

# **The Effect of Personality on Decision Making**

**David S. Jalajas**  
**Long Island University**

**Ray Pullaro**  
**Long Island University**

*This study examines whether personality can predict error making in decisions made using heuristics. We predicted that certain personalities would be more likely to use heuristics and therefore lead to more errors. We measured the personality of college students with the Big Five Inventory, and measured decision making through six decisions. Using a set of binary logistic regression models, we found that Conscientiousness was unexpectedly negatively related to correct decisions, and Agreeableness and Neuroticism had expectedly negative relationships with correct decisions. Openness was negatively related to correct decisions. An explanation for these findings is presented.*

## **INTRODUCTION**

Organizations rely on managers to provide direction in the face of both uncertainty and stability. Many choices must be made under the pressure of varying time constraints. Managers are also charged with responsibility for personnel, both deploying staff resources efficiently, and cultivating those resources for the future. The ability to assess and process information from disparate people and sources, and a knack for making good decisions rapidly and repeatedly, are vital for the manager.

The reality in many organizations, however, is that the abilities that lead to promotions, with attendant responsibility for decisions regarding strategy and personnel, have little connection to actual management and decision-making skills. As many decisions are intuitive and are made using heuristic models, and since it has been found that using heuristics leads to errors, it may be helpful to consider what individual differences can reduce the errors and improve the success of these decisions. Personality type may be a factor that could reduce errors in decision making.

This research seeks to establish whether personality type has a relationship to success in making decisions. In his book, *Thinking, Fast and Slow*, Daniel Kahneman (2011) takes the reader through a summary of his life's work, much of it performed with his long-time collaborator, Amos Tversky. The inspiration for his book's title comes from his identification of "a two-system approach to judgment and choice...the distinction between the automatic operations of System 1 and the controlled operations of System 2" (Kahneman, 2011, p.13). Fast thinking is attributed to System 1 and the use of heuristics, or short-cuts, to quickly arrive at decisions. The use of heuristics, however, can lead to biases and errors (Bazerman, 1998). Slow thinking, attributed to System 2, is more considered and deliberate, and Bazerman found it to be less prone to errors when confronted by the dilemmas developed by Kahneman and Tversky (1984) in their previous work.

Although the concept of System 1 and 2 thinking was an important contribution to the field of decision making, Kahneman did not attempt to discuss who would be more likely to use System 1 and System 2 styles of thinking. Certainly, there are occupations where System 1 or System 2 thinking is more rewarded (e.g., investment banking would seem to reward System 2 thinking). We contend that using System 1 thinking is more likely to lead to errors in those situations where System 2 thinking is called for. For example, one problem presented by Kahneman (2011) states, “A bat and ball cost \$1.10. The bat costs one dollar more than the ball. How much does the ball cost?” Thinking carefully about the problem using System 2 will typically lead to a correct answer (\$.05), but using System 1 will lead to an incorrect answer (\$.10). Only a small number of studies have considered whether personality can be a predictor of errors in decision making.

Previous research has examined the effect of personality on decision-making *styles* (Rahaman, 2014; Riaz, Riaz, & Batool, 2012). Riaz et al. (2012) examined five styles of decision making: rational, intuitive, dependent, avoidant, and spontaneous. The rational style best matches System 2 thinking, and the intuitive style best matches the System 1 thinking style. They found that openness and conscientiousness have a positive relationship with the rational style of decision making, and neuroticism has a negative relationship. Extroversion, openness, and agreeableness have a positive relationship with the intuitive style. Rahaman (2014) studied four styles of decision making that mirror some of those of Riaz et al. (2012). Vigilance is consistent with the rational style, hypervigilance is consistent with the intuitive style. Buck-passing and procrastination are similar to the avoidant style. As with Riaz et al. (2012), Rahaman (2014) found that conscientiousness, neuroticism (in a negative direction) and openness were related to vigilance (rational style), but found that only neuroticism was positively related to hypervigilance (intuitive style). The results from Riaz et al. (2012) points to a problem with using decision-style as the dependent variable. In their article, openness predicts both the rational and intuitive style. Clearly, that variable cannot predict whether a person will make an error in a decision task. In the current study we address this concern by using the actual decision made as the dependent variable.

Only one study (Belhekar, 2017), of which we are aware, examined the effect of personality on decisions used in the studies of Kahneman and Tversky (Kahneman & Tversky, 1972; Tversky & Kahneman, 1973). Belhekar (2017) found that neuroticism predicted intuitive decision making for six of their seven decisions. They found agreeableness predicted intuitive decision making in three of the seven decisions. Openness predicted the intuitive model for two of the decisions, and the rational model for one of the decisions. They did not find conscientiousness to have a significant relationship with the decision responses. Belhekar (2017), however, chose problems that would be unfamiliar to most people. One problem, for example, involved determining the number paths in either a 3 x 8 matrix versus an 8 x 2 matrix. Another involved assessing the frequency of the appearance of letters. Choosing unfamiliar problems may decrease the motivation of participants to answer the questions correctly. We chose, instead, to use problems more easily accessible to participants. In particular, we make use of some of the decisions cited by Kahneman (2011) in the book, *Thinking, Fast and Slow*. For example, participants were presented with the following problem: “A bat and ball cost \$1.10. The bat costs one dollar more than the ball. How much does ball cost?” Kahneman found that most people used their intuition, rather than rational decision-making processes, to incorrectly conclude that the ball costs 10 cents. We assume that incorrect responses resulted from intuition, since a simple, deliberate algebraic calculation readily reveals the correct answer. We sought to determine if one’s personality might influence the likelihood of errors. That is, would someone who is, say, more conscientious, be more likely to answer questions using a more rational, rather than intuitive, process? We used the Big Five Inventory (BFI) version of the five-factor model of personality (John & Srivastava, 1999) to assess extraversion, agreeableness, conscientiousness, neuroticism, and openness, and compared the responses to six questions that assessed the decision making of the participants.

Based on Kahneman’s (2011) work, we expect that participants who “think slowly” will be more likely to apply more rational decision-making processes to each problem and, therefore, will be more likely to answer the problems correctly. The findings of the research of Riaz et al. (2012), Rahaman (2014), and Belhekar (2017) that are consistent suggest that Conscientiousness should lead to rational

thinking, and that Extroversion, Neuroticism, and Agreeableness should lead to intuitive decision making. Openness was found to predict both rational and intuitive decision making. Therefore, our hypotheses are:

1. Conscientiousness should have a positive effect on the number of correct decisions made by the participants.
2. Extroversion, Neuroticism, and Agreeableness should have a negative effect on the number of correct decisions made by the participants.

## **METHOD**

### **Participants**

The participants in our study were 201 college students (undergraduate and graduate) from a private college in the northeastern United States. The participants volunteered at the beginning of a class session. Due to missing data on some of the surveys, 188 usable surveys were obtained. Although there was a mix of males and females, and the students were generally of “college age,” data on gender and age were not collected. Approval was obtained from the Institutional Review Board for conducting this study with human participants.

### **Procedure**

The participants were administered the survey instrument (described below) at the beginning of a class session. The participants were informed that participation in the study was voluntary and that their responses would be confidential. No credit or reward was given for participation. After the students completed the survey, the surveys were collected, the students were thanked, and the experimenter left the room.

### **Materials**

The survey instrument consisted of two scales. The first scale comprises “the existing and well-proven 44 items from the BFI” (Rammstedt, 2007, p. 203), and employs a five-point Likert scale. The Cronbach alphas for the five personality dimensions assessed in our study ranged from .73 to .84. The second scale (see Appendix) includes five decisions drawn from Kahneman and Tversky’s work (as reported in Kahneman, 2011) and one additional decision created by one of the coauthors to reflect a more “real world” problem. Each of the six decisions on the questionnaire was presented as a closed-ended question, except for the bat and ball problem where the participant is asked for the cost of the ball.

## **RESULTS**

The means, standard deviations, and intercorrelations of the variables are presented in Table 1. The responses of the participants to decision #6 in the decision scale indicated that the question was not well-understood by the participants. That question was removed from the analysis. In the first analysis we regressed the number of correct decisions on the five personality variables. The data did not support either hypothesis in the direction predicted. The results of our first analysis did not demonstrate an effect of personality on the number of correct decisions.

**TABLE 1**  
**DESCRIPTIVE STATISTICS OF PERSONALITY DIMENSIONS AND DECISION PROBLEMS**

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
<b>Personality Variables</b>											
1. Extraversion	28.7	5.6	--								
2. Agreeableness	35.9	5.5	.19*	--							
3. Conscientiousness	34.8	5.3	.20**	.23**	--						
4. Neuroticism	20.8	6.1	-.38**	-.42**	-.41**	--					
5. Openness	36.6	5.2	.24**	.07	.17*	-.14	--				
<b>Decision Variables</b>											
6. Decision 1	.16	.36	-.02	.00	.04	.07	.06	--			
7. Decision 2	.36	.48	-.05	-.12	-.21**	.07	.06	-.03	--		
8. Decision 3	.56	.50	-.04	.05	.08	-.01	-.22**	.05	-.02	--	
9. Decision 4	.64	.48	-.05	-.15*	-.01	-.08	-.04	.01	.35*	-.01	--
10. Decision 5	.42	.49	.06	.04	.03	-.10	.18*	.10	-.04	-.11	.14*

\*  $p < .05$  (2-tailed), \*\*  $p < .01$  (2-tailed)

A second analysis was then conducted where a separate model was created for each decision. In that analysis, each of the personality variables were compared with each of the five (remaining) decisions using a point-biserial correlation. Conscientiousness ( $r = -.21, p < .01$ ) had a negative relationship with the answer to decision #2 (the bat and ball problem). We had expected that conscientiousness would have a *positive* effect on this decision, leading to fewer errors. The results were in the opposite direction. Agreeableness ( $r = -.15, p < .05$ ) had a negative relationship with decision #4 (the number of machines needed to make 100 widgets). This result was in the direction expected. Openness ( $r = -.22, p < .01$ ) had a negative relationship with the answer to decision #3 (the profitability of an ice cream firm).

In a third analysis, we used a logistical regression model to regress the outcome of each decision on all five of the personality dimensions. Three of the models were significant (see Table 2). In these more complete models, Conscientiousness was found to significantly predict ( $B = -.085, p < .01$ ) the answers to the “bat and ball” decision noted earlier, albeit in a direction opposite of that expected. Openness was found to significantly predict ( $B = -.086, p < .01$ ) the answers to the “profitability of an ice cream stand” decision. Agreeableness and Neuroticism were found to significantly predict the answers to the “the number of machines needed to make 100 widgets” decision noted earlier in the direction expected ( $B = -.089, p < .01$ , and  $B = -.082, p < .05$ ). Personality did not predict the outcome of the other decisions.

**TABLE 2**  
**BINARY LOGISTICAL MODELS WITH CHI-SQUARE AND**  
**UNSTANDARDIZED B VALUES FOR EACH MODEL**

<b>Decisions</b>	<b>Chi-square</b>	<b>Unstandardized B Values</b>				
		<b>Extraversion</b>	<b>Agreeable</b>	<b>Conscientious</b>	<b>Neurotic</b>	<b>Openness</b>
Decision 1	2.42	-0.008	0.015	0.031	0.046	0.028
Decision 2	<b>11.11*</b>	-0.010	-0.032	<b>-0.085*</b>	-0.008	0.04
Decision 3	<b>11.83*</b>	0.005	0.025	0.042	0.024	<b>-0.086**</b>
Decision 4	<b>11.35*</b>	-0.029	<b>-0.089**</b>	-0.008	<b>-0.082*</b>	-0.009
Decision 5	7.48	-0.009	-0.002	-0.005	-0.036	0.061

\* p< .05, \*\* p<.01

## DISCUSSION

Kahneman (2011) posed several dilemmas designed to gauge how individuals make decisions. This study considered five of these dilemmas, and introduced a new one. The scores were aggregated and compared to results from a personality test to assess the relationship between personality and decision making. Although we expected that personality should affect decision making, it did not do so in the predicted direction. John and Srivastava (1999) list the following facets of conscientiousness: competence, order, dutifulness, achievement striving, self-discipline, and deliberation. These facets suggest a strong likelihood that conscientiousness would be a predictor of the slow (and rational) decision making described by Kahneman (2011) and lead to correct decisions to the problems in our survey. Instead, our study found that the more conscientious participants were more likely to use intuitive thinking and get the answers wrong. We also expected that openness would lead to more rational decision making.

Our study calls into question the premise that personality influences actual decision making. Riaz et al. (2012) found that personality affects decision making style, but we found that it didn't affect actual decisions in the way they predicted. Our conclusion is that decision making is a more complex process involving more factors than considered here. That is, application of the rational decision making in the "bat and ball" problem must be influenced by factors other than just personality.

There are some limitations to our study. One of which is that the problems used to assess decision making appear in some management and organizational behavior texts. Our participants may have seen the problems before. We added problem #3 (the ice cream store) to address this issue, but didn't find that personality affected the answers to this problem. Another limitation is that the problems may not reflect decisions people face in real life (except in the case of problem #3). As such, there may be an element of "trickery" to getting the correct answers, which may not be predictable by personality. Finally, we did not examine the differences in decision making by age or by gender. It may be that age or maturity leads to people assuming that they "know" more answers and can answer the questions quickly. Gender may also have an influence on decision making. Is one gender more thoughtful and deliberate than the other? This question could not be answered.

In conclusion, although by definition, some of the personality measures assessed in the BFI should affect the tendency of individuals to apply rational or intuitive decision making to solve problems, we did not find this to be the case. Future research should devise more realistic problems to assess the decision-making techniques and the influences on those techniques, and consider what other factors may influence our likelihood to think fast, or slow.

## REFERENCES

- Bazerman, M. (1998). *Judgment in managerial decision making*. New York: Wiley.
- Belhekar, V. M. (2017). Cognitive and non-cognitive determinants of heuristics of judgment and decision-making: General ability and personality traits. *Journal of the Indian Academy of Applied Psychology*, 43(1), 75-84.
- John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Kahneman, D., & Tversky, A. (1972) Subjective probability: A judgement of representativeness. *Cognitive Psychology*, 3, 430-454.
- Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39(4), 341-350.
- Rahaman, H. M. (2014). Personality and decision-making styles of university students. *Journal of the Indian Academy of Applied Psychology*, 40(1), 138-144.
- Rammstedt, B., & John, O. P. (2007) Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.
- Riaz, M. N., Riaz, M. A., & Batool, N. (2012). Personality types as predictors of decision making styles. *Journal of Behavioral Sciences*, 22(2), 99-114.
- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207-232.

## APPENDIX

### Items used in Decision-Making Task

1. Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and she participated in antinuclear demonstrations. Rank order the following eight descriptions in terms of the probability (likelihood) that they describe Linda.

- a. Linda is a teacher in an elementary school.
- b. Linda works in a bookstore and takes yoga classes.
- c. Linda is active in the feminist movement.
- d. Linda is a psychiatric social worker.
- e. Linda is a member of the League of Women Voters.
- f. Linda is a bank teller.
- g. Linda is an insurance salesperson.
- h. Linda is a bank teller who is active in the feminist movement.

2. A bat and a ball cost \$1.10. The bat costs one dollar more than the ball. How much does the ball cost? \_\_\_\_\_

3. Is a firm that sells ice cream likely to be more or less profitable than a firm that sells ice cream and donates a portion of revenues to a charity to help children facing obesity?

Circle one: More profitable Less Profitable

4. If it takes 5 machines 5 minutes to make 5 widgets, how long will it take 100 machines to make 100 widgets? Circle one: 100 minutes OR 5 minutes

5. An individual has been described by a neighbor as follows: "Steve is very shy and withdrawn, invariably helpful but with little interest in people or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail." Is Steve more likely to be a librarian or a farmer?

Circle one: Librarian Farmer

6. Imagine that you face the following pair of decisions. First, examine both decisions, then circle the letter to make your choice for each decision:

Decision 1:

- a. Sure gain of \$240.
- b. 25% chance to gain \$1,000 and 75% chance to gain nothing.

Decision 2:

- a. Sure loss of \$750,
- b. 75% chance to lose \$1,000 and 25% chance to lose nothing.