The author reviews the literature on vocational development with an emphasis on instruments which measure vocational maturity. This study examines differences in the vocational maturity of women across different levels of internal-external (I-E) control and typical versus atypical vocational choice. The study made the following predictions: (1) internally-controlled women will have a higher vocational maturity score than externally-controlled women; (2) women making atypical vocational choices will have higher vocational maturity scores than those making typical choices; and (3) an interaction between type of choice and perception of control with respect to vocational development will exist. Using Crites' Vocational Development Inventory and MacDonald-Tseng's I-E scale to measure vocational maturity, the author proposes utilization of the I-E control construct in examining vocational maturity of college women in order to contribute to an understanding of the vocational choice process. (Author/IAA)
Perceptions of Personal Control and Conformity of Vocational Choice as Correlates of Vocational Development

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Much research in vocational development has focused on understanding how and why individuals make occupational choices. Super's Career Pattern Study (Super and Overstreet, 1960) and Gribbons and Lohnes' (1968) work on the Readiness for Vocational Planning scales are well known examples of these efforts. Another well known project in this area is Crites' Vocational Development Project. In his monograph entitled "The Maturity of Vocational Attitudes in Adolescence" Crites (1971) reviews research in the area of vocational maturity. Of particular interest for this paper are studies concerned with examining the relationships of selected psychological variables to the maturity of vocational attitudes as measured by the Attitude Scale (AS) of Crites' Vocational Development Inventory (VDI). Employing statements made by clients in vocational counseling and concepts proposed in vocational development theory (Crites, 1964), the Attitude Scale contains items which describe the following dispositional response tendencies: involvement in the process of vocational choice, orientation toward the problem of vocational choice, independence in decision-making, preferences for factors in vocational choice, and conceptions of vocational choice (Crites, 1971, p. 17).

Bartlett (1968) reported positive relationships between Adjective Check List (Gough and Heilbrum, 1965) Self-Confidence, Achievement, Autonomy and Dominance for a sample of 150 Manpower Development Trainees aged 16 through 21. In a similar study Hollender and Schalon (1965) reported positive relationships between the Attitude Scale measure of maturity of vocational attitudes and Adjective Checklist Achievement, Endurance Order, and Introcession; with the MMPI, negative correlations were found with Depression, Psychopathic Deviate, Psychosthenia, and number of T-scores above 70. The results of these two studies suggest that vocationally mature students were found to be more goal directed and better adjusted (Crites, 1971, p. 47). In support of these theoretical relationships Crites and Semler (1967) reported that a follow-up study (fifth grade and twelfth grade) of counselor and teacher ratings of student adjustment indicated that vocational maturity was related to earlier and later adjustment status. Thus, Crites (1971, p. 52) suggests that vocational maturity may be one component of the larger general dimension of adjustment.

Further, if one considers adjustment to be the extent to which an individual fulfills his potentialities (Super, 1957) another construct emerges as a potential correlate of vocational maturity: internal-external control (Rotter, 1966).

The control construct, which has been thoroughly described by Jones (1957), Lefcourt (1966) and Rotter (1966), pertains to the generalized expectancy for reinforcements to be controlled by chance, fate, luck and powerful others (Rotter, 1966).

Some research employing the control construct has been reported in the area of vocational preferences.
Liberty, Burnstein and Moulton (1966) reported that the construct of locus of control was related to characteristics of occupational preferences. Externally controlled males preferred occupations with prestige values greater than the degree of competence required for the job, while internally controlled males preferred occupations with low prestige relative to the degree of competence required. It was concluded that externally controlled people desire status but do not feel they can attain it through their own efforts. Along this same line Centers (1948) found that people employed in higher level occupational categories felt that success and achievement are due to the ability and striving of the individual, while people in lower occupational groups felt that fate and luck were important. This same locus of control construct may contribute to a better understanding of the vocational development of women.

The purpose of this study was to examine differences in the vocational maturity of women across different levels of internal-external (I-E) control and typical versus atypical vocational choice. The following predictions were examined:

1. Internally controlled women will have higher vocational maturity scores than externally controlled women.

2. Women who make atypical vocational choices will have higher vocational maturity scores than women who make typical choices.

3. There will be an interaction between type of choice and perception of control with respect to vocational development.

**Method and Procedures**

Sample. The Ss in this study consisted of 179 freshman to senior female college student volunteers.
Instrumentation. The instruments employed in this study consisted of Crites' Vocational Development Inventory and the MacDonald-Tseng I-E Scale. In addition, dichotomized ratings of typical versus atypical female college majors and vocational choices were obtained.

The Vocational Development Inventory (VDI; Crites, 1971) is a 50-item, true-false instrument which contains statements about occupational choice and work. Items were written to represent dispositioned response tendencies in five areas of vocational choice as defined earlier in this paper. By employing a scoring model developed on a 12th grade standardization sample, a respondent's score is generated, the magnitude of which reflects vocational maturity. Supportive studies dealing with the content, criterion-related construct validity of the VDI can be found in Crites, 1971.

Form B of the MacDonald Tseng I-E Scale, which measures a generalized expectancy for reinforcements to be controlled by chance, fate, luck, and powerful others, was used in this study. Scoring was carried out for the 12 items in the external direction on a four-point scale which ranged from strongly agree (3) to strongly disagree (0). Employing the control construct described by Lefcourt (1966) and Rotter (1966), MacDonald and Tseng developed the 21-item (plus 12 fillers) Form A of the I-E Scale to measure a generalized expectancy on the basis of a factor analytic study of the James (1957) and Rotter (1966) scales; the 21 items on Form A of the MacDonald-Tseng I-E Scale represented items defining the first factor for each of the James and Rotter scales across sex for 178 college undergraduates (MacDonald and Tseng, 1971). Alpha internal consistency reliability was reported to be .89 for the total sample; .90 for males
and .89 for females. The relationship of the I-E scores to social desirability (Marlowe-Crowne Social Desirability Scale; Crowne & Marlowe, 1960) for Form A were reported to be .04 for the total sample; .00 and .09 for males and females. Form B, the shorter 12-item version of the I-E scale employed in this study, was developed by a factor analysis (Factor I) of Form A. Test-retest reliability for Form B over a one-week interval was reported to be .75. It should be noted that for the data in the present study the correlation of the I-E scores with the Marlowe-Crowne Social Desirability Scale was found to be -.22, which suggests a slight tendency for internal Ss to give socially desired responses.

Respondents were also asked to list their vocational choice. Following this, three vocational educators categorized each choice as typical or atypical for a women in today's work world.

Analysis. A two-way analysis of variance was employed where the dependent variable was the vocational maturity VDI Attitude Scale score; independent variables were typical versus atypical vocational choice and I-E control (median split).

Results and Discussion

Before testing the hypotheses stated for this study, grade level (freshmen through senior) differences were examined for the vocational maturity scores. Table 1 contains means and standard deviations on the VDI Attitude Scale for each grade level. Also included are the statistics for the I-E control dimension and percentage of Ss making typical versus atypical choices for each grade. No differences were found across grade
levels on the VDI Attitude Scale or the I-E control measure. Thus, no grade level factor was included in testing the hypotheses. With respect to the percentage of each grade level making typical or atypical choices, a greater percentage of the sophomores made atypical choices than the other grades. Any other trends in these percentages are limited due to the sample sizes.

Table 2 contains the cell means, standard deviations and analysis of variance (I-E control by typical-atypical vocational choice) for the VDI Attitude Scale scores. Inspection of the analysis of variance source table clearly indicates that internally controlled women had significantly higher vocational maturity scores than externally controlled women. Thus, the null hypothesis associated with prediction 1 was rejected and prediction 1, accepted. That is, those college women who tended to perceive that their behavior or personal attributes, not luck, chance, or significant others determines the reinforcement they seek, were found to be more vocationally mature.

While no differences were found in vocational maturity between those women making typical versus atypical vocational choices (prediction 2) emphasis should be placed on the significant interaction found between I-E control and type of vocational choice with respect to vocational maturity; figure 1 illustrates this interaction. Examination of figure 1
shows that the lowest level of vocational maturity was found for externally controlled females making atypical vocational choices. It was expected that the lowest level of vocational maturity would be manifest for externally controlled females making typical vocational choices. But recall that Liberty, Burnstein and Moulton (1966) found that externally controlled males preferred occupations with prestige values greater than the degree of competence required for the job, while internally controlled males preferred occupations with low prestige relative to the degree of competence required. Further investigation of the prestige value for the typical and atypical occupations selected by women in this study seems necessary. It may be that Liberty, Burnstein and Moulton's (1966) findings explain the direction of the interaction for this sample.

Conclusions

It is suggested that the I-E control construct should be considered when examining the vocational maturity of college women. More important though, the I-E control construct represents a continuum from internal to external control and college students in general tend to be a somewhat homogeneous group on this dimension by the mere fact that they have "made it" to college. But still, significant vocational maturity differences are found for those categorized as internal and externally controlled. The importance of considering the I-E control construct in vocational development is considerable. Examinations of vocational maturity among various high school groups where points on the I-E control continuum are well represented (Gable and Minton, 1971) may contribute greatly to understanding and facilitating the process of vocational choice.
References


<table>
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<tr>
<th>Grade</th>
<th>VDI Attitude Scale</th>
<th>GOQ I-E Control</th>
<th>% of Ss Making Choice Type</th>
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<tbody>
<tr>
<td></td>
<td>N</td>
<td>X</td>
<td>SD</td>
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<tr>
<td>Freshman</td>
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<td>39.0</td>
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<td>68</td>
<td>38.9</td>
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<td>60</td>
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<td>Senior</td>
<td>22</td>
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Table 2
Means, Standard Deviations and Analysis of Variance for VDI Attitude Scale

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<th>MS</th>
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<td>493.0</td>
<td>32.7**</td>
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<td>Choice by Control</td>
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<td>84.3</td>
<td>84.3</td>
<td>5.6 *</td>
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<td>Error</td>
<td>171</td>
<td>2575.9</td>
<td>15.1</td>
<td></td>
</tr>
</tbody>
</table>

* <p .05
** <p .01
Figure 1

Type of Vocational Choice by I-E Control Interaction for VDI Attitude Scale

- - - = Internal
- --- = External

VDI Attitude Scale

Non-Traditional Choice

Traditional Choice