percentages of the graduates have clustered into a limited number of major fields, particularly those of education (early childhood, elementary, industrial arts, and special), nursing, and human services. The education fields did not appear to be suffering attrition from students' first declaration of a major to their point of graduation.

Certain majors were very closely identified to the members of one sex or the other. For example, 32 percent of the male respondents were majoring in the industrial arts, compared to none of the females. On the other hand, far larger proportions of females than males were in the fields of early childhood education, special education, and nursing.

* * * * *

TABLE 9: ANTICIPATED FUTURE FIELDS OF STUDY

	Male		Female	
Fields of Study	N	%	N	%
Business Administration	3	6.4	3	1.9
Chemistry	0	0.0	2	1.3
Computer Science	2	4.3	0	0.0
English	2	4.3	2	1.3
Industrial Science	3	6.4	0	0.0
Mathematics	2	4.3	0	0.0
Early Childhood	0	0.0	13	8.2
Industrial Arts	19	40.4	0	0.0
Secondary Education	0	0.0	1	0.6
Special Education	9	19.1	40	25.2
Other Education fields	6	12.8	17	10.7
Medical Technology	0	0.0	2	1.3
Nursing	0	0.0	71	44.7
Other Health fields	0	0.0	6	3.8
Geography	1	2.1	2	1.3
Total	47	100.0	159	100.0

The data of Table 9 present the respondents' anticipated future major fields of study. Forty-seven percent of the males had selected future majors with over 70 percent of them planning further study in an education field. A total of 52.3 percent of the females checked fields for future study with approximately 45 percent of these choosing each of the fields of nursing and education. As can be seen in Table 11 below, higher percentages than these expected to pursue degrees beyond the bachelor's degree.

* * * * *

TABLE 10: IMPORTANCE OF FACTORS IN SELECTING MAJOR FIELDS OF STUDY

	Very Important		Somewhat Important		Not Important	
Factor	N	%	N	%	N	%
Relationship between major and interests	325	81.0	70	17.5	6	1.5
Relationship between major and career choice	326	81.7	52	13.0	21	5.3
Relationship between major and talents/aptitudes	271	67.8	118	29.5	11	2.8
Status or prestige of major	79	19.5	182	44.9	139	34.3
Influence of parents, relatives or friends	52	12.9	170	42.0	179	44.2

The data of Table 10 represent the respondents' views as to the importance of a number of factors influencing their choices of a major field of study. As can be readily seen, the relationship between the major and their interests and their career choices were the two most important factors, with the relationship between the major and their talents/aptitudes close behind. The status or prestige of the major and the influence of parents, relatives or friends were far less influential in this regard.

* * * * *

TABLE 11: EXPECTED HIGHEST LEVEL OF EDUCATION

	Male		Female		Total	
Degree Level	N	%	N	%	N	%
Bachelor's	11	11.2	38	12.6	49	12.3
1st professional	4	4.1	10	3.3	14	3.5
Master's	58	59.2	197	65.2	255	63.8
Specialist's	3	3.1	14	4.6	17	4.3
Doctorate	22	22.4	43	14.2	65	16.3
Total	98	100.0	302	100.0	400	100.0

The data of Table 11 represent the highest degree levels the respondents expected to complete. Only about one-eighth of the respondents did not expect to receive a degree beyond the bachelor's with nearly two-thirds indicating that the master's degree would be their highest. Approximately 16 percent of the respondents, including nearly one-quarter of the males, intended to earn a doctorate.

* * * * *

OCCUPATION AND CAREER PLANS AND ASPIRATIONS

Manpower analysts, and those who utilize their reports, sometimes consider bachelor's degree recipients as immediate entrants into the labor force. Attempts to relate their degrees to specific jobs become highly inaccurate because they do not take the plans and aspirations of the graduates themselves into account. These plans are, however, very important because they are often impossible to predict solely on the bases of degree level and field of study. As relationships between majors and career choices become better known, it becomes more possible to make generalizations.

TABLE 12: EXPECTED FUTURE ACTIVITIES

	Male		Female	
Activity	N	%	N	%
This Fall				
Full-time career job	51	52.0	213	73.2
Full-time non-career job	29	29.6	49	16.8
Military service	2	2.0	2	0.7
Grad. or prof. study	14	14.3	19	6.5
Not in work force	2	2.0	8	2.7
Five years hence				
Full-time career job	75	76.5	211	73.0
Full-time non-career job	7	7.1	7	2.4
Military service	1	1.0	2	0.7
Grad. or prof. study	13	13.6	64	22.1
Not in work force	2	2.0	5	1.7
Ten years hence				
Full-time career job	79	81.4	227	80.5
Full-time non-career job	7	7.2	2	0.1
Military service	1	1.0	1	0.4
Grad. or prof. study	8	8.2	33	11.7
Not in work force	2	2.1	19	6.7

Each respondent was asked to indicate what primary activity he or she expected to be engaged in during the fall subsequent to graduation. Since the questionnaire was administered only days before their graduation, the respondents' answer reflect an accurate measure of Fitchburg State's immediate contribution to manpower supply out of the June, 1978 graduating class.

Approximately half the males and nearly three-quarters of the females expected to be entering full-time career jobs. (Corresponding figures for the Indiana study were 42.1 percent and 53.5 percent, respectively.) An additional 29.6 percent of the males and 16.8 percent of the females planned to be working at full-time non-career jobs, thereby designating approximately 80 percent of both males and females as aspiring to assume full-time employment after graduation.

Only 14 males and 19 females among the respondents anticipated graduate school as their major activity for the fall. (The proportion of Indiana graduates anticipating to engage in further study immediately after receiving the bachelor's was approximately twice that of Fitchburg State.)

When asked about their plans for five years after graduation, approximately three-quarters thought that they would be in full-time career jobs at that time. An additional 13.6 percent of the males and 22.1 percent of the females thought they would be in graduate programs five years hence. (Comparable figures for the Indiana study were 8.8 percent and 11.8 percent, respectively, much lower than that at Fitchburg State.)

When asked about their plans for ten years after graduation, slightly over 80 percent of the respondents believed they would be in full-time career jobs at that point. Simultaneously, approximately 10 percent expected to be in graduate school ten years after receiving the bachelor's degree. (This compares to only 1.8 percent for the Indiana study.)

Among the Fitchburg State graduates there appeared to be a tendency to delay graduate school entrance with many expecting to wait as long as five or ten years. The males had more of a tendency to enter graduate school immediately after graduation or to engage in full-time non-career jobs while females were more inclined to enter full-time career jobs after graduation.

* * * * *

Table 13 reports undergraduate major by primary fall activity for those majors with enough responses to make analysis meaningful. Those in job-related fields of study had far more of a tendency than others to enter career-related jobs immediately after graduation. These majors included early childhood education, nursing, special education, and elementary education.

Lower proportions of the graduates with majors less clearly related to employment opportunities planned to enter career jobs. Among these fields were biology, human services, English, and psychology. Many of those with these majors planned to enter non-career jobs or to pursue graduate studies the fall after their graduation.

TABLE 13: UNDERGRADUATE MAJOR* AND PRIMARY FALL ACTIVITY

	Career Job		Non-Career Job		Military		Graduate Study		Not in Work Force		Total
	N	%	N	%	N	%	N	%	N	%	N
Biology	10	55.6	3	16.7	0	0.0	5	27.7	0	0.0	18
English	3	27.3	4	36.4	1	9.1	3	27.3	0	0.0	11
Early Childhood	23	88.5	3	11.5	0	0.0	0	0.0	0	0.0	26
Elementary Education	22	78.6	3	10.7	1	3.6	1	3.6	1	3.6	28
Industrial Arts	19	57.6	11	33.0	0	0.0	2	6.1	1	3.0	33
Special Education	65	84.0	11	14.3	0	0.0	1	1.3	0	0.0	77
Nursing	77	87.5	9	10.2	0	0.0	1	1.1	1	1.1	88
Human Services	13	46.4	8	28.6	0	0.0	3	10.7	4	14.3	28
Psychology	2	15.4	5	38.5	0	0.0	5	38.5	1	7.7	13

*Only majors with 10 or more graduates responding to the questionnaire are included in this and subsequent cross tabulations by major field of study.

TABLE 14: DEFINITENESS OF PLANS

Degree of Definiteness	Male N	Male %	Female N	Female %	Total N	Total %
This Fall						
Very definite	10	10.3	13	4.6	23	6.0
Somewhat definite	29	29.9	87	30.7	117	30.7
Highly indefinite	58	59.8	183	64.7	241	63.3
5 years hence						
Very definite	9	9.3	9	3.2	18	4.7
Somewhat definite	40	41.2	120	42.7	161	42.5
Highly indefinite	48	49.5	152	54.1	200	52.8
10 years hence						
Very definite	12	12.5	26	9.3	39	10.4
Somewhat definite	35	36.5	118	42.3	153	40.7
Highly indefinite	49	51.0	135	48.4	184	48.9

The data of Table 14 report the degree to which the graduates felt definite that they would realize their plans for the fall after graduation, five years hence, and ten years hence. As can be seen, nearly two-thirds were highly indefinite about their fall plans and an additional 30.7 percent were only somewhat definite, leaving just 6 percent very definite. (The Indiana study found drastically different results as 52.2 percent were very definite, 31.3 percent somewhat definite, and only 16.6 percent highly indefinite.)

Concerning their plans for five years hence, it appears that fewer of the graduates are highly indefinite (52.8 percent). However, the percentage that was very definite also declined slightly. (The same pattern of change was found in the Indiana study.)

For ten years hence, an increased percentage of the graduates felt very definite what they knew that they would be doing (10.4 percent). Those who were somewhat definite included 40.7 percent of the respondents with 48.9 percent highly indefinite. (The comparable figures for the Indiana study were 39.8 percent, 40.6 percent, and 19.6 percent, respectively.)

It is obvious from the data of Table 14 that the Fitchburg State College graduates leave the campus with a great deal of uncertainty as to what they will be doing only a couple of months

hence. Though many were in education fields, in which job offers are often made relatively late in the summer, it also appears that many of those planning on entering other career fields, graduate schools, or non-career jobs remain very uncertain as to their immediate futures.

* * * * *

The data of Table 15 report the degree to which the graduates were certain of their fall plans by the type of activity in which they hoped to engage. The most uncertain group was that expecting to enter graduate school, with 81.8 percent indicating that they were highly indefinite. (Compared to 14.7 percent in Indiana study.) Two-thirds of those planning to enter career jobs were highly indefinite (16.1 percent for Indiana study) with only 2.3 percent of this group stating they were highly definite.

The group aspiring to full-time career jobs five and ten years hence remained pessimistic as 55 percent of each group was highly indefinite as to whether or not they would be pursuing these careers. The certainty concerning those expecting to be in graduate school was actually greater for five and ten years after graduation than it was for the fall immediately after graduation. Those who expected to enter full-time non-career jobs appeared to be the most definite group concerning their future plans. (This was the opposite of the Indiana findings.)

* * * * *

Table 16 reports the occupational and career plans and aspirations of the graduates of Fitchburg State College. The data are reported by plans for the fall after graduation, five years after graduation, and ten years after graduation by which time nearly all expected to be into their career fields. As can be seen, most expect to pursue careers in the professional and technical category with the bulk falling into education or health-related fields. Relatively few looked toward the fields generally associated with the highest status and pay (physician, lawyer, etc.) and very few appeared to be oriented toward careers in the private sector of the economy (buying, banking, sales, etc.). It was also of interest that extremely few of the females saw themselves as a career housewife, even five or ten years after their graduation.

TABLE 15: TYPE OF ACTIVITY BY DEGREE OF DEFINITENESS OF ACTIVITY

Degree of Definiteness	Full-Time Career Job	Full-Time NonCareer Job	Military Service	Graduate or Professional Study	Not in Work Force
	%	%	%	%	%
This Fall					
Very definite	2.3	12.5	25.0	9.1	37.5
Somewhat definite	31.3	40.3	0.0	9.1	25.0
Highly indefinite	66.4	47.2	75.0	81.8	37.5
N =	(259)	(72)	(4)	(3)	(8)
Five Years Hence					
Very definite	4.7	25.0	0.0	2.7	0.0
Somewhat definite	39.9	41.7	66.6	48.6	57.1
Highly indefinite	55.4	33.3	33.3	48.6	42.9
N =	(278)	(12)	(3)	(74)	(7)
Ten Years Hence					
Very definite	8.1	25.0	50.0	15.8	14.3
Somewhat definite	36.8	50.0	50.0	52.6	61.9
Highly indefinite	55.1	25.0	0.0	31.6	23.8
N =	(296)	(8)	(2)	(38)	(21)

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TABLE 16: RESPONDENTS' OCCUPATION AND CAREER CHOICE

Occupational Area	Next Fall N	Next Fall %	Five Years Hence N	Five Years Hence %	Ten Years Hence N	Ten Years Hence %
Professional, Technical, Kindred						
Engineer	1	0.2	1	0.2	1	0.2
Life scientist	4	1.0	5	1.2	7	1.7
Physical scientist	1	0.2	2	0.5	4	1.0
Math specialist	1	0.2	2	0.5	1	0.2
Physician	0	0.0	0	0.0	1	0.2
Registered nurse	90	22.3	87	21.5	84	20.7
Therapist	0	0.0	1	0.2	2	0.5
Veterinarian	0	0.0	0	0.0	1	0.2
Other medical	0	0.0	4	1.0	5	1.2
Medical lab technician	4	1.0	4	1.0	4	1.0
Dental lab technician	1	0.2	1	0.2	1	0.2
Other health technician	1	0.2	1	0.2	0	0.0
Science technician	5	1.2	4	1.0	3	0.7
Aviation technician	1	0.2	1	0.2	0	0.0
Other technician	1	0.2	1	0.2	1	0.2
Computer specialist	2	0.5	2	0.5	2	0.5
Psychologist	3	0.7	8	2.0	8	2.0
Social scientist	5	1.2	5	1.2	7	1.7
Teacher (elementary)	53	13.1	50	12.3	45	11.1
Teacher (secondary)	30	7.4	24	5.9	19	4.7
Teacher (college)	1	0.2	12	3.0	19	4.7
Special education teacher	65	16.1	63	15.6	63	15.6
School counselor	0	0.0	5	1.2	5	1.2
Other education profession	0	0.0	6	1.5	9	2.2
Writer, kindred	3	0.7	3	0.7	5	1.2
Artist, entertainer	2	0.5	4	1.0	1	0.2
Auditor, accountant	1	0.2	1	0.2	2	0.5
Architect	0	0.0	1	0.2	2	0.5
Clergy, kindred	1	0.2	1	0.2	1	0.2
Lawyer, judge	0	0.0	6	1.5	6	1.5
Social worker	20	5.0	19	4.7	20	4.9
Other profession, technical	1	0.2	3	0.7	3	0.7
Managers, Officials, Proprietors						
Bank, financial manager	1	0.2	3	0.7	3	0.7
Buyer	1	0.2	1	0.2	1	0.2
Health administration	1	0.2	1	0.2	2	0.5
School administration	1	0.2	0	0.0	5	1.2
Other administration	1	0.2	3	0.7	2	0.5
Office manager	1	0.2	1	0.2	1	0.2
Other manager	0	0.0	0	0.0	1	0.2

Table 16 continued

Table 16 continued

Occupational Area	Next Fall N	Next Fall %	Five Years Hence N	Five Years Hence %	Ten Years Hence N	Ten Years Hence %
Sales Workers						
Insurance agent	3	0.7	1	0.2	1	0.2
Other sales work	2	0.5	0	0.0	0	0.0
Bookkeeper	1	0.2	0	0.0	0	0.0
Clerical						
Other clerical	1	0.2	0	0.0	0	0.0
Craftsman, Foreman, Kindred						
Construction craft	1	0.2	0	0.0	1	0.2
Metalwork craft	1	0.2	1	0.2	1	0.2
Air, heat, refrigeration	1	0.2	1	0.2	1	0.2
Printing trade craft	1	0.2	0	0.0	0	0.0
Other craftsman	1	0.2	3	0.7	3	0.7
Operatives						
Transportation eqpt opt'r	1	0.2	0	0.0	0	0.0
San. food service worker	2	0.5	1	0.2	1	0.2
Personal service worker	3	0.7	1	0.2	1	0.2
Protective service worker	1	0.2	2	0.5	1	0.2
Laborer, Nonfarm						
Laborer, nonfarm	6	1.5	1	0.2	1	0.2
Farmers, Farm Workers						
Farm laborer, foreman	0	0.0	1	0.2	1	0.2
Other						
Military	1	0.2	0	0.0	0	0.0
Housewife	2	0.5	3	0.7	1	0.2
Student	22	5.4	2	0.5	0	0.0
No response	51	12.6	53	13.1	46	11.4

* * * * *

TABLE 17: RELATIONSHIP BETWEEN CAREER AND UNDERGRADUATE MAJOR

	Male		Female		Total	
Relationship	N	%	N	%	N	%
Highly related	59	61.5	240	80.0	299	75.5
Somewhat related	31	32.3	55	18.3	86	21.7
Unrelated	6	6.3	5	1.7	11	2.8

The data of Table 17 report the degree to which the respondents anticipated that their long-term careers would be related to their undergraduate major fields of study. In a manpower sense this question is critically important because it provides the only reasonably solid ground for assuming that graduates aspire to careers which related to their majors. For example, if only 50 percent of education majors planned to enter teaching careers the much publicized surplus of teachers might be exaggerated. Likewise, if 20 percent of engineers expected to pursue MBA degrees and enter immediately into management careers, the shortage of new engineers would be even more severe.

Three-quarters of the Fitchburg State College graduates expected to enter careers highly related to their undergraduate majors. A disproportionate 80 percent of the women fell into this group, compared to only 61.5 percent of the males. An additional 21.7 percent expected that there would be at least some relationship between their careers and their majors and only 2.8 percent anticipated no such relationship.

* * * * *

TABLE 18: UNDERGRADUATE MAJOR AND CAREER RELATEDNESS

	Highly Related		Somewhat Related		Unrelated		Total
Major	N	%	N	%	N	%	N
Biology	12	66.7	5	27.8	1	5.6	18
English	5	50.0	5	50.0	0	0.0	10
Early childhood	24	80.0	6	20.0	0	0.0	30
Elementary ed.	21	77.8	6	22.2	0	0.0	27
Industrial arts	22	66.7	9	27.3	2	6.1	33
Special ed.	66	84.6	10	12.8	2	2.6	78
Nursing	85	94.4	4	4.4	1	1.1	90
Human services	18	58.1	11	35.5	0	0.0	29
Psychology	9	69.2	3	23.1	1	7.7	13
Total	262	79.9	59	18.0	7	2.1	328

The data of Table 18 present the degree to which the respondents saw their careers related to their majors for those fields with ten or more graduates. As can be readily seen, the highest degrees of relatedness are found for those fields which have a major aspect of career preparation built into them. Among these fields were nursing, special education, early childhood education, and elementary education. (Since these were fields dominated by females they explain the difference between males and females observed in Table 17 above.) Human services and English were the two majors for which the lowest degrees of relationship were found. (The overall responses were fairly close to those obtained in the Indiana study.)

* * * * *

TABLE 19: DESIRED CAREER WORK ENVIRONMENT

	Male		Female		Total	
Career Work Environment	N	%	N	%	N	%
Self-employed	22	22.0	25	8.2	47	11.6
Business firm	8	8.0	10	3.3	18	4.5
Educational institution	51	51.0	127	41.8	178	44.1
Research organization	5	5.0	9	3.0	14	3.5
Welfare agency	3	3.0	6	2.0	9	2.2
Military service	0	0.0	1	0.3	1	0.2
Public service	6	6.0	18	5.9	24	5.9
Health facility	0	0.0	96	31.6	96	23.8
Other	3	3.0	6	2.0	9	2.2
No response	2	2.0	6	2.0	8	2.0

The data of Table 19 report the desired career work environments of the respondents. The largest percentage, including 51 percent of the males and 41.8 percent of the females, hoped to work within educational institutions. The second most frequent choice, that of a health facility, was indicated by nearly a third of the females but by none of the males. Almost a quarter of the males hoped to become self-employed, compared to 8.2 percent of the females.

* * * * *

TABLE 20: UNDERGRADUATE MAJOR BY CAREER WORK ENVIRONMENT

	Environment								
Major Field	Self-Employed	Business Firm	Educational Institution	Research Organization	Welfare Agency	Military Service	Public Service	Health Facility	Other
Biology	2	2	2	8	0	0	0	4	0
English	3	0	3	0	0	0	3	1	0
Early childhod	1	2	26	0	0	0	0	1	0
Elementary ed.	0	0	28	0	0	0	0	0	0
Industrial arts	6	1	24	0	0	0	2	0	0
Special ed.	3	0	69	0	0	0	1	2	3
Nursing	6	0	1	0	0	0	3	79	1
Human services	4	1	2	1	8	0	7	4	1
Psychology	7	0	1	2	0	0	2	1	0

The data of Table 20 report the chosen career work environments of the respondents broken down by their major fields of study (for those fields with ten or more graduates). As can be seen, certain fields' graduates fall almost exclusively within one work environment (education/education institution, nursing/health facility) while for others the graduates exhibit a wider range of preferences. For example, the majors in biology, English, human services, and psychology would be more difficult to assign to one or two specific work environment choices.

* * * * *

Table 21 reports the importance of a number of factors often taken into account in making a career choice. The top four factors were far more important than any of the others. (These same factors were dominant in the Indiana study though in a different order.) The desire to work with people rather than things and the desire to perform service to others particularly important among the Fitchburg State students and reflected the nature of their career choices. Factors showing a strongly materialistic or status orientation such as the desire to get ahead rapidly, high income, and status or prestige were evaluated as being relatively unimportant.

TABLE 21: IMPORTANCE OF FACTORS IN CHOOSING LONG-TERM CAREER

Factor	Very Important		Somewhat Important		Not Important	
	N	%	N	%	N	%
Work with people rather than things	310	78.3	61	15.4	25	6.3
Interest in work activities	300	76.5	82	20.9	10	2.6
Service to others	294	74.1	89	22.4	14	3.5
Uses special talents/ abilities	283	72.0	104	26.5	6	1.5
Desire to contribute to knowledge	179	45.4	161	40.9	54	13.7
Security	153	38.5	196	49.4	48	12.1
Leadership opportunity	151	38.3	205	52.0	38	9.6
Independence on job	141	35.8	216	54.8	37	9.4
Initial job opportunities	94	24.0	183	46.7	115	29.3
Free time	66	16.8	138	35.1	189	46.1
Interest in travel	59	14.9	141	35.7	195	49.4
Opportunity to get ahead rapidly	54	13.7	175	44.3	166	42.0
Status, prestige	47	11.9	195	49.4	153	38.7
High income	45	11.5	217	55.2	131	33.3
Education require less time than for other careers	25	6.4	57	14.7	307	78.9

* * * *

The factors considered important by college graduates often differ considerably when viewed by the sex of the respondent. Table 22 considers these factors by sex, reporting the percentages responding to each as being "very important." The significant differences are reported below.

Male High Importance – Female Low Importance	Male Low Importance – Female High Importance
Free time	Work with people rather than things
High income	Being of service

For all other factors there were no differences beyond the $p < 0.05$ level found using chi square analysis.

TABLE 22: FACTORS INDICATED AS BEING "VERY IMPORTANT" IN MAKING CAREER CHOICES

Factors	Male		Female		Total	
	N	%*	N	%*	N	%*
Work with people rather than things**	58	58.0	251	82.6	309	76.5
Interest in work activities	70	70.0	229	75.3	299	74.0
Service to others**	58	58.0	235	77.3	293	72.5
Uses special talents/ abilities	72	72.0	210	69.1	282	69.8
Desire to contribute to knowledge	45	45.0	134	44.2	179	44.4
Security	43	43.0	110	36.2	153	37.9
Leadership opportunity	38	38.0	113	37.2	151	37.4
Independence on job	34	34.0	107	35.2	141	34.9
Initial job opportunities	22	22.0	72	23.8	94	23.3
Free time**	34	34.0	31	10.2	65	16.1
Interest in travel	13	13.0	46	15.1	59	14.6
Opportunity to get ahead rapidly	14	14.0	40	13.2	54	13.4
Status, prestige	13	13.0	34	11.2	47	11.7
High income**	17	17.0	28	9.2	45	11.1
Education requires less time than for other careers	9	9.0	16	5.3	25	6.2

*Percent of total response.
**Significant at .05 level.

* * * * *

The data of Table 23 reports the percentages of respondents of each major (with more than 10 responses) who indicated each factor as being very important in making their career choices. It was hypothesized that the factors influencing graduates of different majors would show significant differences and this was found to be the case. The knowledge of which factors can be most important to the graduates of specific majors and seeking certain types of careers can be of great value in career and academic counseling.

TABLE 23: VERY IMPORTANT FACTORS IN CAREER DECISIONS BY AREA OF STUDY*

Factors	Biology (18)	English (11)	Early Childhood (30)	Elementary Education (28)	Industrial Arts (33)	Special Education (79)	Nursing (90)	Human Services (21)	Psychology (13)
Work with people rather than things	22.2	63.6	76.7	89.3	54.5	89.9	90.0	83.9	76.9
Interest in work activities	83.3	8.18	70.0	78.6	69.7	72.2	80.0	64.5	84.6
Service in others	55.6	45.5	66.7	82.1	60.6	84.8	84.4	74.2	84.6
Uses special talents/ abilities	77.8	72.7	56.7	71.4	84.8	73.4	66.7	83.9	84.6
Desire to contribute to knowledge	55.6	36.4	46.7	53.6	54.5	39.7	45.6	32.3	46.2
Security	50.0	27.3	23.3	17.9	60.6	27.8	54.4	25.8	38.5
Leadership opportunity	27.8	36.4	26.7	42.9	45.5	25.3	47.8	29.0	53.8
Independence of job	55.6	36.4	30.0	25.0	24.2	29.1	34.4	51.6	61.5
Initial job opportunities	27.8	9.1	16.7	10.7	24.2	19.2	43.3	16.1	0.0
Free time	22.2	27.3	10.0	21.4	30.3	15.2	4.4	12.9	7.7
Interest in travel	11.1	0.0	16.7	7.1	9.1	15.2	10.0	22.6	15.4
Opportunity to get ahead rapidly	22.2	0.0	6.7	7.1	9.1	6.4	20.0	9.7	23.1
Status, prestige	16.7	9.1	6.7	7.1	9.1	6.4	13.3	12.9	15.4
High income	22.2	0.0	10.0	3.6	21.2	5.1	8.9	3.2	23.1
Education requires less time than for other careers	19.4	0.0	10.0	0.0	6.1	7.6	3.3	6.5	0.0

*Figures represent percentages of respondents majoring in each area of study rating each factor as being very important in making a career choice.

TABLE 24: CAREER CHOICE CHANGES SINCE ENTERING COLLEGE

	Male		Female		Total	
Career Choice Change	N	%	N	%	N	%
Yes	39	40.2	72	23.8	111	27.8
No	58	59.8	230	76.2	288	72.2

Table 24 reports the respondents who had changed their career choices since entering college. Slightly more than one-quarter had made such changes, including 40.2 percent of the males and only 23.8 percent of the females. (These figures were much lower than those found in the Indiana study where nearly half the graduates of both sexes had changed their career choices between high school and college graduation.)

* * * * *

TABLE 25: REASONS FOR CHANGING CAREER CHOICE

	Male		Female		Total	
Reasons	N	%	N	%	N	%
Few job openings in previous choice	8	21.1	10	14.1	18	16.5
Better financial future	2	5.3	2	2.8	4	3.7
Better use of education	3	7.9	4	5.6	7	6.4
Beter suits talents and aptitudes	10	26.3	23	32.4	33	30.3
Better suits interests	8	21.1	18	25.4	26	23.9
Previous choice only tentative	3	7.9	9	12.7	12	11.0
Training for previous choice too costly	0	0.0	0	0.0	0	0.0
Lost interest in previous choice	2	5.3	2	2.8	4	3.7
Other	2	5.3	3	4.2	5	4.6

The data of Table 25 reports the reasons of the Fitchburg State graduates for changing their career choices. As can be seen, the dominant reasons were the selection of a different occupation which best suited their talents and aptitudes or their interests. An additional 16.5 percent had made this change because their initial selection had few job openings (the response was only 7.4 percent in the Indiana study).

* * * * *

TABLE 26: DEGREES OF INFLUENCE OF SOURCES OF INFORMATION OR GUIDANCE IN MAKING CAREER CHOICE

	Very Important		Somewhat Important		Not Important	
Influences	N	%	N	%	N	%
Previous work experience	164	41.8	156	39.8	72	18.4
College courses	144	36.5	196	49.7	54	13.7
College teachers	142	36.0	175	44.4	77	19.5
Parents or other relatives	74	18.7	191	48.2	131	33.1
Friends	50	12.6	199	50.3	147	37.1
High school teachers/ counselors	48	12.2	149	37.8	197	50.0
Printed materials, radio, TV	25	6.4	160	40.8	207	52.8
College career/ placement counselors	23	5.9	127	32.3	243	61.8
General college counselors	28	7.2	110	28.1	253	64.7

Table 26 reports the influence of a variety of sources of information to the graduates in making their career choices. The most important factor appeared to be that of previous work experience. The next two in importance, those of college courses and college teachers are reflective of the importance of the college classroom experience in the making of a career decision. It is of particular interest that the impact of college counselors appeared to be minimal in this regard. (These were also the least important sources of information found in the Indiana study.)

* * * * *

TABLE 27: OCCUPATIONAL OR CAREER COUNSELING RECEIVED

	Male		Female		Total	
When Received	N	%	N	%	N	%
None received	73	75.3	236	80.8	309	79.4
Freshman year	7	7.2	11	3.8	18	4.6
Sophomore year	7	7.2	17	5.8	24	6.2
Junior year	3	3.1	9	3.1	12	3.1
Senior year	7	7.2	19	6.5	26	6.7

Table 27 reports whether or not the respondents had received occupational or career counseling. Nearly 80 percent said they had not (compared to 59 percent in the Indiana study). Of those who had, there was no particular year of their college experience in which much counseling was received.

* * * * *

TABLE 28: EVALUATION OF CAREER COUNSELING RECEIVED

	Male		Female		Total	
Degree of Helpfulness	N	%	N	%	N	%
Very helpful	10	45.5	23	42.6	33	43.4
Somewhat helpful	9	40.9	26	48.1	35	46.1
Not helpful	3	13.6	5	9.3	8	10.5

The respondents who had received occupational or career counseling were asked to evaluate its helpfulness. Over 40 percent responded that it had been very helpful (compared to 21.2 percent in Indiana) and only 10.5 percent claimed it had not been helpful (compared to 24.2 percent in Indiana). It would appear that those who took the initiative in seeking occupational or career counseling at Fitchburg State felt it had been of value to them.

* * * * *

TABLE 29: EXPECTED CAREER RESIDENCE LOCATION

	Male		Female		Total	
Location	N	%	N	%	N	%
Within Massachusetts	59	62.8	199	68.6	258	67.2
Outside Massachusetts, but within U.S.A.	33	35.1	87	30.0	120	31.3
Outside U.S.A.	2	2.1	4	1.4	6	1.6

The data of Table 29 reports the locations in which the respondents expected to begin their long-term careers. Two-thirds expected to remain in Massachusetts. Slightly over 30 percent planned to work in the U.S.A. but outside Massachusetts and only 1.6 percent anticipated beginning careers outside the country. (Only 44.1 percent of the Indiana graduates, including 49.7 of those in public institutions, expected to begin careers in Indiana.

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TABLE 30: EXPECTED CAREER RESIDENCE, BY HIGH SCHOOL LOCATION

High School Location	Career Residence: Within Mass. N	Within Mass. %	Outside Mass. N	Outside Mass. %	Foreign Country N	Foreign Country %	Total
Within Mass.	247	70.2	102	29.0	3	0.9	362
Outside Mass. but within U.S.A.	9	32.1	17	60.7	2	7.1	28
Foreign Country	1	33.3	1	33.3	1	33.3	3
Total	257		120		6		

Table 30 reports the expected career residences of the respondents by their high school locations. As can be seen, 70.2 percent of the students from Massachusetts high schools expected to remain in Massachusetts, compared to only 29 percent of those from outside the State. Fitchburg State would appear to be an overall exporter of graduates from Massachusetts as 362 of those in this table had attended high school in the state but only 257 expected to begin careers in it.

Summary

This section provides data on a sampling of Bachelor degree graduates at Fitchburg State College. While this study does not propose recommendations per se, it suggests further study and analysis by the Institution. At the same time, these data are reviewed they should be examined with other ongoing State College data-gathering reports such as the June graduate study and the placement surveys that follow up on graduates.

The implications of this study seem to suggest that the concept of career guidance and how students receive information should be re-examined. As indicated earlier, 44% seek careers in education while the previous year graduate studies indicate 27% will gain employment in this area. This figure also continues to dwindle as the market becomes saturated.

The Carnegie Commision on Higher Education reported in 1973 that, "Most of the evidence indicates that vocational counseling has tended to be a relatively weak component of college and university student counseling programs, which have, in general, given

greater emphasis to the students' personal and psychological problems. We believe that, in view of the pronounced changes that are occurring in the job market for college graduates, institutions of higher education should place considerably greater emphasis on vocational counseling."

These conditions have led to the recommendation that the Colleges should take immediate steps to strengthen occupational counseling programs available to their students.

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