

**The University and Its Graduates:  
Higher Education, Work, and Preparing for the Future  
at the University of Northern Iowa**

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# *Table of Contents*

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	<u>Page</u>
List of Tables .....	iii
Overview .....	iv
Part 1 <i>Introduction</i> .....	1
Part 2 <i>The Undergraduate Experience</i> .....	7
Profile of UNI Graduates .....	7
Students' Occupational History .....	8
Students' Educational History .....	10
Parents' Educational History .....	10
Parents' Occupational History .....	11
How do Students Finance Their Education? .....	12
Academic Pursuits .....	16
Recreational Activities .....	17
Skills Acquired as an Undergraduate .....	18
Suggestions for Change .....	20
Part 3 <i>After Graduation</i> .....	23
Additional Studies .....	23
Paid Employment .....	24
First Job .....	26
Job Search Process .....	27
Present Job .....	30
Part 4 <i>Use of Skills and Educational Qualifications</i> .....	33
Influence of College Major on Job Attainment .....	33
Specific Skills and Qualifications .....	34
SCANS Category of Skills and Qualifications .....	48
Match Between Qualifications Attained at UNI and Demands at Work .....	54
Satisfaction with Current Job .....	55
Extent Willing to Follow Requirements For a Satisfying Career .....	56
Part 5 <i>Roles, Goals, and Future Education</i> .....	59
Role Identification .....	59
Goals for the Near Future .....	61
Professional Goals: Importance vs. Fulfillment .....	62
Continuing and Further Education .....	66
Part 6 <i>Summary and Conclusions</i> .....	70

# *List of Tables and Figures*

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<u>Table</u>		<u>Page</u>	<u>Table</u>		<u>Page</u>
1.1	Sampling and Return Rates by Cohort . . . . .	4	4.11	SCANS Categories of Skills and Qualifications (by Gender) . . . . .	49
1.2	Number of Graduates by College by Year . . . . .	5	4.12	SCANS Categories of Skills and Qualifications (by Cohort) . . . . .	51
1.3	Graduates Sampled by College and Graduation Year . . . . .	5	4.13	SCANS Categories of Skills and Qualifications (by College) . . . . .	52
1.4	Final Returns by College by Year . . . . .	6	4.14	SCANS Categories of Skills and Qualifications (Deficit/Surplus) . . . . .	53
2.1	Working Status by Student Cohort . . . . .	9	4.15	Summary Match of Qualifications and Current Work Demands . . . . .	55
2.2	Educational Attainment of Parents . . . . .	11	4.16	Satisfaction with Current Job . . . . .	56
2.3	Sources of Support by Extent Used to Finance Studies at UNI . . . . .	13	4.17	Extent Willing to Follow Requirements (by Entire Sample and Gender) . . . . .	57
2.4	Extent of Use of Extracurricular Activities/Undergrad . . . . .	17	4.18	Extent Willing to Follow Requirements (by Cohort) . . . . .	57
2.5	Skills Attained/Enhanced Through University Studies . . . . .	19	4.19	Extent Willing to Follow Requirements (by College) . . . . .	58
3.1	Reasons for Pursuing Additional Studies . . . . .	24	5.1	Role Identification for Entire Sample . . . . .	59
3.2	Categories and Frequencies of UNI Graduates 1 <sup>st</sup> Jobs . . . . .	26	5.2	Role Identification by Cohort . . . . .	60
3.3	Relative Success of 1 <sup>st</sup> Job Search Methods/Sources . . . . .	28	5.3	Goals Striving for in the Near Future by Cohort . . . . .	61
3.4	Relative Importance of Factors in Getting 1 <sup>st</sup> Job . . . . .	29	5.4	Goals Striving for in the Near Future by College . . . . .	62
3.5	Relative Success of Present Job Search Methods/Sources . . . . .	31	5.5	Importance of Professional Goals . . . . .	63
3.6	Relative Importance of Factors in Getting Present Job . . . . .	32	5.6	Fulfillment of Professional Goals . . . . .	64
4.1	Skills/Qualifications Required at Work and Attained at UNI . . . . .	35	5.7	Importance of Professional Goals by Cohort . . . . .	65
4.2	Suggested University Educational Goals . . . . .	36	5.8	Fulfillment of Professional Goals by Cohort . . . . .	66
4.3	Deficit/Surplus of Skills and Qualifications . . . . .	38	5.9	Likelihood of Participating in Continuing Education Offerings . . . . .	67
4.4	Skills/Qualifications: 1984/85 Cohort . . . . .	39	5.10	Importance of Continuing Education Topics . . . . .	68
4.5	Skills/Qualifications: 1987/88 Cohort . . . . .	41	5.11	Suggested Changes in Study Requirements at UNI . . . . .	69
4.6	Skills/Qualifications: 1990/91 Cohort . . . . .	42	5.12	Desired Contact Opportunities with UNI after Graduation . . . . .	70
4.7	Gender Differences in Skills Required at Work . . . . .	44	<u>Figure</u>		<u>Page</u>
4.8	Gender Differences in Skills Attained at UNI . . . . .	45	2.1	Use of Scholarships and Grants by Cohort . . . . .	14
4.9	Gender Differences in Skills Required/ Attained (Deficit/Surplus) . . . . .	46	2.2	Use of Student Loans by Cohort . . . . .	15
4.10	SCANS Categories of Skills and Qualifications (Entire Sample) . . . . .	48			

## *Overview*

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### **The University and Its Graduates: Higher Education, Work and Preparing for the Future at the University of Northern Iowa**

The project aims to foster a re-examination of the relationship between higher education and work based on a consideration of the experiences of university graduates. The kinds of work and worker expectations of graduates are evolving toward greater specialization, flexibility, independence and interdependence without extensive coordination with the university curricula and educational policy. More deliberate attention to this relationship can sharpen thinking and planning of the university's optimal role in society.

To prepare for such a discussion certain basic types of information are required to be brought together. We need to know more about the contemporary undergraduate experience, the job search process, the first and current work positions of graduates, the correspondence between educational qualifications and required work skills, and the interests and needs for continuing education. Pieces of each of these are known by segments of the university community but there is no comprehensive and unified collection and integration of these kinds of information.

The UNI University and Its Graduates project was designed in collaboration with a similar study occurring at the University of Klagenfurt, Austria. Both are regional universities with business administration and teacher education applied foci as part of Western democracies. While this is not a controlled comparison, the collaboration allows for similarities and differences to be revealed and thereby to more readily expose the most salient features of each situation.

A mailed survey of a sample of 1,042 UNI graduates receiving undergraduate degrees from one of three cohorts (1984-85, 1987-88, and 1990-91) was conducted in 1993. The questionnaire's eight sections covered educational background, continuing and further education, work experience prior to graduation, work history after graduation, first job search and experience, current job search and experience, use of educational qualifications, and background information. The project consisted of six sections, each exploring the relationship between higher education and the demands of the labor market and of life experiences in general. From the undergraduate experience to continuing education after graduation, each plays an important role in determining the success of UNI graduates. More of these kinds of focused studies are encouraged, but also holistic and macro-level examinations are needed to contribute to wise planning of the university's future. We hope our efforts contribute to a continuous process of research, reflection, and planning.

The Project Team consisted of: Gene Lutz (CSBR) organizer, Paul Butler-Nalin (Planning Administration), Deborah Deemer (Educational Psychology and Foundations), William DiBrito (Institutional Research), Mark Grey (Anthropology), Martin Hansen (Alumnus), Noreen Hermansen (Alumni Relations), Muriel Stone (Placement and Career Services), and Paul Kellermann (Sociology-Klagenfurt, Austria).

## Part 1: Introduction

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### What is at issue?

It is common to view the role of the university in reference to its potential for enhancing the individual student's future, particularly prospects for employment and, hopefully, a greater understanding and appreciation of life. Another important consideration is the role the university plays beyond individual students, i.e., its social impacts on and interrelationships within the larger society. Over the last few decades, rapid and far-reaching changes in the relationships of work, education, and society have placed the American education institution at a strategic crossroads. The institution of education and, in particular, higher education, is facing an important decision: to respond passively to these changes, allowing external forces to chart the educational and social course of history or, alternatively, to take the lead in charting and directing the course of these critical social transformations and the changes that will come to the university itself.

Regardless of the path higher education chooses, it seems clear that a factory model of education is not functional in effectively preparing students for work and for life, in general. According to many employers and researchers, there is an increasing demand for workers with a broad range of transferable and adaptive skills. Such skills include being proactive, flexible, capable of independent learning and thinking, capable of critical judgment, able to solve problems and cope with rapid change, having the ability to communicate effectively, and working effectively in groups, as well as leading, to name only a few<sup>1</sup>.

Within the recent literature on the relationships between these new socioeconomic and educational trends, it has been strongly asserted that the traditional liberal arts goal of “learning how to learn” remains “the most basic of all skills because it is the key that unlocks future success<sup>2</sup>.” This makes good sense in light of the fact that more people are increasingly likely to change not only their job, but their *occupation*, several times over the course of their lifetime.

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<sup>1</sup> Summarized from *Instructional Strategies for Technology Education 1988*, chapter one, “Technology Education” by Donald Lauda, Dean of the School of Applied Arts and Sciences, California State University at Long Beach.

<sup>2</sup> From a 1990 booklet titled *Workplace Basics: The Skills Employers Want*, published jointly by the American Society for Training and Development and the Department of Labor. Based on the 1990 publication *Workplace Basics: The Essential Skills Employers Want* by Carnevale, Gainer, and Meltzer, San Francisco, CA: Jossey-Bass.

Not only is there rapid and dramatic change across occupational structures, but also within occupational categories, which would seem to reaffirm the need for (or at least the ideal of) adaptive learning and transferable skills.

However, this call for a more generalized “liberal” education could be considered paradoxical in light of the fact that most occupations are becoming increasingly rationalized, specialized, and skill intensive. Rapid changes in the social and economic dimensions of work and education also are paralleled by concomitant demographic changes and challenges: the American workforce is becoming more aged, more ethnic, more feminized, and “less willing to relocate, retrain, or change occupations . . . [despite the fact that] the economy is demanding more flexibility and dynamism<sup>3</sup>.”

Regardless of the approach one adheres to, it appears increasingly clear that the nature of work itself is changing at a pace that mandates aggressive worker training and continuing education programs. Again, this places the American educational institutions and higher education in particular, at a critical crossroads. Who should take the lead in shaping the workers and social structures of tomorrow: Business? Government? Educators? Economic conditions? Chance alone? And what form should such shaping take: Training for specific skills? Greater focus on general adaptive skills? Training for change itself? More extension services? Expanded continuing education? Some radical new educational technology still to be developed (e.g., interactive video or even “virtual” experience/OJT)?

As this dialogue reveals, the bulk of the contemporary discussion presumes an economics-based definition of education’s role in society. The concern is with education’s fit with the demands of the labor market and with notions of economic progress. A driving force of “educational crisis” and “educational reform” is the expressed desire of employers for “better” workers in a changing economic structure. Reformulations of the educational infrastructure are aimed to enhance national (and corporate) economic competitiveness. It remains to other voices to combine these interests with concerns for individual life enrichment and social responsibility. It falls naturally (historically) to universities to exercise leadership to this integrative task.

It is within the broad and global context of rapid social and economic change that the present study was developed. In regard to what this means for the University of Northern Iowa and its graduates, several policy issues rise to the surface. The most basic issue is the manner in which specialized skills and knowledge are imparted: Should the university remain dedicated to a broad general liberal arts approach to education or expand that goal to take a leadership role in specialized training (possibly through extension, continuing education, or in some alliance with business and industry)? Parallel to this issue is the role of experiential learning: Should the university offer more cooperative education, professional practicums, and the opportunity for more pragmatic learning experiences? This logically leads to another important issue, i.e., the

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<sup>3</sup> From the report titled *Workforce 2000: Work and Workers for the 21st Century*, published by the U.S. Department of Labor.

necessity of lifelong learning: Should the university expand its programs (and markets) to address the growing need for continuing education and non-degree program offerings? A final emergent policy issue is: How might the university develop a community of scholarship and experience that provides the necessary dramatic transformation of the student from being passive to active, from dependent to independent, from follower to leader? For the University of Northern Iowa, the immediate question thus becomes, “How might UNI improve the way it prepares and responds to its students and graduates so they have success in their work and life?” Voiced at this level, it is at least in part an empirical question from which several dimensions of the relationship between student, education, and success can be identified. Those dimensions are reflected in the following goals of the study:

- \* Describe the undergraduate experience at UNI.
- \* Describe the job search process of graduates.
- \* Describe the first and current jobs acquired by UNI graduates.
- \* Describe the relationships between educational qualifications and post-graduation placement.
- \* Describe the use of educational qualifications in the workplace.
- \* Describe the need for continuing education.
- \* Interpret the descriptive findings in the larger context of rapidly changing socioeconomic conditions and higher educational transformations.

## **Methods**

The study is part of a collaborative effort of the University of Northern Iowa and the University of Klagenfurt, Austria, although this report focuses exclusively on the UNI data and findings. Both partners are conducting studies of their university graduates focusing on the emerging relationships between higher education and work experiences. The UNI study is purposely multi-disciplinary, and it is coordinated by the Center for Social and Behavioral Research (CSBR) with additional institutional supports from the Office of Institutional Research, Office of Placement & Career Services, and Office of Alumni Relations. Whether the result of tradition or of structure, a seemingly unavoidable characteristic of this university is the separation of its academic and service activities. The research team's composition is intended to bridge institutional barriers between the wholly “academic” and “service” units. The team has found that this combined effort complements the interests and enhances the success of all the players. It is felt that this effort might also aid in the ongoing development of more coordinated, integrated, and holistic means of directing the university's future. There is no claim that this effort is comprehensive or entirely unique vis-a-vis other joint efforts on campus. Rather, the intent is to promote the unified model.

The UNI study is viewed potentially to have several stages. The first stage and source of the present data, a mailed survey of a purposively stratified sample of three graduating UNI cohorts (1984-85, 1987-88, and 1990-91), has been completed and those findings form the focus of this summary report. Possible future stages include follow-up face-to-face interviews with a subsample of stage one respondents and interviews or focus groups with a select sample of employers who regularly hire UNI graduates. Of course, the greatest research benefit will derive from completing all of these stages as well as by surveying additional cohorts and placing these surveys in a longitudinal, panel research design.

The study population and sample frame of the first stage of the UNI study includes 5,520 UNI students receiving undergraduate degrees among three graduating cohorts. The population distribution among cohorts included 1,752 graduates from the 1984-85 cohort, 1,738 from the 1987-88 cohort, and 2,030 from the 1990-91 cohort. A sample of 3,003 graduates, stratified by both cohort and college, was selected to receive mailed questionnaires<sup>4</sup>. The Colleges of Humanities and Fine Arts, Social and Behavioral Sciences, and Natural Sciences were intentionally over-sampled following the rationale that existing information was proportionately sparser on graduates from these colleges than from the Colleges of Business Administration and Education. The questionnaires were mailed in June 1993, including a cover letter signed by the University President and CSBR Director. Follow-up letters were sent approximately three weeks after the initial mailing. Telephone follow-up contacts were attempted for every graduate who had not returned the questionnaire. The final number of returned and useable questionnaires was 1,042, representing about 18 percent of the study population and 35 percent of the selected sample. Final return rates for each graduating cohort can be found in Table 1.1. (See Tables 1.2, 1.3, and 1.4 for a detailed description of the study population, sample, and returns by both cohort and college.)

	Population	Sampled	Return	Return Rate
1984-85	1752	935	336	0.36
1987-88	1738	966	324	0.34
1990-91	2030	1102	382	0.35
Total	5520	3003	1042	0.35

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<sup>4</sup> The University was unable to obtain current mailing information on some sample units, thus, the sample--and subsequent finding--are subject to whatever biases might derive from this inevitable attrition.

<b>Table 1.2 Number of Graduates by College by Graduation Year</b>								
	<b>1984-1985</b>		<b>1987-1988</b>		<b>1990-1991</b>		<b>Total</b>	
College	f	%	f	%	f	%	f	%
BUS	395	22.6	406	23.4	506	24.9	1,307	23.7
EDU	417	23.8	376	21.6	458	22.6	1,251	22.7
H & FA	342	19.5	277	15.9	333	16.4	952	17.2
NS	349	19.9	272	15.7	239	11.8	860	15.6
SBS	182	10.4	313	18.0	352	17.3	847	15.3
OTH	67	3.8	94	5.4	142	7.0	303	5.5
Total	1,752	100.0	1,738	100.0	2,030	100.0	5,520	100.0

<b>Table 1.3 Graduates Sampled by College by Year of Graduation</b>								
	<b>1984-1985</b>		<b>1987-1988</b>		<b>1990-1991</b>		<b>Total</b>	
College	f	%	f	%	f	%	f	%
BUS	127	13.6	145	15.0	172	15.6	444	14.8
EDU	140	15.0	113	11.7	147	13.3	400	13.3
H & FA	267	28.6	275	28.5	321	29.1	863	28.7
NS	125	13.4	89	9.2	75	6.8	289	9.6
SBS	251	26.8	312	32.3	345	31.3	908	30.2
OTH	25	2.7	32	3.3	42	3.8	99	3.3
Total	935	100.0	966	100.0	1,102	100.0	3,003	100.0

<b>Table 1.4 Final Returns by College by Graduation Year</b>								
	<b>1984-1985</b>		<b>1987-1988</b>		<b>1990-1991</b>		<b>Total</b>	
College	f	%	f	%	f	%	f	%
BUS	51	15.2	44	13.6	60	15.9	155	15.0
EDU	55	16.4	33	10.2	61	16.0	149	14.4
H & FA	93	27.7	92	28.5	99	25.9	284	27.4
NS	43	12.8	39	12.0	35	9.2	117	11.3
SBS	83	24.7	102	31.6	112	29.3	297	28.7
OTH	10	3.0	13	4.0	10	2.6	33	3.2
Total	336	100.0	324	100.0	382	100.0	1,042*	100.0

\*There are seven cases for which no data was given for the college variable—one in the '84 and '87 cohorts and five in the '90 cohort. Percentage values are valid percentages for each cohort.

A few qualifiers must be taken into consideration when making inferences to the larger study population based on the sample data. While the number of women graduates at UNI typically exceeds the number of men by a few percentage points, women are over-represented in the sample by a ratio of almost 2:1 (655 vs. 377). As a result of the stratified sampling procedure, the College of Humanities and Fine Arts and the College of Social and Behavioral Sciences are significantly over-represented while the College of Business and the College of Education are under-represented in regard to the study population. For most analyses these discrepancies are corrected by using college-based sample weights so that the findings reflect the population distribution by college. In spite of these limitations in regard to representativeness of the sample, the data obtained remain extremely useful in describing and summarizing the undergraduate experience at UNI and its implications for educational policy. The next several sections of this report will highlight some of the more significant findings for the graduate data.

## Part 2: The Undergraduate Experience

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### Profile of UNI Graduates

A profile of the demographic characteristics of the UNI graduates responding to the questionnaire reveals that 96 percent of the responding UNI graduates identified themselves as white, which closely follows the racial distribution of Caucasians across the state of Iowa (96.6%). The 1994 minority enrollment figure for UNI was 4.5 percent. However, state minority enrollment across all post-secondary higher-education institutions averaged 6.7 percent, with the average minority enrollment at Iowa's three public 4-year institutions (the University of Iowa, Iowa State University, and the University of Northern Iowa) at about 7.0 percent<sup>5</sup>. Average national minority enrollment exceeds well over 20 percent. One could conclude that the low number of UNI minority respondents reflects the low minority population of Iowa in general. Enrollment differences between the three public institutions could also account for the relatively smaller number of minority respondents at UNI compared to Iowa and Iowa State.

Five out of every six responding UNI graduates were Iowa natives (83%), with a select few from Illinois (2.8%), Minnesota (1.8%), Wisconsin (1.3%), and Nebraska (1.1%). International students made up less than 2% (16 of 1,042) of the respondents. Nearly 93 percent of the 1,024 respondents were classified as Iowa residents at the beginning of their studies. The larger 1994 figure for undergraduates classified as Iowa residents (96%) suggests that UNI as an institution is attracting a more homogeneous population of Iowans, reflecting the lack of racial diversity in the state as a whole.

The gender distribution across the entire state of Iowa is fairly equal, with a ratio of approximately one female for every one male. Female respondents to this questionnaire, however, outnumbered male respondents by a ratio of 2:1<sup>6</sup>. Across the state of Iowa, female enrollment in higher-education institutions constitutes about 53 percent of the student population, with UNI having a female population slightly larger than the state average (57%)<sup>7</sup>. Approximately three-fourths of responding UNI graduates obtained their undergraduate degree from UNI by the

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<sup>5</sup> Enrollment and demographic figures taken from *The Chronicle of Higher Education: Almanac Issue*, September 1, 1994.

<sup>6</sup> One can note that it is a fairly common occurrence in mail surveys to have a disproportionately high number of female responses.

<sup>7</sup> Additional UNI data extracted and compiled from the 1984-1995 annually published reports *A Profile of Students Enrolled at the University of Northern Iowa* by the Office of Institutional Research, University of Northern Iowa.

age of 25. This would indicate that the great majority of UNI students enter college directly from high school or shortly thereafter. These figures are reflective of the 1994 figure for the percentage of incoming freshmen who entered UNI directly from high school (75%). It is significant to note, however, that one out of every four to five graduates is a “non traditional student;” that is, over 25 years old.

Over the last decade, the University of Northern Iowa has experienced an average enrollment of about 12,000 students. Since the 1984 graduating cohort, mean enrollments across the entire state of Iowa have increased over 20 percent. The University of Northern Iowa has only recently experienced a downturn in enrollment, while competitive community colleges and alternative accredited institutions such as Hawkeye Community College and Upper Iowa University Waterloo Center have experienced a slight increase. The state of Iowa recognizes 61 post-secondary higher-education institutions and 71 post-secondary vocational institutions. An average of about 35,000 students graduate per year from Iowa high schools (though the number of graduating high school students is expected to decrease by about 3 percent over the next decade, while many other states will see an increase)<sup>8</sup>. UNI has the smallest enrollment of the three state universities in Iowa; Iowa State University and the University of Iowa are among the larger universities in the country with typical enrollments of about 25,000 or more. The in-state undergraduate tuition rates and fees for the three state universities are very competitive. The graduation rate at UNI (62%) closely follows that of the other NCAA universities in the state<sup>9</sup>. Thus, Iowa high school graduates have a broad range of choices in regard to post-secondary education. The question remains, why do they choose UNI? Of course, the reason for attending any particular institution varies by student, however, we can build a general description of the University of Northern Iowa and the students which are attracted to it based in part on the data collected from this study. Before we can make any generalizations about the characteristics of the university and the why students are attracted to UNI, we first need to know more about these students. In particular, we need to answer the questions, “Who are they?”, “What are they like?”, and “What do they do?”

### **Students' Occupational History**

Seventy-seven percent of the respondents indicated they had never held a full time job before or during their studies at UNI. That percentage remained the same across the three cohorts studied. Once at UNI, however, work became a significant part of the undergraduate experience for most students. Of the 942 (approximately 90 percent of the 1,042 total respondents) who did work while pursuing their studies, most of those (over 90 percent of the 942) worked part time (up to 20 hours per week). Over 70 percent of the respondents who held jobs indicated their main focus

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<sup>8</sup> See *The Chronicle of Higher Education: Almanac Issue*, September 1, 1994, p. 6; also see p.72-73,

<sup>9</sup> The four NCAA universities in Iowa are Drake University, Iowa State University, the University of Northern Iowa, and the University of Iowa.

was on their academic studies rather than work. Four out of five respondents said their primary motivation for working was to pay the costs of attending UNI and to be financially independent. The majority of the respondents (59%) indicated that supporting a family<sup>10</sup> was not a very important factor in why they were working, which can be seen as a reflection of the mean age of graduating seniors.

Respondents were more likely to be employed in areas off campus. Of those who were working in their final semester, 395 worked off campus, while 283 worked on campus. “Sales,” “Service,” and “Professional-Specialty” were the most common off-campus positions while the most common job title on campus was “Administrative Support.” Neither gender nor program of study had any significant effect on hours worked or position held. The importance of the extra income brought by working, even if part time, increased through the cohorts, with the percentage of students who indicated they “did not work [at all] during UNI studies” decreasing significantly over the five year span surveyed ( $p < .00001$ ) (Table 2.1).

<b>Table 2.1 Working Status by Student Cohort</b>			
	<b>84-85 Cohort</b>	<b>87-88 Cohort</b>	<b>90-91 Cohort</b>
Worked During Studies	85.9%	92.9%	95.3%
Did Not Work During Studies	14.1%	7.8%	4.7%

Although most students came to UNI directly from high school and had not previously held full time jobs, work was an important dimension of the undergraduate experience. The university played an important role in the employment of many students, since (in specific reference to graduating seniors) 40 percent of the jobs held were within the university system. Most students worked at least part time to help pay the cost of attending UNI and to increase their financial independence. One might extrapolate that, as federal grant and loan supports become more scarce, work will continue to become an increasingly important part of the undergraduate experience, as will the role of the university in regard to student employment services and opportunities.

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<sup>10</sup> Most (about 2/3) of the responding graduates, even at the time the survey instrument was complete, were without children and family obligations of their own. At least one-third of the respondents were unmarried or not living with a partner.

## **Students' Educational History**

Over the last decade, one-fourth to one-third of the UNI student population has been previously enrolled in some other post-secondary educational program before attending UNI. About 13 percent of the responding graduates had some type of an associate degree when they entered UNI. However, for the most part, students are attracted to UNI directly out of high school. In many ways, the UNI undergraduate experience can be seen as a natural sequel to the secondary school experience.

## **Parents' Educational History**

The educational attainment of a parent or both parents is a strong predictor to the likelihood of their children attending college, and most importantly, succeeding in their endeavors. Approximately 42 percent of the graduates' mothers and about 33 percent of the graduates' fathers had a high school diploma but no post-secondary education. Fourteen percent of the mothers and 12 percent of the fathers had some college but no undergraduate degree, while another 15 percent of the mothers and 13 percent of the fathers held four-year degrees or equivalents. Over 14 percent of the respondents' fathers had completed graduate degrees, while only about 5 percent of the respondents' mothers had completed an advanced degree. Only about six percent of the responding graduates' mothers and 13 percent of the graduates' fathers did not have a high school education. These numbers indicate that, for the most part, UNI graduates come from families where education and the rewards that stem from obtaining a good one are seen as valuable opportunities and are looked upon as a natural step in growth and development.

Based on 1990 figures<sup>11</sup>, Iowa ranked 30th in the nation for educational attainment of adults, with slightly less than 20 percent of the adult population not having a high school diploma, and nearly half of that group not completing the eighth grade. Even so, the dropout rate in Iowa is among the lowest in the country (6.6%)<sup>12</sup>. Within the 1990 Iowa population, about 39 percent of the adults had a high school diploma but no further post-secondary education, another 17 percent had some post-secondary education but no degree, 8 percent held associate degrees, 12 percent held a Bachelor's degree, and 5 percent held graduate degrees. Although almost half of the responding UNI graduates are among the first generation of their families to acquire any post-secondary education, the education tradition at UNI appears fairly strong given the educational history of the parents of UNI graduates when compared to the general population (Table 2.2).

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<sup>11</sup> See *The Chronicle for Higher Education: Almanac Issue*, September 1, 1994, p.6.

<sup>12</sup> See previous footnote

**Table 2.2 Educational Attainment of UNI Parents,  
1990 Iowa Adults, U.S. Adults**

	UNI Mothers	UNI Fathers	UNI Avg.	IA Avg.'90	US Avg.'90
No HS diploma	6.1%	12.9%	9.5%	19.9%	24.8%
High School diploma	41.7%	32.5%	37.1%	38.5%	30.0%
Some post-secondary	28.3%	24.2%	26.3%	17.0%	18.7%
Undergraduate degree	18.7%	16.3%	17.5%	19.4%	19.3%
Graduate degree	5.2%	14.1%	9.7%	5.2%	7.2%

### **Parents' Occupational History**

Respondents were asked to identify the present or last field of work for their mother and father. These fields were defined similarly to the U.S. Census occupational coding scheme. For fathers of UNI graduates, the modal occupation or field (20.4%) for all cohorts was agriculture, forestry, and fishing<sup>13</sup>. The second most common occupation for fathers of responding graduates was manufacturing (18.6%). The high frequency of agriculture related fields can be expected, as the composition of the population of Iowa is predominantly rural in nature.

For mothers of responding UNI graduates, the modal occupation or field was homemaking. About one in every four mothers (24.6%) were listed as having their primary field of work as caring for their own home and family. The wording of this question implies that these mothers had never worked outside the home. Although this was the modal mothers' field of work across all cohorts, it was much more pronounced in the 1984-85 cohort (30.1%) than in the 1987-88 (21.2%) and 1990-91 (22.5%) cohorts. The second most common field of work for the mothers of the respondents was "education" (15.7%). At least one out of every seven responding UNI graduates had a mother in the education profession.

By examining the occupations of respondents' mothers and fathers, UNI graduates appear to take on very unique characteristics when compared to the average student in other universities. UNI's history and distinction as a liberal arts "Teacher's College" may be reflected in the large number of respondents' parents who are in the field of education themselves. Students wishing to follow the example of their parents would make the obvious choice of attending an institution with such a reputation.

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<sup>13</sup> According to W. Goudy in the 1992 publication *Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data*, Iowa had about 100,000 farms in 1992. That number is steadily declining while the size of individual farms is proportionately increasing.

## **How Do Students Finance Their Education?**

The majority of parents of UNI students were classified in the working class to middle class range. As previously stated, most students did not hold full time jobs before or during college. This raises the question as to how UNI students typically finance their education. As indicated, most UNI students (93%) are classified as Iowa residents for the purposes of tuition. Resident undergraduate tuition and fees at the University of Northern Iowa are only slightly above the national average for public four year institutions (estimated \$2,600 in 1996<sup>14</sup>). The 1994 average tuition and fees for the three Iowa public four year universities was actually below the national average (\$2,228 vs. \$2,352)<sup>15</sup>. The cost of living in Iowa is relatively low. Even so, the costs of tuition, fees, books, and other related expenses continue to rise while grants, loans, and other government supported education funding is decreasing. What resources did students use to finance this education?

Respondents were asked to identify to what extent they used each of several means to finance their undergraduate studies at UNI. A simple scale was presented for rating purposes comprised of the responses (1) extensively, (2) somewhat, and (3) not at all. Note that several items might be identified and marked the same (e.g., “extensively”) for each respondent, therefore percents could exceed 100. Over 40 percent of the respondents indicated that students loans were used to a great extent to finance their education. Among other sources widely used, 35 percent relied chiefly on parental support, 28 percent primarily used personal savings, 28 percent identified heavy reliance on income from work outside the university, and 23 percent relied mainly on scholarships and grants. Support from spouse (6%) and working within the university (14%) were not relied on as extensively as other supports. Work within the university, however, was still an important source of income, with 41 percent of the respondents identifying this as “somewhat” important in financing their studies. Personal savings took the lead in the “somewhat” category. Fifty-two percent of the respondents reported relying somewhat on their personal cash reserves. Similarly, scholarships and grants (46.1%), parental support (38.4%), student loans (29%), and working outside the university (49%) were important secondary sources of support for financing their studies. A few respondents identified military, VA, vocational rehabilitation, and employer as alternative sources of their funding. See Table 2.3 for a summary of funding sources.

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<sup>14</sup> 1995 figures are not yet available, but the overall national trend is toward higher tuition. One might speculate that the 1995 UNI tuition and fees will be very close to the national 1995 average.

<sup>15</sup> The Chronicle of Higher Education: Almanac Edition. September 1, 1994, p.9.

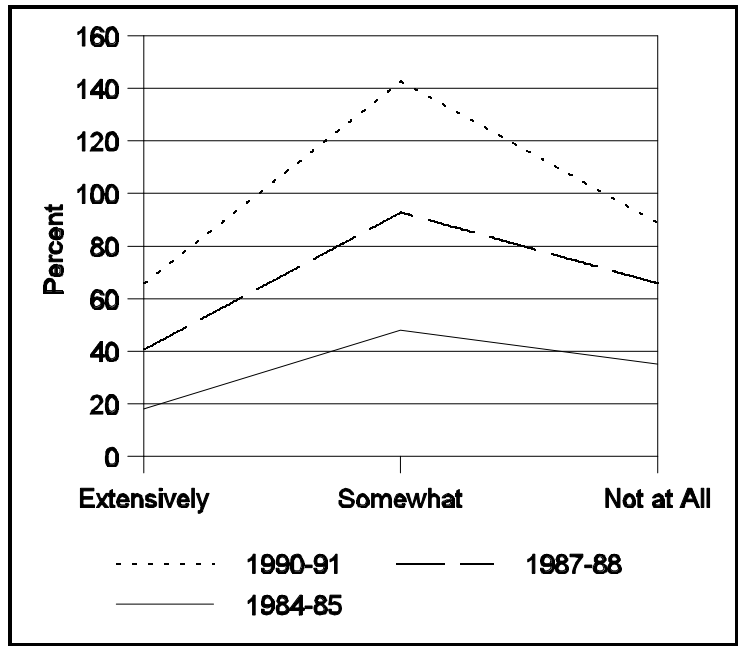
	<b>Extensively</b>	<b>Somewhat</b>	<b>Not at all</b>
Personal Savings	28.4%	51.8%	19.8%
Grants/ Scholarships	22.9%	46.1%	31.0%
Parental Support	35.4%	38.4%	26.2%
Student Loans	40.5%	28.8%	30.7%
Spouse/ Partner	5.7%	8.6%	85.7%
Work at UNI	14.3%	40.6%	45.1%
Work off Campus	22.8%	49.3%	27.9%

When examining the data above by cohort, two significant trends emerge. First, the reliance on scholarships and grants increased from the 1984-85 to the 1990-1991 cohort ( $r = -.11$ ; significance level .001)<sup>16</sup>. Nearly half of the students in all cohorts (about 47%) relied on grants and scholarships as a secondary source of educational support. Only 18 percent of the respondents from the 1984-85 cohort reported extensively using scholarships and grants to finance their studies at UNI. This number increased to 23 percent in the 1987-88 cohort and to 27 percent in the 1990-91 group (See Figure 2.1).

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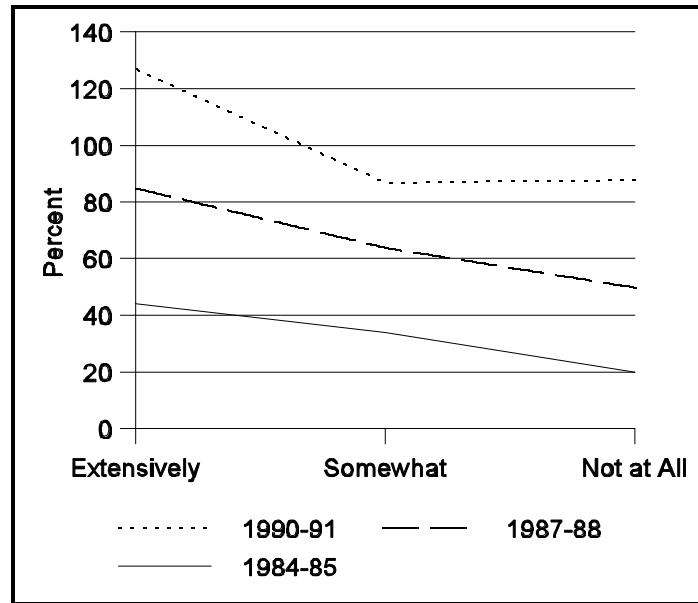
<sup>16</sup> Correlations obtained by converting cohort to a true interval level variable (84/85=1, 87/88=2, 90/91=3) and degree used to a crude interval scale (extensively=1, somewhat=2, not at all=3). For the purpose of trend analysis, positive correlations indicate decreased use and negative correlations indicate increased use.

**Figure 2.1 Use of Scholarships and Grants by Cohort**



When examined by cohort, the increased reliance on grants and scholarships as a primary means of paying for studies at UNI was paralleled by a decrease in the extensive use of student loans as a primary means of educational support. About 46 percent of the respondents from the 1984-85 cohort indicated they extensively used student loans to finance their studies. That number decreased to nearly 40 percent in the 1987-88 cohort and to 36 percent in the 1990-91 cohort. Statistically, the relationship between cohort and use of student loans is insubstantial ( $r = .14$ ) but clearly significant ( $p < .00001$ ). See Figure 2.2 for a graphic representation of the change in reliance on student loans over time.

**Figure 2.2 Use of Student Loans by Cohort**



The data alone cannot offer an explanation for the shift away from student loans and toward a greater reliance on grants and scholarships. One might speculate a change of necessity as federally funded loans become increasingly scarce and less appealing in regard to long-term interest costs. Of those means of financing education that are utilized, personal savings and parental support remain the largest sources of contribution to financing a UNI students' education, followed closely by work outside of the university. Loans, grants, and university employment, however, also remain an important part in making the university experience possible for many students. Given our knowledge of the background of UNI students and their parents, coupled with the decreasing availability of external financial supports and the dilemma of the disappearing middle class, this area will become increasingly problematic for students and the administration in the future.

### Academic Pursuits

Responding UNI graduates as a group listed over 100 different majors for their primary program of study. About 10 percent of the respondents also listed second majors. About 45 percent of the respondents reported having completed the requirements for a minor program and about seven percent even identified a second minor. Over two-thirds of the 1,042 respondents acquired Bachelor of Arts degrees (68.2%), with an additional 22 percent of the respondents receiving Bachelor of Arts Teaching degrees. About two percent of the respondents received a Bachelor of Fine Arts degree, and only 12 of the respondents (1.2%) received a Bachelor of Liberal Studies degree. There were five Bachelor of Music degrees (0.5%), 20 Bachelor of Music Teaching degrees (1.9%), 42 Bachelor of Science degrees (4.0%), and 16 Bachelor of Technology degrees (1.5%).

Primary majors that comprised relatively large percentages of the respondents included accounting (5.9%), social work (6.2%), and public relations (6.7%). Early childhood education was the most frequently cited second major (15 respondents). Of the 466 respondents who pursued minor areas of study, journalism was listed most frequently (9.4%), followed by coaching (7.9%), sociology (6.4%), and general business concepts (4.3%). Coaching was the most frequently cited second minor (13 respondents). Of course, these response rates are influenced by a combination of factors including the actual proportions in the study population, the stratified sampling procedure, and differential return rates. If any observations can be made from the data, one might emphasize the continuing importance of the liberal arts curriculum at UNI and the disproportionately strong voices of the College of Business Administration and, particularly, the College of Education. In the 1994 UNI student population (12,572), elementary education was the most popular major with 1,502 undergraduate students pursuing it. The second most pursued major in 1994 was accounting with 1,021 undergraduate students. Early childhood education listed 483 undergraduate majors, and psychology followed closely with 418 undergraduate students. Other popular majors in 1994 included business administration (345), criminology (325), English (313), general studies (275), general finance (269), biology: plan Y (266), social work (254), history (231), management: business administration (226), and business: potential (220). All other majors in the 1994 UNI student population had less than 200 students and most remaining majors had fewer than 100 students<sup>17</sup>.

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<sup>17</sup> 1994 student population information taken from A Profile of Students Enrolled at the University of Northern Iowa Fall Semester 1994, edited by William DiBrito and Jane Larson, Office of Institutional Research, University of Northern Iowa.

## **Recreational Activities**

Respondents were given a list of 16 various extra-curricular activities and asked to what extent they took part in each. Responses were on a five point Likert-type scale with “1” indicating “Very Extensively” and “5” representing “Not at all.” Assuming that different colleges at UNI might encourage and participate in activities differently, cases were weighted by college to control for the otherwise stratified sampling procedure<sup>18</sup> (Table 2.4).

<b>Table 2.4 Extent of Use of Extra-curricular Activities for UNI Undergraduates</b>		
<b>Activity</b>	<b>Mean</b>	<b>Standard Deviation</b>
Departmental / educational clubs	3.370	1.293
Courses not required	3.395	0.998
Intramural / intercollegiate sports	3.530	1.513
Recreation, leisure time, culture related clubs	3.536	1.405
Cooperative education, internships, placements	3.649	1.406
Guest lectures, conferences	3.713	0.955
Professional organizations	3.728	1.270
Scholastic honorary associations	3.980	1.227
Cultural, social, political activities apart from organizations	3.996	1.225
Volunteer work, public service	4.057	1.112
Religion / campus ministry	4.137	1.178
Art, music, theater apart from major/minor study	4.150	1.208
Student government	4.597	0.936
Environmental activities	4.636	0.703
Student broadcasting and publications	4.660	0.891
International / national student exchange	4.768	0.810
Mean activity score	3.994	-----

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<sup>18</sup> Cases within each college were weighted by the factor that made their proportion in the returns equal to that in the actual university population by college. The purpose of the weighting is to provide a more accurate and theoretically grounded basis for inferring to the study population.

Based on the data summarized in Table 2.4, one can conclude that UNI students as a group are not as active in extra-curricular activities as they are in their academic experience. The majority of the mean scores above are within one standard deviation of participating “not at all” and none of the mean scores are on the “extensive” side of the scale. All of the items had a mode of “5” (“Not at All”) except for “Courses not required by major/minor or general education” which had a mode and median of “3” and for “Guest lectures, conferences” which had both a mode and median of “4”. The lack of participation in extra-curricular activities by UNI students raises important administrative and policy questions. Assuming that such activities and interests are an important dimension of a broad liberal education, one must ask what the university might do to provide and encourage a more diverse and engaging undergraduate experience for its students. The question from the perspective of the UNI graduate subsequently becomes “What did I learn from college and what would I change if I could?”

### **Skills Acquired as an Undergraduate**

Respondents to the questionnaire were given a list of 43 skills and qualifications and asked to rate those skills as “1” (high), “2” (medium) or “3” (low) in three different areas: (a) work requirement, (b) attained/enhanced through university study, and (c) should be a university goal. This section of the report focuses specifically on the skills that respondents reported were attained and enhanced through university studies. Once again, cases were weighted by college to maximize representativeness of the stratified sample. Means were then calculated for each item. Those skills acquired and enhanced at the university which were rated relatively high by respondents included “Broad and general education” (mean=1.445), “Understanding written information” (mean=1.463), “Often learning new things” (mean=1.478), and “Communicating through writing” (mean=1.502). Those skills rated the lowest include “Knowledge of a foreign language” (mean=2.451), “Negotiating agreements” (mean=2.381), “Serving clients or customers” (mean=2.265), and “Drafting new plans or designs” (mean=2.165). See Table 2.5 for a summary of the findings.

<b>Table 2.5. Skills Attained/Enhanced Through University Studies</b>				
<b>Skill</b>	<b>% High</b>	<b>% Medium</b>	<b>% Low</b>	<b>Mean</b>
Broad and General Education	60	36	4	1.445
Understanding Written Information	58	38	4	1.463
Often Learning New Things	58	37	6	1.478
Communicating through Writing	57	37	7	1.502
Acquiring and Evaluating Information	48	44	8	1.598
Using Reasoning Skills	48	44	8	1.606
Specialized Knowledge of an Area	53	33	14	1.618
Solving Problems	42	49	9	1.662
Setting and Meeting Goals	44	45	12	1.679
Oral Communication Skills	44	43	13	1.691
Effective Listening	44	43	13	1.696
Making Basic Calculations	44	41	15	1.709
Concentration	40	46	14	1.735
Decision Making	35	52	14	1.790
Working in a Team	38	44	18	1.803
Adapting to Change	36	46	18	1.816
Awareness of Abilities/Limits	34	48	18	1.835
Recognizing Connections Among Ideas and Activities	27	60	13	1.861
Asserting Own Ideas	32	49	19	1.864
Creative Thinking	32	50	18	1.867
Believing in own Self-worth	35	43	22	1.870
Applying Rules and Regulations	31	50	19	1.875
Evaluating own Actions	31	49	20	1.884
Working with People of Diverse Backgrounds	35	42	24	1.891
Documenting ideas and proposals	30	50	20	1.905
Teaching/Training Others	36	37	27	1.917
Defining own Career goals	31	45	23	1.929

Interpreting Visual Symbols, Pictures, Graphs	26	52	23	1.968
Getting Personally Involved	26	49	25	1.987
Understanding/Empathetic of Others	28	45	27	1.997
Computer Knowledge	30	40	30	2.003
Making Ethical Decisions	26	48	26	2.006
Leading Others	26	45	29	2.026
General Scientific Method	25	46	28	2.030
Allocating Resources (Time, Money, etc.)	26	44	30	2.044
Understanding Complex Systems	20	53	27	2.064
Seeing Events in Historical Perspective	20	49	31	2.112
Motivating Others	21	46	34	2.130
Interpreting Events in a Larger Social/Political Context	20	47	33	2.134
Drafting New Plans or Designs	19	46	35	2.165
Serving Clients/Customers	19	36	45	2.265

Responding UNI graduates indicated they acquired and refined many skills and qualifications at the university. Additional interpretation of this data will be offered later in regard to the need for such skills at work and also the extent that it should be the university's responsibility to provide them. Given this fairly comprehensive picture of who UNI students are, what they are like, and what they do, one question remains in summarizing the undergraduate experience from the perspective of the students: "What would they change about their undergraduate experience if they could?"

### **Suggestions for Change**

Respondents were asked the question "If you had your undergraduate days to do over again, what would you change, if anything?" Simple frequencies were run on the data and cases were again weighted by college to control for stratification biases in the initial sample. About one-third (35%) of the respondents said they would not change a thing about their undergraduate days. Responding graduates from the College of Business Administration and the College of Education were less likely to indicate that changes would be made (60% vs. 65%, nw=237; 59% vs. 65%, nw=231 respectively<sup>16</sup>). Of those who expressed the desire to change their experiences, the

tendency to identify changes in one's undergraduate days was related to college<sup>19</sup>. Respondents from the College of Social and Behavioral Science and the College of Humanities and Fine Arts were more likely than expected statistically to say they would change some things (72% vs. 65%,  $n_w=153$ , 69% vs. 65%,  $n=175$ , respectively). Those who would change things (65%) were then given the opportunity to identify specific areas they would change. About 51 percent of those who would change anything said they would change their major. Respondents from the College of Social and Behavioral Sciences tended to be less satisfied with their major than would be statistically expected (64% vs. 51 %,  $n_w=110$ ), while respondents from the College of Business Administration (43% vs. 51 %,  $n_w=142$ ) and the College of Education (43% vs. 51 %,  $n_w=136$ ) did not indicate they would change their major as much as we would expect statistically. About 32 percent of the respondents said they would also change their minor. Ninety-five respondents (9.0%) indicated they wished they had chosen a different university, and only 34 (3.0%) said they wished they would have attended a different type of post-secondary institution all together. Ten respondents (1.0%) indicated they wished they had gone directly to work and bypassed college completely. Other changes respondents recorded included taking different courses (80 respondents), becoming more "involved" (31 respondents), having more of an academic focus (28 respondents), and changing the timing of their courses or program (25 respondents). As responding UNI graduates looked back, most of their concerns and those things that they would change appear to have very practical and useful implications. Too much influence is placed today on graduating in four years due to costs of education, and in consequence, some students may be choosing a major area of study which holds little interest or promise to them, which later leads to dislike of the chosen field. The relevance of this data might promote the university to include more in depth explanation and availability of information about majors/minors and career opportunities in the chosen field of study before the major/minor is declared. With such a dissatisfaction of some major areas of study, an approach should be taken in regard to promotion of and education about those fields before the student becomes too involved in the major course work to change their study interests.

When asked to evaluate the utility of their undergraduate experience on a scale from "1" (Very useful) to "5" (Not useful at all), respondents demonstrated a pronounced concern in regard to the practical utility of their undergraduate experience. In regard to the usefulness of their undergraduate experience for *professional development*, about three-fourths of the respondents (74.0%)<sup>20</sup> marked either "1" or "2" (mean=1.927). An even greater percentage (81.0%) marked either "1" or "2" (mean=1.804) when asked about the utility of their undergraduate experience in their *personal development*. In regard to *economic well-being*, 56 percent of the respondents marked either "1" or "2" (mean=2.405) on the item. One can extrapolate that these questions

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<sup>19</sup> Groups were compared using a Chi-Square analysis with observed and expected frequencies tabulated by college and response. Runs were made on both weighted and un-weighted cases, with the weighted results being reported. In all cases, the differences in groups would occur by chance alone less than 5 out of 1,000 times.

<sup>20</sup> Derived using the data weighted by college.

indicate that responding UNI graduates have found a measurably strong degree of utility in their undergraduate experience. Furthermore, utility has a broad scope of application including professional development/personal development, and economic development.

Respondents were then asked whether they agreed or disagreed on the value of a university education<sup>21</sup>. A Likert-type scale was constructed with “1” representing “Strongly Agree” and “5” representing “Strongly Disagree.” Over four-fifths (82%) of the respondents indicated strong agreement (mean=1.700) when asked to rate the statement “[A university education] is indispensable for professional success today.” When the contrary statement “[A university education] is generally overestimated relative to one’s job success” was proposed, about 32 percent of the respondents replied positively, but nearly half (49.7%) reported disagreement to that statement (mean=3.352). Most respondents (83%; mean=1.686) agreed that a university education is becoming more important due to new demands for qualifications. When posed with another contrasting statement, “[University education] imparts knowledge for which there is hardly any professional use,” again about one-half (50.1%; mean=3.471) of the respondents placed themselves on the disagree side of the scale. Respondents were somewhat ambivalent about the prestige bestowed by a university degree. Forty-one percent of the respondents were less decisive in responding to that statement (mean=2.834), although 36 percent tended to agree that prestige played a role in the overall interpretation of the post-secondary experience. A question on the value of a university education in acquiring a high income had similar findings (mean=2.73). Over three-fourths (75.7%) of the respondents agreed that a university education was very important for personal development. Less than eight percent of the respondents disagreed with that statement (mean=1.935).

One might conclude that, for the most part, respondents indicated they have acquired a large number of valuable skills and knowledge during their undergraduate experience. Though some would change the details of their individual experiences, most graduates place a high value on a university education and its scope of application. From an administrative perspective, however, areas of concern remain in regard to the limited scope, diversity, and availability of extra-curricular activities of UNI students and this dissatisfaction with chosen major areas of study as the graduates enter the job market and realize the implications of their decisions. The remainder of this report will address what these students have gone on to and how they have fared after graduation. It is then that the relative success or failure of the university to provide a satisfactory and effective undergraduate experience can be assessed.

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<sup>21</sup> See previous footnote

## **Part 3: After Graduation**

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### **Additional Studies**

Forty-two percent of the respondents indicated they had pursued additional studies after receiving their undergraduate degree from UNI. Of that group, respondents were asked to rank the importance of their educational pursuits in regard to several life circumstances and factors. The respondents indicated the relative importance of these variables on a scale ranging from one, indicating very important, to five, stating no importance at all. The cases were again weighted by college. Over 40 percent of the respondents placed high importance on additional education in the pursuit of a graduate degree in their undergraduate field. Just over one-third of the respondents stated that further schooling was important in earning a graduate degree in a field different from their undergraduate major (34.7%). Advancement in job status also played a motivating role in pursuing additional education. Seventy percent of the respondents stated that further education was important in improving their initial chances of getting a job, and over three-fourths (76.4%) indicated that education beyond their undergraduate degree was important in obtaining a better position than their current position. It is important to note that slightly over half of the respondents (50.7%) placed high value on further education in pursuing and advancing their personal scholarly interests. This figure indicates that while education and degree attainment are of utmost importance to the individual, the desire for personal growth and development still remains a valuable goal of the college experience. (See Table 3.1)

<b>Table 3.1 Reasons for Pursuing Additional Studies</b>							
		<b>Very Important.....Not at all Important</b>					
	<b>Mean %</b>	<b>1 (%)</b>	<b>2 (%)</b>	<b>3 (%)</b>	<b>4 (%)</b>	<b>5 (%)</b>	<b>Standard Deviation</b>
Improve chances for better job/position	56.3	20.1	9.2	4.4	10.0	1.315	1.917
Improve initial employment chances	50.8	18.7	9.1	6.5	14.9	1.475	2.159
Generally widen horizons	29.1	27.1	17.5	7.2	19.2	1.456	2.602
Earn further qualifications in field	44.0	13.8	9.2	2.7	30.3	1.731	2.615
Follow up personal scholarly interests	26.7	24.0	15.7	6.8	26.9	1.557	2.831
Earn graduate degree in undergrad field	34.1	7.4	8.8	8.7	41.0	1.774	3.152
Do something different than usual routine	15.5	12.4	19.9	12.6	39.6	1.491	3.485
Earn graduate degree in new field	24.6	10.1	6.1	8.3	50.9	1.718	3.509
Attain higher social status	10.0	11.9	15.6	13.3	49.3	1.411	3.799
Earn advanced professional degree	17.8	7.2	7.9	8.7	58.4	1.590	3.827
Earn an additional undergraduate degree	8.7	2.8	7.3	5.2	76.0	1.261	4.371
Delay decision on career	1.7	2.8	7.4	6.0	82.2	0.864	4.642

The importance of and the need for additional education was clearly demonstrated in the results of the questionnaire. With the ever increasing demands placed on graduates upon entering the labor market, additional education proves to be beneficial in not only helping the graduates obtain their initial positions, but also in excelling at their existing positions. Further education appears to offer a clear avenue of development for the worker who wishes to compete for and obtain the best job possible in the demanding job world. The university could use this demand for continuing education to assure the success and placement of its graduates. The respondents' desire for personal growth also needs to be noted by the university in the development of educational opportunities on a non-degree basis, which could be interpreted as being solely for the purpose of broadening horizons. The next section will examine the types of jobs and careers these graduates obtained and what factors were important in acquiring them.

### **Paid Employment**

Since the vast majority of students were already employed while attending UNI, it was not surprising to discover that nearly all responding UNI graduates had worked for pay since graduation (98.7%). Most of the placements were full-time positions (78.2%), although more recent positions were more likely to be full time than past positions. Only 13 respondents from the original sample indicated they had not been employed for pay since obtaining their

undergraduate degree and, of those, only three reported to have actually looked for employment during that time. Seven of those 13 were attending graduate or professional school and five decided to be homemakers and raise a family instead of working. Three indicated they did not need or want to work.

Over 70 percent of the graduates indicated they had not experienced any periods of unemployment since completing their undergraduate degrees. Of the 28 percent who had been unemployed, about half reported they actively sought work but were unable to obtain a job. Within that group, the mean number of applications placed was 45, the median number of applications was 30, and the mode was 50. The average search was eight months in length (std. dev. 8.9). At the time the questionnaire was returned, 38 out of 1042 respondents (3.6%) were unemployed and still seeking work.

Half of the 28 percent who had been unemployed indicated that they were unemployed due to the inability to find a job. The other half indicated they were unemployed because they had voluntarily quit (or lost) their job. Almost one-fifth (18.2%) of this group claimed that their work was uninteresting. Lack of career development was also cited as a reason for unemployment by about 29 percent of the group. About 20 percent said the job offered no opportunity to use their qualifications. For nine percent of the group, the position was too far from home. Almost one-fourth (23.3%) cited family reasons for quitting.

Just over two-thirds (67.1 %) of the respondents indicated they had changed employers or positions since they received their undergraduate degree. About 83 percent of those reported that they intentionally quit their previous job. Reasons for quitting included better pay (55.9%), more stimulating work (44.4%), increased opportunity for career development or advancement (59%), and better opportunity to use qualifications (46.8%). Additional reasons specified included better working conditions (4.4%) and relocation (4.1%). Eleven respondents admitted that they were fired from their position, 38 indicated that the position had a termination date which was not extended, and 35 reported that internal company problems led to the elimination of their position.

Certain practical conclusions might be derived from these reports. First, respondents appear to be looking for work that was stimulating and interesting, that allowed opportunities for personal and economic growth, and work that challenged them to use the qualifications they had gained through education and experience. As employers increasingly alter their preferences for workers to those employees with a broad range of transferable and adaptive skills, individuals searching for the job are also demanding more rewards from their work experiences. As the demands on those entering the job market continue to rise, it is admirable to note that workers entering the job market still call for some personal level of satisfaction in addition to company gratification. Secondly, respondents to the questionnaire did not appear to have a problem with unemployment as a group, indicating the importance of obtaining and maintaining a broad educational background. The next section will look specifically at the first occupation graduates were employed in after they received their undergraduate degree.

## **First Job**

Respondents were asked to list the title of their first job after graduation. Eighteen general occupational categories were developed and responses were coded accordingly (Table 3.2). About 41 percent of the respondents indicated that their first job fell into the professional specialty category. This category was dominated by those graduating from the college of education, with 111 respondents listing this category. The executive, administrative and management category was recorded by approximately 20 percent of the graduates. As one would expect, this category was dominated by business majors. As Table 3.2 illustrates, the first occupation of graduates tended to be segregated in the professional categories, although one can conclude that UNI graduates continue to be attracted to and recruited into a very wide variety of job classifications.

<b>Occupation</b>	<b>Sample Percent</b>	<b>Weighed Percent</b>
Executive, administrative, & management	19.8	22.9
Professional and specialty	41.4	41.5
Technical and related	1.7	2.0
Sales	9.8	9.4
Administrative support	12.6	11.4
Private household	0.8	0.7
Protective service	1.1	0.8
Service	4.9	3.7
Farming and forestry	0.6	0.5
Mechanics and repair	1.8	1.8
Construction	0.8	0.8
Precision production	0.4	0.5
Machine operators	1.1	1.3
Transportation	0.5	0.4
Laborers	0.5	0.5
Student	0.4	0.3
Self Employed	0.7	0.7
Military	1.2	1.0

About one-third of the respondents reported that their first job after graduation was related to employment they had before or during their studies at UNI. Of that group, well over half of the respondents (58.9%) indicated their first job was in a similar field of work but with a different employer. This information exhibits practical implications in that it suggests job experience during undergraduate studies can later predict, with some accuracy, the type of employment a graduate will engage in after graduation.

Respondents were also categorized by industry of their first job. These categories roughly corresponded to the occupational coding scheme utilized by the U.S. Census. Cases were again weighted to control for the stratified sampling procedure and to get a better picture of the university population under study. After weighting, we could estimate that about 30 percent of the graduating university population went into education for their first job. After totaling the percentages in the business-related categories of accounting, finance, insurance, real estate, and other business, we can predict that about 20 percent of the UNI graduating population went into these business related areas for their first job. These percentages are reflective of the large numbers of graduates from the Schools of Education and Business. Other significant industry categories were retail trade (13%), manufacturing (7%), social services (6%), and health (6%). Again, one might conclude that although the size and strength of the UNI business and education programs result in a large percentage of placements in these two areas, graduates of UNI can and do find employment in a wide variety of industries and positions.

### **Job Search Process**

Respondents were asked to assess how successful various methods were in finding their first job. A Likert-type scale was utilized with “1” indicating very successful and “5” representing not at all successful. If the respondent did not use a particular method of searching for work, they marked a “0” on the questionnaire and were not included in the scaling analyses on that item. Given that some colleges have their own resources for referring and placing their own graduates, cases were again weighted by college to control for the stratified sampling procedure. The most frequently used and the most successful job searching method for graduates was to respond to advertisements in the classifieds (65% of the graduating population obtained their positions in this manner). Contacts from professional experience and unsolicited applications to employers were also used relatively often (54.7%). Nearly two-thirds (63.4%) of the graduates contacted the university placement office, but with mixed success (mean=3.38). Graduates found relatively minimal success (mean=4.03) with the state Job Service agency, contacts made in a “co-op” program (mean=4.06), contacts acquired through political, cultural activities, etc. (mean=4.52), and by placing their own ad in the newspaper (mean=4.77); though less than about one-third of the graduates pursued those later alternatives (31.2%, 33.4%, . 23.0%, and 16.5%, respectively). About 1 in 6 graduates sought financing to pursue their own businesses and, when doing so, seldom experienced a great deal of success (mean=4.77).

<b>Table 3.3 Relative Success of Job Search Methods in Getting First job</b>								
		Very Successful.....Not At All Successful						
	% Used	(%) 1	(%) 2	(%) 3	(%) 4	(%) 5	Mean	Std. Dev
Advertisements in the want ads	65.3	41.1	14.5	15.7	10.9	17.8	2.50	1.54
Contacts from your own professional experience	54.7	36.0	16.2	14.2	12.7	20.8	2.66	1.57
Unsolicited applications to employers	59.0	31.7	13.9	17.8	12.7	23.8	2.83	1.57
Contacts acquired during studies (faculty/staff)	45.3	27.3	11.3	14.4	15.0	32.0	3.13	1.62
Family contacts	41.0	25.5	11.3	15.3	15.6	32.4	3.18	1.60
Completion of probationary job or internship	34.8	28.8	10.3	11.9	9.3	39.7	3.21	1.70
Use of university placement office	63.4	21.3	11.4	12.0	18.9	36.4	3.38	1.57
Announcements in professional publications	33.8	10.8	13.2	17.8	16.9	41.3	3.65	1.40
Arrangements through Job Service	31.2	9.4	5.9	12.8	15.5	56.4	4.03	1.34
University cooperative education program	33.4	9.5	4.7	11.1	19.6	55.1	4.06	1.31
Contacts through political, cultural activities, etc.	23.0	5.6	5.1	10.1	13.8	65.4	4.28	1.18
Your own ad in the newspaper	16.5	3.6	3.3	5.2	13.0	74.9	4.52	1.00
Received financing for own business	16.1	2.0	0.0	3.2	8.9	85.8	4.77	0.70

If some degree of consistency is assumed in the weighting and scoring of these various job search methods, a mean success score of 3.55 can be obtained. This could be interpreted to indicate that, although most graduates successfully acquire a job, different methods of searching for a job are usually undertaken, and graduates must be willing to accept limited success in many of their job searching efforts. Another interpretation of the data might be that many graduates are not pursuing as many options as they could in their search for a first job (although their success rate suggests this may not be necessary). The data can offer today's graduates little advice except to be open and willing to explore as many avenues of job attainment as possible.

The next question to be answered was “How important were certain factors in getting your first job?” Respondents were asked to rate 12 different factors in regard to their influence in acquiring their first job. A Likert-type scale was used with “1” indicating very important and “5” indicating not at all important. Assuming that different colleges and different fields might stress different qualities in their proteges, cases were weighted by college to control for the initially stratified sampling procedure. The one item that graduates identified as the most important contributing factor in obtaining their first job was their personality (mean=1.7). Almost 95 percent of the graduates indicated that personality was important. This was an unexpected finding from a group

that has thus far been characterized as being very instrumentally oriented and overtly practical. Less surprisingly, graduates indicated that their major and the subject matter of their studies was more important than most other factors in obtaining their first job (mean=2.2 and mean=2.6, respectively). Graduates also placed a moderate value on previous work experience, qualifications gained outside of studies, and grades. Political and religious beliefs, experiences abroad, and place of birth weren't thought to be contributing factors in job attainment (Table 3.4).

<b>Table 3.4 Relative Importance of Factors in Getting a First Job</b>						
		<b>Very Important.....Not Important</b>				
	<b>Mean</b>	<b>1 (%)</b>	<b>2 (%)</b>	<b>3 (%)</b>	<b>4 (%)</b>	<b>5 (%)</b>
Your personality	1.669	54.0	34.0	6.6	1.6	3.7
Your major	2.165	52.8	15.4	10.3	5.7	15.9
Your subject emphasis	2.608	33.5	22.1	15.5	7.9	21.0
Previous work experience	2.623	28.9	23.1	21.3	10.4	16.4
Qualifications gained outside of studies	2.758	21.6	28.3	22.7	7.7	19.8
Your grades	2.968	14.4	28.1	25.5	10.2	21.8
Cooperative education/internship	3.499	18.7	13.3	13.7	7.9	46.4
Your family background, social origins	3.611	11.9	12.3	18.9	16.5	40.3
The number of credit hours of your major	3.657	10.9	10.5	21.6	16.2	40.8
Your place of birth	4.334	3.9	5.4	11.1	12.7	66.9
Your experiences abroad	4.535	2.8	4.5	7.8	6.1	78.8
Your political or religious beliefs	4.603	3.1	2.2	6.0	8.8	79.9

The geographic distribution of job positions obtained by UNI graduates remained similar to the local-to-regional classification of UNI students in general. About 70 percent of UNI's graduates found a first job in Iowa. Another 18 percent found first jobs in adjacent states, with the largest percentages in Illinois (5.7%) and Minnesota (4.6%). Texas also attracted a sizeable percentage of UNI graduates (3.5%), especially teachers. Other states with placements to note included Arizona (1.2%), California (1.5%), and Colorado (1.1%).

About one-third of the graduates found their first job in one month or less, with the majority looking six months or less for that position. Twelve percent of the graduates did not even have to fill out an application for the position, and another 17 percent got the job they wanted on their first application. Half of the graduates filled out at least five applications before obtaining their first job. The data might be interpreted as indicating that nearly one in three graduates were able to move directly into the job they desired with minimal effort needed to acquire this position, other than academic knowledge and experience alone. On a practical note, most graduates should expect to file several applications before they obtain their first job if they do not have one arranged upon graduation. After all was said and done, about two-thirds of the graduates spent two years or less in their first job.

### **Present Job**

As one might expect, as these cohorts matured they had a tendency to move increasingly into executive, administrative, and management positions in subsequent job situations after their first job (+4.5%), apparently from administrative support, service, and sales positions. The health industry became a slightly more pronounced employer (+2.1%) as did finance, insurance, and real estate (+2.3%). Retail trade had the most dramatic drop (-5.1%), while repair service dropped off the list entirely. Graduates were unlikely to change the sector in which they worked, although the private for profit sector, in regard to employed UNI graduates, lost about two percentage points to the public or state government sector as graduates moved from their initial positions to their present positions.

About two-thirds of the graduates indicated their present job was a different position than their first job, with a different employer altogether. Nevertheless, 61 percent reported that their present job was directly related to their first job in one way or another. One in five graduates, however (21.2%), moved on to a different field of work entirely. Through these transitions from first to present job, the median employee size of the job institution grew from 50 to 100 and the modal employee size grew from 50 to 200 employees. The data offers no explanation for this shift, but one might hypothesize that the number of smaller firms decreased over the decade for a variety of reasons (e.g., recession, buyouts, cash cows, global competition, limited growth opportunities). On the other hand, smaller firms have less opportunity for individual growth and promotion, so a practical individual might naturally seek out firms with larger structures that offer more room and opportunity for individual advancement. In the absence of a more empirically based explanation, the data can only suggest that UNI graduates can increasingly expect to work for larger firms.

Graduates can expect to work even longer hours as they move through the job hierarchy. Almost one-third (32.1 %) of the graduates regularly worked over 40 hours per week in their present job, up almost seven percentage points from what was reported for the hours worked in their first job.

UNI graduates pursued the search for their present job somewhat differently than their first job. Use of contacts from professional experience increased as well as the rate of success of this method. Consequently, contacts from professional experience took the lead in successful methods

of acquiring one's present job. See Table 3.5 for a summary of methods and sources of obtaining the job that graduates are presently in.

<b>Table 3.5 Relative Success of Job Search Methods and Sources for Present Job<sup>22</sup></b>								
		Very Successful.....Not Successful						
	% Used	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Change
Contacts from your own professional experience	63.9	57.0	12.3	10.8	3.8	16.1	2.10	-0.56
Advertisements in the want ads	57.3	54.7	7.1	8.5	6.3	23.3	2.36	-0.14
Unsolicited applications to employers	53.6	42.7	13.9	8.1	10.2	25.2	2.61	-0.22
Family contacts	40.0	30.1	8.9	12.8	10.1	38.1	3.17	-0.01
Contacts acquired during studies	39.2	28.1	8.7	12.2	7.9	43.2	3.29	+0.16
Completion of probationary job or internship	31.9	29.8	7.5	9.4	4.8	48.4	3.35	+0.14
Use of university placement office	40.1	21.4	8.9	10.0	13.4	46.2	3.54	-0.16
Announcements in professional publications	31.8	12.1	7.6	13.9	11.8	54.6	3.90	+0.24
Arrangements through Job Service	31.5	9.4	1.3	7.4	12.5	69.5	4.31	+0.28
Contacts through political, cultural activities	29.4	4.6	6.4	11.0	8.9	69.2	4.32	+0.04
University cooperative education program	29.6	6.2	2.4	9.2	13.2	68.9	4.36	-0.30
Your own ad in the newspaper	23.0	4.3	0.0	2.3	5.8	87.6	4.73	+0.21
Received financing for own business	22.9	3.4	0.0	2.0	4.3	90.3	4.78	+0.01

While some methods of job obtainment had increased success rates from the first to present job (e.g., contacts from professional experience, use of want ads, unsolicited applications, and university placement office), others had lower success rates (e.g., professional publications, job service, faculty/staff contacts, probationary job or internship). The overall success rate dropped slightly (+0.05) for graduates in their present job, though such a statistic remains open for both interpretation and critique. Advice for UNI graduates based on the data of existing graduates'

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<sup>22</sup> Note that the value of "mean" is based on the point scale of "1" through "5" with "1" representing "very successful." Thus, a lower mean would indicate relatively greater success. Similarly, a "+" change in the mean from first job to present job would indicate that the method was less successful for the present job, while a mean change in the "-" direction would indicate that the method was more successful for the present job than the first.

current jobs would be very similar to that given based on past graduates' first jobs: File several applications, talk to colleagues, and watch the newspapers.

What factors did graduates see as most important in obtaining their present job? Like the data on graduates' first jobs, personality was considered by graduates to be the most important factor in obtaining their present job. Previous work experience logically moved to second place from fourth and qualifications gained outside of studies moved to third place from fifth. College major and subject emphasis remained important in graduates' getting their current position (Table 3.6).

<b>Table 3.6 Relative Importance of Factors in Getting Present Job</b>						
	<b>Very Important .....Not Important</b>					
	<b>1 (%)</b>	<b>2 (%)</b>	<b>3 (%)</b>	<b>4 (%)</b>	<b>5 (%)</b>	<b>Mean</b>
Your personality	61.8	29.0	5.0	1.1	3.1	1.547
Previous work experience	52.8	20.5	13.9	4.0	8.8	1.954
Your major	51.9	16.3	12.2	6.0	13.6	2.129
Qualifications gained outside of studies	32.0	27.8	17.7	4.3	18.2	2.490
Your subject emphasis	36.6	20.7	13.4	8.2	21.1	2.566
Your grades	12.3	22.9	25.2	9.8	29.9	3.222
The number of credit hours of your major	12.7	9.1	20.5	14.6	43.1	3.662
Cooperative education/internship	16.2	9.9	12.6	13.1	48.2	3.671
Your family background, social origins	10.3	12.2	14.7	15.1	47.7	3.777
Your place of birth	4.5	5.3	7.7	11.5	70.9	4.389
Your experiences abroad	4.2	5.9	6.4	7.8	75.8	4.451
Your political or religious beliefs	3.1	1.7	5.7	8.3	81.3	4.630

These summary statistics are helpful in understanding how UNI graduates fare in the work world. However, such descriptive data fail to address many of the bigger questions posed early in this report, specifically, what is the relationship between the undergraduate experience and the graduate's career?

## **Part 4: Use of Skills and Educational Qualifications**

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### **Influence of College Major on Job Attainment**

Common practice assumes that people attend college to get a degree, which then is often used as a certificate of entry to specific industries and positions. However, some of the more recent literature<sup>23</sup> suggests that employers are asking more for general skills and abilities and less for people who possess only particular job specific skills. If this were the case for both UNI graduates and their employers, we would have limited ability to predict a graduate's field of work by knowing her or his major. The relationship between major and job position is, of course, complex and involves not only employer recruiting but also a selection process by the graduate. One might also note that even if the predictability of position based on college major is high, this does not necessarily mean that the employer is not looking for general skills as well as job-specific ones. The aggregate data can, however, offer empirical evidence as to how well one might predict a graduate's position, salary, and expectations if the graduate's major is known.

Respondents to the questionnaire were asked to identify one of twenty-one business fields which would best describe the position in which they work. These responses were coded, weighted by college to control for the stratified sample, and then cross-tabulated with the responses to the question on college major. Since both variables are nominal, we are limited in the amount of statistical prediction we can undertake in regard to these variables. By chance alone, knowing nothing about the graduate or group, one should be able to correctly predict a graduate's field of business about one out of 21 every time. That percentage improves slightly when we know the frequency distributions of both major and business field. By computing a value for Lambda (an appropriate measure of predictive association for nominal variables), we find that by knowing a graduate's major beforehand, we can increase our ability to predict the graduate's field of business by about 32 percent, and (based on a Chi-Square test) such findings could occur by chance alone less than one in 10,000 times. Empirically we can conclude that there is a moderate relationship between college major and position.

Clearly, certain positions have higher salaries than others, and if there is a relationship between major and position, there should be a similar relationship between major and salary. Respondents were asked to identify either their hourly wage or their yearly salary on their questionnaire. When the responses for hourly wage and major were cross tabulated, the distribution resembles nearly exactly what one would expect by chance alone (Chi Square significance = 1.00). There were, however, significant differences in salaried employees, allowing us to compute Lambda as an indicator of the relationship between major and annual salary. Though statistically significant, knowing a graduate's major only increases our ability to predict his or her salary by about 13 percent. Thus, the relationship between major and salary is weak at best, while the relationship between major and hourly wage is statistically insignificant. How do these salaries stack up in terms of the graduates' expectations?

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<sup>23</sup> See the discussion in the introduction of this report.

UNI graduates had a median hourly wage of about \$7.70 per hour at the time of reporting, with a range from \$2.00 per hour to \$75.00 per hour (a few reported no wage at all). Salaried graduates reported a median income of between \$20,000 and \$30,000 per year. The majority of the respondents (53%) indicated that their income was around what they had expected, 14 percent said it was higher than expected, and 33 percent said it was lower than they had planned on.

One might conclude that outside of the influence of college major on position acquired, little can be said about the relationship of education to work, especially in regard to salary and salary expectations. Given that most of the graduates got the job they wanted with a minimal amount of searching, that the majority indicated they were making about what they expected, and few would change their major if given the chance, there is little to critique from the graduate's point of view.

### **Specific Skills and Qualifications**

Graduates were asked to rate (as high, medium, or low) 43 specific skills and qualifications with respect to three different contexts: skills required in their present work, qualifications attained or enhanced through their university studies, and skills being an appropriate university educational goal (regardless of its practical value). The prevailing pattern is that the graduates were required to use most skills and qualifications to a higher degree than were attained while at UNI.

Correspondingly, the graduates as a group also reported that these skills and qualifications, for the most part, should be more important goals of a university education than is reflected in what they actually attained while at UNI. Because this is an especially intriguing set of comparisons, the next several tables and narratives are given to illustrate these patterns overall and by gender, college and cohort. Again, the findings reported have been weighted by college.

In Table 4.1, the 43 skills and qualifications are ranked in descending order according to the percentage of graduates who rated each of these skills to be "high". The skills/qualifications that graduates were required to use most commonly (by 85-90% of respondents) in their present work or main activities included communicating orally, listening effectively, solving problems, understanding written information, and making decisions. However, no skills or qualifications were rated by more than 60% of the graduates as being highly attained at UNI. The five areas with the highest level of attainment (rated highly by 56-60%) were a broad and general education, often learning new things, specialized knowledge of an area, understanding written information, and communicating through writing.

Conversely, the graduates reported that the skills that were rated highly but were required least frequently at work were knowledge of a foreign language (4.0%), seeing events in historical perspective (14.1%), general scientific methods (16.8%), and interpreting events in societal/political context (20.5%). The areas with the lowest level of common attainment while at UNI were negotiating agreements (12.0%), knowledge of a foreign language (14.3%), serving clients or customers (18.6%), drafting new plans or designs (18.8%), and interpreting events in societal/political context (19.8%).

It is interesting to note that fewer graduates rated each skill and qualification as appropriate university goals than the percent who had indicated each was required at their work, but many more rated them highly as a goal compared to those who had attained each one while at UNI. In

other words, graduates generally indicated that skills and qualifications should have much greater emphasis as university goals although these skills can or will not be attained completely at the university. As summarized in Table 4.2, the most commonly rated university educational goals for UNI were communicating through writing, understanding written information, communicating orally, listening effectively, working with computers and other technologies, and solving problems (each rated highly by over 80% of the graduates).

	Required at work		Attained at UNI	
	% High	Mean	% High	Mean
Communicating orally	90.8	2.97	44.1	2.54
Listening effectively	89.9	2.97	43.7	2.53
Solving problems	86.7	2.96	42.4	2.66
Understanding written information	86.5	2.93	58.0	2.86
Making decisions	85.4	2.96	34.6	2.43
Reasoning	84.4	2.94	47.9	2.70
Working as a team member	81.5	2.91	38.0	2.33
Adapting to change	79.1	2.91	36.0	2.35
Communicating through writing	77.6	2.84	56.6	2.79
Setting & meeting goals	77.5	2.91	43.8	2.58
Acquiring & evaluating information	76.0	2.82	48.1	2.72
Serving clients or customers	75.5	2.75	18.6	1.58
Concentrating	75.3	2.91	40.3	2.49
Applying rules	73.3	2.86	31.3	2.25
Specialized knowledge of an area	72.9	2.81	52.6	2.57
Believing in own self-worth	71.9	2.86	35.2	2.23
Often learning new things	71.5	2.87	57.7	2.83
Having understanding & empathy for others	70.5	2.82	27.6	2.01
Creative thinking	70.4	2.83	31.5	2.27
Teaching/training others	68.7	2.79	35.6	2.13
Evaluating own actions	68.2	2.87	31.2	2.23
Awareness of own abilities and limits	67.3	2.88	34.1	2.32
Motivating others	66.4	2.69	20.7	1.76
Leading others	65.8	2.75	26.4	1.95
Asserting own ideas	64.8	2.84	32.3	2.27
Getting personally involved	63.9	2.77	26.3	2.03
Making basic calculations & computations	63.6	2.67	44.0	2.50
Working with people of diverse background	63.6	2.70	34.7	2.19
Making ethical decisions	63.4	2.66	25.6	1.99
Allocating resources	60.2	2.61	25.7	1.92

	<b>% High</b>	<b>Mean</b>	<b>% High</b>	<b>Mean</b>
Documenting ideas and proposals	58.4	2.62	29.9	2.19
Working with computer & other technologies	55.8	2.57	29.7	1.99
Connecting ideas & activities	55.1	2.66	27.0	2.35
Defining own career goals	53.5	2.57	31.4	2.15
Broad and general education	43.0	2.48	59.7	2.87
Interpreting visual symbols, pictures, graphs	41.1	2.25	25.7	2.07
Negotiating agreements	39.0	2.12	12.0	1.39
Drafting new plans or designs	38.7	2.16	18.8	1.70
Understanding complex systems	35.1	2.09	20.1	1.86
Interpreting events in societal/political context	20.5	1.64	19.8	1.75
General scientific methods	16.8	1.50	25.3	1.94
Seeing events in historical perspective	14.1	1.42	20.0	1.78
Knowledge of a foreign language	4.0	1.09	14.3	1.39
<b>Mean</b>	<b>62.5</b>	<b>2.61</b>	<b>33.9</b>	<b>2.22</b>
Means ranked from high (3) to low (1)				

	<b>% High</b>	<b>Mean</b>
Communicating through writing	90.7	2.99
Understanding written information	88.1	2.97
Communicating orally	86.0	2.98
Listening effectively	85.2	2.97
Working with computer & other technologies	83.3	2.97
Solving problems	81.3	2.97
Reasoning	79.2	2.96
Acquiring & evaluating information	74.6	2.95
Making decisions	73.7	2.94
Often learning new things	73.7	2.91
Making basic calculations & computations	73.3	2.91
Setting & meeting goals	72.7	2.92
Working as a team member	72.2	2.35
Creative thinking	71.9	2.95
Broad and general education	68.5	2.87
Believing in own self-worth	66.7	2.82
Defining own career goals	65.4	2.85
Specialized knowledge of an area	64.4	2.84
Concentrating	64.3	2.86
Working with people of diverse background	64.0	2.89
Asserting own ideas	63.5	2.72

	<b>% High</b>	<b>Mean</b>
Making ethical decisions	62.1	2.80
Adapting to change	62.1	2.84
Teaching/training others	58.8	2.91
Leading others	58.3	2.84
Awareness of own abilities and limits	57.6	2.76
Evaluating own actions	56.9	2.84
Documenting ideas and proposals	55.4	2.82
Having understanding & empathy for others	53.9	2.70
Motivating others	53.9	2.74
Allocating resources	52.5	2.74
Connecting ideas & activities	50.9	2.80
Understanding complex systems	49.6	2.72
Serving clients or customers	49.4	2.69
Applying rules	48.5	2.72
Getting personally involved	45.7	2.55
Interpreting visual symbols, pictures, graphs	43.0	2.64
Drafting new plans or designs	41.1	2.59
Interpreting events in societal/political context	37.9	2.40
Negotiating agreements	36.2	2.44
General scientific methods	33.9	2.44
Seeing events in historical perspective	30.0	2.20
Knowledge of a foreign language	25.8	1.92
<b>Mean</b>	<b>61.1</b>	<b>2.76</b>
Means ranked from high (3) to low (1)		

There are several ways by which to understand the meaning of the differences between skills and qualifications required at work, those attained while at UNI, and those that UNI graduates feel should be considered university goals. One method by which to analyze the discrepancies between the ratings of the skills within the first two contexts is by calculating a simple difference between the percent rating of each item with respect to its attainment at UNI and the parallel percent with respect to its requirement at work. A second method uses the same difference calculation for the item means. The result is a “deficit” or “surplus” value. As summarized in Table 4.3, there were deficits in 39 of the 43 areas. This comparison clearly shows that graduates generally reported that the skills and qualifications were required of them much more commonly than they were attained at UNI. The skills where the graduates reported the greatest deficits were in the areas of serving clients or customers, decision making and problem solving, oral communication, listening effectively, motivating and leading others, working as a team member, adapting to change, applying rules, and having understanding and empathy for others. It is important to note that in Table 4.1, these deficient skills were also the skills required most commonly in the graduates’ current work. There were only four skills to be found as a surplus based on the “percent high” method of calculation. These areas were broad and general education, knowledge of foreign language, general scientific methods, and seeing events in historical perspective.

The skills and qualifications required at work were essentially the same across all three cohorts surveyed. The comparison of deficit/surplus in skills among these three cohorts reveals that the later the graduating cohort, the lower the extent of deficit (or the higher level of proficiency) for the attained skill. One might interpret this to mean that the university is coming to better prepare its graduates for the work force. Using the “percent high” method, the average deficit for the class of 1984/85 was 31.0%, 28.5% for the class of 1987/88, and 26.4% for the class of 1990/91. Focusing on the twelve skill items with the greatest deficits, the later cohort reported a smaller deficit than the earlier cohorts in the following five skill categories: communicating orally, solving problems, motivating others, adapting to changes, working as a team member, and creative thinking. Each of the three cohorts reported the same four skills for which they were over-prepared, as was the prevailing pattern for the entire sample. Statistical tests performed on skill attainment and skills required showed that significant statistical differences existed in an overwhelming majority of the cases. See Tables 4.4, 4.5 and 4.6 for a display of the above findings.

**Table 4.3  
Deficit/Surplus of Skills and Qualifications for the Entire Sample**

	Deficit/Surplus	
	% High	Mean
Serving clients or customers	-56.9	-0.92
Making decisions	-50.8	-0.62
Communicating orally	-46.7	-0.58
Listening effectively	-46.2	-0.58
Motivating others	-45.7	-0.67
Solving problems	-44.3	-0.51
Working as a team member	-43.5	-0.58
Adapting to change	-43.1	-0.57
Having understanding & empathy for others	-42.9	-0.63
Applying rules	-42.0	-0.56
Leading others	-39.4	-0.59
Creative thinking	-38.9	-0.51
Making ethical decisions	-37.8	-0.51
Getting personally involved	-37.6	-0.54
Evaluating own actions	-37.0	-0.51
Believing in own self-worth	-36.7	-0.53
Reasoning	-36.5	-0.43
Concentrating	-35.0	-0.46
Allocating resources	-34.5	-0.50
Setting & meeting goals	-33.7	-0.42
Awareness of own abilities and limits	-33.2	-0.47
Teaching/training others	-33.1	-0.53
Asserting own ideas	-32.5	-0.45

	<b>% High</b>	<b>Mean</b>
Working with people of diverse background	-28.9	-0.41
Defining own career goals	-22.1	-0.32
Understanding written information	-28.5	-0.30
Documenting ideas and proposals	-28.5	-0.36
Connecting ideas & activities	-28.1	-0.30
Acquiring & evaluating information	-27.9	-0.29
Negotiating agreements	-27.0	-0.46
Working with computer & other technologies	-26.1	-0.40
Communicating through writing	-21.0	-0.21
Specialized knowledge of an area	-20.3	-0.27
Drafting new plans or designs	-19.9	-0.27
Making basic calculations & computations	-19.6	-0.22
Interpreting visual symbols, pictures, graphs	-15.4	-0.13
Understanding complex systems	-15.0	+0.12
Often learning new things	-13.8	-0.15
Interpreting events in societal/political context	-0.7	+0.10
Seeing events in historical perspective	+5.9	+0.29
General scientific methods	+8.5	+0.31
Knowledge of a foreign language	+10.3	+0.37
Broad and general education	+16.7	+0.27
<b>Mean</b>	<b>-28.6</b>	<b>-0.37</b>

**Table 4.4**  
**Skills/Qualifications by Cohort - Class of 1984/85**

	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus</b>	<b>Significance</b>
Making decisions	87.8	32.3	-55.5	0.0466*
Serving clients or customers	72.0	18.1	-53.9	0.0453*
Listening effectively	92.3	41.3	-51.0	0.0415*
Communicating orally	92.1	41.7	-50.4	0.0409*
Solving problems	87.2	36.9	-50.3	0.0460*
Motivating others	71.3	21.9	-49.4	0.0476*
Adapting to change	82.0	33.3	-48.7	0.0465*
Working as a team member	82.5	36.1	-46.4	0.0451*
Creative thinking	75.2	31.0	-44.2	0.0497*
Leading others	70.3	27.9	-42.4	0.0485*
Applying rules	72.8	30.6	-42.2	0.0491*
Having understanding & empathy for others	72.0	30.1	-41.9	0.0478*
Making ethical decisions	62.9	22.4	-40.5	0.0497*
Getting personally involved	66.5	26.3	-40.2	0.0497*

	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/ Surplus</b>	<b>Significance</b>
Reasoning	86.0	47.0	-39.0	0.0429*
Asserting own ideas	68.7	31.0	-37.7	0.0515*
Teaching/training others	73.0	37.0	-36.0	0.0455*
Evaluating own actions	67.9	32.4	-35.5	0.0501*
Connecting ideas & activities	59.3	25.1	-34.2	0.0540*
Concentrating	77.7	43.6	-34.1	0.0457*
Awareness of own abilities and limits	64.6	30.6	-34.0	0.0516*
Negotiating agreements	47.3	13.3	-34.0	0.0430*
Acquiring & evaluating information	78.0	44.7	-33.3	0.0458*
Setting & meeting goals	79.3	46.1	-33.2	0.0449*
Documenting ideas and proposals	60.1	27.5	-32.6	0.0521*
Working with computer & other technologies	56.2	23.6	-32.6	0.0458*
Understanding written information	89.3	57.0	-32.3	0.0384*
Allocating resources	59.3	27.2	-32.1	0.0478*
Working with people of diverse background	63.8	36.2	-27.6	0.0479*
Communicating through writing	85.1	59.3	-25.8	0.0388*
Drafting new plans or designs	40.5	16.9	-23.6	0.0478*
Defining own career goals	55.2	31.8	-23.4	0.0496*
Specialized knowledge of an area	73.1	50.3	-22.8	0.0441*
Making basic calculations & computations	64.2	44.3	-19.9	0.0473*
Understanding complex systems	37.8	18.5	-19.3	0.0473*
Interpreting visual symbols, pictures, graphs	43.0	24.3	-18.7	0.0503*
Often learning new things	70.9	56.1	-14.8	0.0455*
Interpreting events in societal/political context	22.4	18.4	-4.0	0.0409
Broad and general education	46.2	62.8	+16.6	0.0492*
Knowledge of a foreign language	4.6	16.2	+11.6	0.0258*
Seeing events in historical perspective	14.4	20.9	+6.5	0.0386
General scientific methods	18.6	24.6	+6.0	0.0409
<b>Mean</b>	<b>64.4</b>	<b>33.3</b>	<b>-31.1</b>	
*Difference is significant at p<.05.				

**Table 4.5**  
**Skills/Qualifications by Cohort - Class of 1987/88**

	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus</b>	<b>Significance</b>
Serving clients or customers	77.7	17.9	-59.8	0.0474*
Making decisions	86.4	29.4	-57.0	0.0489*
Communicating orally	89.4	40.7	-48.7	0.0452*
Motivating others	66.3	18.0	-48.3	0.0510*
Solving problems	86.0	40.7	-45.3	0.0476*
Working as a team member	77.4	33.0	-44.4	0.0499*
Listening effectively	86.3	42.8	-43.5	0.0455*
Leading others	65.1	22.4	-42.7	0.0513*
Evaluating own actions	67.0	26.6	-40.4	0.0537*
Applying rules	69.9	29.7	-40.2	0.0539*
Adapting to change	74.6	34.4	-40.2	0.0502*
Creative thinking	69.2	29.6	-39.6	0.0528*
Reasoning	82.5	43.2	-39.3	0.0474*
Having understanding & empathy for others	66.8	27.6	-39.2	0.0503*
Making ethical decisions	63.3	25.0	-38.3	0.0518*
Allocating resources	61.2	23.4	-37.8	0.0516*
Believing in own self-worth	66.7	29.9	-36.8	0.0513*
Awareness of own abilities and limits	65.6	29.6	-36.0	0.0534*
Getting personally involved	59.3	24.1	-35.2	0.0528*
Setting & meeting goals	74.8	39.7	-35.1	0.0506*
Concentrating	71.3	36.7	-34.6	0.0522*
Teaching/training others	65.6	35.5	-30.1	0.0488*
Asserting own ideas	59.6	29.8	-29.8	0.0529*
Connecting ideas & activities	55.1	26.8	-28.3	0.0578*
Working with people of diverse background	62.2	34.1	-28.1	0.0507*
Understanding written information	86.1	58.3	-27.8	0.0417*
Documenting ideas and proposals	59.7	32.1	-27.6	0.0509*
Negotiating agreements	38.1	10.7	-27.4	0.0441*
Acquiring & evaluating information	75.2	48.6	-26.6	0.0481*
Working with computer & other technologies	55.4	32.2	-23.2	0.0518*
Defining own career goals	47.9	25.1	-22.8	0.0522*
Making basic calculations & computations	64.5	42.5	-22.0	0.0503*
Specialized knowledge of an area	75.3	54.5	-20.8	0.0448*
Communicating through writing	74.9	55.7	-19.2	0.0456*
Drafting new plans or designs	38.3	20.3	-18.0	0.0474*
Often learning new things	69.0	53.5	-15.5	0.0495*
Understanding complex systems	33.8	19.9	-13.9	0.0507*
General scientific methods	14.0	27.5	+13.5	0.0423*

	Required at Work	Attained at UNI	Deficit/Surplus	Significance
Knowledge of a foreign language	3.1	15.6	+12.5	0.0262*
Seeing events in historical perspective	13.2	18.0	+4.8	0.0392
Interpreting events in societal/political context	18.5	20.3	+1.8	0.0430
<b>Mean</b>	<b>60.8</b>	<b>32.3</b>	<b>-28.5</b>	
*Difference is significant at p<.05.				

<b>Table 4.6</b>				
<b>Skills/Qualifications by Cohort - Class of 1990/91</b>				
	Required at Work	Attained at UNI	Deficit/Surplus	Significance
Serving clients or customers	76.6	19.6	-57.0	0.0444*
Having understanding & empathy for others	71.8	25.2	-46.6	0.0485*
Listening effectively	91.0	46.6	-44.4	0.0383*
Applying rules	76.6	33.3	-43.3	0.0462*
Communicating orally	91.1	48.9	-42.2	0.0376*
Making decisions	82.9	41.0	-41.9	0.0434*
Motivating others	62.2	21.9	-40.3	0.0479*
Working as a team member	84.0	43.9	-40.1	0.0420*
Adapting to change	79.9	39.8	-40.1	0.0446*
Solving problems	86.8	48.7	-38.1	0.0395*
Getting personally involved	65.4	28.2	-37.2	0.0491*
Concentrating	76.4	40.3	-36.1	0.0446*
Evaluating own actions	69.4	34.0	-35.4	0.0482*
Making ethical decisions	63.8	29.1	-34.7	0.0481*
Allocating resources	60.4	26.1	-34.3	0.0472*
Leading others	62.4	28.3	-34.1	0.0472*
Creative thinking	67.1	33.4	-33.7	0.0470*
Believing in own self-worth	73.1	39.9	-33.2	0.0454*
Teaching/training others	67.3	34.4	-32.9	0.0452*
Setting & meeting goals	78.1	45.3	-32.8	0.0440*
Reasoning	84.7	52.7	-32.0	0.0402*
Working with people of diverse background	64.9	33.8	-31.1	0.0469*
Awareness of own abilities and limits	70.8	41.1	-29.7	0.0465*
Asserting own ideas	65.4	35.7	-29.7	0.0487*
Understanding written information	84.2	58.5	-25.7	0.0380*
Documenting ideas and proposals	55.9	30.4	-25.5	0.0497*
Acquiring & evaluating information	74.9	50.8	-24.1	0.0436*
Working with computer & other technologies	55.7	33.2	-22.5	0.0474*
Connecting ideas & activities	51.1	29.1	-22.0	0.0537*

	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus</b>	<b>Significance</b>
Negotiating agreements	32.2	12.0	-20.2	0.0403*
Drafting new plans or designs	37.5	19.2	-18.3	0.0434*
Communicating through writing	73.0	55.1	-17.9	0.0420*
Specialized knowledge of an area	70.9	53.1	-17.8	0.0424*
Making basic calculations & computations	62.2	44.9	-17.3	0.0449*
Interpreting visual symbols, pictures, graphs	41.3	27.7	-13.6	0.0467*
Understanding complex systems	33.9	21.7	-12.2	0.0472*
Often learning new things	73.9	62.6	-11.3	0.0410*
Broad and general education	41.8	56.8	+15.0	0.0475*
Knowledge of a foreign language	4.4	11.4	+7.0	0.0216*
General scientific methods	17.5	23.9	+6.4	0.0393
Seeing events in historical perspective	14.7	21.0	+6.3	0.0371
Interpreting events in societal/political context	20.2	20.6	+0.4	0.0404
<b>Mean</b>	<b>62.2</b>	<b>35.8</b>	<b>-26.4</b>	
*Difference is significant at p<.05.				

As shown in Table 4.7, various gender differences exist among the skills required at work for the graduates. It is important to acknowledge that notable differences also exist among skills required versus skills attained for both genders. It is interesting to note that both males and females are expected to use skills that might be considered highly typical of traditional male/female roles. Overall, 2.5 percent more females reported having the necessary skills as required by their work than males (63.5% vs. 61.0%). More females than males reported they were required to highly use interpersonal and communication skills, such as having understanding and empathy for others (21.2% difference), having awareness of own abilities and limits (14.4%), and teaching/training others (11.8%). However, more males than females were required to use skills in the areas of mathematics, science, reasoning, and management including making basic calculations and computations (12.3% difference), allocating resources (10.0%), understanding complex systems (8.7%), general scientific methods (8.0%) and negotiating agreements (7.3%).

In terms of attainment at UNI, more females reported a higher level of skill attainment than males, although this gap in attainment (average 1.2% difference) was much narrower than the gap for skills required at work. In general, skills that each attained coincided with those that were needed at work. The males reported attaining more in areas of calculation, scientific methods, seeing events in historical perspective and in a societal/political context; and the females reported more attainment in knowledge of a specialized area, teaching and/or training others, listening effectively, understanding others, setting and meeting goals, decision-making, and so forth. Skills in which there were essentially no differences in attainment reported between males and females were “concentrating,” “making ethical decisions,” “solving problems,” and “working with people of diverse backgrounds” (See Table 4.8).

With respect to the match between what is required and attained, males reported less deficits on average than the females. However, this deficiency is slight (1.3%). Logically, but interesting nevertheless, those skills that are required at work most often of a particular gender tend to be those skills that result in the greatest average deficiency among that gender. For example, the skills which the male graduates reported less of a deficit than the females were generally interpersonal and communicative skills, in essence, including “having understanding and empathy for others” (14.7% difference), “believing in own self-worth” (12.7%), and “awareness of own abilities and limits” (10.5%). Even though males did not attain these skills to the same caliber as females, since fewer males required them at the workplace, they did not result in as great of a deficiency. Furthermore, females reported less deficits than males mostly for the skills which the males’ jobs required, such as “specialized knowledge of an area” (13.3% difference), “allocating resources” (10.7%), and “making decisions” (7.1%). Despite these reported deficits, the majority of skills were not significantly different statistically when skills required and skills attained were tested (See Table 4.9).

<b>Table 4.7</b>				
<b>Gender Differences in Skills/Qualifications Required at Work</b>				
	<b>Male</b>	<b>Female</b>	<b>(Male - Female)</b>	<b>Significance</b>
Making basic calculations & computations	71.1	58.8	+12.3	0.0357*
Allocating resources	66.3	56.3	+10.0	0.0369*
Understanding complex systems	40.5	31.8	+8.7	0.0390*
General scientific methods	21.7	13.7	+8.0	0.0298*
Negotiating agreements	43.4	36.1	+7.3	0.0381
Interpreting visual symbols, pictures, graphs	45.1	38.6	+6.5	0.0395
Working with computer & other technologies	57.5	54.5	+3.0	0.0385
Reasoning	86.1	83.5	+2.6	0.0253
Solving problems	87.8	86.1	+1.7	0.0234
Serving clients or customers	76.6	74.9	+1.7	0.0303
Seeing events in historical perspective	14.9	13.6	+1.3	0.0276
Making decisions	86.2	85.0	+1.2	0.0245
Documenting ideas and proposals	58.8	58.0	+0.8	0.0382
Drafting new plans or designs	37.9	39.1	-1.2	0.0389
Communicating orally	90.1	91.3	-1.2	0.0195
Working with people of diverse background	62.9	64.2	-1.3	0.0366
Interpreting events in societal/political context	19.7	21.1	-1.4	0.0331
Acquiring & evaluating information	75.1	76.7	-1.6	0.0307
Asserting own ideas	63.8	65.4	-1.6	0.0374
Knowledge of a foreign language	2.6	4.9	-2.3	0.0135
Specialized knowledge of an area	71.5	73.9	-2.4	0.0324
Leading others	64.2	66.9	-2.7	0.0361
Broad and general education	41.4	44.1	-2.7	0.0424
Concentrating	73.4	76.6	-3.2	0.0319
Often learning new things	69.5	72.7	-3.2	0.0341

	Male	Female	(Male - Female)	Significance
Listening effectively	88.0	91.3	-3.3	0.0206
Communicating through writing	75.3	79.1	-3.8	0.0297
Creative thinking	67.9	72.0	-4.1	0.0341
Making ethical decisions	60.7	65.2	-4.5	0.0364
Understanding written information	83.6	88.4	-4.8	0.0237*
Getting personally involved	60.8	66.0	-5.2	0.0374
Setting & meeting goals	73.9	79.6	-5.7	0.0307
Working as a team member	78.0	84.0	-6.0	0.0276*
Defining own career goals	49.1	56.2	-7.1	0.0400
Evaluating own actions	63.1	71.3	-8.2	0.0362*
Motivating others	61.3	69.6	-8.3	0.0351*
Connecting ideas & activities	50.0	58.4	-8.4	0.0410*
Applying rules	68.0	76.8	-8.8	0.0330*
Adapting to change	72.8	83.1	-10.3	0.0295*
Believing in own self-worth	65.1	76.1	-11.0	0.0340*
Teaching/training others	61.6	73.4	-11.8	0.0349*
Awareness of own abilities and limits	58.5	72.9	-14.4	0.0370*
Having understanding & empathy for others	57.4	78.6	-21.2	0.0347*
<b>Mean</b>	<b>61.0</b>	<b>63.5</b>	<b>-2.5</b>	
*Difference is significant at p<.05.				

<b>Table 4.8</b>				
<b>Gender Differences in Skills/Qualifications Attained at UNI</b>				
	Male	Female	(Male - Female)	Significance
Making basic calculations & computations	48.8	41.0	+7.8	0.0417
General scientific methods	29.5	22.5	+7.0	0.0386
Seeing events in historical perspective	23.8	17.7	+6.1	0.0367
Interpreting events in societal/political context	23.5	17.5	+6.0	0.0359
Understanding complex systems	23.3	18.1	+5.2	0.0386
Documenting ideas and proposals	32.9	28.1	+4.8	0.0428
Reasoning	50.3	46.5	+3.8	0.0437
Interpreting visual symbols, pictures, graphs	27.9	24.2	+3.7	0.0407
Working with computer & other technologies	31.3	28.7	+2.6	0.0390
Asserting own ideas	33.5	31.6	+1.9	0.0436
Believing in own self-worth	36.3	34.6	+1.7	0.0414
Creative thinking	31.9	31.3	+0.6	0.0431
Solving problems	42.5	42.3	+0.2	0.0450
Making ethical decisions	25.7	25.6	+0.1	0.0400
Concentrating	40.3	40.3	0.0	0.0437

	Male	Female	(Male - Female)	Significance
Working with people of diverse background	34.5	34.8	-0.3	0.0411
Drafting new plans or designs	18.4	19.1	-0.7	0.0348
Understanding written information	57.6	58.3	-0.7	0.0403
Allocating resources	25.3	26.0	-0.7	0.0391
Getting personally involved	25.9	26.6	-0.7	0.0403
Adapting to change	35.2	36.5	-1.3	0.0432
Broad and general education	58.8	60.3	-1.5	0.0397
Leading others	25.3	27.0	-1.7	0.0388
Negotiating agreements	13.0	11.3	1.7	0.0271
Communicating orally	43.0	44.9	-1.9	0.0424
Connecting ideas & activities	25.9	27.8	-1.9	0.0465
Acquiring & evaluating information	46.5	49.0	-2.5	0.0445
Communicating through writing	55.0	57.6	-2.6	0.0403
Defining own career goals	29.7	32.4	-2.7	0.0415
Often learning new things	55.7	58.9	-3.2	0.0414
Serving clients or customers	16.6	19.8	-3.2	0.0323
Evaluating own actions	29.1	32.6	-3.5	0.0427
Motivating others	18.3	22.1	-3.8	0.0365
Applying rules	28.9	32.8	-3.9	0.0439
Awareness of own abilities and limits	31.7	35.6	-3.9	0.0437
Knowledge of a foreign language	10.8	16.4	-5.6	0.0266*
Working as a team member	34.5	40.2	-5.7	0.0430
Making decisions	31.0	36.9	-5.9	0.0453
Setting & meeting goals	40.1	46.1	-6.0	0.0439
Having understanding & empathy for others	23.5	30.0	-6.5	0.0397
Listening effectively	39.2	46.5	-7.3	0.0436
Teaching/training others	27.8	40.6	-12.8	0.0391*
Specialized knowledge of an area	42.9	58.6	-15.7	0.0402*
<b>Mean</b>	<b>33.2</b>	<b>34.4</b>	<b>-1.2</b>	
*Difference is significant at p<.05.				

	Male	Female	(Male-Female)	Significance
Having understanding & empathy for others	-33.9	-48.6	+14.7	0.0440*
Believing in own self-worth	-28.8	-41.5	+12.7	0.0417*
Awareness of own abilities and limits	-26.8	-37.3	+10.5	0.0434*
Adapting to change	-37.6	-46.6	+9.0	0.0446*
Interpreting events in societal/political context	3.8	-3.6	+7.4	0.0169
Connecting ideas & activities	-24.1	-30.6	+6.5	0.0471

	<b>Male</b>	<b>Female</b>	<b>(Male - Female)</b>	<b>Significance</b>
Applying rules	-39.1	-44.0	+4.9	0.0467
Seeing events in historical perspective	8.9	4.1	+4.8	0.0217*
Evaluating own actions	-34.0	-38.7	+4.7	0.0445
Creative thinking	-36.0	-40.7	+4.7	0.0453
Making ethical decisions	-35.0	-39.6	+4.6	0.0444
Getting personally involved	-34.9	-39.4	+4.5	0.0443
Motivating others	-43.0	-47.5	+4.5	0.0449
Defining own career goals	-19.4	-23.8	+4.4	0.0371
Understanding written information	-26.0	-30.1	+4.1	0.0368
Documenting ideas and proposals	-25.9	-29.9	+4.0	0.0421
Asserting own ideas	-30.3	-33.8	+3.5	0.0436
Concentrating	-33.1	-36.3	+3.2	0.0425
Broad and general education	17.4	16.2	+1.2	0.0319
Communicating through writing	-20.3	-21.5	+1.2	0.0331
Reasoning	-35.8	-37.0	+1.2	0.0421
Working with people of diverse background	-28.4	-29.4	+1.0	0.0392
Leading others	-38.9	-39.9	+1.0	0.0430
Drafting new plans or designs	-19.5	-20.0	+0.5	0.0355
Working as a team member	-43.5	-43.8	+ 0.3	0.0439
Often learning new things	-13.8	-13.8	0.0	0.0289
Setting & meeting goals	-33.8	-33.5	-0.3	0.0418
Working with computer & other technologies	-26.2	-25.8	-0.4	0.0374
Communicating orally	-47.1	-46.4	-0.7	0.0425
Acquiring & evaluating information	-28.6	-27.7	-0.9	0.0400
General scientific methods	7.8	8.8	-1.0	0.0247
Teaching/training others	-33.8	-32.8	-1.0	0.0384
Solving problems	-45.3	-43.8	-1.5	0.0452
Interpreting visual symbols, pictures, graphs	-17.2	-14.4	-2.8	0.0338
Knowledge of a foreign language	8.2	11.5	-3.3	0.0231
Understanding complex systems	-17.2	-13.7	-3.5	0.0344
Listening effectively	-48.8	-44.8	-4.0	0.0438
Making basic calculations & computations	-22.3	-17.8	-4.5	0.0333
Serving clients or customers	-60.0	-55.1	-4.9	0.0411
Negotiating agreements	-30.4	-24.8	-5.6	0.0371
Making decisions	-55.2	-48.1	-7.1	0.0475
Allocating resources	-41.0	-30.3	-10.7	0.0424*
Specialized knowledge of an area	-28.6	-15.3	-13.3	0.0323*
<b>Mean</b>	<b>-27.8</b>	<b>-29.1</b>	<b>1.3</b>	

\*Difference is significant at  $p < .05$ .

**SCANS Category of Skills and Qualifications**

The 43 skills and qualifications were grouped into eight categories using the seven SCANS report categorization scheme<sup>24</sup> plus one additional category. The eight categories included resources, interpersonal, information, systems, thinking, basic skills, personal qualities, and academic. Using mean scale scores as summarized in Table 4.10, the basic skills, thinking, and resources categories are rated as both most required at work and most attained at UNI. They are attained, however, to a lesser degree than required at work (attainment mean=2.38 versus requirement mean=2.81). The systems and academic categories are rated as the least required at the workplace while the systems and interpersonal are the least attained at the university. The largest deficits (attained minus required) are found in the interpersonal, personal, and resources categories. The only areas where the graduates have skills which exceed what the workplace requires are in academic and systems areas. There is consistency between the category required at work (attained minus required) and goals for the university. The two highest rated categories of work-required skills (basic skills and thinking) are also viewed by the graduates as the two highest rated categories as goals for the university. Similarly, just as the systems and academic areas are rated as the least highly required at work and reported as having the largest gap between being attained and required, these two categories are also rated by the graduates to be the lowest priority educational goals that the university should pursue. When statistical tests were performed, all eight categories showed significant differences between skills attained and skills required at work. In general, and logically so, graduates desire (at least retrospectively) that university goals become more directly oriented toward the skills most required at the workplace.

<b>Table 4.10</b>					
<b>SCANS Categories of Skills and Qualifications for the Entire Sample*</b>					
<b>Skills and Qualifications</b>	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus (Attained - Required)</b>	<b>Goal of UNI</b>	<b>Significance</b>
Basic skills	2.83	2.50	-0.33	2.95	0.000**
Thinking	2.85	2.44	-0.41	2.88	0.000**
Resources	2.75	2.20	-0.55	2.78	0.000**
Personal qualities	2.74	2.16	-0.58	2.73	0.000**
Interpersonal	2.68	1.95	-0.73	2.75	0.000**
Information	2.44	2.20	-0.24	2.80	0.000**
Systems	1.74	1.79	+0.05	2.42	0.056
Academic	1.57	2.00	+0.43	2.45	0.000**
<b>Mean</b>	<b>2.45</b>	<b>2.16</b>	<b>-0.30</b>	<b>2.72</b>	
*Ranked from high(3) to low(1)					
**Difference is significant at p <.05.					

<sup>24</sup> SCANS, 1991. *What work requires of schools*. The Secretary’s Commission on Achieving Necessary Skills. U.S. Department of Labor.

When the skills are grouped according to the SCANS categories and mean scores are calculated, there are virtually no major gender difference between skills required at work and attained at UNI. The only exception is for the category of systems. The systems skills are viewed by both females and males to have a similar level of requirement, but the males report a higher level of attainment (mean = 1.88) than the females (mean=1.74). This in turn results in a greater surplus in the systems skills for the males (0.13) as compared to the females (0.01). Likewise, no substantial differences are found between the male and female graduates regarding what should be the highest goals of UNI. Both males and females rated the basic skills and thinking categories as the highest university goals (Table 4.11).

<b>Table 4.11</b>				
<b>SCANS Categories of Skills and Qualifications by Gender</b>				
<b>Skills and Qualifications</b>	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus (Attained - Required)</b>	<b>Goal of UNI</b>
<i>A. Male</i>				
Basic skills	2.85	2.53	-0.32	2.95
Thinking	2.86	2.45	-0.41	2.89
Resources	2.76	2.21	-0.55	2.78
Personal qualities	2.71	2.12	-0.59	2.71
Interpersonal	2.66	1.86	-0.80	2.73
Information	2.45	2.24	-0.21	2.80
Systems	1.75	1.88	+0.13	2.36
Academic	1.59	1.99	+0.40	2.43
<b>Mean</b>	<b>2.45</b>	<b>2.16</b>	<b>-0.29</b>	<b>2.71</b>
<i>B. Female</i>				
Basic skills	2.82	2.48	-0.34	2.95
Thinking	2.85	2.44	-0.41	2.88
Resources	2.75	2.20	-0.55	2.78
Personal qualities	2.77	2.19	-0.58	2.74
Interpersonal	2.68	2.00	-0.68	2.77
Information	2.43	2.18	-0.25	2.82
Systems	1.73	1.74	+0.01	2.45
Academic	1.56	2.00	+0.44	2.47
<b>Mean</b>	<b>2.45</b>	<b>2.15</b>	<b>-0.30</b>	<b>2.73</b>

The comparison among the three cohorts shows that the class of 1987/88 on average has the lowest levels of both requirement and attainment for all skill categories. The 1984/85 cohort reported the highest level of requirement at work (mean=2.48) and correspondingly the largest deficit (-0.35). Conversely, the 1990/91 cohort had a high level of attainment at the university (mean=2.24) as well as the least deficit (-0.21). When comparing these three cohorts on each skill category, again, the most recent cohort always ranked highest for its greater levels of attainment and lesser deficit, or greater surplus than the earlier cohorts, excluding academic attainment. These findings are listed in Table 4.12.

In comparing colleges within the university, the College of Education on average reported the highest level of requirements at work (mean=2.49) and the continuing education college reported the highest level of attainment at the university (mean=2.20) for all skill categories. When averaging all categories, the education majors reported the largest deficits in skills. Upon examining each skill category, while the business college reports a higher need to use the basic skills, they are not attaining them to a much greater extent than the other colleges. In turn, the business college reports the largest deficit (-0.42) in this area. The College of Social and Behavioral Sciences reported a lower level of both requirements (mean=2.41) and attainment (mean=2.14) than most of the colleges. Of all eight categories, the interpersonal category is reported to be the largest deficit (-0.94) by the graduates from the natural sciences college. However, of all the skill categories and all colleges, the graduates from the College of Natural Sciences reported the greatest surplus in the academic category (+0.55). However, no significant variations can be found from comparing the goals by college (See Tables 4.13 and 4.14 for more details).

**Table 4.12**  
**SCANS Categories of Skills and Qualifications by Cohort**

	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Deficit/Surplus (Attained - Required)</b>	<b>Goal of UNI</b>
<i>A. Class of 1984/85</i>				
Basic skills	2.86	2.47	-0.39	2.95
Thinking	2.88	2.45	-0.43	2.89
Resources	2.76	2.16	-0.60	2.78
Personal qualities	2.77	2.11	-0.66	2.76
Interpersonal	2.70	1.94	-0.76	2.76
Information	2.47	2.12	-0.35	2.79
System	1.75	1.74	-0.01	2.40
Academic	1.61	2.00	+0.39	2.49
<b>Mean</b>	<b>2.48</b>	<b>2.12</b>	<b>-0.35</b>	<b>2.73</b>
<i>B. Class of 1987/88</i>				
Basic skills	2.80	2.44	-0.36	2.94
Thinking	2.84	2.37	-0.47	2.85
Resources	2.71	2.10	-0.61	2.72
Personal qualities	2.70	2.05	-0.65	2.61
Interpersonal	2.65	1.84	-0.81	2.68
Information	2.40	2.20	-0.20	2.79
System	1.71	1.73	+0.02	2.33
Academic	1.54	2.01	+0.47	2.43
<b>Mean</b>	<b>2.42</b>	<b>2.09</b>	<b>-0.33</b>	<b>2.67</b>
<i>C. Class of 1990/91</i>				
Thinking	2.82	2.57	-0.25	2.95
Basic skills	2.84	2.50	-0.34	2.90
Resources	2.78	2.33	-0.45	2.83
Personal qualities	2.76	2.30	-0.46	2.80
Interpersonal	2.67	2.05	-0.62	2.80
Information	2.44	2.28	-0.16	2.84
System	1.75	1.90	+0.15	2.51
Academic	1.56	1.98	+0.42	2.44
<b>Mean</b>	<b>2.45</b>	<b>2.24</b>	<b>-0.21</b>	<b>2.76</b>

<b>Table 4.13</b>					
<b>SCANS Categories of Skills and Qualifications by College (Required and Attained)</b>					
<b>Skills and Qualifications</b>	<b>Required at Work</b>	<b>Attained at UNI</b>	<b>Skills and Qualifications</b>	<b>Required at Work</b>	<b>Attained at UNI</b>
<b><i>Business</i></b>			<b><i>Education</i></b>		
Basic skills	2.91	2.49	Basic skills	2.80	2.39
Thinking	2.86	2.46	Thinking	2.87	2.37
Resources	2.78	2.34	Resources	2.84	2.25
Personal qualities	2.70	2.04	Personal qualities	2.84	2.20
Interpersonal	2.58	1.71	Interpersonal	2.81	2.16
Information	2.42	2.17	Information	2.44	2.18
System	1.66	1.74	System	1.56	1.57
Academic	1.45	1.95	Academic	1.79	1.94
<b>Mean</b>	<b>2.42</b>	<b>2.11</b>	<b>Mean</b>	<b>2.49</b>	<b>2.13</b>
<b><i>Humanities &amp; Fine Arts</i></b>			<b><i>Natural Sciences</i></b>		
Basic skills	2.74	2.62	Basic skills	2.83	2.47
Thinking	2.82	2.52	Thinking	2.75	2.44
Resources	2.67	2.14	Resources	2.62	2.06
Personal qualities	2.70	2.21	Personal qualities	2.61	1.92
Interpersonal	2.60	1.97	Interpersonal	2.63	1.69
Information	2.34	2.12	Information	2.63	2.44
System	1.65	1.82	System	1.67	1.58
Academic	1.43	1.95	Academic	1.65	2.20
<b>Mean</b>	<b>2.37</b>	<b>2.17</b>	<b>Mean</b>	<b>2.42</b>	<b>2.13</b>
<b><i>Social &amp; Behav. Sciences</i></b>			<b><i>Other</i></b>		
Basic skills	2.77	2.46	Basic skills	2.81	2.55
Thinking	2.83	2.40	Thinking	2.90	2.45
Resources	2.70	2.13	Resources	2.80	2.09
Personal qualities	2.70	2.13	Personal qualities	2.80	2.16
Interpersonal	2.63	1.80	Interpersonal	2.79	1.94
Information	2.26	2.19	Information	2.34	2.29
System	1.89	2.07	System	1.68	2.19
Academic	1.53	1.95	Academic	1.64	1.92
<b>Mean</b>	<b>2.41</b>	<b>2.14</b>	<b>Mean</b>	<b>2.47</b>	<b>2.20</b>

**Table 4.14**  
**SCANS Categories of Skills and Qualifications by College (Deficit/Surplus and Goal)**

<b>Skills and Qualifications</b>	<b>Deficit/Surplus</b>	<b>Goal of UNI</b>	<b>Skills and Qualifications</b>	<b>Deficit/Surplus</b>	<b>Goal of UNI</b>
<b><i>Business</i></b>			<b><i>Education</i></b>		
Basic skills	-0.42	2.96	Basic skills	-0.41	2.96
Thinking	-0.40	2.84	Thinking	-0.50	2.82
Resources	-0.44	2.82	Resources	-0.59	2.78
Personal qualities	-0.66	2.70	Personal qualities	-0.64	2.63
Interpersonal	-0.87	2.76	Interpersonal	-0.65	2.76
Information	-0.25	2.76	Information	-0.26	2.77
System	+0.08	2.31	System	+0.01	2.29
Academic	+0.50	2.43	Academic	+0.15	2.53
<b>Mean</b>	<b>-0.31</b>	<b>2.70</b>	<b>Mean</b>	<b>-0.36</b>	<b>2.69</b>
<b><i>Humanities &amp; Fine Arts</i></b>			<b><i>Natural Sciences</i></b>		
Basic skills	-0.12	2.94	Basic skills	-0.36	2.95
Thinking	-0.30	2.87	Thinking	-0.31	2.92
Resources	-0.53	2.73	Resources	-0.56	2.66
Personal qualities	-0.49	2.74	Personal qualities	-0.69	2.64
Interpersonal	-0.63	2.63	Interpersonal	-0.94	2.68
Information	-0.22	2.76	Information	-0.19	2.87
System	+0.17	2.42	System	-0.09	2.18
Academic	+0.52	2.51	Academic	+0.55	2.44
<b>Mean</b>	<b>-0.20</b>	<b>2.70</b>	<b>Mean</b>	<b>-0.32</b>	<b>2.67</b>
<b><i>Social &amp; Behav. Sciences</i></b>			<b><i>Other</i></b>		
Basic skills	-0.31	2.95	Basic skills	-0.26	2.96
Thinking	-0.43	2.92	Thinking	-0.45	2.85
Resources	-0.57	2.78	Resources	-0.71	2.78
Personal qualities	-0.57	2.80	Personal qualities	-0.64	2.67
Interpersonal	-0.83	2.79	Interpersonal	-0.85	2.59
Information	-0.07	2.82	Information	-0.05	2.82
System	+0.18	2.66	System	+0.51	2.51
Academic	+0.42	2.52	Academic	+0.28	2.53
<b>Mean</b>	<b>-0.27</b>	<b>2.78</b>	<b>Mean</b>	<b>-0.27</b>	<b>2.71</b>

## **Match Between Qualifications Attained at UNI and Demands at Work**

The graduates currently in the work force were asked to self-evaluate the match between their qualifications attained or enhanced through university studies and the demands made upon them in their present job or activity. As shown in Table 4.15, for the entire sample after weighting, nearly half (47.5%) of the graduates employed reported that their qualifications generally met their current work demands. About one-fourth (25.2%) of the graduates viewed their qualifications as exceeding the demands. Less than 15 percent (14.4%) presented a negative match, that is, their present work demands were broader (higher) than the skills they attained through university studies. In addition, slightly more than 10 percent (10.3%) of the graduates saw their qualifications and work demands as being completely different, and less than 3 percent (2.7%) of the graduates were unable to currently evaluate the match.

While nearly 3 in 4 graduates deemed their qualifications attained from UNI adequate (either exceeding or matching demands of the workplace, 72.7%), a fair amount considered their qualifications as not meeting the expectations of their employers. Several possibilities may explain this concern. One explanation is that the self-reported job demands are over-reported or inflated by the graduates. A second explanation might suggest that the graduates did in fact attain the skills and qualifications at a higher level than is reported; however, as a three to ten year time period has passed since graduation, these skills might not be attributed to their college education. A third explanation is that the graduates attained the necessary skills and requirements needed to competently perform the job duties outside of UNI (for example, prior to attending UNI, in activities outside of course work while in college, in other educational institutions after graduating from UNI, on-the job, etc.).

Clearly, gender differences exist in two dimensions. First, more females (50.9%) than males (42.3%) judged their qualifications as meeting the demands of work. Second, less females (11.4%) than males (19%) deemed their qualifications inadequate in matching their work demands. Nearly the same percentages of females and males considered their qualifications as being superior to their employers' work expectations. Furthermore, the comparison across cohorts presents some interesting results. In evaluating their qualifications as either meeting or exceeding the demands at work, the earlier cohorts (1984/85 and 1987/88) have converged at exactly the same percentage (70.3%). Meanwhile, this is considerably less than that for the latest cohort (76.6%). Moreover, in terms of those who felt that their qualifications were inadequate to meet the demands at work, the graduates in the two earlier cohorts generated similar numbers (15.8% and 18.4%, respectively) while there were only 10 percent of the later cohort (1990/91, 10.0%) who reported such concerns.

When comparing across the colleges of the university, the graduates from the College of Education reported the highest level (62.6%) of qualifications meeting the demands at work while those from the College of Social and Behavioral Sciences were found to have the lowest (38.1%) occurrence of meeting their qualifications with demands. It is most common for humanities and fine arts (32.1%) and business (30.2%) graduates to find their qualifications exceeding the demands at work. While only a small portion of the graduates from the education college (8.6%) view their qualifications as inferior to their current job demands, more than 20 percent (22.8%) of the natural sciences graduates self-reported such a mismatch. In terms of

graduates who felt their qualifications either met or exceeded their work demands, the colleges can be ranked in the following order: education (78.4%), business (76.0%), humanities & fine arts (73.5%), continuing education/other (69.4%), natural sciences (67.1%), and social & behavioral sciences (64.7%).

**Table 4.15**  
**Summary Match of Qualifications and Current Work Demands**

Match	Total %	Male	Female	Class of 1984/85	Class of 1987/88	Class of 1990/91
Qualifications = Demands	47.5	42.3	50.9	48.1	49.5	45.3
Qualifications > Demands	25.2	24.7	25.4	22.2	20.8	31.3
Qualifications < Demands	14.4	19.0	11.4	15.8	18.4	10.0
Qualifications Differ from Demands	10.3	12.2	9.2	13.0	9.5	8.3
Cannot Say	2.7	1.9	3.1	0.9	1.8	5.1

Match	Business	Education	Humanities & Fine Arts	Natural Sciences	Social & Behavioral Sciences	Other
Qualifications = Demands	45.8	62.6	41.4	44.3	38.1	44.9
Qualifications > Demands	30.2	15.8	32.1	22.8	26.6	24.5
Qualifications < Demands	15.6	8.6	13.6	22.8	13.7	14.3
Qualifications Differ from Demands	6.2	10.8	9.9	10.1	16.5	10.2
Cannot Say	2.2	2.3	3.1	0	5.0	6.1

### **Satisfaction with Current Job**

On a scale of “1” (“very satisfied”) to “5” (“not at all satisfied”), the graduates were asked to rate the extent of their satisfaction with their present job or activities. Three out of 10 UNI graduates (30.2%) rated themselves as very satisfied with their current job. This finding is somewhat reinforced by the overall mean score of UNI graduates as a group of 2.81. Meanwhile, the number of graduates who were not at all satisfied with their present positions was remarkably low (3.9%). Slight gender differences among satisfaction were evident, as the female graduates appeared to have a mildly higher satisfaction level than the males, as measured by both “percent very satisfied” (31.3% vs. 28.4%) and “mean” (2.16 vs. 2.20). Although there was a mixed relationship among the three cohorts in terms of those who were very satisfied with their current positions, it could be found from the “means” that the earlier cohorts were more satisfied with their present activities than the latest one (means for classes of 1984/85, 87/88 and 90/91 were calculated as 2.10, 2.14 and 2.28, respectively). Rank ordering the six colleges by “percent very satisfied” shows that those graduates who were very satisfied with their current work were from the College of Natural Sciences (34.2%) and Education (33.8%), while the least satisfied were those who majored in business administration (27.0%) (See Table 4.16).

<b>Table 4.16</b>			
<b>Satisfaction with Current Job</b>			
	<b>% Very Satisfied</b>	<b>% Not At All</b>	<b>Mean</b>
Male	28.4	3.6	2.20
Female	31.3	4.3	2.16
Class of 1987/88	32.3	3.7	2.14
Class of 1984/85	29.7	2.8	2.10
Class of 1990/91	29.1	5.5	2.28
Natural Sciences	34.2	4.6	2.18
Education	33.8	3.7	2.09
Humanities & Fine Arts	28.9	5.2	2.36
Other	28.3	0.0	1.97
Social & Behavioral Sciences	28.0	5.3	2.28
Business Administration	27.0	2.5	2.11
<b>Total</b>	<b>30.2</b>	<b>3.9</b>	<b>2.18</b>

### **Extent Willing to Follow Requirements for a Satisfying Career**

An item utilizing a 5-point scale was included to investigate the length to which a graduate would go in order to achieve a more satisfying career. The only hypothetical requirement that the majority of graduates indicated that they would be very willing to do was extra work in order to become more qualified (43.4% “very willing,” mean = 1.9). Slightly more than one-fourth of the graduates would be willing to work their way into another job area (27.5% “very willing,” mean=2.5), and nearly as many would be willing to travel for work (24.6%, mean=2.8). Approximately 1 in 5 would be willing to work evenings (21.1%, mean=2.7), work on weekends (20.3%, mean=2.9), and relocate to another state (20.6%, mean=3.1) in order to enhance their job satisfaction. Moving abroad was a requirement that the majority of the graduates were not willing to follow, as indicated by less than 10 percent rating themselves as “very willing” in this category (9.8%, mean=4.0). While females and males were virtually equally as willing to do extra work to become more qualified (1.9% versus 1.8%, respectively) and work into another job area (2.5% for both males and females), considerably fewer female graduates than males were willing to work on weekends (14.6% difference), work evenings (14.1%), and move to another state (9.0%). This could be due to the dual career status of mother/homemaker and professional that numerous women work to maintain (Table 4.17).

As shown in Table 4.18, a general trend exists across the three cohorts under study. It appears that the cohorts that graduated earlier were much less willing than their later counterparts to follow any of the proposed requirements. This may be partially explained by the differences among the three cohorts’ family and living structures. Those graduates living with children and/or a spouse are less willing to carry out the proposed requirements as compared to those graduates in other living arrangements. This finding is logical since one is socially expected to consider family in making life decisions, thus limiting the degree of flexibility with which to

focus on one's professional satisfaction. Since 79 percent of the earliest cohort was either living with a spouse and/or children as compared to only 58 percent for the later cohort, it follows that the early cohort is more rigid in terms of its willingness to follow additional requirements.

Requirements for a More Satisfying Job	% Very Willing			Mean			% Difference
	Total	Male	Female	Total	Male	Female	
To do extra work to become more qualified	43.4	43.9	43.1	1.9	1.8	1.9	0.8
To work your way into another job area	27.5	26.4	28.2	2.5	2.5	2.5	-1.8
To travel for work	24.6	27.8	22.5	2.8	2.5	2.9	5.3
To work evenings	21.1	29.8	15.7	2.7	2.3	2.9	14.1
To move to another state	20.6	26.1	17.1	3.1	2.8	3.4	9.0
To work on weekends	20.3	29.2	14.6	2.9	2.4	3.2	14.6
To move abroad	9.8	12.9	7.8	4.0	3.7	4.1	5.1

Requirements for a More Satisfying Job	% Very Willing			Mean		
	Class of 1984/85	Class of 1987/88	Class of 1990/91	Class of 1984/85	Class of 1987/88	Class of 1990/91
To do extra work to become more qualified	37.3	43.6	48.7	2.07	1.8687	1.732
To work your way into another job area	25.9	26	30.2	2.562	2.492	2.495
To travel for work	20.1	25	28.5	2.965	2.745	2.6
To work evenings	19.2	24.1	20.3	2.793	2.624	2.595
To work on weekends	17.4	22.1	21.2	2.995	2.896	2.7552
To move to another state	15.6	19.3	26.3	3.339	3.101	2.9759
To move abroad	6.5	10.5	12	4.0531	3.9482	3.878

The comparisons among colleges are summarized in Table 4.19. Rank ordering the proposed requirements by "percent very willing" shows that the pattern discussed earlier is also consistent by college. When ranking colleges for each requirement proposed, the following order was found according to their cumulative ranks: the graduates from the College of Continuing Education ("Other") as a group were more willing than those from other colleges to follow additional requirements for a satisfying career while those graduates with education majors were the least willing to accept requirements. The graduates from the College of Humanities and Fine Arts and the College of Business Administration were the next most flexible in terms of willingness to follow requirements, with scores ranging from 1 to 3 for any given requirements.

**Table 4.19**  
**Extent Presently Willing to Follow Requirements by College**

<b>Requirements for a More Satisfying Job</b>	<b>Humanities &amp; Fine Arts</b>	<b>Business</b>	<b>Social &amp; Behavioral Sciences</b>	<b>Natural Sciences</b>	<b>Education</b>	<b>Other</b>
<i>Rank order by “% very willing”</i>						
To do extra work to become more qualified	46.4	45.6	42.2	39.2	40.8	50.9
To work your way into another job area	31.1	30.3	27.3	25.5	22.4	30.9
To travel for work	29.6	31.5	24.0	20.3	15.5	31.5
To work evenings	23.3	25.6	20.0	21.5	13.7	27.3
To move to another state	21.0	23.7	19.2	18.2	16.5	26.4
To work on weekends	20.2	25.5	20.0	21.5	12.0	27.8
To move abroad	15.7	10.4	9.1	7.0	6.1	12.5
<i>Rank order by “mean”</i>						
To do extra work to become more qualified	1.8	1.8	1.9	1.9	2.1	1.7
To work your way into another job area	2.5	2.3	2.4	2.6	2.8	2.4
To travel for work	2.7	2.6	2.7	2.7	3.2	2.4
To work evenings	2.7	2.4	2.8	2.7	3.0	2.4
To move to another state	2.9	3.0	3.2	3.1	3.5	3.1
To work on weekends	2.9	2.5	3.0	2.7	3.4	2.5
To move abroad	3.6	4.0	4.0	3.9	4.2	3.8

## Part 5: Roles, Goals, and Future Education

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### **Role Identification**

An individual takes on numerous roles throughout growth and maturation. The university environment has been a strong facilitator in that development process for many of its students throughout its history. The role as a student was a major aspect of these graduates lives for many years. As the respondents graduated from UNI and began their careers, they naturally began to take on new roles where they were to play different parts than they had previously been accustomed. The graduates were asked how strongly they identified with several possible social roles on a 5-point Likert-type scale (1 = very strongly and 5 = not at all). After weighting, the primary roles which the graduates in the aggregate saw themselves filling were a family member (63.5%), a professional (61.9%), and a specific type of professional (56.1%) (Table 5.1). It is evident in the data that the success of UNI's graduates can be reflected in the relationship between individual identity and the designation of professional status.

<b>Table 5.1 Role Identification for the Entire Sample</b>		
<b>Role</b>	<b>% Very Strongly</b>	<b>Mean</b>
Family Member	63.5	1.73
Professional	61.9	1.60
Specific Type of Professional Person	56.1	1.93
Worker	30.1	2.41
Citizen or Community Member	28.1	2.32
Member of A Religious Community	20.0	2.97
Student	11.3	3.55
Artist, Musician, Artisan	5.4	4.16
Scientist	3.7	4.37
Unemployed Person	2.9	4.77

The comparison among the three cohorts did not show many disparities in role rankings (Table 5.2). The main point to be noted, however, is that, regardless of the measurements of identification, the earliest cohort (Class of 1984/85) always had the strongest identification in their primary roles as a family member, a professional and a specific type of professional as compared to the two later cohorts. A possible interpretation of this observation lies on the notion that as occupations become more specialized and demanding of compromise in leu of personal gratification, recent graduates may be more willing to become adaptive and inclined to shape their roles in order to satisfy potential employers. These graduates are not necessarily changing their roles in as much as they are combining their wants and desires with those of their employers to produce a desirable outcome for both parties.

<b>Table 5.2 Role Identification by Cohort</b>			
	<b>% Very Strongly</b>		
	<b>1984/85 Cohort</b>	<b>1987/88 Cohort</b>	<b>1990/91 Cohort</b>
Family Member	68.4	58.3	63.3
Professional	64.4	62.0	59.8
Specific type of Professional Person	61.9	53.3	53.8
Worker	28.6	29.0	32.2
Citizen or Community Member	26.5	25.3	32.0
Member of a Religious Community	19.9	17.6	21.9
Student	6.5	10.4	16.1
Artist, Musician, Artisan	5.4	6.5	4.7
Scientist	4.2	3.6	3.1
Unemployed Person	1.6	5.1	2.3

## Goals for the Near Future

The transition from college, into the job market, and finally to a life-long career (in optimal cases), is a stressful and tumultuous journey. Individual differences allow some to succeed at their attempts, while others falter and eventually fail in their quest for occupational accomplishment. An important aspect of a successful career is a clear cut set of plans, or goals, for future endeavors. UNI graduates were asked to rank to what extent they were striving for ten proposed goals in the near future. The goals ranged from improvement of present professional situation to more family time to finding another job. All three cohorts indicated that the number one goal for the near future was improvement of their present professional position. As shown in Table 5.3, relatively insignificant differences exist between the two earlier cohorts in regard to the goal categories. It is interesting to note, however, that the 1990/91 cohort as a whole expressed a marked desire to strive for a more scholarly career. Almost 26 percent of the 1991 graduates indicated this goal for their immediate future, while only 13 percent of the 1984/85 cohort and 14 percent of the 1987/88 cohort revealed a desire for a scholarly career. The later cohort also noted that increased family time was not of utmost importance in their future, a difference of almost ten percentage points from the closest cohort. This could be a reflection of the growing uncertainty of the job market and the lack of assurance of obtaining a job with a college degree. See Table 5.4 for a breakdown of goals by college.

<b>Table 5.3 Goals Striving for in the Near Future by Cohort</b>			
	<b>% To A Great Extent</b>		
	<b>1984/85</b>	<b>1987/88</b>	<b>1990/91</b>
Improvement of professional position	45.4	53.0	58.6
More time for family	37.7	29.5	21.9
More satisfying work activities	29.0	34.6	37.8
Deepening of interpersonal relationships	22.5	21.6	23.2
More time for non-job-related activities	21.5	18.3	15.5
A scholarly career	12.7	14.1	25.7
Becoming self-employed	10.6	10.2	6.8
Finding a job more suited to education	10.5	13.1	22.5
A career as a homemaker	5.8	2.0	2.7
Finding any (other) job at all	3.9	5.8	7.6

**Table 5.4 Goals Striving for in the Near Future by College  
Rank Order by % to a Great Extent**

	Business	Education	Humanities and Fine Arts	Natural Sciences	Social & Behavioral Sciences	Other
Improvement of professional position	55.4	50.0	58.3	50.3	50.3	43.6
More satisfying work activities	36.7	22.6	41.4	34.4	41.4	22.6
More time for family	28.6	32.0	27.4	26.5	31.6	29.4
Deepening of interpersonal relationships	19.2	20.7	26.3	21.3	25.0	27.8
More time for non-job-related activities	18.1	15.7	16.2	16.2	23.2	28.3
A scholarly career	11.2	24.8	18.5	19.1	17.0	16.7
Finding a job more suited to education	10.0	15.7	25.7	11.8	20.3	5.7
Becoming self-employed	9.3	3.6	12.7	11.1	10.7	9.1
Finding any (other) job at all	5.5	7.1	8.6	2.6	5.3	3.8
A career as a homemaker	2.5	7.0	3.4	0.7	3.3	0.0

**Professional Goals: Importance vs. Fulfillment**

On a 5-point scale, the graduates were asked to identify how important sixteen proposed goals were in their professional life and to what extent those professional goals had been fulfilled. As shown in Table 5.5, the UNI graduates as a whole considered satisfaction achieved from work activities (73.1%), job security (70.3%), and working climate (63.7%) as the most *important* goals in their professional life. A desire for personal growth and autonomy in this demanding world is an admirable goal to value. While the graduates expressed a desire for certain goals in their professional lives, it was not always easy for the respondents to fulfill these wishes. Table 5.6 lists the goals which they reported as feeling the most *fulfilled* with. Goals reported most satisfied were distance between home and work (42.3%), job security (27.1%), and level of challenge at work (25.5%). It is evident that these fulfilled goals were slightly different from the goals that were important to the individuals. When comparing the importance of a goal with the extent of the fulfillment for that goal, it appears that an interesting trend has emerged. While satisfaction achieved from work activities was identified as the most important goal for the respondents (73.1%), it was the goal that was listed as being the least fulfilled (11.5%). Distance from home to work was viewed by the graduates as the least important goal (24.9%) but it was the goal with the highest level of complete fulfillment (42.3%). What do these results imply? Are the workers of today becoming increasingly willing to sacrifice their personal interests for success

in their chosen career? Do the wants and desires of employees go unheeded by employers seeking to stay afloat in the competitive waters of the job market?

<b>Table 5.5 Importance of Professional Goals</b>		
<b>The Goals for Professional Life</b>	<b>% Most Important</b>	<b>Mean</b>
Satisfaction from work activities	73.1	1.3
Job security	70.3	1.4
Working climate	63.7	1.4
Belief in work goals and purposes	57.5	1.5
Level of challenge	50.8	1.6
Job benefits	50.2	1.7
Opportunities for advancement	49.0	1.7
Compatible with family demands	48.1	1.8
Income	40.2	1.8
Leisure time available	39.6	1.9
Achieving own ideas at work	38.4	1.8
Opportunity to use skills gained	37.1	2.1
Opportunities for further education	34.6	2.1
Contribution of work to society	34.0	2.1
Status of job or main activity	27.8	2.2
Freedom to set own work hours	25.3	2.4
Social recognition/respected by others	25.0	2.2
Distance from home to work	24.9	2.4

<b>Table 5.6 Fulfillment of Professional Goals</b>		
<b>Goals for Professional Life</b>	<b>% Completely Fulfilled</b>	<b>Mean</b>
Distance from home to work	42.3	2.0
Job security	27.1	2.3
Level of challenge	25.5	2.2
Belief in work goals and purposes	24.9	2.3
Job benefits	22.1	2.5
Opportunity to use skills gained	19.4	2.5
Freedom to set own hours	18.7	2.9
Contribution of work to society	17.9	2.5
Status of job or main activity	16.3	2.5
Achieving own ideas at work	15.8	2.5
Working climate	15.8	2.4
Opportunities for further education	15.1	2.7
Compatibility with family demands	15.0	2.6
Social recognition/respected by others	13.3	2.5
Opportunities for advancement	13.1	2.8
Leisure time available	13.1	2.8
Satisfaction from work activities	11.5	2.5
Income	6.7	3.0

When examined by cohort, virtually no differences exist between the two earlier cohorts in rank ordering the importance of professional goals. The latest graduating cohort, however, ranked level of challenge at work, and especially the opportunity for professional advancement, the opportunity to use skills gained during studies, and the opportunity for further education, much higher than the other two cohorts. By comparison, while the three cohorts differed slightly from each other in rank ordering the fulfillment of these goals, the later cohorts exhibited higher ranking in the fulfillment of job benefits and contribution of work to society (See Table 5.7 and Table 5.8).

In comparing the three cohorts for each proposed goals, two characteristics can be summarized as follows: some six goals were viewed by the later cohorts as being more important than the earlier ones - the three elements of opportunity, job security, belief in work and level of challenge at work. Five professional goals were deemed by the earlier cohorts to be more important than the later cohort - compatibility with family demand and wishes, leisure time available, freedom to set own work hours, social respect, and distance from home to work. Interestingly, in comparing Table 5.8 with Table 5.7, those goals in which the earlier cohorts experienced a higher degree of fulfillment have included all six goals that were viewed by the later cohort as more important to them. On the other hand, except for freedom to set own work hours, all other goals which the earlier cohorts reported to be more important were not identified as completely fulfilled. This could indicate that the newer employees seem to be responding to shifts in the work environment, as their expectations more closely resemble the fulfillment of goals by the earlier cohorts. As this delayed gratification process of fulfillment of goals ranked important occurs, the later cohort will achieve satisfaction in due time.

**Table 5.7 Importance of Professional Goals (by Cohort)**

Goals for Professional Life	% Very Important			Mean		
	1984/85	1987/88	1990/91	1984/85	1987/88	1990/91
Satisfaction achieved from work activities	71.2	76.1	72.3	1.29	1.27	1.30
Job security	67.1	69.3	73.7	1.44	1.40	1.30
Working climate	61.5	66.2	63.1	1.42	1.40	1.42
Compatibility with family demands and wishes	54.0	47.0	43.7	1.66	1.79	1.90
Belief in work goals and purposes	52.1	58.6	61.5	1.60	1.53	1.49
Job benefits	50.1	52.8	48.0	1.72	1.68	1.68
Level of challenge	48.1	51.0	53.2	1.60	1.58	1.56
Leisure time available	47.2	41.6	31.1	1.80	1.84	2.00
Opportunities for advancement	41.5	49.7	54.9	1.89	1.72	1.59
Income	41.1	42.7	37.4	1.80	1.80	1.85
Achieving own ideas at work	37.5	36.8	40.3	1.82	1.84	1.81
Contribution of work to society	34.0	34.6	33.5	2.08	2.08	2.03
Opportunity to use skills gained	31.8	35.1	43.5	2.23	2.12	1.86
Freedom to set own work hours	31.4	25.1	20.0	2.28	2.37	2.62
Social recognition/respect by others	28.5	26.2	21.1	2.17	2.15	2.21
Distance from home to work	28.5	24.3	22.1	2.30	2.37	2.42
Opportunities for further education	27.3	34.1	41.6	2.24	2.13	1.88
Status of job or main activity	25.4	29.4	28.7	2.23	2.17	2.12

**Table 5.8 Fulfillment of Professional Goals (by Cohort)**

Goals for Professional Life	% Completely Fulfilled			Mean		
	1984/8	1987/88	1990/9	1984/8	1987/88	1990/9
Distance from home to work	44.9	40.7	41.6	1.96	2.04	2.07
Level of challenge demanded by the work	31.0	23.3	22.3	2.04	2.23	2.36
Job security	29.4	29.2	23.4	2.22	2.17	2.38
Belief in work goals and purposes	26.9	25.5	22.6	2.22	2.25	2.30
Opportunity to use skills gained	23.7	19.8	15.2	2.36	2.50	2.64
Freedom to set own work hours	21.9	19.5	15.2	2.81	2.88	3.03
Achieving own ideas at work	21.1	14.2	12.3	2.26	2.46	2.62
Job benefits	20.8	22.5	22.9	2.42	2.55	2.65
Compatibility with family demands	20.1	11.6	13.2	2.50	2.77	2.65
Status of job or main activity	19.8	13.3	15.5	2.29	2.48	2.63
Social recognition/respect by others	18.9	9.9	11.3	2.39	2.51	2.62
Contribution of work to society	18.6	17.3	17.7	2.45	2.49	2.57
Working climate	17.7	14.7	15.0	2.31	2.42	2.42
Opportunities for further education	16.7	14.9	13.9	2.67	2.76	2.78
Leisure time available	16.6	9.3	13.2	2.75	2.85	2.75
Opportunities for advancement	16.3	13.2	10.4	2.64	2.79	2.82
Satisfaction achieved from work activities	11.7	11.3	11.2	2.34	2.42	2.58
Income	7.5	5.7	6.7	2.79	2.97	3.22

### **Continuing and Further Education**

As we reach this intersection in the adaptation of the educational institutions to the ever-changing nature of work, a critical element of this transition appears to be continuing education. The demand for workers with a large range of adaptive skills has previously been remedied by the university system, offering its students and graduates an opportunity for continuing education to enhance their current qualifications and to excel at their present positions. The respondents were asked to indicate the likelihood whether they would participate in continuing educational offerings. As illustrated in Table 5.9, almost half of the graduates (46.9%) revealed that they would be very likely to participate in continuing educational offerings through universities in the next ten years. This number, while not entirely phenomenal, presents an important opportunity for the university system. The desire for continuing education exists. Now might be an opportune time to expand upon current educational programs as the number of those expressing an interest in continuing education seems at an optimal level.

<b>Table 5.9 Likelihood of Participating in Continuing Educational Offerings</b>			
<b>College</b>	<b>% Very Likely</b>	<b>% Not Very Likely</b>	<b>Mean</b>
Education	63.7	3.8	1.49
Humanities & Fine Arts	52.2	9.6	1.77
Social & Behavioral Sciences	41.9	11.0	1.91
Business Administration	40.2	11.5	2.01
Natural Sciences	36.3	11.9	2.02
Other	36.2	12.1	2.03
Total	46.9	9.5	1.04

As the desire for continuing education opportunities grows among graduates of UNI, now would be a good time to examine those topics in continuing education that were identified as most important by the respondents before expansion of UNI's continuing educational curriculum is considered. The graduates as a whole indicated the five most important topics for continuing education were new knowledge in one's own field (43%), specialized computer use (29.1%), leadership skills (28.8%), relationships with clients (24.5%), and interpersonal communication (21.8%). The expansion of these topics would not only benefit the individual graduate, but employer/worker interaction would also improve, increasing worker satisfaction and employee production. Increasingly, the university could add influence to its role as a promising avenue for future success, even beyond the degree level. These findings are summarized in Table 5.10.

<b>Table 5.10 Importance of Continuing Education Topics</b>		
<b>Continuing Education Topics</b>	<b>% Very Important</b>	<b>Mean</b>
New scholarly knowledge in your discipline	43.0	1.98
Training in specialized computer use	29.1	2.3
Leadership competencies	28.8	2.24
Relationships with customers/clients	24.5	2.51
Competencies in interpersonal communication	21.8	2.46
Issues about imparting/presenting knowledge	20.7	2.51
Competencies in business administration	13.9	2.86
Information on personal health and wellness	13.1	2.95
Foreign language training	8.7	3.43
Competencies in human ecology/public health	8.1	3.21
Information on environmental matters	8.0	3.09
Philosophical and social-political questions	4.5	3.53
Social/political studies of general topics	4.0	3.52

While the respondents to this questionnaire were generally satisfied with their overall undergraduate experience, they were asked to rate the utility of certain requirements at UNI in preparation for a degree. The overwhelming majority (67.5%) indicated that attention should be placed on the number of practical experiences a student must engage in prior to graduation. The respondents indicated that this requirement would be extremely useful to graduates in the future. Whether this information comes from an acquired wisdom from success in the job world, or a sense of the lack of these experiences in their undergraduate days remains to be seen. One can only speculate that a combination of hindsight and present professional outlook account for this large consensus of opinion. Table 5.11 shows other changes suggested by the respondents.

<b>Table 5.11 Suggested Changes in Study Requirements</b>			
	<b>% Very Useful</b>	<b>% Not At All Useful</b>	<b>Mean</b>
Require practical experiences	67.5	0.5	1.45
More opportunities for mobility	18.5	3.3	2.57
Require foreign language study	17.6	7.5	2.79
More interdisciplinary study opportunities	14.7	0.8	2.39
Focus study on specific problems/issues	12.9	1.7	2.58
Require multiple majors/minors for career	11.4	10.2	2.97
Shorter degree program	10.6	20.3	3.29
Two year basic education plus continuing education	8.0	17.0	3.29
Broader education with less specialization	6.4	8.3	3.19

As a student grows and moves beyond their previous boundaries, a desire to remain in contact with the institutions they attribute a portion of their present success to exists. An important connection exists between the university and its students in the indispensable role that the university plays in career and employment opportunities. A large majority of graduates used the university placement office to obtain their initial jobs after graduation (63.4%). This avenue could be useful in future employment endeavors as long as the connection between student and university remains. However, how much contact is considered suitable? The respondents were asked to note the amount of contact they desired with the university after graduation, and specifically what type of contact they felt more necessary than others. A large majority (58.9%) indicated a desire to remain in contact with the placement office, in regard to employment opportunities. Almost 55 percent desired contact with alumni to explore career options. These numbers reflect the valuable role the university system plays in not only preparing their graduates for success in the job market, but also in updating and re-evaluating their options after graduation. See Table 5.12 for a more detailed description of desired contacts.

**Table 5.12 Desired Contact Opportunities with UNI after Graduation**

<b>Contact Opportunity</b>	<b>% Yes</b>
Contacts with placement office regarding employment opportunities	58.9
Connecting individual students with alumni and others to explore careers	54.8
Meetings to discuss innovations and developments in your field	47.1
More written information	46.5
Contacts regarding positions for cooperative education, practica, and internships	41.8
Guest instruction by graduates	28.7
More social gatherings	23.1
Forums to discuss the future direction of the university and its policies	16.9
Contacts regarding recruitment of new students	15.0
Forums to discuss contemporary/global events	9.6

## Part 6: Summary and Conclusions

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Recent discussions have raised the question of how institutions of higher education can meet the demands and expectations of a sophisticated, rapidly changing society without sacrificing the individual needs of the student, preserving the university's concepts of an appropriate education, and preparing graduates for a fulfilling life and a successful career. The prospect of entering the labor market can be somewhat daunting for students fresh out of college, even for those with the qualifications for their chosen fields. When employers begin to question the educational background and scope of knowledge of the incoming employees, a problem begins to emerge.

This study aimed at using graduate experiences as part of a self-analysis and to influence university planning. It is intended that this information is used by UNI to improve the way it prepares its students and responds to its graduates. The goals of the study included a description of the undergraduate experience at UNI, the job search process of its graduates, the first and current jobs acquired by its graduates, the relationship between educational qualifications and post-graduate placement and the workplace, and the need for continuing education.

The most important findings of the study are summarized here.

- ✓ Most students worked while attending UNI, and one-third of these jobs were directly related to future employment opportunities.
- ✓ As time ensues, students are relying more and more on personal savings and scholarships to finance their education, and are relying less exclusively on student loans.
- ✓ Graduates are finding that more is required of them at work or in their main activity than they were prepared for when they graduated.
- ✓ Over 70 percent of the graduates had not experienced any period of unemployment after graduating from UNI.
- ✓ The more recent graduates reported the highest level of skill attainment at UNI when compared to the two earlier cohorts.
- ✓ Personal goals identified as most important by graduates were the same goals that were reported as being least fulfilled.
- ✓ The personal goals identified by the earliest cohort as most fulfilled were the same as the goals reported by the most recent graduating cohort reported as being most important.
- ✓ Almost 50 percent of graduates expressed a desire to participate in continuing educational offerings through the university.

- ✓ Almost 70 percent of graduates indicated that more attention needed to be placed on the number of practical experiences a student must engage in prior to graduation.
- ✓ Almost 60 percent of graduates expressed a desire to remain in contact with university placement offices in regard to employment opportunities.
- ✓ 91 percent of the graduates indicated that if they were to repeat their undergraduate experiences, they would choose to attend UNI again.

What do these findings imply for the university? First of all, information from graduates is an untapped resource for university assessment and planning. UNI graduates have information, experiences, evaluations, and suggestions to offer the university as it grows and expands to fit the demands of today's changing world. This feedback should be used to advance the university. Secondly, comparing cohorts from different graduation years demonstrates that the alumni experience different challenges with time, and most of them are receptive to having the university play an expanded role in supporting them through these transitions.