Career Decision Making from an Information

Integration Perspective

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Honors Project

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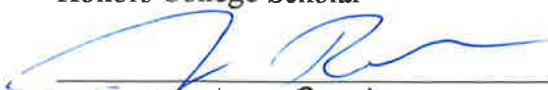**University of North Carolina at Pembroke**
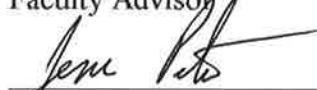
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Running head: CAREER DECISION MAKING

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Career Decision Making from an Information Integration Perspective

Previous literature on career decision making has generally been biased and outdated. Of the research found on this particular topic, the majority of the participants were either Masters of Business Administration (MBA) students or given qualities of MBA students for the participants to pretend to be. In other studies, the participants were all men. Other research only investigated the cultural influence on career decisions and the data was analyzed from a cultural perspective. Considering these biases, the results could only generalize to men, MBA students, or members of a particular culture.

In addition, past research has generally approached data collection in one of two ways. The first consisted of listing various job attributes, both positive and negative, and having participants list the attributes on a predetermined scale. Or, researchers presented a questionnaire on job attributes to participants. This method listed the positive and negative criteria of various jobs and participants had to state whether they would accept the job or not instead of rating the actual criteria.

In a study by Barmeier and Kellar (1957), participants were presented with a questionnaire to determine reasons why a job offer was not accepted. From their data, it was concluded that the five most important factors that influenced consideration of a job were: type of work, starting salary, opportunity for advancement, job location and plan for salary increases in no particular order. The least important characteristics were company benefits, size and prestige of the company, job security, working conditions and hours in no particular order.

Likewise, Catanlanello, Wegener & Zekmund (1978) conducted a study looking at which criteria are used by MBA students in selecting a career. In particular, this study looked at salary, interesting work, social responsibility and opportunity for advancement. Participants were presented with a pair of the above criteria and had to rate on a percentage scale the likelihood of

them accepting the job. Results indicated that opportunity for advancement, interesting work and salary all played a key role in the acceptance of the job. On the other hand, social responsibility of the possible employer did not influence participants as much as the other three.

In a study conducted by Beach and Strom (1989) participants were instructed to choose careers for graduating MBA students based on the attributes of the person and the careers listed. This study was carried out by listing attributes on cards and recording when the participants made a decision to reject or accept the career. The cards were given in varying orders to the different participants to determine if that had an impact on when the rejection was made. At the end of the study they were told to identify the five criteria that had the most impact and the five criteria that had the least impact on their decisions.

Furthermore, a study carried out in Turkey found that having power and authority, pay and opportunity for career advancement were the top three most influential factors regarding prospective careers (Aycan & Fikret-Pasa, 2003). This study was analyzed from a cultural perspective regarding how the culture influences what criteria are deemed important. Finally, Lee (1970) chose to approach his job research by comparing different schools within a university. His participants came from the College of Arts and Sciences, Business, and Engineering. Participants filled out questionnaires about jobs they had accepted directly after graduation and to rate job criteria on a scale of one to three (most important to least important). Results were compared across the three colleges. The participants from the College of Arts and Sciences and Engineering reported that the most important criterion was appealing job. Participants from the School of Business reported that potential for advancement was the most important.

Another area to consider when performing this type of research is how people come to these decisions about those attributes that are desirable when choosing a career. In a study done

by Beach and Strom (1989), Image Theory was applied to determinations of important job criteria. The majority of the study concentrated on a portion of Image Theory called the compatibility test. This aspect of Image Theory compares the criteria of a decision against any 'violations', or attributes that disagree with the initial criteria (Beach & Mitchell, 1987). Beach and Mitchell (1987) contend that it is the violations that ultimately make the decision and not the attributes that agree with the criteria. A decision of rejection is based on a predetermined number of violations; when that number is reached then a rejection is made. If only one option is left after the others are rejected then the remaining one is the accepted option. But if multiple options remain that have not been rejected then one must decide between the remaining accepted options.

Another theory used to determine the most important attributes of careers is Herzberg's (1959) Duality Theory. The theory basically states that there are two types of attributes that influence decisions on careers. Herzberg called these two types, motivators and hygiene factors. Motivators are basically what the word implies. For example, a motivator can be an achievement or recognition. A hygiene factor on the other hand is anything that has to do with the technicalities of a job such as salary or working conditions. Research has shown that most companies stress hygiene factors when it would be more effective to stress motivators (Sedwick, 1973; Anderson 1972).

However, there is one popular theory that has been neglected in determining how people combine attributes to make decisions about a career. This model is known as Information Integration Theory or IIT. Developed by Norman Anderson (1979) in the 1960s and 1970s IIT, accounts for decisions made in a world of multiple causes and determinates. Anderson proposed that operations of general cognitive algebra are adhered to when making decisions in a variety of areas including business, household, and professional life. When IIT is used in a factorial

design, it produces one of three major classes of models indicating the process by which people make decisions.

The first model is an adding model where scale values are added (e.g., estimating the total area of two rectangles) or subtracted (e.g., stating a preference between pairs of used cars). The second model is a multiplying model where scale values are multiplied (e.g., estimating the value of commodity market baskets under varying probabilities of owning the basket) or divided (e.g., price-quality judgments). Finally, the last model is a weighted averaging model where scale values are weighted and combined by an averaging rule (e.g., livestock judging) (Anderson, 1979).

Therefore, the purpose of this study is two-fold. First, the researcher plans to attain a more generalized and updated view of what career attributes college students consider the most important. Then once this information is attained, the researcher will determine which decision-making strategy college students use when choosing a career. In order to achieve this, the previous data will be analyzed using Information Integration Theory.

Pilot Study

Method

Participants

Twenty nine students from Introduction to Psychology classes participated in the experiment. Participants enrolled in PSY 101 received partial course credit for their participation. Participation was completely voluntary and the participants were allowed to withdraw at anytime.

Materials

Participants were asked to fill out a questionnaire (See the Appendix) that required them

to rate several attributes on a 7-point Likert scale with 1 equaling "not at all important" and 7 equaling "very important." The attributes were drawn from previous research yielding a compiled list of 31. This first study served as a pilot study to assess attributes that students want when they leave school and start a career.

Procedure

When participants arrived for the experiment, they were first asked to sign a consent form stating their willingness to participate in the experiment. After signing consent forms, participants were asked to complete a brief questionnaire. Participants did not put their names on any of the questionnaires. When participants completed the questionnaires they placed the questionnaires into a sealed box that was immediately taken to the principle investigator's office when all participants had finished answering the questionnaires. After participants turned in their questionnaires, they were read a debriefing statement.

Results

The mean score of each question can be found in Table 1. The top ten attributes are as follows: benefits, job security, work safety, sense of achievement, plan for salary increases, opportunity for career advancement, opportunity for personal growth and development, sense of pride in work, interesting work, and pay. These can be broken down into internal attributes and external attributes. Internal attributes include sense of achievement, opportunity for personal growth and development, sense of pride in work and interesting work. These are all factors that are internal to the potential employee. The external attributes are benefits, job security, work safety, plan for salary increases, opportunity for career advancement, and pay. These are characteristics of the particular career.

Discussion

The purpose of this pilot study was to gain knowledge of what college students considered the most important career attributes. From thirty one attributes in the pilot study, the top ten were chosen for the research described later. As is evident by Table 1, all of the attributes were rated highly, which indicates that they are all valid career attributes. After analyzing the top ten attributes, it seems that they can be placed in one of two categories. The first being internal attributes that are important to the individual. The second category is external attributes, which are specific characteristics of a career.

Study Two

Method

The attributes that the participants rate as most important in the first study will be used to further determine which decision-making strategies college students use when making career choices.

Participants

Twenty-nine different students from Introduction to Psychology classes participated in the experiment. Participants enrolled in PSY 101 will receive partial course credit for their participation. Participation was completely voluntary and the participants were allowed to withdraw at anytime.

Materials

A repeated measures design was employed to investigate the decision-making strategies used by college students when selecting a career. The top ten attributes from the pilot study were used to develop this study. A 3 (salary level: above average, average or below average pay) by 3 (attribute level: above average, average or below average) by 9 (attributes from the previous

study) repeated measure factorial design was implemented[1]. The potential jobs were presented individually on a 5"x 8" index card, which resulted in 81 cards per set. Eleven sets were used in the study and the cards for each set were randomized. The following is an example of the cards:

Average Pay

And

Above Average Job Security

Participants marked their responses on an undetermined scale like the one below.

|---|

Not at All Likely to
Accept this Job

Very Likely to
Accept this Job

Procedure

When a participant arrived for the experiment, they were first asked to sign a consent form stating their willingness to participate in the experiment. The consent form was then collected and the participant was given a packet with a list of 81 undetermined scales. Participants were shown cards with the potential careers as described above and they were instructed to mark an "X" on the scale as to how likely they would be to accept the career. A practice card was performed first to ensure the participant understood the directions. Participants rated two sets of cards and the sets they received were also randomized. After finishing the first set, participants were given an envelope in which to place their responses. Each participant was given the opportunity to take a five minute break. Participants then received another packet and rated

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[1] Since salary is a constant in any career decision, it became another independent variable by which the career was chosen, rather than keeping it as the 10th attribute.

another set of cards. This was also placed into the envelope. Lastly, the participants filled out a short demographics survey and placed it into the envelope when they finished. Participants did not put their names on any of the questionnaires. After the participant finished the demographics survey, they were read a debriefing statement. Participants performed the study one at a time so all participants could rate the cards at their own pace.

Results

Overall Effects

A repeated measures ANOVA was conducted to determine the effects of salary level, attribute level and career attributes on likelihood of accepting a job. Results indicated a significant main effect for salary level [F (2, 90) = 162.03, $p < .05$, $\eta^2 = .78$, Power = .99]. Specifically, as salary level increases, so does likelihood of accepting a job (see Figure 1). Additionally, a significant main effect for career attributes was found [(8, 360) = 3.61, $p < .05$, $\eta^2 = .07$, Power = .98]. Interestingly, those attributes rated highly in the pilot study were rated lowest when judging the likelihood of accepting a job. For example, work safety and job security rated as second and third most important in the pilot study were rated last and second to last respectively when judging the likelihood of accepting a job (see Figure 2). Surprisingly, no interactions were found as well as no effects of gender, ethnicity, or year in school.

IIT Model

Information Integration Theory (IIT) is based on an individual's use of cognitive algebra when combining attributes in a decision. Specifically, IIT predicts three different types of models based on graphical representation. First, the additive model is determined graphically by a set a parallel lines. Second, the multiplicative model is determined graphically by a set of diverging lines. And finally, the weighted averaging model is determined by a set of parallel lines for most

attributes with a steeper line for one. As can be seen in Figure 3, the results indicate a weighted averaging model in which all attributes are roughly parallel with salary level providing a steeper angle. In particular, all of the attributes cluster around the same point on the graph. The only difference is where the attributes cluster in relationship to salary level.

Discussion

The results of the study indicated that participants based their decisions on salary level. Above average salary was rated much higher than average salary, which was rated higher than below average salary. The interesting thing to point out is salary was rated the tenth most important attribute in the pilot study. This could be due to how the two different studies presented the information. In the pilot study, participants only had to rate on their judgment on a 7-point Likert scale but in the main study participants actually had to make a choice about which career to accept.

As for the other attributes, results indicated they were rated relatively equal. The difference between their likelihood estimations was small compared to the difference in pay. Specifically, all attributes clustered together in the say region with only the level of pay associated with each affecting their importance when selecting a career. Therefore, the driving force causing changes in participant's choices was again pay.

It comes as no surprise based on the previous results that when determining the Information Integration Theory model used that participants were using a weighted averaging model. Again this result can be seen by evaluating the participant's behavior. Specifically, participants were consistent in weighting pay as more important than the other nine attributes, keeping these nine relatively parallel. Echoing this result was the verbal information given by participants in which many made statements during the course of their participation that they did not want a below average or average paying career.

Limitations

Some limitations did surface in the study. To begin with, fatigue of the participants is possibly an issue. Participants rated two sets of 81 cards resulting in 162 cards and judgments. Generally, participants rated the second set of cards faster than the first set. This either means that they knew what to expect so it did not take them as long to make their choices or they were tired of reading the cards and marking their "X". However, the total time of the experiment was no longer than 20 minutes indicating that fatigue was probably not that large of an issue.

Additionally, participants were overall very consistent in their responses. Yet, there were a few instances where participants would rate the same card the second time around on the opposite ends of the scale. This could be a result of the participants. All participants were freshmen and sophomores in Introduction to Psychology. Since they are still fairly far away from having to make this decision, they may be more inclined to answer the likelihood question with more inconsistency because as freshmen and sophomores they may not know what they really want from a career. Also, freshmen and sophomores are more idealistic when assessing their future outcomes leading to an inflated view of reality when it comes to selecting a career.

Future Directions

The results of this study lend itself to further investigation to determine if the results are consistent for different participants. It would be interesting to perform the same study at a later point on juniors and seniors to determine if there are any differences in how they make decisions about careers. There were a small amount of non-traditional students in this study, but one of them made the remark they only wanted above average pay so that just reaffirms the results. Future research should explore the differences between traditional and non-traditional students as well as those who are in graduate school. These populations could very well control for the idealistic nature of freshman and sophomores.

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Table 1

Mean Scores for the Top Ten Attributes from the Pilot Study

Attribute	Mean Score
Benefits	6.67
Job Security	6.57
Work Safety	6.47
Sense of Achievement	6.43
Plan for Salary Increases	6.39
Opportunity for Career Advancement	6.36
Opportunity for Personal Growth	6.29
Sense of Pride in Work	6.29
Interesting Work	6.26
Salary	6.19

Figure Caption

Figure 1. Main Effect for Salary Level

Figure 2. Main Effect for Career Attribute

Figure 3. Weighted Averaging Model for Likelihood of Accepting a Job

Figure 1.

Judgments by Pay

Figure 2.

Judgment by Attribute

Figure 3.

Weighted Averaging Model

Attribute
- 1 Interesting Work
- 2 Sense of Pride in Work
- 3 Opportunity for Personal Growth
- 4 Opportunity for Career Advancement
- 5 Salary Increases
- 6 Sense of Achievement
- 7 Work Safety
- 8 Job Security
- 9 Benefits (i.e., Insurance, Retirement)
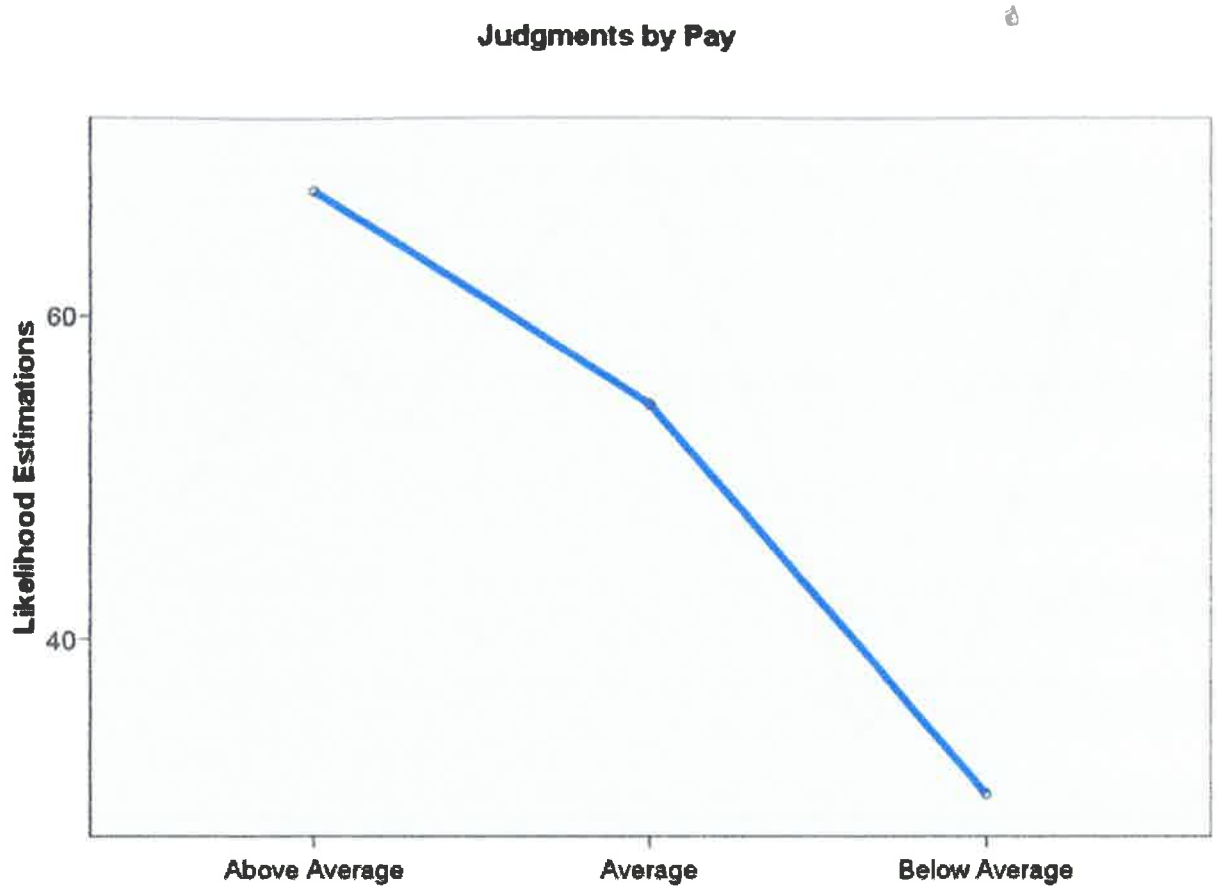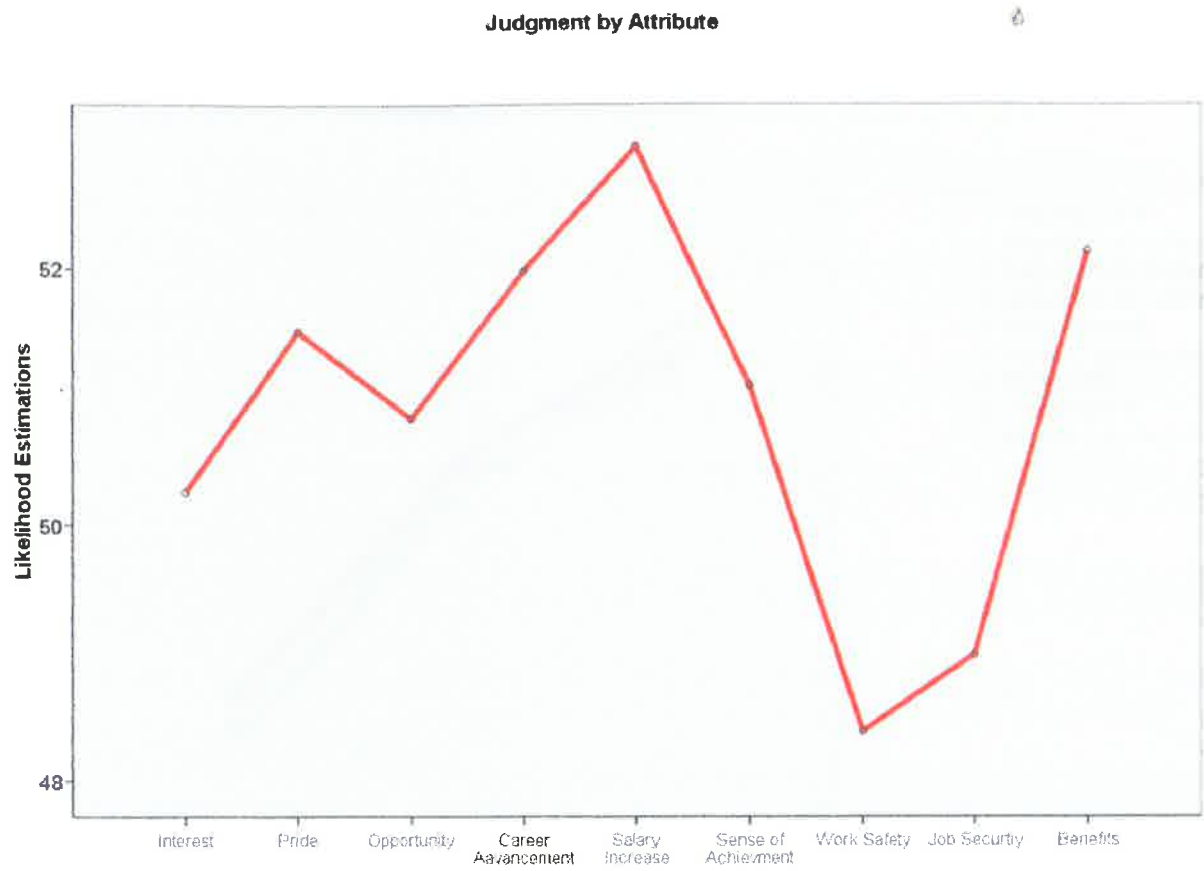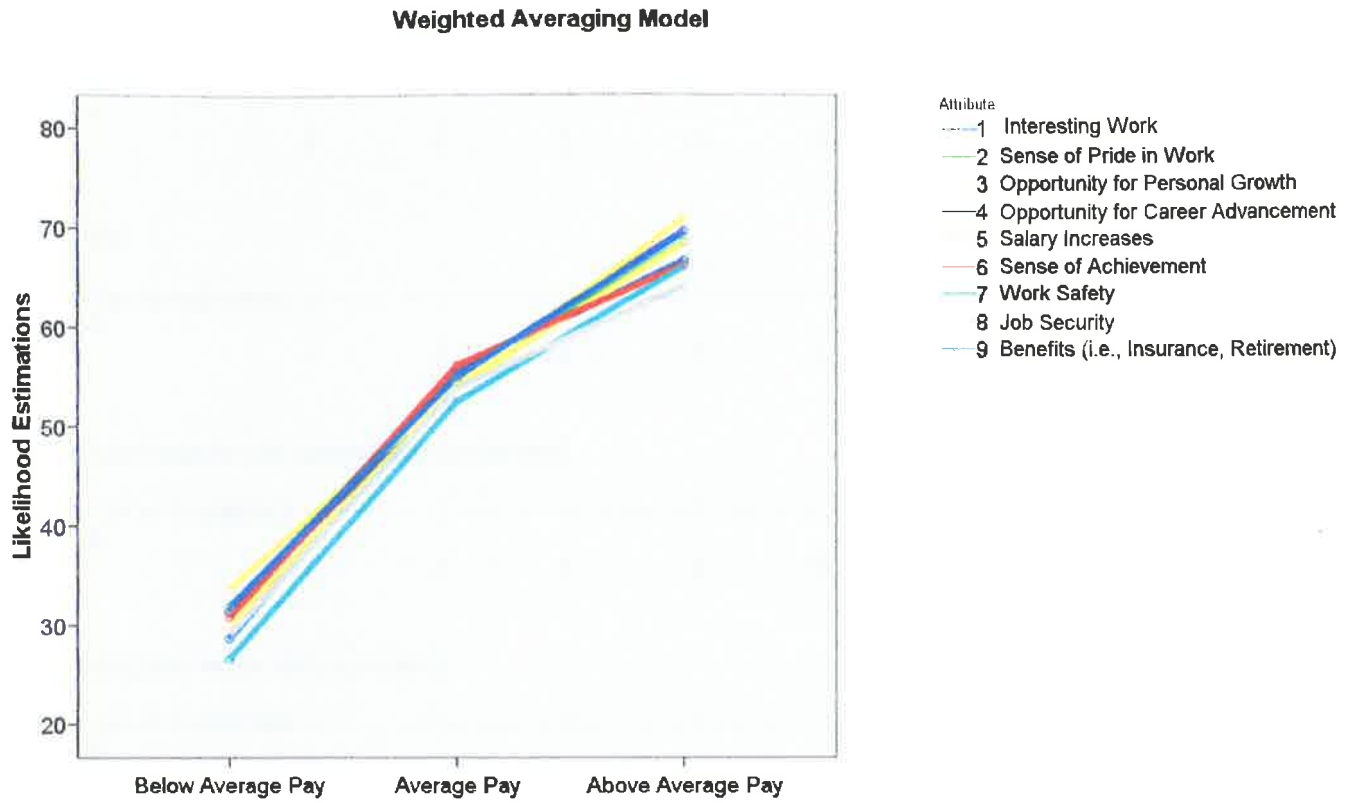
Appendix

Directions: The following questionnaire lists attributes that careers may offer. Please indicate the level of importance that each attribute has when you are selecting a career. Place an **X** on the scale between 1 (Not at all Important) and 7 (Very Important) indicating your level of importance.

1. Having power and authority

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

2. Pay

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

3. Opportunity for career advancement

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

4. Peaceful work environment

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

5. Participation in decision making

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

6. Autonomy in my job

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

7. Opportunity for personal growth and development

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
        1   2   3   4   5   6   7

8. Sense of achievement

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

9. Opportunity for creativity

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

10. Type of people met at the company

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

11. Interesting work

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

12. Work in a prestigious company

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

13. Job security

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

14. Sense of pride in work

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

15. Responsibility in my job

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

      1   2   3   4   5   6   7

16. Awards for superior performance

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

17. Benefits (health insurance, option of company shares, etc)

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

18. Opportunity to use various skills

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

19. Sense of contribution to society

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

20. Existence of goals

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

21. Work safety

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

22. Feedback on my performance

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

23. Sense of belonging

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important

       1   2   3   4   5   6   7

24. Praise from supervisor

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

25. Close supervision/guidance

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

26. Location of the organization

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

27. Opportunity for graduate study

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

28. Challenging work

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

29. Amount of vacation

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

30. Plan for salary increases

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7

31. Hours of work per week

Not at all Important |-----------|-----------|-----------|-----------|-----------|-----------| Very Important
           1   2   3   4   5   6   7