A typology of career undecided students: a cluster analytic approach

Connie Rae Schmidt

Iowa State University

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A typology of career undecided students:
A cluster analytic approach

by

Connie Rae Schmidt

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

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1990
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>3</td>
</tr>
<tr>
<td>Correlates of Career Indecision</td>
<td>3</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4</td>
</tr>
<tr>
<td>Locus of control</td>
<td>6</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>7</td>
</tr>
<tr>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>Subtypes of Undecided Individuals</td>
<td>9</td>
</tr>
<tr>
<td>Undecidedness vs. indecisiveness</td>
<td>10</td>
</tr>
<tr>
<td>Subtypes determined by conceptual criteria</td>
<td>11</td>
</tr>
<tr>
<td>Vocational decision status</td>
<td>13</td>
</tr>
<tr>
<td>Subtypes determined by empirical criteria</td>
<td>15</td>
</tr>
<tr>
<td>Summary</td>
<td>17</td>
</tr>
<tr>
<td>PROBLEM STATEMENT</td>
<td>19</td>
</tr>
<tr>
<td>METHOD</td>
<td>22</td>
</tr>
<tr>
<td>Sample</td>
<td>22</td>
</tr>
<tr>
<td>Instruments</td>
<td>22</td>
</tr>
<tr>
<td>Career Decision Scale</td>
<td>22</td>
</tr>
<tr>
<td>My Vocational Situation</td>
<td>23</td>
</tr>
<tr>
<td>Career Decision Profile</td>
<td>24</td>
</tr>
<tr>
<td>State-Trait Anxiety Inventory</td>
<td>26</td>
</tr>
<tr>
<td>Internal, Powerful Others and Chance Scales</td>
<td>27</td>
</tr>
<tr>
<td>Self-Consciousness Scale</td>
<td>28</td>
</tr>
<tr>
<td>Janis Field Feelings of Inadequacy Scale</td>
<td>29</td>
</tr>
<tr>
<td>Procedure</td>
<td>29</td>
</tr>
<tr>
<td>Statistical Analyses</td>
<td>31</td>
</tr>
<tr>
<td>Preliminary analyses</td>
<td>31</td>
</tr>
<tr>
<td>Cluster analysis</td>
<td>31</td>
</tr>
<tr>
<td>Additional analyses</td>
<td>35</td>
</tr>
<tr>
<td>RESULTS</td>
<td>36</td>
</tr>
</tbody>
</table>
# Preliminary Analyses

- Cluster Analysis with Total Sample
  - Description of clusters
  - Differentiation of clusters: Cluster variables
  - Differentiation of clusters: External variables
- Stability of the Cluster Solution
  - Comparison of clusters
  - Summary

# DISCUSSION

- Description of Clusters
  - Cluster 1: Self-Assured Decided Group
  - Cluster 2: Concerned Decided Group
  - Cluster 3: Unconcerned Undecided Group
  - Cluster 4: Anxious Undecided Group
  - General observations
- Comparisons with other Cluster Analytic Studies
- Suggestions for Future Research

# REFERENCES

# APPENDIX A. CAREER DECISION SCALE

# APPENDIX B. MY VOCATIONAL SITUATION

# APPENDIX C. CAREER DECISION PROFILE

# APPENDIX D. STATE-TRAIT ANXIETY INVENTORY

# APPENDIX E. LEVENSON LOCUS OF CONTROL SCALE

# APPENDIX F. SELF-CONSCIOUSNESS SCALE

# APPENDIX G. JANIS FIELD FEELINGS OF INADEQUACY SCALE

# ACKNOWLEDGEMENTS
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1.</td>
<td>Coefficient alphas for all subscales</td>
<td>37</td>
</tr>
<tr>
<td>Table 2.</td>
<td>Scheffé comparisons: Order effects</td>
<td>38</td>
</tr>
<tr>
<td>Table 3.</td>
<td>Pearson product moment correlations among subscales</td>
<td>40-41</td>
</tr>
<tr>
<td>Table 4.</td>
<td>Description of clusters: High, medium, and low mean standard scores for total group</td>
<td>49</td>
</tr>
<tr>
<td>Table 5.</td>
<td>Standardized means, standard deviations, and analysis of variance results for the variables used within the cluster analysis</td>
<td>50</td>
</tr>
<tr>
<td>Table 6.</td>
<td>Summary of significant differences between clusters on variables left out of the cluster analysis</td>
<td>59</td>
</tr>
<tr>
<td>Table 7.</td>
<td>Description of clusters: High, medium, and low mean standard scores for subsample 1</td>
<td>64</td>
</tr>
<tr>
<td>Table 8.</td>
<td>Description of clusters: High, medium, and low mean standard scores for subsample 2</td>
<td>65</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Semipartial $R^2$ error values by number of clusters</td>
<td>44</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Standardized means of Cluster 1, total sample</td>
<td>45</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Standardized means of Cluster 2, total sample</td>
<td>46</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Standardized means of Cluster 3, total sample</td>
<td>47</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Standardized means of Cluster 4, total sample</td>
<td>48</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Semipartial $R^2$ error values by number of clusters: Subsample 1 and 2</td>
<td>63</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Standardized means of Cluster 1 total sample (---), Cluster 1 subsample 1  (---), and Cluster 4 subsample 2 (---)</td>
<td>66</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Standardized means of Cluster 2 total sample (---), Cluster 3 subsample 1 (---), and Cluster 2 subsample 2 (---)</td>
<td>68</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Standardized means of Cluster 3 total sample (---), Cluster 2 subsample 1 (---), and Cluster 3 subsample 2 (---)</td>
<td>69</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Standardized means of Cluster 4 total sample (---), Cluster 4 subsample 1 (---), and Cluster 1 subsample 2 (---)</td>
<td>71</td>
</tr>
</tbody>
</table>
INTRODUCTION

Vocational and educational undecidedness is very common among high school, college, and even adult populations (Slaney, 1988). For some individuals, being unable to decide upon a career or educational program can be very distressing. Unfortunately, efforts to help these people are hampered by a limited understanding of the origins of career indecision and the nature of undecided individuals (Jones, 1989a).

Early studies in this area sought to identify differences between career decided and undecided individuals. However, there is a more recent trend toward studying the differences which may exist within the undecided group. The trend is toward viewing the undecided group as heterogeneous; a group that is composed of several subtypes (Holland & Holland, 1977; Salomone, 1982). Attempts to specify what these subtypes are have become popular, for such information could enhance a counselor's ability to understand clients and provide differential treatments (Fuqua & Hartman, 1983). Yet, according to Fuqua, Blum, and Hartman (1988), and Slaney (1988) our understanding of indecision subtypes is just beginning, and there is a need for further investigation in this area.

This study represents an effort to contribute to the
understanding of subtypes of career undecided individuals. Following the example set by Lucas (1985) and Fuqua, Blum, and Hartman (1988), cluster analysis was used as a means to differentiate between potential subtypes. Cluster analysis is designed to identify homogeneous groups of individuals based upon their scores on a set of relevant measures. This study focused upon differentiating between groups of undecided individuals based upon several variables hypothesized as relevant to the indecision construct, including degree of indecision, reasons for indecision, anxiety, self-esteem, locus of control, and self-consciousness.

Before the methods of this study are discussed, a literature review will explain the theoretical basis behind this research. The literature review will discuss earlier research that focused on the differences between undecided and decided individuals, and the move toward conceptualizing subtypes of undecided individuals.
LITERATURE REVIEW

Correlates of Career Indecision

A great deal of research has focused upon the question of how career undecided individuals may differ from career decided individuals. In general, undecided individuals represent a group that is uncertain about their choice of a college major or future career, while decided individuals represent those who are satisfied with and are committed to an occupational choice. In an attempt to understand undecided individuals, researchers have tried to distinguish between these groups with many personality and demographic variables.

A list of the large number of variables that have been studied in relation to vocational indecision was given by Gordon (1981). This list of variables includes: interests, values, abilities, achievement test scores, high school GPA, college GPA, college rank, needs, self-concept, maturity, motivation, energy level, dependency, dogmatism, anxiety, socio-economic level, size of high school class, college attrition, influence of significant others, gender, social and moral attitudes, risk taking, parental income, parental educational levels, extracurricular activities, work experience, life goals, occupational information deficits and decision making skill/style. In addition, variables
such as locus of control, fear of success, career salience, and yet others have been studied in relation to career indecision.

In general, the results of these studies have not yielded a clear portrayal of the undecided individual (Slaney, 1988). There seems to be two sets of studies: one group suggests there are no clear or important differences between career-decided and undecided individuals (e.g., Baird, 1967; Harman, 1973), while another group argues differences do exist (e.g., Sepich, 1987; Neice & Bradley, 1979). Despite this confusion, in a review of the literature Slaney (1988) concluded that it does appear that personality differences do exist that reflect more favorably upon the career-decided student. It is relevant at this point to elaborate upon three variables that have appeared in the literature most frequently in studies of indecision: anxiety, locus of control and self-esteem.

**Anxiety**

Anxiety is one of the most commonly investigated constructs in relation to career indecision (Fuqua, Seaworth, & Newman, 1987). In general, studies show that anxiety is higher in career undecided groups (e.g., Kimes & Troth, 1974; Hawkins, Bradley, & White, 1977; Appel, Haak, & Witzke, 1970). The study by Kimes and Troth (1974) also
reported an association between anxiety and satisfaction with career choice—-anxiety increased as the level of satisfaction decreased. The relation between anxiety and indecision was further supported in a multivariate examination utilizing four measures of indecision and four measures of anxiety (Fuqua, Seaworth, & Newman, 1987). Results showed all zero order correlations were positive, and a canonical correlation of .66 was found between the two sets of measures.

Research has also focused upon the question of whether indecision may relate differently to state versus trait anxiety. According to Spielberger, Gorsuch, and Lushene (1970), trait anxiety refers to relatively stable differences between individuals in their tendency to perceive situations with feelings of tension, apprehension, nervousness, and worry. State anxiety, on the other hand, refers to how an individual feels at a given time or situation, regardless of how they generally feel. Fuqua and Newman (1989) concluded that trait anxiety seems to have a higher relation to indecision than state anxiety.

A more complex relation between anxiety and indecision was proposed by Jones and Chenery (1980). Their study did not show a relationship between anxiety and indecision. However, they speculated that anxiety may be related to
indecision for only certain subtypes of undecided students. This speculation was supported by Jones (1989a). He found that decided and undecided individuals did not differ in their anxiety levels, but anxiety was related to how comfortable individuals were with their decision making status. For example, individuals who were undecided but comfortable with being undecided were less anxious than individuals who were undecided and uncomfortable.

Jones (1989a) also showed that anxiety levels may differ depending upon why individuals are undecided. His findings indicated that anxiety was related to two reasons for indecision: a lack of self-clarity and a general difficulty with making decisions. Anxiety was not related to lack of knowledge about occupations and training, and lack of importance of choosing a career.

Overall, there appears to be a consensus that the relation between indecision and anxiety is an important one, although a full explanation of that relationship has not emerged (Fuqua, Seaworth, & Newman, 1987).

**Locus of control**

Locus of control (Rotter, 1966) is a construct that refers to the extent to which individuals attribute the occurrence of life events to external factors (e.g., luck, chance, fate) or to internal factors (e.g., effort, ability,
skill). Individuals who attribute events to external factors (externals) tend to believe they have less responsibility and control over their lives than individuals with internal locus of control (internals). In terms of career indecision, theorists have hypothesized that "externals" would be more undecided, due to a tendency to take a less active role in planning their careers and gathering occupational information (Taylor, 1982). Super (1983) also added that career planning can take place "only if people believe that they have some control over their careers" (p. 557).

Studies have supported the hypothesized relationship between locus of control and indecision (e.g., Fuqua, Blum, & Hartman, 1988; Lucas, 1985; Hartman & Fuqua, 1982). It is also of interest to mention that Taylor (1982) found that the association between locus of control and vocational indecision may vary as a function of participants' gender and ability level. In her study, external locus of control predicted indecision best for female as opposed to male students, and for high ability as opposed to low ability students.

Self-esteem

The significance of an individual's self-esteem in the study of career decisions was emphasized by Super,
Starishevsky, Matlin, and Jordaan (1963). They suggested that individuals high in self-esteem have clearer and more certain perceptions of themselves and may be better able to determine how well alternative vocational goals meet their needs, values, interests and abilities.

Support for this theory can be found in the literature (e.g., Barrett & Tinsley, 1977; Healy, Bailey, & Anderson, 1973). Maier and Herman (1974) also showed that undecided college students tend to have lower self-esteem than decided students. Similarly, Resnick, Fauble, and Osipow (1970) found that self-esteem was significantly related to responses to a one item scale asking individuals to rate their certainty concerning their vocational plans—as certainty increased, self-esteem increased.

However, it must be noted that mixed results concerning the relation between self-esteem and indecision were reported by Robbins (1987). Robbins administered four measures (relating to goal instability, self-esteem, interest patterns and career indecision) to students solicited from career and life planning courses at a university. Robbins found that self-esteem was not related to pre-course indecision scores, but he did find that self-esteem scores could be used as predictors of post-course indecision levels.
Summary

Overall, it seems apparent that while most studies have found differences between undecided and decided individuals, yet others have found no differences. Many authors have concluded that the contradictory findings that have sometimes occurred are most likely due to simplistic approaches toward the indecision construct. Many studies, especially the earlier ones, did not speculate that there may be several different types of undecided individuals. If there are subtypes of undecided individuals, a direct comparison between decided and undecided individuals would not be appropriate. There has been a recent trend toward viewing the undecided group as heterogeneous. Now a great deal of research has focused upon the speculations of whether subtypes of undecided individuals exist, and if they do, how these subtypes can be described. This research will be described in the next section.

Subtypes of Undecided Individuals

There has been a growing trend in the literature toward viewing indecision as a complex multidimensional construct. Many authors emphasize that instead of looking at undecided individuals as forming a homogeneous group, it is important to recognize that multiple types or multiple forms of indecision may exist (Crites, 1969; Fuqua & Hartman, 1983;
Salomone, 1982). The following section discusses several different ways in which undecided students have been broken into subgroups.

**Undecidedness vs. indecisiveness**

This conceptualization of indecision subtypes was based upon listening to and working with career undecided clients (Tyler, 1961; Goodstein, 1965). The typology involves distinguishing between career undecided and career indecisive individuals. A brief description of each subtype will follow.

First, it is proposed that career undecided individuals represent a group that is going through a normal and temporary stage of development. This group, while unable to specify a career choice, does not feel pushed or stressed to make a decision. According to Salomone (1982), this subtype makes sense, for many individuals may delay a career decision in order to gather more information about themselves, occupations, or the process of decision making. Holland and Holland (1977) also added that one-half of the undecided students in their study reported "I don't have to make a decision right now."

Individuals in the career indecisive group do not seem to be going through a normal stage of development, and they have not delayed their vocational choice in order to gather
more information. Instead, it is suggested that these people have personal qualities that will not allow them to reach a decisional state of mind. Salomone (1982) made several observations about two clients he felt were "career indecisive." For example, he concluded that these individuals were characterized by the following: high levels of ambivalence, anxiety and frustration; an unclear sense of personal identity; low self-confidence and self-esteem; externalized locus of control; and a tendency to blame others for their situation. Hartman, Fuqua, and Hartman (1983) label this condition as "chronic indecision" and suggest that it may require more intensive treatment.

This differentiation between career undecidedness and career indecision is quite popular in the literature. Yet, following a review of the literature Slaney (1988) commented "very little progress has been made thus far in demonstrating that the two constructs are valid and discriminable" (pp. 44-45). Overall, there is no clear evidence that this is the best way to group individuals who have not specified a career choice.

Subtypes determined by conceptual criteria

Another way of differentiating between undecided groups involves a recognition that people may be undecided for different reasons. According to Jones and Chenery (1980),
the explanations that people give for being undecided can be used to specify subgroups of indecision in the same way Tyler (1961) differentiated between career undecidedness and indecisiveness. Jones and Chenery also added that someone undecided for one reason (i.e., lack of occupational information) may need a different type of counseling and assistance than someone who is undecided for another reason (i.e., a general inability to make decisions).

Osipow, Carney, Winer, Yanico, and Koschier (1976) developed a measure of career indecision (Career Decision Scale) by specifying 16 reasons individuals may be undecided. Factor analysis of the 16 reasons yielded four factors which could be used to subtype undecided individuals: (1) need for structure; (2) perceived external barriers; (3) positive choice conflict; and (4) personal conflict. One of the implications of the factor analysis was that counselors could administer this scale and focus treatment according to a client's factor scores (Slaney, 1988).

Unfortunately, it seems these four factors are not adequate as a means to subtype undecided individuals. The factor structure of this scale has been questioned by several authors (e.g., Slaney, Palko-Nonemaker, & Alexander, 1981; Hartman & Hartman, 1982). The Career Decision Scale
remains popular and widely used as a measure of indecision, but most users score the measure as a sum of the reasons that the undecided person endorses.

**Vocational decision status**

As a continuation of efforts to specify indecision subtypes, Jones and Chenery (1980) developed a model of "vocational decision status". They proposed that undecided individuals can be characterized according to three dimensions: 1) decidedness (the degree of an individual's indecision); 2) comfort level (how comfortable the individual is with his or her level of indecision); and 3) reasons (what reasons the individual has for his or her indecision). A scale was developed to measure these three dimensions (Vocational Decision Scale; Jones & Chenery, 1980), and was later revised and renamed as the Career Decision Profile (Jones, 1989b).

The Career Decision Profile contains six scales, two of which measure the decidedness and comfort dimensions, and four which measure the reason dimensions. One way the Career Decision Profile can be used is to subtype individuals into four groups: decided-comfortable, decided-uncomfortable, undecided-comfortable, and undecided-uncomfortable. This typology seems to address one idea that has been largely ignored: some students may express that
they are decided about their career choice but yet may feel uncomfortable with their choice.

Individuals can be further differentiated on the Career Decision Profile according to the reasons they report for their indecision. The following reason scales are included for this purpose: 1) lack of self clarity (measures indecision due to an individual's inability to understand self strengths, weaknesses, interests and personality); 2) lack of information (assesses indecision due to a lack of knowledge concerning occupations and educational programs); 3) indecisiveness (measures undecidedness due to a general inability to make decisions); and 4) choice-work salience (measures the extent to which respondents feel that choosing and working in an occupation is an important or unimportant part of their life goals).

Overall, the vocational decision status model seems promising. The scales on the Career Decision Profile appear to be reliable (Jones, 1989a), and the model seems to take a comprehensive approach to specifying potential subtypes of indecision. Yet, it seems that there is a further need to be more specific concerning how personality variables may fit into these subtypes.
Subtypes determined by empirical criteria

Yet another method that has been used to investigate career indecision subtypes is cluster analysis. Cluster analysis is a statistical procedure that can be used to identify homogeneous groups of individuals based upon their scores on a set of related variables (Borgen & Weiss, 1971). This method is able to take a broad approach toward the construct of indecision. In a literature search, two studies were identified that have used this procedure to classify undecided individuals (e.g., Fuqua, Blum, & Hartman, 1988; Lucas, 1985).

Fuqua, Blum, and Hartman (1988) used cluster analysis to divide high school students into subtypes based upon their responses to four questionnaires. These four questionnaires included the following: State-Trait Anxiety Inventory (Speilberger et al., 1970), Identity Scale (Holland, Gottfredson, & Nafziger, 1975), Rotter's (1966) Internal-External Locus of Control Scale, and the Career Decision Scale (Osipow et al., 1976).

Four groups were identified through this cluster procedure. The groups seemed to be distinguishable in terms of the level of problems they had. Following is a brief summary of each group identified according to the authors' interpretations.
1. Group one seemed to represent a career decided group. This group seemed to be low in anxiety and relatively effective in terms of attribution and identity formation.

2. Group two seemed to be at least moderately undecided, have a higher anxiety level, less identity formation, and a fairly internal locus of control.

3. Group three seemed to demonstrate a very high degree of indecision, external locus of control, and poor identity formation. This group had only moderate levels of anxiety.

4. Group four seemed similar to group three, for this group also showed a very high degree of indecision, external locus of control, and poor identity formation. However, this group had the highest level of state and trait anxiety of all groups.

The results of this study are useful in many ways. The results confirm speculations that there are different subtypes of undecided individuals, and show more specifically some of the personality characteristics of each group. The authors speculated that group two might represent the career "undecided" group proposed by Tyler (1961), with groups three and four representing more chronic
forms of indecision. Yet, the conclusions to be drawn from this single study are limited. According to the authors, using a greater range of variables in the cluster analysis would have provided a more detailed understanding of how the groups differ.

The Lucas study (1985) did use a greater range of variables in her cluster analysis. This cluster analysis was based upon individuals' responses to measures assessing life-style, career salience, self-esteem, anxiety, locus of control and identity. The cluster solution she reported involved five groups of undecided individuals.

In general, her groups seemed to differ in terms of their level of problems. Yet, Lucas did not include any decided students in her study. Selecting only undecided students to participate in her study seems to impose a restriction of range upon her data. It also fails to recognize that some decided students may be uncomfortable with their choice. Such individuals should be accounted for in a typology of indecision (Jones, 1989b).

Summary

Overall, several theories have been proposed and several methods have been used in the attempt to identify different subtypes of undecided individuals. It seems that a great deal of progress has been made toward developing
logical patterns of career indecision and ways in which individuals can be grouped. Yet, the typologies that have been proposed have only begun to help us understand the construct of indecision. It seems more research is necessary to elaborate upon previously suggested subtypes.
PROBLEM STATEMENT

This study represents an effort to contribute to the understanding of subtypes of career undecided individuals. Following the example set by Lucas (1985) and Fuqua, Blum and Hartman (1988), cluster analysis was used as a means of specifying subtypes of undecided individuals and factors related to each subtype. Careful consideration was taken when choosing variables that would be utilized in the study. Three indecision measures and four personality measures were selected.

First, three indecision measures were chosen (Career Decision Scale, Osipow et al., 1976; My Vocational Situation, Holland, Daiger, & Power, 1980; and Career Decision Profile, Jones, 1989b) for use in this study. These three measures contain a total of ten subscales designed to assess various aspects of career indecision. Six of these subscales, Vocational Identity, Career Decidedness, Decisiveness, Knowledge of Occupations and Training, Self-Clarity, and Career Choice Importance were used in the cluster analysis. The four others, Occupational Information, Comfort, Certainty and Indecision were used as external descriptors of the cluster solution. These subscales will be described in more detail in the Method section.
Four personality measures were also chosen for use in this study. These measures assessed self-esteem, anxiety, locus of control and self-consciousness. The measures of self-esteem, anxiety, and locus of control were used in the cluster analysis. In particular, these variables were chosen because they represent factors that have been found relevant to career indecision. While studies have shown self-esteem, anxiety, and locus of control to be related in general to career indecision, little research has attempted to use these factors to differentiate between subtypes of undecided individuals.

Self-consciousness was also chosen as a variable to be used in this study. No studies were identified that have utilized this variable in indecision research, yet it seems highly relevant. Self-consciousness (Fenigstein, Scheier, & Buss, 1975) refers to an individual's tendency to direct self attention inward or outward. A highly self-conscious individual tends to continually examine his or her thoughts and interactions with others. It seems that certain types of career undecided individuals may fail to direct enough attention inward, meaning they may fail to analyze their personal abilities, likes, dislikes, strengths, weaknesses, etc. Since self-consciousness has not been established as relevant to career indecision in past research, this study
did not utilize the construct as a variable within the cluster analytic procedure. Instead, self-consciousness was used as an outside descriptor of the cluster solution.

The results of this study can be used to increase the present understanding of career indecision subtypes. The information provided by this study can enhance our ability to understand how personality factors such as self-esteem, anxiety, locus of control, and self-consciousness are differentially related to various reasons and degrees of indecision.
METHOD

Sample

Subjects for this study were 400 undergraduate students enrolled in introductory psychology courses at Iowa State University (201 female, 193 male, 6 did not indicate their gender). Their mean age was 20.58 (median age = 18, range = 16 to 55). These subjects represented a wide variety of academic majors, including Architecture, Art, Biology, Business, Engineering, Finance, Management, Marketing, Music, Nursing, Physical Education, Political Science, Psychology, Spanish, and Zoology. There were 32 students who had not formally declared a major. Subjects received one extra credit point toward their course grade for participating.

Instruments

A test booklet composed of seven questionnaires was utilized in this study. Three of the questionnaires were measures of vocational indecision, while the remaining four included measures of anxiety, locus of control, self-consciousness, and self-esteem. The three measures of career indecision used in this study included the following. Career Decision Scale

The Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, & Koschier, 1976) consists of 19 items, representing
two subscales (see Appendix A). Items 1 and 2 comprise the Certainty scale, which provides a measure of the respondent's certainty surrounding career choice and choice of an educational major. Items 3 through 18 constitute the Indecision scale, which was designed to assess 16 aspects of career and/or educational indecision. The 19th item was not used in this study. It allows individuals to elaborate upon their personal career situation.

Responses were made on a 4-point Likert scale where 1 = not at all like me and 4 = exactly like me. Higher scores on the Indecision scale indicate greater vocational indecision, while higher scores on the Certainty scale indicate greater vocational certainty. Osipow et al. (1976) analyzed the reliability of the CDS with two samples of college students over a 14 day period. They found test-retest correlations for the sum of items 3 through 18 of .90 and .82.

My Vocational Situation

My Vocational Situation (MVS; Holland, Daiger, & Power, 1980) consists of 20 items designed to measure vocational indecision (see Appendix B). The measure includes three subscales. The first 18 items make up the Identity subscale, and are answered as true or false. The score on the Identity scale is the total number of false responses,
with higher scores indicating a clearer sense of vocational identity. The Kuder-Richardson reliability estimate for this scale when administered to college students was .87 (Holland et al., 1980).

It has been noted that the two additional scales are more appropriately called "checklists" or "borderline scales" (Holland et al., 1980). The Occupational Information scale requires respondents to report whether or not they need any of four different kinds of career information (i.e., how to find a job). The Barriers scale requires respondents to report whether or not any of four different factors have acted as a "barrier" to their career choice (i.e., lack of money). The internal consistency reliabilities for these two scales are .79 for Occupational Information and .45 for Barriers. For both the Information and Barrier scales the number of false responses can be used as the score. The Barriers scale was not used in this study due to its low reliability.

Career Decision Profile

The Career Decision Profile (CDP; Jones, 1989b) was developed as a multidimensional measure of career indecision (see Appendix C). Three dimensions of indecision are assessed, including how decided individuals are, how comfortable they are with their career decision status, and
what reasons they have for being decided or undecided about their career choice.

The 16 items in this measure are answered on a 8-point Likert scale where 1=strongly disagree to 8=strongly agree. The measure has six subscales, four of which represent various reasons for being undecided. The Decidedness scale is composed of two items which measure the extent to which a person has decided on an occupational choice. Scores may range from 2 to 16, with a high score indicating the person is decided. According to Jones (1989a), the test-retest reliability for this scale is .66 with an alpha coefficient of .85. The Comfort scale is also composed of two items, and it measures the extent to which the person feels worried or uncomfortable with his or her career decision status. Scores may range from 2 to 16, with a high score indicating the person is comfortable. The test-retest reliability of this scale was .76, with an alpha coefficient of .82 (Jones, 1989a).

The remaining four scales are concerned with reasons for indecision. These scales include Self-Clarity, Decisiveness, Knowledge about Occupations and Training, and Career Choice Importance. Scores on these scales range from 3 to 24, with high scores indicating the person has a high amount of the construct measured (e.g., high self-clarity,
high knowledge, etc.). Test-retest reliability of the reason scales ranged from .67 to .80, with internal consistency estimates from .68 to .79 (Jones, 1989a).

The remaining four questionnaires utilized in this study included measures of anxiety, locus of control, self-consciousness and self-esteem. A summary of these scales follows.

**State-Trait Anxiety Inventory**

This inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) consists of both a State Anxiety (form Y-1) and a Trait Anxiety scale (form Y-2) (see Appendix D). Each scale consists of 20 items presented in Likert format. The instructions for the State Anxiety scale ask individuals to indicate how they feel "right now...at this moment," while the Trait Anxiety scale asks individuals to indicate how they "generally feel." Scores are computed by summing scores across items. Scores for both scales can range from 20 to 80, with higher scores indicating higher levels of anxiety.

Test-retest reliabilities for the State Anxiety scale are quite low. The reliability coefficients on this scale range from .16 to .62, with a median of only .33. Such low coefficients are expected due to the transitory nature of the construct (Spielberger et al., 1970). The test-retest
reliabilities of the Trait Anxiety scale range from .73 to .86 for college students.

KR 20 coefficients were also reported for samples of working adults, students and military recruits. For the State Anxiety scale, KR 20 coefficients ranged from .86 to .95. For the Trait Anxiety scale, coefficients ranged from .89 to .91.

Internal, Powerful Others and Chance Scales

The Internal, Powerful Others and Chance Scales (IPC; Levenson, 1974) comprise a 24 item multidimensional measure of locus of control (see Appendix E). Three dimensions of locus of control are assessed, including the extent an individual feels personal control over his/her life (Internal scale); the extent an individual feels powerful others are in control (Others scale); and the extent an individual feels life events are due to luck or chance (Chance scale). Each scale consists of eight items to be rated on a Likert scale of 1 (strongly disagree) to 5 (strongly agree). Scores are computed by summing responses for each scale. Higher scores on each scale indicate greater belief in that form of control.

Levenson (1974) reported test-retest reliabilities for this measure over a one-week period: .64 (Internal scale), .74 (Others scale), and .78 (Chance scale). Kuder-
Richardson reliabilities were .64 (Internal scale), .77 (Others scale), and .78 (Chance scale), respectively. Split-half reliabilities included .62, .66, and .64, respectively.

Self-Consciousness Scale

The Self-Consciousness Scale (SCS; Fenigstein, Scheier, & Buss, 1975) is composed of 23 items and was designed to assess an individual's tendency to direct self-attention inward or outward (see Appendix F). Respondents rated each item on a scale of 1 (extremely uncharacteristic) to 5 (extremely characteristic).

The Self-Consciousness Scale has three subscales: Private Self-Consciousness, Public Self-Consciousness, and Social Anxiety. Items for each subscale are mixed within the overall scale. Scores can be computed by adding the ratings for items on each respective subscale. Four items must be reversed scored, so that for all items higher scores indicate higher self-consciousness.

Test-retest reliability was computed by Fenigstein et al. (1975), using a two week period between administrations. The reliability coefficients for each subscale include: Public Self-Consciousness, .84; Private Self-Consciousness, .79; and Social Anxiety, .73. The overall scale reliability coefficient was .80.
Janis Field Feelings of Inadequacy Scale

This scale (JF; Janis & Field, 1959) consists of 20 items designed to measure self-esteem (see Appendix G). The items are presented in a multiple choice format with five answer categories (i.e., very often, fairly often, sometimes, once in a great while, and practically never). Ten items are worded such that the affirmative response (i.e., very often) indicates high self-esteem. These items were scored as follows: \( a = 5, \ b = 4, \ c = 3, \ d = 2, \) and \( e = 1. \) The remaining items are worded so the affirmative response indicates low self-esteem, and these items were reversed scored so that high scores over all items indicate high self-esteem. Janis and Field (1959) reported a split-half reliability of .83 and internal consistency reliability of .91 for high school juniors taking the questionnaire.

Procedure

The questionnaires described were collated into four different combinations to allow analysis of order effects. The four combinations followed a modified counter-balanced design. These combinations included the following: 1) SCS, CDS, JF, CDP, STAI, MVS, IPC; 2) JF, CDS, STAI, CDP, IPC, MVS, SCS; 3) STAI, CDS, IPC, CDP, SCS, MVS, JF; 4) IPC, CDS, SCS, CDP, JF, MVS, STAI. These four combinations were deliberately designed so that the indecision measures would
never appear consecutively. The questions in the indecision measures are of a similar nature, and it was decided to split them up to reduce the possibility that participants will become bored with several questions of the same type appearing one after another.

Data collection involved administration of the questionnaires to groups of approximately 50 subjects at each session. After all subjects had arrived in the testing room, modified consent forms were distributed. The experimenter read the consent form aloud and then distributed test booklets containing the questionnaires. Equal numbers of each form of the test booklet were passed out at each session.

Participants were asked to provide the following demographic information on their answer sheets before completing their questionnaires: 1) educational major if a major had been declared; 2) gender; 3) age; and 4) year of school (freshman, sophomore, junior, senior). The participants' names and social security numbers were not requested.

Participants were told to read the instructions preceding each questionnaire in the test booklet. Instructions for completion of the biographical information and concerning the importance of reading the instructions
Statistical Analyses

Preliminary analyses

Nineteen subscale scores were calculated from the seven questionnaires utilized in this study. The reliability of all nineteen subscale scores was assessed, utilizing coefficient alpha. This step was taken primarily to allow an examination of the internal consistency of the Career Decision Profile scales (Jones, 1989b), given this scale is quite new.

The four different combinations of questionnaires utilized in this study were analyzed for order effects using a one-way analysis of variance procedure (ANOVA). Inter-correlations among the subscales were also examined.

Cluster analysis

Cluster analysis was used as a means to differentiate between subtypes of undecided individuals. According to Borgen and Weiss (1971), this is the appropriate procedure to be utilized when the objective of research is to classify people into similar subgroups. While there are several different methods of cluster analysis available, the Ward
method (Ward, 1963) was chosen because it appears to give results that are replicable and valid (Borgen & Weiss, 1971). The Ward method has also been one of the most frequently applied methods in cluster analytic research.

Participants in this study were classified into subgroups based upon their standardized subscale scores. Only 12 of the 19 subscale scores were used in the cluster analysis. Six of the ten indecision subscales were used in the cluster analysis: Vocational Identity scale (MVS), Decidedness scale (CDP), Self-Clarity (CDP), Decisiveness (CDP), Knowledge about Occupations and Training (CDP), and Career Choice Importance (CDP). The remaining four indecision subscales [Certainty scale (CDS), Indecision scale (CDS), Occupational Information (MVS), and Comfort scale (CDP)] were assigned as external descriptors of the cluster solution.

The Indecision scale and the Comfort scale were chosen to be left out of the cluster analysis because it was felt these two variables would provide very useful external descriptors of the cluster solution--the Indecision scale because it is a general scale of undecidedness that is not broken down into reasons or components of indecision, and the Comfort scale because it is of interest to see if different subtypes of career undecided individuals differ in
their level of occupational comfort. The Occupational Information scale and the Certainty scale can also be used as external descriptors of the cluster solution. Yet, these two scales were excluded primarily because their questions are quite similar to the Decidedness and Knowledge of Occupations and Training scales, and it was not desired to weigh these components of indecision twice within the clusters.

Six of the nine personality subscales were used in the cluster analysis, including: State Anxiety (STAI), Trait Anxiety (STAI), Self-Esteem (JF), Internal scale (IPC), Powerful Others scale (IPC), and Chance scale (IPC). The constructs measured by these scales (anxiety, self-esteem, and locus of control) have been previously associated with career indecision, as discussed earlier. The three self-consciousness subscales were left out of the cluster analysis because self-consciousness is not well-established as relevant to career indecision. Instead, these scales can be used as external descriptors of the cluster solution.

The Ward method of cluster analysis forms clusters so that they have minimum within-group variation and maximum between-group variation. The procedure works in a hierarchical manner. For example, in the first step of a procedure clustering 400 subjects, each person is considered
in their own individual cluster. The second step of the procedure combines the two most similar individuals such that there are now only 399 clusters. At each successive step of the procedure similar individuals are merged into new clusters. Clustering continues until only one group remains.

The optimal number of clusters must be determined somewhat subjectively. The Ward method provides an index of error at each clustering stage that may be helpful, yet it is possible to make different decisions about how many clusters to interpret (Statistical Analysis System, 1985). In this study, semipartial $R^2$ values were used as error terms to make the decision concerning the number of clusters. These values indicate how much information is lost at each step of the cluster analysis. Changes in the $R^2$ values became the main criteria for determining how many clusters best described the data in this investigation. In a plot of the error terms by each potential cluster solution, the point at which the change in the slope of the curve is greatest (e.g., the point at which the error curve climbs sharply upward) can be defined as the optimal number of clusters for that data.
Additional analyses

A one-way analysis of variance was performed for each of the 12 variables used within the cluster analysis across the identified clusters. This procedure was used to help describe the cluster solution. The effect size of each variable included in the cluster analysis was also calculated using omega squared ($\omega^2$).

Furthermore, analyses of variance were performed to test differences between the identified clusters on the subscales not included in the cluster analysis. These tests can help provide an external description of the clusters.

Finally, the stability of the cluster solution found was examined by dividing the sample randomly into two subsamples (n=204 and n=186). The cluster analytic procedure was repeated for each subgroup. The clusters resulting from these analyses were compared to each other and to the cluster solution stemming from the entire sample.
RESULTS

Preliminary Analyses

The reliability of all nineteen subscales was assessed, utilizing coefficient alpha (see Table 1). Two scales had low correlations: the Importance scale (.54) and the Internal Control scale (.55). The low internal consistency found in the Importance scale is most likely due to the small number of items in the scale (3). The low value found for the Internal Control scale may be expected, since the items sample from a variety of situations (Levenson, 1974).

The four different combinations of questionnaires utilized in this study were analyzed for order effects using a one-way analysis of variance procedure (ANOVA). Four of the nineteen subscales showed significant order effects. These subscales include State Anxiety ($F(3,395) = 4.20, p<.006$), Trait Anxiety ($F(3,393) = 3.43, p<.017$), Decidedness ($F(3,396) = 3.60, p<.014$), and Decisiveness ($F(3,396) = 3.55, p<.015$).

Significant univariate effects were explored with Scheffé pairwise comparisons (see Table 2). On the State Anxiety scale (STAI) participants completing form 1 (STAI=5th questionnaire in packet; $M = 33.6$) reported significantly less anxiety than subjects completing form 2 (STAI=3rd questionnaire in packet; $M = 38.4$) or form 3 (STAI=1st questionnaire in packet; $M = 38.6$).
Table 1. Coefficient alphas for all subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Coefficient Alpha</th>
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<td>CDS-Certainty</td>
<td>.84</td>
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<td>CDS-Indecision</td>
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<td>MVS-Identity</td>
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<td>MVS-Information</td>
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<td>CDP-Decidedness</td>
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<td>CDP-Comfort</td>
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<td>CDP-Clarity</td>
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<td>CDP-Knowledge</td>
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<td>CDP-Importance</td>
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<td>CDP-Decisiveness</td>
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<td>STAI-State Anxiety</td>
<td>.93</td>
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<tr>
<td>STAI-Trait Anxiety</td>
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<tr>
<td>JF-Self-Esteem</td>
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<td>IPC-Internal</td>
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<td>IPC-Chance</td>
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<td>IPC-Others</td>
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<td>SCS-Private</td>
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<td>SCS-Public</td>
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<tr>
<td>SCS-Anxiety</td>
<td>.73</td>
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Table 2. Scheffé comparisons: Order effects

<table>
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<tr>
<th>Subscale</th>
<th>Form 1</th>
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<th>Form 4</th>
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<td>Mean</td>
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<tr>
<td>State</td>
<td>33.6(^a)</td>
<td>38.4(^b)</td>
<td>38.6(^b)</td>
<td>36.2(^{ab})</td>
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<tr>
<td>Trait</td>
<td>37.8(^a)</td>
<td>39.5(^{ab})</td>
<td>42.2(^b)</td>
<td>40.6(^{ab})</td>
</tr>
<tr>
<td>CDP:</td>
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</tr>
<tr>
<td>Decidedness</td>
<td>13.4(^a)</td>
<td>13.7(^{ab})</td>
<td>14.8(^b)</td>
<td>14.4(^{ab})</td>
</tr>
<tr>
<td>Decisiveness</td>
<td>9.9(^a)</td>
<td>9.2(^a)</td>
<td>11.4(^b)</td>
<td>11.1(^{ab})</td>
</tr>
</tbody>
</table>

Note: When going across individual rows, letters that differ from each other are significantly different using the Scheffé test (p<.05). The four forms were collated in the following orders: Form 1 = SCS, CDS, JF, CDP, STAI, MVS, IPC; Form 2 = JF, CDS, STAI, CDP, IPC, MVS, SCS; Form 3 = STAI, CDS, IPC, CDP, SCS, MVS, JF; Form 4 = IPC, CDS, SCS, CDP, JF, MVS, STAI.
A similar effect was found on the Trait Anxiety scale (STAI). Participants completing form 1 (STAI=5th questionnaire; M = 37.8) scored significantly lower on this scale than participants completing form 3 (STAI=1st questionnaire; M = 42.2). The effects with the STAI seem to indicate that some individuals were somewhat worried or anxious about the experiment at the start, but as they drew near to finishing their packets, they began to relax. These effects seem quite logical, and do not seem to point to a problem with the data.

The other two subscales on which order effects were found were the Decidedness and Decisiveness scales, both part of the CDP. The CDP appeared as the fourth questionnaire on all four forms. On the Decidedness scale, subjects completing form 1 were significantly less decided (M = 13.4) about their careers than those completing form 3 (M = 14.8). On the Decisiveness scale, subjects completing form 2 were significantly less decisive (M = 9.2) than those completing form 3 (M = 11.4). These effects are less explainable. Yet, it was decided that these two order effects and those depicted above did not pose an interpretive problem to the study. Participants completing each of the four forms were combined into one subject pool.

The inter-correlations among the subscales were also examined (see Table 3). Subscales 1 through 10 in the table
### Table 3. Pearson product moment correlations among subscales

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<th>Subscales:</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>2. Indecision</td>
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<td>3. Identity</td>
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<td>4. Information</td>
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<td>5. Decide</td>
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<td>6. Comfort</td>
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<td>7. Clarity</td>
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**Note:** Decimals are omitted. Correlations > .08 significant, p<.05. Correlations > .11 significant, p<.01.
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</table>
represent the indecision scales. Correlations among these subscales tend to be rather high, ranging from .16 (Decisiveness and Importance) to -.78 (Indecision and Identity). These high correlations provide evidence that the indecision scales are measuring the same construct, but yet it seems evident that different aspects of the construct are being measured.

Correlations between the indecision scales and the personality scales seem to support the literature's contention that anxiety, self-esteem, and locus of control are related to career indecision. The relation between self-consciousness and career indecision, however, does not seem to be a strong one. Private Self-Consciousness and Vocational Identity, for example, only show a correlation of -.07. The Public Self-Consciousness scale and the Social Anxiety subscales show somewhat higher correlations with Vocational Identity (-.17 and -.26, respectively), but there is not enough support to conclude a strong relation between career indecision and self-consciousness exists. The hypothesis that self-consciousness may only be relevant for certain subtypes of career undecided individuals can still be investigated.

Cluster Analysis with Total Sample

The 12 subscale scores marked for use in the cluster analysis were standardized and Ward's method was used to
perform the clustering process (Statistical Analysis System, 1985). To determine the optimal number of clusters, changes in the $R^2$ error term were examined (see Figure 1). A marked change in the slope is first evident at the merge from four into three clusters (.029 to .057), meaning a great deal of information is being lost by collapsing the four clusters into three. As there are no other abrupt increases in the error term, it seems these data represent a four cluster solution.

**Description of clusters**

It is now necessary to describe each of the four clusters. Several figures and tables have been provided to aid in this description. Figures 2, 3, 4, and 5 display pictorially the standardized subscale means for the individuals found in cluster 1, 2, 3, and 4, respectively. Table 4 provides a comparison between the four clusters when the standardized means are broken down into high, intermediate, and low categories. Finally, Table 5 reports in numerical form standardized means and standard deviations for each of the four clusters. Using this information, a thumbnail sketch of each cluster will be given. This will be followed by the analyses of variance results across the four clusters for the variables used in the cluster analysis, and for the variables left out of the cluster analysis.
Figure 1. Semipartial $R^2$ error values by number of clusters

Number of Clusters

Error
Figure 2. Standardized means of Cluster 1, total sample
Figure 3. Standardized means of Cluster 2, total sample
Figure 4. Standardized means of Cluster 3, total sample
Figure 5. Standardized means of Cluster 4, total sample
Table 4. Description of clusters: High, medium and low mean standard scale scores for total group

<table>
<thead>
<tr>
<th>Cluster</th>
<th>High standard scores (.3 and higher)</th>
<th>Intermediate standard scores (.3 to -.3)</th>
<th>Low standard scores (-.3 and lower)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identity Decidedness Self-Clarity Knowledge Decisiveness Self-Esteem Internal</td>
<td>Importance</td>
<td>State Anxiety Trait Anxiety Chance Others</td>
</tr>
<tr>
<td>2</td>
<td>Identity Decidedness Importance</td>
<td>Self-Clarity Knowledge Decisiveness State Anxiety Trait Anxiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Anxiety Self-Esteem Internal Chance Others</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>State Anxiety Trait Anxiety Self-Esteem Internal Chance Others</td>
<td></td>
<td>Identity Decidedness Self-Clarity Knowledge Decisiveness Importance</td>
</tr>
<tr>
<td>4</td>
<td>State Anxiety Trait Anxiety Chance Others</td>
<td>Decidedness Importance</td>
<td>Identity Self-Clarity Knowledge Decisiveness Self-Esteem Internal</td>
</tr>
</tbody>
</table>
Table 5. Standardized means, standard deviations, and analysis of variance results for the variables used within the cluster analysis

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Cluster 1 M</th>
<th>Cluster 1 SD</th>
<th>Cluster 2 M</th>
<th>Cluster 2 SD</th>
<th>Cluster 3 M</th>
<th>Cluster 3 SD</th>
<th>Cluster 4 M</th>
<th>Cluster 4 SD</th>
<th>F*</th>
<th>( \omega^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>.95(^a)</td>
<td>.59</td>
<td>.39(^b)</td>
<td>.67</td>
<td>-.82(^c)</td>
<td>.74</td>
<td>-.86(^c)</td>
<td>.73</td>
<td>145.61</td>
<td>.53</td>
</tr>
<tr>
<td>Decide</td>
<td>.37(^a)</td>
<td>.87</td>
<td>.45(^a)</td>
<td>.53</td>
<td>-.87(^b)</td>
<td>1.03</td>
<td>-.14(^c)</td>
<td>.96</td>
<td>57.97</td>
<td>.30</td>
</tr>
<tr>
<td>Clarity</td>
<td>.93(^a)</td>
<td>.80</td>
<td>.24(^b)</td>
<td>.84</td>
<td>-.60(^c)</td>
<td>.73</td>
<td>-.83(^c)</td>
<td>.67</td>
<td>83.17</td>
<td>.39</td>
</tr>
<tr>
<td>Know</td>
<td>.97(^a)</td>
<td>.72</td>
<td>.26(^b)</td>
<td>.80</td>
<td>-.80(^c)</td>
<td>.63</td>
<td>-.60(^c)</td>
<td>.82</td>
<td>100.14</td>
<td>.43</td>
</tr>
<tr>
<td>Decisive</td>
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<td>.77</td>
<td>.24(^b)</td>
<td>.82</td>
<td>-.43(^c)</td>
<td>.92</td>
<td>-.84(^d)</td>
<td>.95</td>
<td>48.94</td>
<td>.27</td>
</tr>
<tr>
<td>Import</td>
<td>.28(^a)</td>
<td>.95</td>
<td>.36(^a)</td>
<td>.65</td>
<td>-.65(^b)</td>
<td>1.16</td>
<td>-.17(^c)</td>
<td>.89</td>
<td>29.03</td>
<td>.18</td>
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<tr>
<td>State</td>
<td>-.72(^a)</td>
<td>.59</td>
<td>-.07(^b)</td>
<td>.93</td>
<td>.08(^b)</td>
<td>.91</td>
<td>1.02(^c)</td>
<td>.91</td>
<td>46.04</td>
<td>.26</td>
</tr>
<tr>
<td>Trait</td>
<td>-.88(^a)</td>
<td>.56</td>
<td>-.12(^b)</td>
<td>.79</td>
<td>.02(^b)</td>
<td>.74</td>
<td>1.40(^c)</td>
<td>.68</td>
<td>115.08</td>
<td>.47</td>
</tr>
<tr>
<td>Esteem</td>
<td>.97(^a)</td>
<td>.63</td>
<td>.10(^b)</td>
<td>.74</td>
<td>-.15(^b)</td>
<td>.74</td>
<td>-1.28(^c)</td>
<td>.82</td>
<td>108.97</td>
<td>.45</td>
</tr>
<tr>
<td>Internal</td>
<td>.48(^a)</td>
<td>1.07</td>
<td>.11(^b)</td>
<td>.87</td>
<td>-.23(^c)</td>
<td>.94</td>
<td>-.53(^c)</td>
<td>.91</td>
<td>15.72</td>
<td>.10</td>
</tr>
<tr>
<td>Chance</td>
<td>-.91(^a)</td>
<td>.74</td>
<td>-.07(^b)</td>
<td>.82</td>
<td>.14(^b)</td>
<td>.80</td>
<td>1.13(^c)</td>
<td>.81</td>
<td>74.47</td>
<td>.36</td>
</tr>
<tr>
<td>Others</td>
<td>-.95(^a)</td>
<td>.72</td>
<td>.02(^b)</td>
<td>.83</td>
<td>.04(^b)</td>
<td>.75</td>
<td>1.10(^c)</td>
<td>.83</td>
<td>76.36</td>
<td>.37</td>
</tr>
</tbody>
</table>

Note: M = standardized means. SD = standard deviations. When going across individual rows, letters that differ from each other are significantly different using the Scheffé test (p<.05).

\(^{a}\)All F-ratios significant at p<.0001.
Subjects in Cluster 1 (n = 77; 36 males, 40 females) have high standardized mean scores on Vocational Identity, Decidedness, Self-Clarity, Knowledge about Occupations and Training, Decisiveness, and Self-Esteem. The high scores on the Vocational Identity, Decidedness, and Self-Clarity subscales seem to indicate that these individuals have clear pictures of their interests and talents, and they seem to be decided about what career they will follow. They also seem to believe they are well informed about the occupations and educational programs that fit their interests, and they believe they are able to make decisions without difficulty.

The members of Cluster 1 have low scores on State Anxiety and Trait Anxiety, showing they did not feel tension or apprehension at the time the experiment was given, and that they do not tend to be nervous and worrisome in other situations. This group also scored low on Chance and Powerful Others Control, meaning there is not a feeling among these individuals that their lives are controlled by chance factors or by people in powerful positions. Instead, this cluster showed a high score on the subscale measuring Internal Control, which suggests this group feels personal control over their own lives. Finally, the individuals in this cluster had intermediate scores on the Career Choice Importance subscale, indicating that they feel their future careers and work are at least somewhat important to them at
this time.

Members of Cluster 2 (n = 154; 80 males, 72 females) also score high on Career Decidedness, and relatively high on Vocational Identity. Yet, this cluster shows higher levels of anxiety, and lower levels of self-esteem, self-clarity, and decisiveness than does Cluster 1. Furthermore, according to the high mean scores on the Career Choice Importance Scale, Cluster 2 members seem to feel that their future careers and work are important to them at this time. This group has intermediate scores on the Knowledge, Powerful Others, Chance, and Internal subscales, showing this group feels they have at least a moderate amount of career information, and a moderate belief in being controlled by powerful others, chance, or internal factors.

In opposition to individuals found in Cluster 1 and 2, members of Cluster 3 (n = 99; 47 males, 50 females) and Cluster 4 (n = 60; 25 males, 35 females) have rather low scores on the subscales measuring Vocational Identity and Career Decidedness. Because of their low scores on the indecision subscales, both Cluster 3 and Cluster 4 seem to represent career undecided groups. Some similarities between Cluster 3 and 4 are apparent. For example, members of both groups seem to feel they lack information about occupational and educational programs, as indicated by their low scores on the Knowledge subscale. Subjects in both
groups also have low mean scores on the Self-Clarity scale.

Yet, on the other hand, several differences between Cluster 3 and Cluster 4 can also be seen. The individuals in Cluster 4 seem to have much higher levels of state and trait anxiety, and much lower levels of self-esteem than the subjects in Cluster 3. Cluster 4 members also have higher scores on the Chance and Powerful Others subscales than Cluster 3, indicating these individuals have more of a tendency to attribute life events to chance or to control exercised by powerful others. Finally, Cluster 4 members scored lower than Cluster 3 on the Decisiveness scale, and Cluster 3 scored lower than Cluster 4 on the Career Choice Importance scale.

**Differentiation of clusters: Cluster variables**

In order to examine more thoroughly the differences between the four clusters, a one-way analysis of variance was performed for each of the 12 variables used within the cluster analysis across the four clusters. As indicated in Table 5, analyses of all 12 of the scales revealed significant differences between the groups. This was to be expected, due to the nature of the cluster analytic procedure. Yet, not all clusters will differ significantly on every variable. Thus, Scheffé comparisons were used to provide further insight into the differences between the clusters (see Table 5).
The results of the Scheffe comparisons seem to indicate that the four clusters are distinguishable in terms of the level of vocational and personality problems they have. As one moves from Cluster 1 to Cluster 4, there seems to be a trend toward more serious vocational and personality problems, although this trend is not perfect. Following is a summary of the Scheffe comparison results for each of the 12 variables used in the cluster analytic procedure.

**Vocational Identity** Cluster 1 members have a significantly higher standardized mean score on vocational identity ($M = .95$) than Cluster 2 ($M = .39$), Cluster 3 ($M = -.82$) or Cluster 4 ($M = -.86$). Members of Cluster 2 also have significantly higher scores than Cluster 3 and Cluster 4. Cluster 3 and 4 did not differ on this subscale.

**Decidedness** Cluster 1 and Cluster 2 members do not seem to differ in terms of their vocational decidedness ($M = .37$ and $M = .45$, respectively). However, these two clusters are significantly more decided than Cluster 3 ($M = -.87$) and Cluster 4 ($M = -.14$). Furthermore, Cluster 3 is significantly less decided than Cluster 4.

**Self-Clarity** Individuals in Cluster 1 have a significantly higher standardized mean score on the Self-Clarity scale ($M = .93$) than individuals in Cluster 2 ($M = .24$), Cluster 3 ($M = -.60$) and Cluster 4 ($M = -.83$). Members of Cluster 2 also have significantly higher scores
than Clusters 3 and 4. Cluster 3 and Cluster 4 do not differ on this variable.

**Knowledge about Occupations and Training** Cluster 1 subjects, on the average, seem to feel they are very well informed about occupations and educational programs ($M = .97$). This standardized mean is significantly higher than that for Cluster 2 ($M = .26$), Cluster 3 ($M = -.80$) and Cluster 4 ($M = -.60$). Once again, Cluster 2 scores significantly higher than Clusters 3 and 4 on this variable, and there is no difference between Cluster 3 and 4.

**Decisiveness** Cluster 1 members seem to feel they have the least difficulty making decisions ($M = .70$), followed by Cluster 2 ($M = .24$) and Cluster 3 ($M = -.43$). Cluster 4 members seem to have the most difficulty making decisions ($M = -.84$). All pairwise comparisons were significant.

**Career Choice Importance** Subjects in Cluster 1 and Cluster 2 do not seem to differ in their feelings of how important choosing a career or occupation is at this time ($Ms = .28$ and $.36$, respectively). Yet, Clusters 1 and 2 score higher on this variable, on the average, than Cluster 3 ($M = -.65$) and Cluster 4 ($M = -.17$). Cluster 3 members also have significantly lower mean scores on this subscale than Cluster 4 members.
State Anxiety  Individuals in Cluster 1 reported feeling significantly less anxious at the time they were completing the questionnaires for this experiment ($M = -.72$) than did individuals in Cluster 2 ($M = -.07$), Cluster 3 ($M = .08$) and Cluster 4 ($M = 1.02$). There was no significant difference between Cluster 2 and 3 on this subscale, but Cluster 4 members were significantly more anxious than all the other clusters.

Trait Anxiety  The results for this variable mirror those on the State Anxiety scale. Subjects in Cluster 1 tend score lower on trait anxiety ($M = -.88$) than subjects in Cluster 2 ($M = -.12$), Cluster 3 ($M = .02$) and Cluster 4 ($M = 1.40$). There were no significant differences between Cluster 2 and 3, but once again, Cluster 4 shows much more anxiety than the other groups.

Self-Esteem  Cluster 1 members have significantly higher standardized mean scores on the self-esteem variable ($M = .97$) than Cluster 2 ($M = .10$), Cluster 3 ($M = -.15$) and Cluster 4 ($M = -1.28$). Clusters 2 and 3 have similar levels of self-esteem, such that there is not a significant difference between the two groups. Individuals in Cluster 4, however, report significantly lower levels of self-esteem than the other groups.
Internal Control  Cluster 1 members have a significantly higher feeling that they have the ability to exercise control over life events ($M = .48$) than people in Cluster 2 ($M = .11$), Cluster 3 ($M = -.23$) and Cluster 4 ($M = -.53$). Cluster 2 has a significantly higher level of internal control than Clusters 3 and 4, but there is not a difference between Clusters 3 and 4.

Chance Control  Cluster 1 seems the least likely to attribute life events to chance factors ($M = -.91$), compared to Cluster 2 ($M = -.07$), Cluster 3 ($M = .14$) and Cluster 4 ($M = 1.13$).Clusters 2 and 3 do not differ on this variable, but Cluster 4 shows a much higher tendency to blame life occurrences on chance than all three of the other clusters.

Powerful Others Control  This subscale shows the same pattern as Chance Control. Cluster 1 is least likely to feel controlled by other people ($M = -.95$), when compared to Cluster 2 ($M = .02$), Cluster 3 ($M = .04$), and Cluster 4 ($M = 1.10$). While there is not a significant difference between Clusters 2 and 3 on this subscale, Cluster 4 shows a much higher tendency to feel controlled by other people than Clusters 1, 2 and 3.

The effect size of each variable (using $\hat{\omega}^2$) was also given in Table 5. This index shows which variables were
most influential in determining cluster membership. The Vocational Identity, Trait Anxiety, Self-Esteem, and Knowledge about Occupations and Training subscales seem to have counted more heavily than the State Anxiety, Decisiveness and Career Choice Importance scales. Internal Control seems to have been less influential in determining cluster membership than Chance and Others Control.

**Differentiation of clusters: External variables**

As a way of checking the external validity of the four clusters, a one-way analysis of variance (ANOVA) across clusters was performed for the standardized means of the seven subscales that were not included in the clustering process. No significant differences were found among the clusters on the subscale Private Self-Consciousness ($F(3,386)=2.15, p<.09$). However, significant differences among the clusters were found on the remaining six subscales: Comfort scale ($F(3,386)=64.03, p<.0001$), Certainty scale ($F=44.27, p<.0001$), Indecision ($F=85.67, p<.0001$), Occupational Information ($F=44.35, p<.0001$), Public Self-Consciousness ($F=4.20, p<.006$), and Social Anxiety ($F=25.69, p<.0001$).

Significant univariate effects were explored with Scheffé pairwise comparisons. A summary of these comparisons is provided in Table 6. Once again it seems that the four clusters are distinguishable in terms of the
Table 6. Summary of significant differences between clusters on variables left out of the cluster analysis

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Cluster 1 Mean</th>
<th>Cluster 2 Mean</th>
<th>Cluster 3 Mean</th>
<th>Cluster 4 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort</td>
<td>.77&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.27&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-.78&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-.41&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Certainty</td>
<td>.53&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.32&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.75&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-.26&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Indecision</td>
<td>-.76&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.38&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.82&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.56&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Occupational Information</td>
<td>.79&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.15&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-.49&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-.62&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Public Self-Consciousness</td>
<td>-.30&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.02&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>.04&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>.29&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>-.62&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.07&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.14&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.74&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: Values represent standardized means. When going across individual rows, letters that differ from each other are significantly different using the Scheffé test (p<.05).
level of vocational and personality problems they have. A narrative description of these results follows.

Comfort  It was found that members of Cluster 1 score significantly higher ($M = .77$) than members of Cluster 2 ($M = .27$), Cluster 3 ($M = -.78$) and Cluster 4 ($M = -.41$) on the variable occupational comfort, a measure of the degree to which individuals feel comfortable with where they are in the process of making a vocational choice. Cluster 2 also scores significantly higher than Clusters 3 and 4. Clusters 3 and 4, however, do not have statistically different scores on this scale.

Certainty  Cluster 1 and 2 do not have significantly different levels of vocational certainty ($Ms = .53$ and .32, respectively). Yet, Clusters 3 and 4 ($Ms = -.74$ and -.26) are significantly less certain about their vocational choice than Clusters 1 and 2, and Cluster 3 has statistically lower scores than Cluster 4.

Indecision  Cluster 1 members have significantly lower levels of career indecision as measured by this subscale ($M = -.76$) than Clusters 2 ($M = -.38$), 3 ($M = .82$), and 4 ($M = .56$). Cluster 2 is also less career undecided than Clusters 3 and 4. Clusters 3 and 4, on the other hand, have similar levels of undecidedness.
Subjects in Cluster 1 seem to feel they have more information about occupations and educational programs ($M = .79$) than subjects in Cluster 2 ($M = .15$), Cluster 3 ($M = -.49$), and Cluster 4 ($M = -.62$). Likewise, Cluster 2 scores significantly higher on this scale than Clusters 3 and 4. Clusters 3 and 4, however, do not differ significantly on this variable.

Cluster 1 and Cluster 4 have statistically significant differences on the subscale Public Self-Consciousness—Cluster 1 ($M = -.30$) seems to be less self-conscious in public situations than Cluster 4 ($M = .29$). There were no other significant differences between the groups on this variable.

Cluster 1 members have a lower amount of social anxiety as measured by this scale ($M = -.62$) than individuals in Cluster 2 ($M = -.07$), Cluster 3 ($M = .14$), and Cluster 4 ($M = .74$). There is not a significant difference between Clusters 2 and 3 on this subscale, but Cluster 4 has a higher amount of social anxiety than the other three clusters.

To examine the reliability of the clustering process, the sample was randomly divided into two subsamples (n=204 and n=186). Ward's method of cluster analysis was performed on each of the two subsamples. To determine the optimal
number of clusters for each subsample, changes in the $R^2$ error term were examined (see Figure 6).

In subsample 1, the merge from five to four clusters produced the first large increase in the error term (.029 to .040). A somewhat larger increase in the error term was found at the merge from four into three clusters (.040 to .054). However, the most abrupt increase seems to be between the three and two cluster solution (.054 to .093). This pattern suggests a three cluster solution. Yet, since there is a large increase in the merge from four into three clusters, and to keep consistent with the previous solution, a four cluster solution will be examined.

In subsample 2, the first large increase in the error term is in the merge from four into three clusters (.029 to .058). These data suggest a four cluster solution.

Comparison of clusters

The stability of the cluster solution can be further examined by comparing the four cluster solutions obtained in subsample 1, subsample 2, and the total sample. Tables 7 and 8 provide a description of the four cluster solution found for subsample 1 and 2. Comparable information for the total sample was given in Table 4.

Cluster 1 of subsample 1 ($n = 81$) and Cluster 4 of subsample 2 ($n = 57$) are very similar to Cluster 1 of the total sample. Figure 7 portrays the similarities between
Figure 6. Semipartial $R^2$ error values by number of clusters: Subsample 1 and 2.
Table 7. Description of clusters: High, medium and low mean standard scale scores for subsample 1

<table>
<thead>
<tr>
<th>Cluster</th>
<th>High standard scores (.3 and higher)</th>
<th>Intermediate standard scores (.3 to -.3)</th>
<th>Low standard scores (-.3 and lower)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identity</td>
<td>Importance</td>
<td>State Anxiety</td>
</tr>
<tr>
<td></td>
<td>Decidedness</td>
<td></td>
<td>Trait Anxiety</td>
</tr>
<tr>
<td></td>
<td>Self-Clarity</td>
<td></td>
<td>Chance</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td>Decisiveness</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Self-Esteem</td>
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<td></td>
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<tr>
<td></td>
<td>Internal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Identity</td>
<td>Self-Clarity</td>
<td>Identity</td>
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<td>Decidedness</td>
<td>Decisiveness</td>
<td>Decidedness</td>
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<td>Self-Clarity</td>
<td>State Anxiety</td>
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<td>Trait Anxiety</td>
<td>Importance</td>
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<td></td>
<td>Chance</td>
<td>Self-Esteem</td>
<td>Internal</td>
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<tr>
<td></td>
<td>Importance</td>
<td>Others</td>
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</tr>
<tr>
<td>3</td>
<td>Identity</td>
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<td>Decisiveness</td>
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<td>Decidedness</td>
<td>Trait Anxiety</td>
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</tr>
<tr>
<td></td>
<td>Self-Clarity</td>
<td>Self-Esteem</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
<td>Others</td>
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<tr>
<td></td>
<td>Chance</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Importance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>State Anxiety</td>
<td>Importance</td>
<td>Identity</td>
</tr>
<tr>
<td></td>
<td>Trait Anxiety</td>
<td>Internal</td>
<td>Decidedness</td>
</tr>
<tr>
<td></td>
<td>Chance</td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Others</td>
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<td>Self-Clarity</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Esteem</td>
</tr>
</tbody>
</table>
Table 8. Description of clusters: High, medium and low mean standard scale scores for subsample 2

<table>
<thead>
<tr>
<th>Cluster</th>
<th>High standard scores (.3 and higher)</th>
<th>Intermediate standard scores (.3 to -.3)</th>
<th>Low standard scores (-.3 and lower)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State Anxiety Trait Anxiety Chance Others</td>
<td>Decidedness</td>
<td>Identity Self-Clarity Knowledge Decisiveness Importance Self-Esteem Internal</td>
</tr>
<tr>
<td>2</td>
<td>Identity Decidedness Self-Clarity Knowledge Importance Trait Anxiety</td>
<td>Decisiveness State Anxiety Internal Chance Others</td>
<td>Self-Esteem</td>
</tr>
<tr>
<td>3</td>
<td>Self-Esteem</td>
<td>Decisiveness Internal</td>
<td>Identity Decidedness Self-Clarity Knowledge Importance State Anxiety Trait Anxiety Chance Others</td>
</tr>
<tr>
<td>4</td>
<td>Identity Decidedness Self-Clarity Knowledge Decisiveness Importance Self-Esteem Internal</td>
<td></td>
<td>State Anxiety Trait Anxiety Chance Others</td>
</tr>
</tbody>
</table>
Figure 7. Standardized means of Cluster 1 total sample (■ ■), Cluster 1 subsample 1 (■ ■), and Cluster 4 subsample 2 (■ ■).
these three clusters in graphical form. These clusters show high mean scores on the Identity, Decidedness, Self-Clarity, Knowledge, Decisiveness, Self-Esteem, and Internal subscales, and low mean scores on the State Anxiety, Trait Anxiety, Chance and Others subscales. It seems that Cluster 1 was replicated quite well.

Cluster 3 of subsample 1 (n = 38) and Cluster 2 of subsample 2 (n = 33) seem fairly close to Cluster 2 of the total sample (see Figure 8). These three clusters do, however, have rather larger differences on the variable decisiveness. While Cluster 2 of the total sample and Cluster 2 of subsample 2 have moderate levels of decisiveness, Cluster 3 of subsample 1 has much lower levels of decisiveness.

Cluster 2 of subsample 1 (n = 53) and Cluster 3 of subsample 2 (n = 30) seem to be most similar to Cluster 3 of the total sample (see Figure 9). These clusters all show low scores on Vocational Identity, Decidedness, Knowledge, and Career Choice Importance, and moderate to low levels of anxiety, and moderate to high levels of self-esteem. Overall, Cluster 2 of subsample 1 and Cluster 3 of subsample 3 seem to replicate fairly well Cluster 3 of the total sample.

Cluster 4 of subsample 1 (n = 32) and Cluster 1 of subsample 2 (n = 66) are very similar to Cluster 4 of the
Figure 8. Standardized means of Cluster 2 total sample (■), Cluster 3 subsample 1 (●), and Cluster 2 subsample 2 (□)
Figure 9. Standardized means of Cluster 3 total sample (●), Cluster 2 subsample 1 (▲), and Cluster 3 subsample 2 (★)
total sample. Figure 10 shows the striking similarities between these three groupings. These clusters are typified by their low scores on the Vocational Identity, Self-Clarity, Knowledge about Occupations and Training, Decisiveness, and Self-Esteem scales, and their high scores on State Anxiety, Trait Anxiety, Chance and Others Control.

**Summary**

It seems the four cluster solution that was described for the total sample is replicable. Although the first of the two subsamples suggested a three cluster solution may fit the data, a four cluster solution was interpretable and quite similar to the one described within the total sample and subsample 2. Overall, evidence for the similarity of the four clusters found within each of the samples can be found within Figures 7, 8, 9, and 10. Considering the many ways it would be possible to group the individuals in each sample, the replication provides support that the four clusters described within represent logical groupings.
Figure 10. Standardized means of Cluster 4 total sample ( ), Cluster 4 subsample 1 ( ), and Cluster 1 subsample 2 ( )
DISCUSSION

This study represented an effort to contribute to the understanding of subtypes of career undecided individuals. Cluster analysis was used as a means to form homogeneous groups of individuals based upon their scores on six indecision subscales (Vocational Identity, Decidedness, Self-Clarity, Decisiveness, Knowledge about Occupations and Training, and Career Choice Importance) and six personality subscales (State Anxiety, Trait Anxiety, Self-Esteem, and Internal, Chance and Powerful Others Control). Four distinct clusters emerged from the cluster analytic procedure. The following section will provide a description of each cluster obtained from the total sample. The results of this study will also be compared to other cluster analytic approaches in this area, and suggestions for future research will be given.

Description of Clusters

Cluster 1: Self-Assured Decided Group

Cluster 1 of the total sample is composed of 77 people. These individuals appear to be career decided, as shown by their high scores on the Vocational Identity, Self-Clarity and Decidedness scales used within the cluster analysis. The members of Cluster 1 also seem to feel they are informed about occupations and educational programs that fit their interests, and they seem to feel that choosing and working in an occupation is of at least moderate importance at this time.
The individuals in this cluster seem to be well-adjusted in terms of their scores on the personality variables used in the cluster analysis. They scored high on self-esteem and decisiveness, and low on anxiety. They also seem to feel in control of what happens in their lives, shown by low Chance and Powerful Others Control scores, and high Internal Control scores.

The variables not included in the cluster analysis further depicted the individuals in this cluster as comfortable with where they are in the vocational choice process, and reiterated the high level of career certainty and decisiveness in this group. Members of Cluster 1 were also shown to score rather low on Public Self-Consciousness and Social Anxiety, meaning they do not usually worry about making a good impression on others, and they do not have a tendency to get anxious in social situations.

This cluster was replicated quite well in the analysis of two subsamples of the data. Cluster 1 of subsample 1 and Cluster 4 of subsample 2 showed profiles quite similar to that of this cluster. The replication of this cluster provides support that this is a logical grouping of individuals.

Overall, this seems to be a career decided group that is well-adjusted and comfortable with their vocational decision status. For purposes of this study, Cluster 1 can be labeled the "Self-Assured Decided Group". This group of individuals
is unlikely to need career planning assistance.

Cluster 2: Concerned Decided Group

This cluster contains the largest number of individuals (n = 154). Like Cluster 1, this cluster appears to be a career decided group, as shown by high scores on the Decidedness and Vocational Identity variables. These individuals also seem to feel that finding and choosing an occupation is important at this time as indicated by high Career Choice Importance scores.

Cluster 2 scores in the moderate range for the remaining variables used within the cluster analysis: self-clarity, knowledge, state anxiety, trait anxiety, self-esteem, internal control, chance control, and powerful others control. Altogether, Cluster 2 does not appear to have any definitive personality problems. Yet, it is apparent that this cluster is not as well-adapted as Cluster 1. For example, Cluster 2 has significantly higher levels of state and trait anxiety than Cluster 1, and significantly lower levels of decisiveness, self-esteem, and self-clarity. Cluster 2 is also less apt to feel they have personal control over life events than Cluster 1, shown by significant differences between the two clusters on the control variables.

This cluster was replicated fairly well within the subsamples. The best match for this cluster was found with Cluster 3 of subsample 1 and Cluster 2 of subsample 2. The
replication seems to suggest this profile is a logical grouping of individuals.

The variables not included in the cluster analysis provide more information about this cluster. First, these variables reiterate that Cluster 2 has a high level of vocational certainty, a low level of career indecision, and a moderate amount of career information. These individuals were also shown to have moderate levels of public self-consciousness and social anxiety. Most interesting is the finding that Cluster 2 scores significantly lower than Cluster 1 on the Comfort scale, meaning that Cluster 2 tends to be more worried about their vocational choice and more uncomfortable with where they are in the process of making a vocational decision.

Overall, this seems to be a vocationally decided group that does not have any pressing personality problems. Yet, this group is somewhat uncomfortable with their vocational decision status, and somewhat less adjusted than Cluster 1. For purposes of this study, this group will be labeled the "Concerned Decided Group". This group seems to support Jones's (1989a) contention that some students may express that they are decided about their career choice, but feel uncomfortable with their choice. This may suggest that there are individuals who are decided upon a career, yet need career planning assistance.
**Cluster 3: Unconcerned Undecided Group**

This cluster contains 99 individuals. The members of this cluster seem to represent a vocationally undecided group, witness their low scores on Decidedness, Identity and Self-Clarity. Furthermore, members of Cluster 3 indicated that they have a very low amount of knowledge about occupations and training, and they scored low on the Decisiveness scale. It is also interesting to note that Cluster 3 scored significantly lower than the other clusters on the Importance scale, indicating this group does not seem to believe that finding a career is of immediate importance.

Cluster 3 scores in the moderate range for the State Anxiety, Trait Anxiety, Self-Esteem, Internal Control, Chance Control and Powerful Others Control scales. It seems that in spite of their career indecision, this group does not seem to have any obvious personality problems. While the members of Cluster 3 are not as well-adjusted as Cluster 1, they are much better adapted than the individuals in Cluster 4. Cluster 3 members have levels of anxiety and self-esteem similar to Cluster 2.

Cluster 2 of subsample 1 and Cluster 3 of subsample 2 showed profiles similar to Cluster 3 of the total sample, suggesting once again that this may be a logical grouping of career undecided individuals.

The variables not included in the cluster analysis
provided additional information about Cluster 3. Cluster 3 scored low on the Comfort scale, Certainty scale, and Occupational Information scale, indicating the members of this group do not feel comfortable with where they are in making a vocational decision, they do not have definite choices in mind, and they need more career information. These individuals have moderate levels of public self-consciousness and social anxiety.

Overall, despite their career indecision, this group does not seem to have high levels of anxiety or very low levels of self-esteem, as the literature might suggest all undecided individuals do. The absence of any pressing personality problems suggests that the label "Unconcerned Undecided Group" might be appropriate for this cluster. It seems that the individuals in this cluster may be going through what some authors have labeled "developmental indecision". Developmental indecision refers to a normal and temporary stage of development during which individuals do not feel overly pushed or stressed to make a decision, they simply need more time to gather more information about themselves or career opportunities (Goodstein, 1965).

Cluster 4: Anxious Undecided Group

This cluster is composed of 60 individuals. The members of this cluster, like those of Cluster 3, seem to represent an undecided group as indicated by their low scores on Vocational
Identity and Self-Clarity, and their moderate scores on Decidedness. This group appears to have much higher levels of anxiety and much lower levels of self-esteem than the other clusters. The members of Cluster 4 also seem to have a great tendency to attribute life events to external factors, as indicated by very high scores on the Chance and Powerful Others Control scales. The individuals in this cluster appear to have the most problems making decisions in general compared to the other clusters.

This cluster was replicated quite well in the analysis of subsamples. Cluster 4 of subsample 1 and Cluster 1 of subsample 2 show similar profiles to the original Cluster 4. The replication of the cluster provides support, once again, for the idea that this is a logical grouping of individuals.

The variables left out of the cluster analysis portray Cluster 4 in much the same manner. These variables also indicate that Cluster 4 is an undecided group, as shown by low standardized mean scores on the Certainty scale and high scores on the Indecision scale. Members of Cluster 4 scored low on both the Occupational Information and Comfort scales, indicating they need more information about career opportunities, and they are uncomfortable with their vocational decision status. Finally, this group has at least moderate feelings of self-consciousness in public situations, and high amounts of anxiety in social situations as shown by
their scores on the self-consciousness variables.

Overall, it seems that this is an undecided group that has perhaps several personality problems. For purposes of this study, this group will be labeled the "Anxious Undecided Group". This group will most likely need vocational counseling, perhaps accompanied by anxiety management and other counseling focused upon personal issues. Interestingly, this cluster seems similar to the career indecisive subtype proposed by Goodstein (1965). Career indecisive individuals, according to Goodstein's theory, are not simply going through a normal stage of development. Instead, it is suggested that these individuals may have several personality problems and may have trouble making all sorts of decisions.

General observations

Four distinct clusters have been identified and discussed: a Self-Assured Decided Group (Cluster 1), a Concerned Decided Group (Cluster 2), an Unconcerned Undecided Group (Cluster 3), and an Anxious Undecided Group (Cluster 4). These four groups are distinguishable in terms of the level of vocational and personality problems they have.

In an overall sense, the two decided groups are better adapted than the two undecided groups. A striking contrast can be made between the Self-Assured Decided Group and the Anxious Undecided Group. For example, the Self-Assured Decided Group is typified by low levels of anxiety and high
levels of self-esteem, self-clarity, and decisiveness. The Anxious Undecided Group, on the other hand, has very high levels of anxiety and very low levels of self-esteem, self-clarity, and decisiveness.

It is interesting, however, that career indecision is not uniformly associated with personality problems, and career decidedness is not uniformly associated with well-adaptedness. The Concerned Decided Group and the Unconcerned Undecided Group, for example, had similar scores on the scales measuring state anxiety, trait anxiety, self-esteem, chance control, and powerful others control. These findings help explain why early research sometimes failed to differentiate between undecided groups and decided groups with personality variables. Dichotomous groupings of individuals into career decided and undecided groups may be too simplistic--further differentiation of subtypes is necessary. Overall, this study supports the idea that it may be useful to specify subtypes of individuals relating to career indecision.

Comparisons with other Cluster Analytic Studies

Two previous studies have used cluster analysis to classify undecided individuals (Fuqua, Blum, & Hartman, 1988; Lucas, 1985). Although the study described within this paper used different scales than the two previous cluster analytic studies, it is still possible to at least briefly contrast these authors' findings with the study at hand.
The cluster analytic study conducted by Fuqua, Blum, and Hartman (1988) found results similar to those reported here. As mentioned earlier, the Fuqua, Blum, and Hartman study utilized four questionnaires: the State-Trait Anxiety Inventory (Spielberger et al., 1970), Identity Scale (Holland, Gottfredson, & Nafziger, 1975), Rotter's (1966) Internal-External Locus of Control Scale, and the Career Decision Scale (Osipow et al., 1976). Based upon these scales, four clusters were identified. The four clusters identified in their study, like those described in this paper, seemed to be distinguishable in terms of the levels of problems they had.

Cluster 1 of the Fuqua, Blum, and Hartman study seems very comparable to the Self-Assured Decided Group described within the present study: both groups are typified by high levels of vocational identity, low anxiety, and an internal locus of control. Likewise, Cluster 4 of the Fuqua Blum, and Hartman study is comparable to the Anxious Undecided Group described within the present study: both groups are undecided, very anxious, and have an external locus of control. The other two clusters found by Fuqua, Blum, and Hartman replicate the Concerned Decided Group and the Unconcerned Undecided Group found within the study at hand. These two clusters, like the Concerned Decided Group and the Unconcerned Undecided Group, did not differ in their levels of anxiety, but one was more undecided than the other.
The results stemming from the Lucas (1985) study are more difficult to compare to the results described within this paper: more variables were utilized, and the Lucas study used only undecided students as subjects. Lucas used the following constructs in her cluster analytic procedure: life style, career salience, self-esteem, anxiety, locus of control and identity. Her study identified five clusters. Two of her clusters were very comparable to the Unconcerned Undecided and the Anxious Undecided groups described within this paper.

Overall, although this study utilized more scales than the Fuqua, Blum, and Hartman study, and different scales than the Lucas study, it seems there are some similarities in the findings of these studies. Once again, there seems to be strong support for the idea that there are different subtypes of career undecided individuals. The cluster analytic studies described have been very helpful in providing information about potential ways to describe these subtypes.

Suggestions for Future Research

Two types of variables were chosen for inclusion in this study: indecision variables and personality variables. A wide variety of indecision subscales were used within this study in order to capture different aspects and dimensions of career indecision (e.g., vocational identity, knowledge about careers and training, and career choice importance). Anxiety, self-esteem, and locus of control were chosen as personality
constructs due to previous research suggesting these variables were relevant to the study of career indecision. Self-consciousness, on the other hand, was included as an experimental personality variable, to test its relation to career indecision.

Future study of subtypes of career undecided individuals should continue to utilize a wide variety of indecision subscales. The Career Choice Importance subscale, for example, provides specific information about whether or not an individual feels that finding an occupational choice is of immediate importance. The Identity scale, on the other hand, describes the extent to which individuals have a clear picture of their goals and interests. These two pieces of information are different. Yet, the researcher should also be aware that there does seem to be a great deal of overlap between different career indecision scales.

The results of this study also suggest that the constructs of anxiety, self-esteem and locus of control are useful when studying career indecision subtypes. Using these variables in the cluster analysis helped to explain how personality factors are differentially related to varying degrees and dimensions of career indecision. The personality variable self-consciousness, however, did not prove to be relevant to career indecision in this study. Further research should continue attempts to identify variables that help to
differentiate between subtypes of career undecided individuals.

The present study focused upon specifying subtypes of individuals who were college students. It would be interesting to replicate this study using perhaps high school or vocational school students to test generalizability. Also, as evidence is building toward the conclusion that different subtypes of career undecided individuals do exist, career counselors must begin to speculate upon differential treatment approaches for the varying levels of problems which may exist in different subtypes.
REFERENCES


Salomone, P. R. (1982). Difficult cases in career


APPENDIX A. CAREER DECISION SCALE
CAREER DECISION SCALE

INSTRUCTIONS: Please read each of the following statements and rate them as to how well they describe you. This is a 4 point scale with 1 meaning "exactly like me" and 4 meaning "not at all like me." Please put your answers to these questions on the answer sheet.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all like me</td>
<td></td>
<td>Exactly like me</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>I have decided on a career and feel comfortable with it. I also know how to go about implementing my choice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I have decided on a major and feel comfortable with it. I also know how to go about implementing my choice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>If I had the skills or the opportunity I know what occupation I would choose but this choice is really not possible for me. I haven't given much consideration to any other alternatives, however.</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td>Several careers have equal appeal to me. I'm having a difficult time deciding among them.</td>
<td></td>
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<tr>
<td>5.</td>
<td>I know I will have to go to work eventually but none of the careers I know about appeal to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I'd like to work in a certain occupation, but I'd be going against the wishes of someone who is important to me if I did so. Because of this, it's difficult for me to make a career decision right now. I hope I can find a way to please them and myself.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Until now, I haven't given much thought to choosing a career. I feel lost when I think about it because I haven't had many experiences in making decisions on my own and I don't have enough information to make a career decision right now.</td>
<td></td>
<td></td>
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<tr>
<td>8.</td>
<td>I feel discouraged because everything about choosing a career seems so &quot;ify&quot; and uncertain; I feel discouraged, so much so that I'd like to put off making a decision for the time being.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. I thought I knew what I wanted for a career, but recently I found out that it wouldn't be possible for me to pursue it. Now, I've got to start looking for other possible careers.

10. I want to be absolutely certain that my career choice is the "right" one, but none of the careers I know about seem ideal for me.

11. Having to make a career decision bothers me. I'd like to make a decision quickly and get it over with. I wish I could take a test that would tell me what kind of career I should pursue.

12. I know what I'd like to major in but I don't know what careers it can lead to that would satisfy me.

13. I can't make a career choice right now because I don't know what my abilities are.

14. I don't know what my interests are. A few things "turn me on" but I'm not certain that they are related in any way to my career possibilities.

15. So many things interest me and I know I have the ability to do well regardless of what career I choose. It's hard for me to find just one thing that I would want as a career.

16. I have decided on a career but I'm not certain how to go about implementing my choice. What do I need to do to obtain my career goals?

17. I need more information about what different occupations are like before I can make a career decision.

18. I think I know what I want to major in but feel I need some additional support for it as a choice for myself.
APPENDIX B. MY VOCATIONAL SITUATION
INSTRUCTIONS: Try to answer all the following statements as mostly TRUE or mostly FALSE. Put your answers on your answer sheet.

In thinking about your present job or in planning for an occupation or career:

1. I need reassurance that I have made the right choice of occupation. a. TRUE b. FALSE
2. I am concerned that my present interests may change over the years. a. TRUE b. FALSE
3. I am uncertain about the occupations I could perform well. a. TRUE b. FALSE
4. I don’t know what my major strengths and weaknesses are. a. TRUE b. FALSE
5. The jobs I can do may not pay enough to live the kind of life I want. a. TRUE b. FALSE
6. If I had to make an occupational choice right now, I am afraid I would make a bad choice. a. TRUE b. FALSE
7. I need to find out what kind of career I should follow. a. TRUE b. FALSE
8. Making up my mind about a career has been a long and difficult problem for me. a. TRUE b. FALSE
9. I am confused about the whole problem of deciding on a career. a. TRUE b. FALSE
10. I am not sure that my present occupational choice or job is right for me. a. TRUE b. FALSE
11. I don’t know enough about what workers do in various occupations. a. TRUE b. FALSE
12. No single occupation appeals strongly to me. a. TRUE b. FALSE
13. I am uncertain about which occupation I would enjoy.
   a. TRUE    b. FALSE

14. I would like to increase the number of occupations I could consider.
   a. TRUE    b. FALSE

15. My estimates of my abilities and talents vary a lot from year to year.
   a. TRUE    b. FALSE

16. I am not sure of myself in many areas of life.
   a. TRUE    b. FALSE

17. I have known what occupation I want to follow for less than one year.
   a. TRUE    b. FALSE

18. I can't understand how some people can be so set about what they want to do.
   a. TRUE    b. FALSE

*** I need the following information:

19. How to find a job in my chosen career
    a. TRUE    b. FALSE

20. What kinds of people enter different occupations.
    a. TRUE    b. FALSE

    a. TRUE    b. FALSE

22. How to get the necessary training in my chosen career.
    a. TRUE    b. FALSE
APPENDIX C. CAREER DECISION PROFILE
DIRECTIONS: Do not spend too much time on any one statement. Please mark your answers on the answer sheet.

HAVE YOU DECIDED ON AN OCCUPATION? HOW CERTAIN ARE YOU? THINK ABOUT IT FOR A MOMENT....CHOOSE THE APPROPRIATE NUMBER (1-8) BELOW TO SHOW HOW MUCH YOU AGREE WITH THE FOLLOWING STATEMENTS:

1. I have an occupational field in mind that I want to work in (for example: medicine, agriculture, management, or the performing arts).

Strongly 1 2 3 4 5 6 7 8 Strongly Agree
Disagree

2. I have decided on the occupation I want to enter (for example: electrical engineer, nurse or cook).

Strongly 1 2 3 4 5 6 7 8 Strongly Agree
Disagree

NOW THAT YOU HAVE INDICATED HOW DECIDED YOU ARE, HOW DO YOU FEEL ABOUT WHERE YOU ARE IN THE PROCESS OF MAKING A CHOICE?

3. I feel at ease and comfortable with where I am in making a vocational decision.

Strongly 1 2 3 4 5 6 7 8 Strongly Agree
Disagree

4. I'm not worried about my career choice.

Strongly 1 2 3 4 5 6 7 8 Strongly Agree
Disagree
NOW YOU WILL READ STATEMENTS PEOPLE MAKE WHEN TALKING ABOUT MAKING AN OCCUPATIONAL CHOICE. PLEASE READ EACH STATEMENT, CHOOSE AND ANSWER AND MARK IT ON YOUR ANSWER SHEET.

5. I wish I knew which occupations best fit my personality.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

6. I need to have a clearer idea of what my interests are.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

7. I need to have a clearer idea of my abilities, my major strengths and weaknesses.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

8. I need information about educational programs I want to enter.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

9. I do not feel I know enough about the occupations that I am considering.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

10. I know what my interests and abilities are, but I am unsure how to find occupations that match them.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree

11. I feel relieved if someone else makes a decision for me.

Strongly 1 2 3 4 5 6 7 8 Strongly
Disagree Agree
12. I am an indecisive person; I delay deciding and have difficulty making up my mind.

Strongly Disagree 1 2 3 4 5 6 7 8 Strongly Agree

13. I frequently have difficulty making decisions.

Strongly Disagree 1 2 3 4 5 6 7 8 Strongly Agree

14. I don't need to make a vocational choice at this time.

Strongly Disagree 1 2 3 4 5 6 7 8 Strongly Agree

15. My future work or career is not that important to me right now.

Strongly Disagree 1 2 3 4 5 6 7 8 Strongly Agree

16. I don't have strong interests in any occupational field.

Strongly Disagree 1 2 3 4 5 6 7 8 Strongly Agree
APPENDIX D. STATE-TRAIT ANXIETY INVENTORY
STATE ANXIETY INVENTORY (Y1)

INSTRUCTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then select the answer that best indicates how you feel RIGHT NOW, that is, AT THIS MOMENT. Mark this answer on your answer sheet.

Please use the following answer choices:
   a. NOT AT ALL
   b. SOMEWHAT
   c. MODERATELY SO
   d. VERY MUCH SO

___ 1. I feel calm.
___ 2. I feel secure.
___ 3. I am tense.
___ 4. I feel strained.
___ 5. I feel at ease.
___ 6. I feel upset.
___ 7. I am presently worrying over possible misfortunes.
___ 8. I feel satisfied.
___ 9. I feel frightened.
___ 10. I feel comfortable.
___ 11. I feel self-confident.
___ 12. I feel nervous.
___ 13. I am jittery.
___ 15. I am relaxed.
___ 16. I feel content.
___ 17. I am worried.
___ 18. I feel confused.
___ 19. I feel steady.
___ 20. I feel pleasant.
TRAIT ANXIETY INVENTORY (Y2)

INSTRUCTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then select the answer that best indicates how you feel GENERALLY FEEL. Mark this answer on your answer sheet.

Please use the following answer choices:
   a. ALMOST NEVER
   b. SOMETIMES
   c. OFTEN
   d. ALMOST ALWAYS

___ 1. I feel pleasant.
___ 2. I feel nervous and restless.
___ 3. I feel satisfied with myself.
___ 4. I wish I could be as happy as others seem to be.
___ 5. I feel like a failure.
___ 6. I feel rested.
___ 7. I am "calm, cool, and collected."
___ 8. I feel that difficulties are piling up so that I cannot overcome them.
___ 9. I worry too much over something that really doesn't matter.
___ 10. I am happy.
___ 11. I have disturbing thoughts.
___ 12. I lack self-confidence.
___ 13. I feel secure.
___ 15. I feel inadequate.
___ 16. I am content.
___ 17. Some unimportant thought runs through my mind and bothers me.
___ 18. I take disappointments so keenly that I can't put them out of my mind.
___ 19. I am a steady person.
___ 20. I get in a state of tension or turmoil as I think over my recent concerns and interests.
LEVENSON I. P. AND C SCALES

INSTRUCTIONS: Read each statement and rate them as to how well they describe you. Mark your answers on the answer sheet. Use the following rating scale:

A = strongly disagree
B = disagree somewhat
C = neutral
D = agree somewhat
E = strongly agree

___ 1. Whether or not I get to be a leader depends mostly upon my ability.

___ 2. To a great extent my life is controlled by accidental happenings.

___ 3. I feel like what happens in my life is mostly determined by powerful other people.

___ 4. Whether or not I get into a car accident depends mostly on how good a driver I am.

___ 5. When I make plans, I am almost certain to make them work.

___ 6. Often there is no chance of protecting my personal interest from bad luck happenings.

___ 7. When I get what I want, it's usually because I'm lucky.

___ 8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.

___ 9. How many friends I have depends on how nice a person I am.

___ 10. I have often found that what is going to happen will happen.

___ 11. My life is chiefly controlled by powerful others.

___ 12. Whether or not I get into a car accident is mostly a matter of luck.
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

15. Getting what I want requires pleasing those people above me.

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

18. I can pretty much determine what will happen in my life.

19. I am usually able to protect my personal interests.

20. Whether or not I get into a car accidents depends mostly on the other driver.

21. When I get what I want, it's usually because I worked hard for it.

22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

23. My life is determined by my own actions.

24. It's chiefly a matter of fate whether or not I have a few friends or many friends.
APPENDIX F. SELF-CONSCIOUSNESS SCALE
SELF-CONSCIOUSNESS SCALE

INSTRUCTIONS: Please read each of the following statements and rate them on a 5 point scale with 1 meaning "extremely uncharacteristic" and 5 meaning "extremely characteristic."

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<tr>
<td>(1)</td>
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<tr>
<td>Extremely</td>
<td>Uncharacteristic</td>
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<td>Extremely</td>
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1. I'm always trying to figure myself out.
2. I'm concerned about my style of doing things.
3. Generally, I'm not aware of myself.
4. It takes me time to overcome my shyness in new situations.
5. I reflect about myself a lot.
6. I'm concerned about the way I present myself.
7. I'm often the subject of my own fantasies.
8. I have trouble working when someone is watching me.
9. I never scrutinize myself.
10. I get embarrassed very easily.
11. I'm self-conscious about the way I look.
12. I don't find it hard to talk to strangers.
13. I'm generally attentive to my inner feelings.
14. I usually worry about making a good impression.
15. I'm constantly examining my motives.
16. I feel anxious when I speak in front of a group.
17. One of the last things I do before I leave my house is to look in the mirror.
18. I sometimes have a feeling that I'm off somewhere watching myself.
19. I'm concerned about what other people think of me.
20. I'm alert to changes in my mood.
21. I'm usually aware of my appearance.
22. I'm aware of the way my mind works when I work through a problem.
23. Large groups make me nervous.
APPENDIX G. JANIS FIELD FEELINGS OF INADEQUACY SCALE
JANIS FIELD SCALE

INSTRUCTIONS: This is an inventory of how you feel about yourself, and how frequently you may feel that way. After reading each question, select the answer which best describes your thoughts and feelings and mark that answer on your answer sheet.

1. How often do you have the feeling that there is nothing you can do well?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never

2. How often do you feel that you have handled yourself well at a social gathering?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never

3. When you have to talk in front of a class or a group of people your own age, how afraid or worried do you usually feel?
   A. Very  B. Fairly  C. Somewhat  D. Fairly  E. Very afraid  afraid  afraid  unafraid  unafraid

4. How often do you have the feeling that you can do everything well?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never

5. How often do you worry about whether people like to be with you?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never

6. When you talk in front of a class or a group of people your own age, how pleased are you with your performance?
   A. Very  B. Fairly  C. Somewhat  D. Fairly  E. Very pleased  pleased  pleased  displeased  displeased

7. How often do you feel self-conscious?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never

8. How comfortable are you when starting a conversation with people whom you don't know?
   A. Very  B. Fairly  C. Somewhat  D. Fairly  E. Very comfortable  comfortable  comfortable  uncomfortable  uncomfortable

9. How often are you troubled with shyness?
   A. Very  B. Fairly  C. Sometimes  D. Once in a  E. Practically often  often  often  great while  never
10. How often do you feel that you are a successful person?
A. Very often B. Fairly often C. Sometimes often D. Once in a while often E. Practically never

11. How often do you feel inferior to most of the people you know?
A. Very often B. Fairly often C. Sometimes often D. Once in a while often E. Practically never

12. How confident are you that your success in your future job or career is assured?
A. Very confident B. Fairly confident C. Somewhat confident D. Fairly unconfident E. Very unconfident

13. How often do you think that you are a worthless individual?
A. Very often B. Fairly often C. Sometimes often D. Once in a while often E. Practically never

14. When speaking in class discussions, how sure of yourself do you feel?
A. Very sure B. Fairly sure C. Somewhat sure D. Fairly unsure E. Very unsure

15. How much do you worry about how well you get along with people?
A. Very much B. Fairly much C. Somewhat much D. Fairly little E. Very little

16. How sure of yourself do you feel when among strangers?
A. Very sure B. Fairly sure C. Somewhat sure D. Fairly unsure E. Very unsure

17. How often do you feel that you dislike yourself?
A. Very often B. Fairly often C. Sometimes often D. Once in a while often E. Practically never

18. How confident do you feel that some day the people you know will look up to you and respect you?
A. Very confident B. Fairly confident C. Somewhat confident D. Fairly unconfident E. Very unconfident

19. How often do you feel so discouraged with yourself that you wonder whether anything is worthwhile?
A. Very often B. Fairly often C. Sometimes often D. Once in a while often E. Practically never

20. In general, how confident do you feel about your abilities?
A. Very confident B. Fairly confident C. Somewhat confident D. Fairly unconfident E. Very unconfident
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