Until recently, most theories of vocational behavior have been designed and tested on male behaviors with exclusively male samples. Some researchers have suggested that theories of vocational behavior have had less relevance for females and other special groups because certain conditions that are relatively true for males are less true for females. This study examined person-environment congruence in the prediction of job satisfaction for college graduates over a 7-year period. College graduates (N=288) who had entered college 6 years previously and had taken the Strong-Campbell Interest Inventory were surveyed. Job satisfaction and perceived congruence with college major were included in the survey. Gender concentration in jobs was operationalized from census data. Results indicated that congruence between college major and job predicted job satisfaction, but congruence involving the Strong-Campbell Interest Inventory and job did not. A three-way interaction between gender, gender concentration in occupations, and person-environment congruence was also found in the college major analysis. (ABL)
Gender, Gender Concentration of Job, and Congruence as Predictors of Job Satisfaction Seven Years Later

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Abstract

Person-environment congruence was examined in the prediction of job satisfaction for college graduates over a seven-year period. Congruence between college major and job predicted job satisfaction, but congruence involving the Strong-Campbell Interest Inventory and job did not. A three-way interaction between gender, gender concentration in occupations and person-environment congruence was also found in the college major analysis.
Gender, Gender Concentration of Job, and Congruence as Predictors of Job Satisfaction Seven Years Later

Holland's (1959; 1966; 1973; 1985) theory of careers has made major contributions to theories of vocational behavior. His basic theory originally held that the purpose of vocational counseling was to match people with jobs (Holland, 1959), and his latest version (Holland, 1985) is based on four basic assumptions:

(1) Most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, or conventional...(2) There are six modal environments: realistic, investigative, artistic, social, enterprising, and conventional...(3) People search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles...(4) Behavior is determined by an interaction between personality and environment (p.2-4).

Total congruence, for example between personality, abilities, skills, and environment, should result in people being rewarded, being satisfied, performing well, and wanting to remain in the environment (Holland, 1985). Previous research has supported these basic ideas. For example, several studies have found that such congruence is related to general job satisfaction (e.g., Furnham & Schaeffer, 1984; Wiggins, Lederer, Salkowe, & Rys, 1983), intrinsic job satisfaction (Smart, Elton, & McLaughlin, 1986; Swaney & Prediger, 1985) satisfaction with
college (Nafziger, Holland, & Gottfredson, 1975), compromises made in career decision making (Taylor & Pryor, 1985), college student self-esteem (Leonard, Walsh, & Osipow, 1973), and mental health (Furnham & Schaeffer, 1984).

In a comprehensive review of sixty-three studies of congruence (over half studied college students), Spokane (1985) reported that congruence showed the most consistent significant positive correlations with academic performance (achievement and grade point average), academic persistence, job satisfaction, vocational stability, perceived congruence, and a few personality variables (such as ego strength). Congruence accounted for about 5-10% of the variance in these outcomes.

**Gender and Gender concentration**

Until recently, most theories of vocational behavior have been designed and tested on male behaviors with exclusively male samples. Fitzgerald and Betz (1983) suggested two reasons for the lack of attention to female career behavior. One reason was that before recent social changes in female life and career patterns, career behavior was rarely considered to be a part of female development, and any "work" outside of the home was considered to be secondary to female primary roles of mother and homemaker. The second reason was that the field of psychology has assumed that theories explaining male behavior were generalizable to female behavior. They and Osipow (1975), however, suggested that theories of vocational behavior had less relevance for females and other special groups because certain conditions that are relatively true for males are less true for
females. For example, that a fairly wide range of career choices are available, that individuals are motivated to choose the most desirable career alternative, and that people assumed that the appropriate training was readily available and could be successfully completed.

Gender-concentrated occupations have been defined as occupations having a larger percentage of members of one gender (versus the other gender) employed in them (Hayes, 1986). In general, females apparently have ambitions and interests similar to males when the females are in male-dominated occupations (e.g., Waddell, 1983; Williams & McCullers, 1983). Especially relevant to the present study, Wolfe and Betz (1981) found that college females had a higher degree of personality-occupation congruence if they had career preferences in male-concentrated areas, as opposed to female-concentrated preferences.

A wide variety of factors have been related to females having male-concentrated interests, aspirations, and career choice. In contrast, males with female-concentrated interests, aspirations, and careers have attracted very little research interest. In a brief literature review, Lemkau (1984) discovered very few studies of males in female-concentrated professions. Most of the studies compared males in female-concentrated occupations with females in female-concentrated careers, and Lemkau did not find any studies that used male comparison groups. She suggested that studies of male subgroups include male comparison groups. The present study was able to follow this suggestion, by employing gender, gender concentration, and
congruence as variables (i.e., none of these three variables was a constant in the study).

In a review of vocational and organizational behavior research that was published during 1985, Greenhaus and Parasuraman (1986) suggested that studies investigating the impact of gender on vocational behavior "(a) include samples of women and men, (b) conceptualize variables at a sufficient level of abstraction to be potentially relevant to women and men, and (c) use gender as a moderator variable as well as a 'main effect'" (p. 158). The present study followed these recommendations. The effect of gender on vocational choices was investigated in samples of male and female college graduates. Variables used in the study had relevance to both male and female college graduates, and gender was treated mainly as a moderator (as well as a main effect) variable.

The present study also expanded on Greenhaus and Parasuraman's recommendations (a) through the study of an indirect gender effect, that of gender-concentration and (b) by using a longitudinal design. Many studies and reviews have supported the general hypothesis that congruence would be related to job satisfaction (e.g., Furnham & Schaeffer, 1984; Smart, Elton, & McLaughlin, 1986; Spokane, 1985; Swaney & Prediger, 1985; Wiggins, Lederer, Salkowe & Rys, 1983). In previous studies, gender effects moderating the congruence-job satisfaction relationship were generally not found (review by Spokane, 1985). Several congruence studies have found effects of gender-concentration (of career) on congruence in female samples.
The present study, however, tested gender and gender-concentration together for moderating effects.

Longitudinal designs are an obvious asset for the study of many vocational behavior topics, and the need is acute for the present one. Only two of the studies uncovered in the literature review had tested the relationship between congruence and job satisfaction; these were over six-year (Swaney & Prediger, 1985) and nine-year (Smart, Elton, & McLaughlin, 1986) periods and found positive relationships. No study was found, longitudinal or cross-sectional, that tested the effect of gender-concentration on the congruence-job satisfaction relationship, however.

**Hypothesis One**

The first and simplest hypothesis was that there would be a positive relationship between congruence of the job and person and job satisfaction. This idea follows from the logic that people will search for agreeable roles (the third of Holland's basic assumptions; 1985). The role or job would presumably be agreeable if it were congruent with the person, that is, the person's interests (Holland's first assumption) matched his or her modal environment (Holland's second assumption). Congruence, or a person-environment match, would be agreeable, or make the person satisfied with his or her job.

This was tested with two different congruence measures, that is, congruence between college students' SCII-GOT scores and their jobs, and congruence between college students' majors and their
jobs. In the case of college majors, the choice of major was assumed to be made largely on the basis of interests, and therefore was taken as an indirect measure of interests. In addition, students presumably acquire some skill and expertise in their majors, making the major partially a measure of interest and partially a measure of ability, which is also imbedded in the congruence theory. This hypothesis tested one of the oldest and most basic assumptions of congruence-type theories. If the job is similar to one's interests (presumably as defined by SCII-GOT scores and college majors), one should be more satisfied with the job than one would be if this congruence were missing.

Hypothesis 2

The second hypothesis was that there would be a three-way interaction between employees' gender, gender concentration of their jobs (operationalized by the ratio of males to females in the job), and congruence between the employee and the job predicting job satisfaction. This hypothesis was tested twice, once using the SCII-GOT congruence measure and once using the college major congruence measure.

For females, it was expected that gender concentration would moderate the congruence-job satisfaction relationship, so that this relationship would be stronger or more positive for higher (more male, as traditionally measured) gender concentrated jobs than for lower (less male, as traditionally measured) gender concentrated jobs. For males, it was expected that gender concentration would moderate the congruence-job satisfaction relationship in the opposite way, so that the relationship
between congruence and job satisfaction would be stronger or more positive for lower (less male) gender concentrated jobs than for higher (more male) gender concentrated jobs. Wolfe and Betz' (1981) results were consistent with this analysis, although (1) they did not have males in their sample, (2) they studied preferences rather than actual occupational choices, and (3) they did not use a longitudinal design. The present study attempted to advance knowledge about this issue by doing all three of those things. For both sexes, it was reasoned that there would be some cultural pressures against people entering occupations dominated by the opposite sex, making people reluctant to enter such cross-sex occupations. Therefore, there would need to be some strong incentive to offset such pressures in order for people to enter these occupations, and congruence was seen as one such potential incentive. People might be more willing to enter cross-sex occupations if congruence were especially important to them, and if congruence were especially important to them, the job would make them especially satisfied when they experienced that congruence.

Method

The data were obtained from university registrar records, university counseling center records, and from a mailed questionnaire in the context of larger studies being done for both the university counseling center purposes and the researchers' purposes.

Sample

All freshmen attending orientation at an Eastern state
university completed the Strong-Campbell Interest Inventory (SCII) in 1980. A confidential survey was mailed to the 457 of them who had graduated by 1986 and who could be located. Addresses were provided by the university alumni association. Of these alumni, 321 responded for a response rate of 70.2%. In order to encourage the highest possible return rate, the survey was kept very brief and easy to complete, a stamped and addressed return envelope was included, and nonrespondents were remailed an additional survey and eventually called by telephone. Only 288 graduates had complete data for all variables from all data sources in the study, however. Fifty-six percent were females, 48.4% were married, the average age of respondents was 25.1 at the time of the survey, 95.4% were working full time. They had been in their present jobs for an average of 1.7 years (SD=1.1 years) and their annual salary was $20,994 (SD=$11,514).

Measures

General Occupational Themes (GOT) corresponding to Holland's types of the 1974 SCII were normed separately by gender (suggested by Campbell; 1977).

University records. Some variables were obtained from the university records. These included gender, age (birth date) and major at graduation.

The questionnaire. The questionnaire asked people for their job titles and measured job satisfaction and the respondents' perceptions of the degree to which their jobs were congruent with their college majors. Perceived congruence (M=5.0, SD=2.3) was measured with the item, "My job is in the same field as my
college major," answered on a seven-point scale ranging from "strongly disagree" to "strongly agree." This perceived congruence item was used only in some secondary analyses.

Job satisfaction (M=5.3, SD=1.3, alpha=.90) was the mean of respondents' answers to the following questions: "Generally speaking, I am very satisfied with my job," "I frequently think of quitting my job" (reverse-scored), "Generally speaking, I am very satisfied with the kind of work I have to do on my job," "Knowing what I know now, if I had to decide all over again whether or not to take my job, I would decide to take it without hesitation," and "In general, my job measures up to the sort of job I wanted when I took it," answered on the seven-point, agree-to-disagree scale. The first three of these items were from Hackman and Lawler's (1971) measure of general job satisfaction, and the last two were adapted from Quinn and Shepard's (1974) Quality of Employment Survey.

**Constructed congruence measures.** Three-letter Holland codes were derived for the SCII GOT based on the three highest scale scores: for major based on McArthur (1954), and for job titles based on the Dictionary of Holland Occupational Codes (DHOC; Gottfredson, Holland, & Ogawa, 1982).

Unlisted and unclear occupations and majors were rated on all similar codes from the DHOC by three career counselors at the university counseling center. Agreements between at least two counselors were accepted, non-agreements were re-reviewed, and if no consensus was reached, non-agreement cases were deleted from the study. Inter-rater reliability was .78.
In gender difference studies, Spokane (1985) recommended the use of congruence indices comparing all three letters of Holland codes with each other, rather than indices using only one Holland code. This study therefore, used the revised Compatibility Index (CI; Wiggins, Lederer, Salkowe, & Rys, 1983; Wiggins & Moody, 1981). Congruence was measured between the SCII-GOT sex-normed scores and the Holland job codes from the DHOC and between the Holland code for college major and the Holland job codes from the DHOC.

Gender concentration. Gender concentration was operationalized as the proportion of males to females in the job according to 1980 census data (U.S. Bureau of the Census, 1984).

Results

Table I contains the correlations among all of the variables in the study. Job satisfaction, the criterion variable, was moderately related to perceived congruence between college majors and jobs (.38) and weakly related to congruence measured by Holland coding of actual college majors and jobs (.19). The measure of congruence between college majors and jobs was moderately correlated with the perceived congruence measure (.44).

Insert Table 1 about here

Not surprisingly, gender was moderately correlated with gender concentration of jobs (-.30), with more males being employed in jobs with greater concentrations of males. Gender
was also weakly related to SCI-GOT congruence with jobs (.17), with females having more congruence. Finally, gender concentration was also weakly related to congruence of both majors and jobs and SCI-GOT and jobs (-.18 and -.18, respectively), with greater male concentrations in jobs being associated with less congruence.

Relationships Between Congruence and Job Satisfaction

Regarding hypothesis one, that there would be a positive relationship between congruence and job satisfaction, there were two tests, one for each congruence measure. In addition, the perceived congruence measure was positively correlated with job satisfaction, r=.38 (Table 1).

The congruence measure constructed from the SCI-GOT sex-normed score and Holland job codes was not related to job satisfaction (Table 1 correlation, Table 2 R-square change). The congruence measure constructed from the Holland codes for college majors and Holland job codes was positively related to job satisfaction (p<.01 in both Table 1 correlation and Table 2 R-square change).

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Insert Table 2 about here
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Interactions Between Gender, Gender concentration, and Congruence

Regarding the second hypothesis, that there would be a three-way interaction between gender, gender concentration of jobs and congruence predicting job satisfaction, there were again two tests, one for the congruence measure constructed using the
SCII-GOT and one for the congruence measure using college majors.

Table 2 shows that there was no interaction involving the SCII-GOT, but that there was a three-way interaction between gender, gender concentration, and major-job congruence predicting job satisfaction. Figures 1 and 2 illustrate the three-way interaction between gender, gender concentration and major-job congruence predicting job satisfaction. They were constructed by dividing the sample at the median on gender concentration and congruence and plotting the job satisfaction means separately for each gender. Contrary to Hypothesis 2, the relationship between congruence and satisfaction was more positive for female-concentrated jobs than for male-concentrated jobs among females in the sample (Figure 1); and the relationship between congruence and job satisfaction was more positive for male-concentrated than female-concentrated jobs among males (Figure 2).

Discussion

The present study had a combination specific strengths that make its contribution rare or even unique compared with past research on congruence theory. First, it was an extended longitudinal study over a period of the subjects' human development during which important career choices are typically made; second, the reactions of both sexes to congruence were examined; third, there were more than one measure of congruence; and fourth, gender concentration was examined in combination with congruence (and subjects' sex).
There was support for the first hypothesis, that congruence would be positively related to job satisfaction, for congruence between students' college majors and subsequent jobs. Congruence of the students' SCII-GOT and subsequent job was not related to job satisfaction, however. Regarding the second hypothesis, that there would be a three-way interaction between gender, gender concentration, and congruence predicting job satisfaction, a three-way interaction was found for congruence between the students' college majors and subsequent jobs, but not for congruence between their SCII-GOT scores and subsequent jobs. The interaction was not, however, in the predicted direction.

The positive relationship between job satisfaction and congruence for two of the three congruence measures (including the measure of perceived congruence of job with major) supports one of the basic assumptions of congruence theories: if one's interests and job are similar, one should be more satisfied with the job than one would be without congruence. The results are consistent with Holland's (1985) theory and also with prior congruence studies (Spokane, 1985).

One obvious conclusion is that the congruence between one's college major and job is more important than the congruence between interests as measured by the SCII-GOT and one's job. College majors are chosen for more reasons than just personal interests. For example, choice of a major may be influenced by peer's opinions regarding a major, by pressures from parents or significant others, by what types of jobs (and therefore, to some extent, what types of life styles) are thought to follow choices
of majors, and by how well one is doing in classes in a potential major. Some of these may be more related to subsequent job satisfaction than the interests measured by the SCII-GOT are.

Another major difference between the SCII-GOT and college major congruence measures is the fact that college majors are choices made somewhat freely by students, while SCII-GOT scores are not measures of actual choices. The jobs that people take are also choices to some extent; therefore, the element of an actual behavioral choice is more clearly present in both majors and jobs than it is in SCII-GOT scores. This commonality may help account for the relatively better predictive power of the congruence scores based on college majors.

College majors as behavioral choices may also influence subsequent attitudes toward the choice, in order to avoid cognitive dissonance (e.g., Festinger, 1957). In addition, the subsequent choice of a job that is consistent with the satisfying major should also lead to positive attitudes toward the job. Commitment to an occupation probably begins during the college experience, time during which people may work very hard to obtain the degree and major. The job may be simply a small extension of this long-term commitment to a field of study. The SCII-GOT measure of congruence does not have built into it this type of commitment. While this might explain why congruence between college major and job predicts job satisfaction better than congruence between SCII-GOT scores and job does, it is still surprising that the SCII-GOT congruence did not predict job satisfaction at all. This is discouraging for the use of the
SCII-GOT, one of the most frequently used interest tests in college students' career development.

Finally, regarding the differences between the SCII-GOT and college major congruence measures, it may be important that they were obtained at different times. The SCII was administered during freshman orientation, which makes it approximately seven years before the job satisfaction measures were obtained; college major was obtained from graduation records, which would be about three to four years prior to the measurement of job satisfaction. College majors are not actually chosen, however, at the time of graduation. They are chosen sometime between freshman orientation and graduation, and a reasonable guess might be an average of the sophomore or junior years. This would make it about five or six years before the job satisfaction measure was obtained. In any case, the SCII-GOT congruence measure had to make its prediction over a somewhat longer time period than the college major congruence measure did. This could have caused its predictive power to be weaker.

Interaction Between Gender, Gender Concentration, and Congruence

Although the three-way interaction between gender, gender concentration, and congruence was significant, it was not in the predicted direction. For females, the relationship between congruence and job satisfaction was more positive for female concentrated jobs than for male concentrated jobs; and for males, the relationship between congruence and job satisfaction was more positive for male concentrated jobs than for female concentrated jobs. Instead of high congruence being an incentive for people
to enter opposite sex dominated jobs and making people more satisfied with these congruent but opposite sex dominated jobs, this might indicate that congruence is not an important issue for those in jobs not dominated by their own sex. Once people have entered such opposite sex-typed jobs, congruence (with their majors) is not a factor in their job satisfaction, while for those who entered same sex-typed jobs, congruence may be a relatively strong factor in determining their job satisfaction.

The means from Figures 1 and 2 reveal more about the three-way interaction. The most satisfied people were those males who entered male concentrated jobs that were congruent with their majors, while the least satisfied people were those females who were in female concentrated jobs that were not congruent with their majors. These two conditions are logically and obviously conditions that would have the extreme opposite reactions that did occur.

The most satisfied group can be explained parsimoniously by the simple argument that these males have everything consistent with themselves (gender and gender concentration of job match; college major and job are congruent). While the least satisfied group is understandable, it reveals a different story, however. These relatively less satisfied females have jobs that are a gender match for them (the jobs are female concentrated), but the jobs are not congruent with their majors.

One can picture here what may be a traditionally common situation in which the female entered a female dominated job for reasons that had little to do with her career interests or her
own specialized training efforts (i.e. her choices and efforts in obtaining a college education). Why she entered the job she had could not be ascertained from the data, but some stereotypical reasons come to mind. For example, did she experience cultural or interpersonal pressure to stick to a traditional female career? If so, was such pressure current? For example, did a spouse choose his job to be consistent with his major or interest, then did he pressure his wife literally to follow him to the geographic location of his job, where she obtained the best job available there for her—one that was sex-typed but did not match her education. Or, was such pressure historical (she was raised by parents and other important socialization figures to obtain a same sex-typed job)?

The present study cannot answer such questions, but if they are on the right track, they suggest that females might benefit from the knowledge that the choice of a gender-matched job that does not match their education may be disappointing. As with males, a job that matches both gender and education appears to be a good choice (i.e., it leads to job satisfaction), but if a choice must be made between a job that is dominated by one's gender or one that matches one's skills (education), females will be more satisfied with the job that matches their skills.
References


Hayes, R. (1986). Gender nontraditional or sex atypical or gender dominant or...research: are we measuring the same thing? *Journal of Vocational Behavior, 29*, 79-88.

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Research Center.


Table 1
Correlations Among All Variables

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<tr>
<td>2 Perceived major/job congruence</td>
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<td>4 Major/job congruence</td>
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<td>.07</td>
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<td>5 Gender concentration</td>
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<td>-.10</td>
<td>-.18*</td>
<td>-.18*</td>
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<td>6 Job satisfaction</td>
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<td>.38*</td>
<td>.05</td>
<td>.19*</td>
<td>.11</td>
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* p<.01.
Table 2
Moderated Multiple Regression Analysis of Job Satisfaction

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<th>R Square</th>
<th>Beta</th>
<th>Change</th>
<th>Final Multiple R</th>
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</table>

Analysis 1: Congruence of SCII-GOT (normed) with Job

A: Gender           -.04  .00
B: Gender-Concentration of Job   .11  .01
C: Congruence of SCII-GOT and Job   .08  .01
A X B: Gender X Gender-Concentration  .01
A X C: Gender X Congruence          .01
B X C: Gender-Concentration X Congruence  .00
A X B X C                      .00  .20

Analysis 2: Congruence of College Major with Job

A: Gender           -.02  .00
B: Gender-Concentration of Job   .15  .01
C: Congruence of Major and Job   .22  .05**
A X B: Gender X Gender-Concentration  .01
A X C: Gender X Congruence        .00
B X C: Gender-Concentration X Congruence  .00
A X B X C:                        .02*  .30

*p<.05;  **p<.01.
Figure Caption

Figure 1. Female job satisfaction as a function of gender, gender concentration of job, and congruence of major and job.
Male-Concentration

Female-Concentration

Congruence of Major and Job
(Median = 6)
Figure Caption

Figure 2. Male job satisfaction as a function of gender, gender concentration of job, and congruence of major and job.
Congruence of Major and Job
(Median = 6)