College freshmen enter higher education at varying degrees of maturity and some are, therefore, more certain of their future career plans than are others. In the present study the investigators sought to determine the factors associated with decision and indecision regarding collegiate major and career choice. Thus, the authors developed the Career Decision Readiness Inventory (CDRI), a 36-item questionnaire intended to sample factors previously identified as relevant to decisionmaking behavior. The factors include: need for information, risk-taking propensity, self-confidence, ego involvement with choice, manifest anxiety, independence-dependence, subjective uncertainty, and fear of failure. The CDRI was administered during the summer of 1970 to 1,137 incoming freshmen at the University of Texas at Austin. The survey revealed that 3 source factors are determinants of student decisionmaking: (1) goal-orientation, or a propensity toward direct concern with the attainment of a career objective; (2) self-orientation, or a propensity to give primacy to attaining increased self-awareness and personal growth; and (3) indecisiveness-orientation, or a propensity to find all types of important decisions difficult to make. (HS)
Incoming college freshmen arrive on campus at varying stages of vocational maturity. While there are relevant consequences which may accrue wherever a student is in his vocational development, the situational demands of the collegiate setting place particular emphasis upon whether or not the freshman student has arrived at the choice stage with respect to his collegiate major (Tiedeman, 1961). College exerts a "press" which serves to compel a relatively definite commitment to a particular college major goal. For those concerned with career process, completion of the task of college major declaration serves as a convenient and behaviorally related benchmark for plotting students' vocational development. It can also serve as a useful vehicle for investigating factors associated with vocational decision-making behavior. The latter usage is applicable here. In this study the investigators sought to determine the factors associated with decision and indecision regarding collegiate major and career choice.

In reviewing the research literature on vocational indecision, Crites (1969) has pointed out that further study of the area is badly needed. In addition, he indicates that one tenable direction for this inquiry would be to examine various motivational and personality factors of the decision-maker. Appel and Haak (1968) have argued that an important and largely untapped source of promising personality (as well as situational) variables apt to be relevant for vocational decision-making
is the extensive multidisciplinary literature on decision theory and research (Haak, 1966). Research results found to be generalizable across various other decision-making situations may be applicable to the investigation of the process of career decision-making. Drawing upon this literature the investigators have developed the Career Decision Readiness Inventory (CDRI), a thirty-six item questionnaire intended to sample factors previously identified as relevant to decision-making behavior (Appel, Haak and Witzke, 1970). The factors include: need for information, risk-taking propensity, self-confidence, ego involvement with choice, manifest anxiety, independence-dependence, subjective uncertainty, and fear of failure. The items which tap these factors are intended to be situationally relevant for college students considering collegiate major and career decisions. An example of the items on the CDRI is item 10, "I do not want to be forced into a premature career choice without fully exploring what it will be like." Degree of respondent agreement-disagreement with each item is indicated on a seven-point Likert type scale.

In an earlier factor analytic study, using a preliminary version of the CDRI, the instrument appeared to identify meaningful factors associated with career choice behavior (Appel, Haak and Witzke, 1970). The research reported here was intended to provide both validation for the instrument and to verify previously identified factors underlying college students' career choice behavior.

Method

During the 1970 summer freshman orientation program, 1137 incoming freshmen were administered the CDRI at the University of Texas at Austin. These students were almost entirely an immediately post-high school group. From among this
population a sample of 392 subjects was drawn. Four groups of 96 students each comprise the sample. These sub-groups were: decided males, undecided males, decided females and undecided females. The decided sub-groups represented those respondents in the population who had indicated that they had chosen a college major and who responded that they were virtually certain of the appropriateness of their choice. The undecided sub-groups represented an equal number of those who indicated that they had not yet selected a major and who were relatively uncertain what their choice would eventually be. Operationally, degree of certainty about collegiate major was ascertained from subject responses to a preliminary questionnaire item, using a seven point scale where 1 = Completely Certain and 7 = Completely Uncertain. An additional criterion for inclusion in sample sub-groups was that only subjects with complete item response to the CDRI were included.

The questionnaire responses of all respondents in the population were machine processed and then factor analyzed using program FACTOR (Veldman, 1967), a program yielding a principal components analysis and a normalized varimax rotation analysis. An eigenvalue criterion of 1.0 was used. Subsequently, the responses of only the experimental sample sub-groups were factored using a more conservative image covariance analysis. As before, a eigenvalue criterion of 1.0 was used. Use of only the "extreme" sub-groups as subjects for this analysis was intended to maximize variance, and thereby increase accessibility to underlying source factors as revealed by the image covariance analysis.

Results

The results of the principal components analysis yielded nine factors. While
there was some overlap with factors extracted in an earlier preliminary study with college juniors, the results obtained differed substantially from the earlier ones. Further, as indicated in Table 1, three of the factors appeared tenuous in that they were primarily defined by only two items. In an effort to obtain a more parsimonious and stable solution to the underlying factor structure, the image covariance analysis of the four criterion sub-groups was performed. This analysis resulted in the extraction of two primary "source" factors which seemed to combine meaningfully some of the formerly separate factors. They accounted for 34% of the variance. These two primary factors were subsequently labelled Goal-Orientation and Self-Orientation. The latter factor was somewhat less well delineated than the former one. To test whether or not confounding dimensions were affecting the self-orientation factor, a three factor solution was called for. Although this third factor fell just below the requisite eigenvalue of 1.0 (.99), its extraction purified the self-orientation dimension, and accounted for 63% of the variance. This third factor was identified as indecisiveness-orientation. The results of the image covariance analysis are shown in Table 2.

The three source factors may be defined as follows:

Factor I: Goal-Orientation. A propensity toward direct concern with the attainment of a career objective. Actions are intended to be instrumentally related to the successful achievement of the career goal. Because of the heavy emphasis on goal attainment, considerable threat is generated when obstacles or ambiguities are encountered enroute. Alteration of plans, should this be necessary, is difficult.

Factor II: Self-Orientation. A propensity to give primacy to attaining increased self-awareness and personal growth. There is a relative lack of concern about utilizing collegiate experience as a vehicle for vocational preparation.
Table 1

Major Factor Loadings for the Principal Components Factor Analysis

<table>
<thead>
<tr>
<th>Factor²</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
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<td>-.47</td>
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<td>-.55</td>
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</table>

¹Number in parenthesis designates CDRI item.

²These factors were labelled as follows: I = Multiplicity of Interests, II = Intolerance of Success Ambiguity, III = Identity Orientation, IV = Decision Confidence, V = Decision Avoidance, VI = Data Seeking Orientation, VII = Introspective Orientation, VIII = Decision Anxiety, IX = Decision Irrelevance.
### Table 2

**Major Factor Loadings for the Image Covariance Factor Analysis**

<table>
<thead>
<tr>
<th>Item</th>
<th>Goal-Orientation</th>
<th>Self-Orientation</th>
<th>Indecisiveness-Orientation</th>
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<tbody>
<tr>
<td>5</td>
<td></td>
<td>.61 (I)</td>
<td></td>
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<tr>
<td>7</td>
<td>.38 (II)</td>
<td></td>
<td>.43 (IV)</td>
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<td>12</td>
<td></td>
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<tr>
<td>13</td>
<td>.61 (I)</td>
<td>.43 (IV)</td>
<td></td>
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<tr>
<td>14</td>
<td>.47 (III)</td>
<td>.43 (IV)</td>
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<td>16</td>
<td>.40 (II)</td>
<td>.42 (IV)</td>
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</tr>
<tr>
<td>19</td>
<td></td>
<td>.56 (I)</td>
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<td>.42 (II)</td>
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<tr>
<td>23</td>
<td></td>
<td>.65 (I)</td>
<td>.42 (IV)</td>
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<tr>
<td>28</td>
<td>.43 (III)</td>
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<td>.50 (V)</td>
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<td>30</td>
<td></td>
<td>.42 (IV)</td>
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</tr>
<tr>
<td>31</td>
<td></td>
<td>.41 (VII)</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>.48 (II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>.49 (II)</td>
<td></td>
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</tbody>
</table>

1Roman numeral refers to the factor in the principal components analysis on which the item loaded most heavily.
There is a high tolerance for ambiguity with respect to career choice and confidence about finding a suitable alternative should that be required or desired. There is relative comfort in exploration of new areas of interest.

Factor XIX. Indecisiveness-Orientatation. A propensity to find all types of important decisions difficult to make. There is a heavy reliance placed on the opinions of others. Limited investment can be placed in decisions that are reached. These decisions may be altered in the face of threatening circumstances which erode confidence in the wisdom of the original decision.

Discussion

The two primary factors, Goal-Orientatation and Self-Orientatation, extracted by the image experience analysis seem especially meaningful to the investigators in that they suggest a provocative and relatively parsimonious avenue to pursue in accounting for collegiate major and career indecision. The basic orientations make not only intuitive sense, but suggest the possibility that college major and career indecision is a specific manifestation of Rotter's internal-external locus of control construct. The goal-oriented student may be the equivalent of the individual with an internal locus of control. The self-oriented student may be analogous to the externally oriented person. This speculation obviously requires verification.

In a pragmatic level, scrutiny of GDI results for a particular student should assist counselors to obtain a better basis for knowing how to help him arrive at an appropriate career decision.
The investigators conclude that, while there was only partial validation of earlier dimensions found to be tapped by the CDRI, this study has provided a promising direction to pursue which may help integrate disparate factors previously identified as underlying college major and career choice.
REFERENCES


APPENDIX A

CAREER DECISION READINESS INVENTORY

Orientation: This inventory has been prepared as a means of better understanding the factors which contribute to career choice or choice of college major. Your participation will be of real benefit in dealing with this problem. Please respond as accurately as you can. First complete the following general information about yourself.

Social Security Number____________________________

Sex:       Male       Female

Age:       ___Years of Age

Do you plan to work at a part-time or full-time job while in college?  ___Yes     ___No

Have you chosen a college major?  ___Yes     ___No

If yes, what is it?____________________________

Because people who have chosen a major differ in the degree of certitude they feel about the correctness of their choice, and because people who have not chosen a major differ in the degree of doubt they have about a possible choice, you are asked to respond to the following scales by indicating how certain you feel now about (1) your future major and about (2) your future career.

(1) How certain are you about your future major? Circle the number which corresponds best to the degree of certainty you feel, using the seven point scale given below. If you feel completely sure, circle 1; if completely unsure, circle 7.

Completely
Certain    1   2  3  4  5  6  7    Completely
Uncertain

(2) How certain are you about your future career? As before, circle the number which corresponds best to the degree of certainty you feel, using seven point scale given below.

Completely
Certain  1   2  3  4  5  6  7    Completely
Uncertain
Directions: Please indicate, using the key given below, the extent to which the following statements represent how you feel. For example, if the statement in item one is exactly how you feel, write in a 1 in the space to the left of the item. If the statement is not at all how you feel, write in a 7.

Key
1 = Exactly how I feel
2 = Very much how I feel
3 = Somewhat how I feel
4 = No particular feelings one way or the other
5 = Somewhat different from how I feel
6 = Very much different from how I feel
7 = Not at all how I feel

1. Not having selected a major is (was) a very disturbing thing to me.

2. I would rather stay undecided about a major or career than to decide on a plan that I may find is irreversible later.

3. I resent always having to tell people what I am going to be career-wise; it's who I am as a person that concerns me most.

4. If I were allowed to take several courses in varying departments on a pass-fail basis, it would be of considerable help to me in selecting a major, if I hadn't already.

5. My problem is not that I can't find a field I can get really interested in; rather, it is that I am interested in more things than most people.

6. If I went to see a vocational counselor, what I would like to get would be information about careers, not a "psychoanalysis" of my personal characteristics.

7. If so much didn't depend upon my being a success, it would be easy to choose a major or a career.

8. The preferences of others whose opinions I value, such as parents, spouse, or friends, complicates (complicated) my selecting a career objective.

9. People who have always known what they want to be must be very happy, at least in this regard.

10. I do not want to be forced into a premature career choice, without fully exploring what it will be like.

11. College years are a time for great personal growth. This should be a student's main concern, and people should let him alone about major and career decisions until he feels ready to make them.

12. It tends to be difficult for me to make any kind of important decision.
13. My abilities and interests are just too broad to be satisfied by a single career.

14. I know my capabilities and interests; however, deciding what I can do that is of most value to society delays (delayed) me in making a decision.

15. Because I would hate to be called a "quitter," I would feel compelled to finish any major I began.

16. Not having a major or career objective would probably hurt my grade point average appreciably.

17. I am uncomfortable when seeking advice about majors or careers because I always feel the advisor is expecting me to arrive at a decision before we're through.

18. It would be easier for me to make a career choice if there were (had been) a chance to get some actual experience in the career(s) that I am (was) considering.

19. I really have found no career field that interests me.

20. I tend to trust the opinions of others more than I do my own.

21. There just isn't time for me to pursue all the career possibilities that my interests would suggest.

22. True intellectual greatness almost precludes narrow interests.

23. The worst thing that could happen to me would be to find that I am a failure in the career I chose.

24. Not having decided on a major is (was) less disturbing to me than it seems to be to others.

25. I could tell whether or not certain careers would fit me if only I could find some accurate, detailed information about what these careers are really like.

26. What I want out of my courses is not preparation for a career, but a better understanding of myself.

27. I would like to undergo a thorough testing program which would tell me what career I should enter.

28. So many careers interest me, I find it difficult to settle for only one.

29. There are so many societal needs which we ought to help remedy, that I hardly know what career would enable me to contribute most.

30. If it weren't for my doubts about my abilities, I'd have (would have had) no difficulty in selecting my college major.
31. I feel my likes, dislikes, values and thoughts about a career are undergoing so much change, I don't want to even try to focus on a particular area of study now.

32. It is not easy to make decisions about future goals considering how unstable things are these days.

33. I would rather be well prepared in three fields than very highly trained in one area of specialization.

34. If the career I finally decide on does not work out, it will be very difficult for me to change occupations.

35. It isn't until a person has the security of a good job, that he can begin to "discover himself" as a person.

36. In our competitive society, being a success in one's career is all important.