Factors Influencing Choice of Graduate Program and Some Implications for Student Advisement

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A study at a small university in the Southeast examined the bases upon which students select graduate programs. The findings suggest that some students choose their academic programs primarily on the basis of perceived career opportunities. For other students quality factors (i.e., quality of instruction, quality of advisement, and ability to make high grades) are important considerations when selecting a graduate program. Differences found between the two groups have implications for making advisement more relevant for some students and generating greater faculty interest in student advising.

The study was conducted at Western Carolina University, a member institution of the North Carolina University System. Located on a 400-acre campus just outside the Great Smoky Mountains National Park, Western has a population of more than 6,000 students, including approximately 1,200 full- and part-time graduate students. Except for the School of Technology and Applied Sciences, which has its own advising staff, faculty do most of the academic advising at Western. Only those students who have not yet selected a major or academic program receive advisement through the Career and Academic Planning Center.

The overall purpose of the investigation was to gain a better understanding of the career/education motivations of graduate students enrolled in selected programs. It was hoped that the new information would enable faculty in these programs to be more effective in their advising and student recruitment endeavors. The study explored 11 factors found in the literature to influence students' choices of majors/programs (see Table 1). The relationship between these choice factors and students' personal/occupational backgrounds, vocational preferences, and occupational congruence was examined.

Review of Related Literature

Most studies looking into the academic major/program choices of college students have only examined those of undergraduate students (Weiss, 1971; Polachek, 1978; Linhart & Yeager, 1979; Saunders & Lancaster, 1980; Eberhardt & Muchinsky, 1982; Hafer & Schank, 1982). The works of Malaney (1987) and Powers and Lehman (1983) are notable exceptions. Malaney found full-time graduate students and graduate students with high grades more interested in gaining knowledge about their career specialties than achieving greater personal satisfaction. Powers and Lehman (1983) reported that Black, female, and older graduate students were more likely to major in the social or biological sciences and that males were more likely to major in the physical sciences, engineering, and business. While some recent reports (e.g., ***Major Gains and Losses,*** 1987) suggest that the traditional college majorlprogram choices of females and minorities may be changing, other reports (McMillen, 1987) suggest otherwise.

Interwoven with students' choices of college majorslprograms are their choices of careers. Authors of various works on student advising (Gordon, 1984; Habley, 1988; Barrow, 1986) have pointed to the usefulness of Holland's classification system in helping students select compatible academic programs and occupations. The system can be used to place advisees' personalities, academic majorslprograms, and occupations into a coding scheme based upon six modal personality types and corresponding work environments. If a student's personality code closely matches that of her or his college program or occupation, they said to be congruent.

According to Holland (1973, 1985a, 1985b), individuals typically search for work environments that allow them to exercise their skills and abilities, express their attitudes and values, and take on agreeable roles. The careers that individuals are expected to be the most successful at and find most satisfying are those that maximize congruence between their personalities and the demands of the work environment. Numerous studies tend to support the basic tenets of Holland's occupational congruence theory (Brown, Brooks, & Associates, 1990).

Helping students select career fields and academic majorslprograms that are congruent with their personalities is a central theme in the advising literature (Harren, 1979; Foote, 1980;

Titley & Titley, 1980; Gordon, 1984; Schein, Laff, & Allen, 1987). Advising models such as Barrow's (1986) Cognitive Intervention Planning Model and Habley's (1984) Advising Process/Intervention Model have been designed to facilitate such academic decision-making. These, as well as other advising models, engage students in a variety of self-assessment, career research, and academic decision-making activities.

The present study was designed to explore the factors that influence a student's choice of graduate program and to further investigate individual difference~that might determine the importance of these factors. Specific attention was focused upon the influence of personal/occupational backgrounds, vocational preferences, and occupational congruence. Holland's (1973, 1985a) Occupational Congruence Model provided the rationale for investigating the last two questions.

Methodology

Data were collected via a 96-item questionnaire distributed to all students attending graduate classes in business administration, education administration, public affairs, human resource development, and counseling. These five academic programs were selected due to their large numbers of students and the common behavioral science roots the disciplines share. Questions pertained to students' personal/occupational backgrounds, factors influencing their choices of graduate program, and students' vocational preferences. Of the 204 questionnaires handed to all students attending evening classes in the selected programs, 149 (73%) were returned.

Employing a five-point Likert scale, students rated the amount of influence 11 factors had on their choice of graduate program (see Table 1). The 1I factors were among variables reported by previous researchers to be related to students' choices of academic majors/programs.

Students also completed the Vocational Preference Inventory (VPI). Responses on the VPI (Holland, 1985b) were instrumental in determining students' two letter Holland vocational codes and assessing their preferences for "high status" and "traditionally male" occupations. Other items on the questionnaire delved into students' personal/occupational backgrounds.

The 149 respondents who returned completed surveys appeared to be representative of students attending graduate school at Western Carolina University. They were primarily white (94%), female (58%), and in their thirties (48%). Most students were residents of North Carolina (60%), were attending graduate school part-time (75%), and were working full or part-time (73%). Thirty-nine percent claimed to have considered one other program and 37% claimed to have considered two other programs prior to making their final selections. Fifty-seven percent indicated that it took less than three months to decide on a graduate program.

lndividual student scores were calculated for each of the VPI scales (Social, Enterprising, Artistic, Realistic, Investigative, Conventional, Status, Masculinity) in accordance with the VPI manual (Holland, 1985b). Two letter Holland codes were assigned to each student's undergraduate major, graduate program, and current/most recent occupation with the guidance

TABLE 1
Mean Rating on Variables Influencing Choice of Graduate Program

	Mean Rating	*SD*
1. Opportunites for engaging in more fulfilling work	3.980	1.078
2. Employment opportunities	3.931	1.120
3. Possibilities for advancement	3.890	1.137
4. Financial rewards available	3.503	1.143
5. High quality of instruction	3.074	1.246
6. Desire to change careers	2.709	1.376
7. High quality of advisement	2.685	1.247
8. Ability to make high grades	2.463	1.240
9. Encouragement from employer	2.163	1.429
10. Less demanding program requirements	1.767	1.031
11. Desire to move to a different geographical area	1.521	1.010

N = 149

Items rated on a 5-point Likert scale with 1 = no influence at all, 5 = extreme amount of influence.

of James Morrow, an expert on the Holland classification system; the ***College Majors Finder*** (Rosen, D., Holmberg, K., & Holland, J., 1985); and the ***Dictionary of Holland Occupational Codes*** (Gottfredson, G., Holland, J., & Ogawa, D., 1982).

To indicate the degree of similarity between a student's Holland codes, a congruence value from 0-5 was assigned each pairing (i.e., VPI and undergraduate major, VPI and graduate program, undergraduate major and current occupation, graduate program and current occupation). In the cases of matches (i.e., instances in which a student's two Holland code letters on one variable in a pair were the same and appeared in the identical order as the Holland code letters for the other variable) a value of 5 was assigned. A value of 4 was assigned when the first two letters of the paired codes were the same but did not appear in the same sequence. Values of 3 were given to pairs in which the first letters of each code were the same but the second letters were different. When the first letter of one of the codes matched the second letter of the other code, a value of 2 was assigned, and when the second letters of the two paired codes matched, a value of 1 was assigned. If none of the letters matched, a value of 0 was assigned.

Before beginning analysis of individual differences related to graduate program selection, it seemed appropriate to look at the items students said influenced their differences. Table 1 gives the means and standard deviations for all eleven items the literature review had disclosed as relevant to major selection. Interestingly, a correlation analysis revealed high intercorrelations within the variables, suggesting the possibility these items might be grouped into scales. To investigate this possibility, a principle components analysis was conducted. The analysis suggested three components. A varimax orthogonal rotation to simple structure was employed to determine item loadings on each of the three factors. Items 2, 3, and 4 had a mean standard loading of .82 on a single component referred to as "opportunity." Items 1 and 6, with a mean standard loading of .72 , made up a second component called "career change." Having a meanstandard loading of .84, items 5, 7, and 8 combined to make a third component labeled "quality." The three components accounted for 16, 11, and 28 percent of the variance and had internal consistency alpha coefficients of .825, .370, and .790 respectively. Due to its poor reliability, the career change component was not used in any subsequent analyses. Furthermore, items 9, 10, and 11 failed to load significantly (i.e., higher than .35) on any of the components.

The next step in the study involved looking at individual differences between those students whose decision of graduate program had been most strongly influenced by elements labeled opportunity-oriented and students whose program choice had been most strongly influenced by elements labeled quality-oriented. That is, the researchers were interested in those individuals clearly influenced by one factor. To do so, a

TABLE 2
Personal/Occupational Backgrounds of Opportunity- and Quality-Oriented Graduate Students

	Opportunity-Oriented $N = 53$	Quality-Oriented $N = 53$
Mean age	34	38
Number of females	29	34
Number of males	24	19
Number of Caucasian	52	2
Number of non-Caucasian	1	51
Number working full-time	41	33
Number working part-time	5	12
Number not currently working	7	8
Number attending college full-time	14	13
Number attending college part-time	39	40
Grade point average	3.12	3.14

"difference" score was computed. Responses on the opportunity and quality scales were summed and converted to standard Z scores. This was done because the means and standard deviations across the two groups varied (M for opportunity = −11.32, SD = 2.90, M for quality = −8.22, *SD* = 3.13). The standardized Quality score was then subtracted from the standardized Opportunity score. Respondents in the top third of the resulting distribution were labeled "opportunity-oriented." These students consisted of individuals whose choice of program had been most influenced by opportunity variables and only slightly influenced by quality variables. Persons in the bottom third of the distribution were identified as "quality-oriented." Quality-oriented students consisted of individuals whose choice of program had been most influenced by quality variables and only slightly influenced by opportunity variables. Students falling into the middle third of the distribution, those with less differentiated scores or mixed orientations, were not included in subsequent analyses.

The difference score rendered a distribution with a range of 2.59 to −3.31, a mean of .001, and a standard deviation of 1.223. The 53 opportunity-oriented students displayed scores ranging from 2.59 to .35. The 53 quality-oriented students had scores ranging from −3.31 to −.34. Descriptive statistics for selected personal/occupational background, occupational preference, and occupational congruence variables were computed for the two groups (see Tables 2-5). Two-tailed independent t and chi-square tests were performed to determine the statistical significance of observed differences between opportunity-and quality-oriented students. The level for statistical significance was set at $p < .05$.

Results

Table 2 presents results regarding the first question to be investigated (i.e., do significant personal/occupational background differences exist between opportunity-and quality-oriented students?). Indeed, quality-oriented students tended to be significantly older (38 years vs. 34 years, $t = 2.58$, $p = .012$). They also differed significantly with respect to working full-versus part-time ($\chi^2 = 3.825$, $p = .050$), with more of the quality-oriented students working part-time. No differences occurred in full-time matriculation, sex, race, or grade point average across the two orientations.

Table 3 shows the actual graduate programs selected as a function of the two orientations. Quality versus opportunity orientation did not relate to selection of program, as the overall 2x6 chi-square was not significant ($\chi^2 = 8.5$, p = .13). However, a one-way within group chi-square test revealed that a significantly greater number of the opportunity-oriented students had chosen to enter the business administration program ($\chi^2 = 14.58$, $p = .012$). It is likely that business careers were viewed by many opportunity-oriented students as the best route to advancement and financial rewards.

In answer to the next question investigated (i.e., do opportunity-and quality-oriented students significantly differ with respect to their occupational preferences?), two differences were discerned. First, quality-oriented students displayed a significantly stronger preference for social occupations (see Table 4). Social occupations (e.g., counseling and teaching) are noted more for their intrinsic rewards than their monetary rewards. Secondly, opportunity-oriented students displayed a stronger preference for

TABLE 3
Graduate Programs of Opportunity- and Quality-Oriented Graduate Students

	Opportunity-Oriented *N* = 53	Quality-Oriented *N* = 53
Business Administration	17	6
Counseling	3	7
Education Administration	12	14
Human Resource Development	7	8
Public Affairs	5	9
Other programs	9	9

high status occupations. However, this preference was marginally significant ($p = .051$). Business administration careers are often thought of as providing extrinsic rewards (i.e., status, money, and influence).

The study's final question investigated occupational congruency differences between the two groups, with congruency being defined as similarities between pairs of Holland codes. The results indicated that quality-oriented students tended to select graduate programs significantly more congruent with their vocational preferences ($t = 2.81$, $p = .006$). They also selected undergraduate majors that were marginally more congruent with their vocational interests ($t = 1.94$, $p = .055$). Opportunity-oriented students' congruence between undergraduate major and current occupation was found to be higher than that of quality-oriented students. However, this difference was found to be marginally significant ($t = -1.96$, $p = .053$). No significant congruence difference was detected between the groups' graduate program and current occupation.

TABLE 4
Mean Vocational Preference Inventory Scores for Opportunity- and Quality-Oriented Graduate Students

	Opportunity-Oriented $N=53$	Quality-Oriented $N=53$	t	p
Artistic	4.868	4.585	− .33	.739
Conventional	2.755	2.245	− .87	.389
Enterprising	5.076	4.698	− .54	.593
Investigative	4.849	3.981	−1.12	.263
Male/Female	2.509	1.943	−1.61	.110
Realistic	3.660	2.925	−1.12	.264
Social	4.359	6.038	2.29	.024
Status	9.340	8.283	−1.98	.051

Scale values range from 0-14

TABLE 5
Mean Occupational Congruence Scores for Opportunity- and Quality-Oriented Graduate Students

	Opportunity-Oriented $N=53$	Quality-Oriented $N=53$	t	p
Between VPI* & undergraduate major	2.887	3.623	1.94	.055
Between VPI & graduate program	2.726	3.868	2.81	.006
Between undergraduate major & current occupation	3.566	2.849	−1.96	.053
Between graduate program & current occupation	3.208	2.830	− 1.06	.291

*VPI = Vocational Preference Inventory

Conclusions

The purpose of the study was twofold. First, it attempted to explore the degree to which selected variables influenced students' choice of graduate college program. Second, it tried to determine whether a relation between program choice factors and students' personal/occupational backgrounds, vocational preferences, and occupational congruence existed.

The results suggest that students select their graduate programs mainly on the basis of two factors, opportunity and quality. Students with more of an opportunity orientation to higher education appear to see their advanced degree as an entree to jobs with higher salaries and more status. Their choice of major is most heavily influenced by opportunities for employment, advancement, and financial reward. Students with more of a quality orientation seem to be more motivated by intrinsic rewards. Their choice of program was most strongly influenced by quality of advisement, quality of instruction, and their ability to make high grades.

Several significant and marginally significant differences were found between opportunity- and quality-oriented students. The opportunity-oriented group had a lower mean age, had more of its members working full-time, had a disproportionate number of its students in the business administration program, showed a stronger preference for high status occupations, and achieved greater undergraduate major-occupational congruence. The observed differences hold implications for (a) helping students achieve greater congruence between their college programs and chosen occupations, (b) generating more faculty interest in student advising, (c) broadening the scope of advising to better meet students' employment needs, and (d) increasing students' perceived value of advisement.

The results of the study have implications for generating more enthusiasm for and greater participation in various advising activities. Most importantly, they hold implications for helping students select college majors/programs that are congruent with their personalities and occupations.

The discovery that perceived employment opportunities plays a major part in the academic program choices of many students should not be overlooked by advisors. All too often advisors give little attention to the practical matter of employment. For example, approximately one third of all students questioned on the ACT survey of academic advising reported that employment after college was an item that should have been, but was not, discussed by their advisors (Noble, 1989). Furthermore, students complained that advisors focus too narrowly on registration matters (Habley, 1988). Perhaps some faculty can be encouraged to widen the scope of their advisement to include more career/employment advising. Such efforts may increase students' perceived value of faculty advisement.

A potential means of increasing faculty's perceived value of student advisement may lie in pointing out the influence that quality of advisement has on some students' program selections. For example, quality-oriented students attached great importance to the quality of advisement and displayed a stronger interest in social occupations. If faculty in related disciplines (e.g., education and psychology) are made aware that providing quality advisement may increase their chances for recruiting prospective students, they may assign it a higher priority. Pointing to some of the potential benefits faculty can gain from quality advising is one way advising directors might help make up for the general lack of recognition given faculty for advising students.

The finding that students with different orientations to higher education differ with respect to occupational congruence suggests that the two groups have somewhat different advisement needs. Opportunity-oriented students were less successful at reaching personal-occupational congruence (i.e., selecting college majors and programs highly congruent with their personalities). While they appear to be capable of matching academic program to career fields, they are not as adept at matching themselves with academic programs. Perhaps they need to spend more time on getting in touch with their own interests and values. When selecting their programs, they may need to be encouraged to consider fields other than just those with high pay and status. They may also need to give greater consideration to the work itself, not limiting themselves to considering only the rewards a particular field offers. In contrast, quality-oriented students fared less well at achieving undergraduate major-occupational congruence. It would appear that the younger quality-oriented students need to become more informed about or attach greater importance to the educational requirements of various occupations.

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