Running Head: DECISION MAKING, INTELLIGENCE AND PERSONALITY

Personality and Intellectual Abilities as Predictors of Intelligent Behavior

Abstract

The purpose of this study is to examine the relationship between intellectual abilities and personality in predicting intelligent behavior, operationalized as good decision making practices. It examines certain personal characteristics that are hypothesized to lead to intelligent behavior, namely personality, emotional intelligence and subjective well-being. It aims at understanding how such personal characteristics influence decision making. It was hypothesized that the relationship between intellectual abilities and decision making would be mediated or moderated by the personality characteristics mentioned previously. Ninety seven participants took tests that assessed these factors. The analysis of the data revealed no significant correlation between intellectual abilities and decision making; neither was there a correlation between any of the personality factors and decision making or intelligence. It is suspected that the restricted population sample did not allow enough variance to show us any correlation.

Key Words: Personality, Intelligence, Decision Making, Framing.

Personality and Intellectual Abilities as Predictors of Intelligent Behavior

Wechsler, the author of the Wechsler Adult Intelligence Scale (WAIS), argued that "general intelligence cannot be equated with intellectual abilities however broadly defined, but [general intelligence] must be regarded as a manifestation of the personality as a whole" (Zachary, 1990). With this, he makes a distinction between intellectual abilities (the behavior measured by intelligence tests) and general intelligence, defined as the "the global capacity of a person to act purposefully, to think rationally, and to deal effectively with his/her environment" (Wechsler, 1975). General intelligence is defined in terms of concrete actions or behavior and it is different from intellectual abilities in that the first is a broader and a more prevailing capacity. Even more, he suggests that intellectual abilities are not perfect predictors of general intelligence or intelligent behavior, meaning that to explain intelligent behavior we need to consider more than just intellectual abilities. The assessment of general intelligence needs to be based on both intellectual and non-intellectual factors, an important non-intellectual factor being personality. Wechsler, as quoted by Zachary, writes: "When our scales measure the non-intellective as well as the intellectual factors in intelligence, they will more nearly measure what in actual life corresponds to intelligent behavior" (1990), once more accentuating the importance of non-intellective factors in intelligent behavior. The present study explores the nature of the relationship between some non-intellective factors (such as personality), intellectual abilities and intelligent behavior.

Intellectual Abilities, IQ and Intelligent Behavior

Intelligence tests, as their name suggests, attempt to measure general intelligence. However, the aspect of intelligence (or the intellectual ability) that is being measured

depends greatly on the context in which intelligence tests are developed. For example, the first intelligence test that was created was the Binet-Simon intelligence test, whose purpose was to make a distinction between children who would benefit from normal schooling and those who would not (Gregory, 2007). Academic achievement was the "intelligent behavior" that this test and many future tests tried to predict. Years later, investigators realized that intelligence could be used to predict other forms of success in life or useful behavior. Intelligent behavior was transformed from academic achievement to life achievement. A review article (Neisser, Boodoo, Bocuahd, Boykin, Brody, Ceci, Halpern, Loehlin, Perloff, Sternberg, and Urbina, 1996) explored the value of the Intellectual Quotient (IQ) and the IQ scores' ability to predict useful behavior or situations in the real world. They found that it explains one fourth of social status variance and one sixth of income variance, indicating that IQ can predict these variables. They reported a correlation of $r = .54$ with job performance, as well as a correlation of $r = -.17$ between IQ scores and number of juvenile offenses after correcting for social class. Even though the review shows that IQ can predict life-useful behavior, these studies, as surveys, do not control for external variables that may cause the relationship between intellectual abilities and measures of life-useful behavior. In addition, it cannot be determined if (and how) such factors would affect this relationship. This article will attempt to look at some other external variables that might influence this relationship.

Also, this review of findings on IQ shows how intellectual abilities are capable of predicting life-useful behavior in the real world in terms of what we could call good decision making; after all, a person needs to make a conscious decision if he desires to do his best effort at his job or if he does not want to commit a crime. For this reason, it is

assumed that useful behavior requires the capacity to make good decisions, and that good decision making can be seen as a form of intelligent behavior. For example, it is possible to think of people who are intelligent and yet engage in non-intelligent behavior such as drunk driving, making careless financial decisions, and continuously failing in their personal relationships. They score high in intelligence tests, yet their high intelligence is not enough to predict good decision making or useful behavior. This emphasizes the necessity to consider other factors that correlate with useful or intelligent behavior and explore these relationships. One of the factors to consider is personality, as Wechsler pointed out (1975).

Intelligence and Personality

The connection between intelligence and personality in terms of the Five Factor Model of personality has been explored by several authors (Baker and Bichsel, 2006; Furnham, Dissou, Sloan, and Chamorro-Premuzic, 2007; Ackerman and Heggestad, 1997; Chamorro-Prezumic and Furham 2006). The Five Factor Model of personality (Costa & McCrae, 1987) describes personality as containing five factors, defined as dimensions of individual differences that consistently show themselves in actions, thoughts and emotions. The five factors are extroversion, neuroticism, openness to experience, conscientiousness and agreeableness. Extroversion is the tendency towards positive feelings, excitement and friendliness. Research on the relationship between this factor and intellectual abilities is mixed, with some studies showing a positive relationship (Ackerman and Heggestad, 1997; Prezumic and Furham, 2006) and some others showing a negative relationship (Furnham et al, 2007). Prezumic and Furham (2006) argue that this relationship depends on the type of test used; if it is a speeded test

(highly timed but not very hard) extroverts do better, but if it is a power test (untimed but of high difficulty) introverts do better. Neuroticism is another personality factor and it is the tendency to experience negative emotions such as anxiety; research generally agrees that neuroticism has a negative correlation with IQ scores (Furnham et al, 2007; Ackerman and Heggestad, 1997).

Openness to experience is the disposition to pay attention to beauty, abstract ideas, and liberalism. Baker and Bichsel (2006) found that openness to experience correlates with intellectual abilities at different stages of life. Other research has confirmed the positive relationship between intellectual abilities and openness to experience (Furnham et al, 2007; Ackerman and Heggestad, 1997). Conscientiousness involves self-discipline, achievement-striving, and cautiousness. An extensive metanalysis showed that conscientiousness has no correlation with measures of general intelligence, but that it does correlate negatively with measures of math and general knowledge (Ackerman and Heggestad, 1997). Other researchers have found that non-conscientious tend to do better in IQ tests (Furnham et al). Lastly, agreeableness refers to qualities such as altruism, trust and compliance. The metanalysis mentioned earlier found absolutely no correlation between agreeableness and any measure of intellectual ability (Ackerman and Heggestad, 1997). In summary, it is generally agreed that extroversion has an existing relationship with intellectual abilities, but its direction seems to depend on the kind of test being used. Openness to experience is generally positively correlated with intellectual abilities, while neuroticism is negatively correlated with IQ. The relationship with conscientiousness is generally negative or non-existing, and the relationship with agreeableness is non-existing.

These review of articles shows that there is an existing relationship between personality and intellectual abilities. Yet, no one can tell which personality traits allow a person to behave more intelligently (or engage in useful behavior) as opposed to score higher on IQ tests. This study will examine the mediating or moderating effect of personality (particularly conscientiousness, neuroticism and openness to experience) in the relationship between intellectual abilities and intelligent behavior.

Intelligence and Emotional Intelligence

This study is interested not only in personality as a non-intellective factor, but also in other factors that might predict intelligent behavior. It is for this reason that the predictive importance of Emotional Intelligence (or EI) will be explored. Emotional Intelligence is defined as: "the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought" (Mayer, Roberts, and Barsade, 2008). This means that a person high in EI will judge and understand his emotions as well as those of others, and use his emotions to obtain what he needs or wants. This study will treat EI as a non-intellective ability (highly dependent on intellectual ability) because of its emotional content, even though some will argue that it must be thought of as an intellectual ability (e.g. Barchard and Hakstian, 2004). The construct of EI allows the person to enhance his capacity to think clearly by joining emotions and intelligence. Therefore, an individual whose thoughts have been enhanced by EI is capable of thinking better. As a consequence, he would translate this enhanced thinking into intelligent behavior such as success in job performance and good peer relationships, which are examples of useful behavior.

The inclusion of Emotional Intelligence in this study allows us to explore another form of intelligent behavior, that is, the capacity to relate appropriately with those people that surround us and to have acceptable and satisfying relationships with others. This can be seen as a form of intelligent behavior or useful behavior because, as social animals, each one of our days includes some form of social interaction, and most people strive to succeed in these relationships and fulfill their social needs, as well as enhance their subjective well-being through them (e.g. Prager et Buhrmester, 1998). Therefore, it could be concluded that striving for good social relationships is a form of useful or intelligent behavior. Since reading and understanding other's emotions is an important aspect of relationships, EI should play an important role on human relationships. A study that observed emotional regulation (an ability encompassed by EI) found that the people who scored high on EI were viewed by their peers as being more interpersonally sensitive, as having more prosocial tendencies, and as having more reciprocal friendships (Lopes, Salovey, Côté et Beers, 2005).

Another study confirmed that those who score high on the managing emotions scales of EI report higher quality of interpersonal relationships, confirmed by two of the participant's friends (Lopes, Brackett, Nezleck, Schütz, Sellin, et Salovery, 2004). Other research reports that children who score high on EI had better social skills such as cooperation and self control (Mayer et al, 2008). With adults, research shows that EI correlated positively with relationship well-being (Mayer et al, 2008). This research shows that EI influences human relationships, improving human interactions through a better use of emotions and leading to high quality social interactions, which, as mentioned earlier, is a form of intelligent behavior.

In terms of work skills, research showed that in an organizational simulation EI (as measured by perception of emotions in faces) correlated positively with successful problem analysis of managerial issues (Matsumoto, LeRoux, Bernhard, and Gray, 2004). It is also positively correlated with a consistent rise in work place effectiveness in professionals of diverse occupations (Mayer et al, 2008), showing that EI could be used to predict useful behavior in the job environment.

In conclusion, research shows that EI is an important predictor of intelligent behavior or useful life behavior in terms of good personal relationships and work efficacy and as such, it should be considered as one of the factors to be measured in this study. It is predicted that intellectual abilities will be positively correlated to EI, which in turn will be positively correlated with intelligent behavior, acting as either a mediator or a moderator.

Intelligence and Subjective Well-Being

Subjective well-being (or SWB) "is concerned mainly with how and why people experience their lives in a positive way, including both cognitive judgments and affective reactions" (Diener, 1984). SWB describes the reasons that lead people to evaluate their lives positively and to have a positive affect about it. The relationship between SWB and intellectual abilities, as measured by IQ, was examined by Diener (1984) and he concluded that intellectual abilities and subjective well-being had no relationship. This seemed rare since higher intelligence would lead to more resources, and resources are positively correlated with subjective well-being. However, it is likely that behaving intelligently (making a concrete action that requires intelligence) could influence the way a person sees and feels about his life, as opposed to only taking an IQ tests (without any

active behavior). Therefore, it is possible that intelligent or useful behavior (and the resources that it brings) and not intellectual abilities as measured by IQ, has a positive relationship with subjective well-being. It is also feasable that people who feel good about their lives want to maintain this state and therefore continue behaving intelligently. For this reason this non-intellective factor will be examined in this study.

Prospect Theory and Good Decision Making

Wechsler (1975) regarded goal awareness as an important part of intelligence, emphasizing that general intelligence would necessarily involve the capacity to asses how worthwhile and excellent a goal and a behavior is. This would mean that a person who behaves intelligently does so because he is capable of assessing and judging goals and behaviors based on their worth, and thus is able to choose the best option, according to his subjective point of view. Intelligent behavior or useful behavior would require the person to be somewhat conscious of the choice of behaviors that can be displayed, as well as of the consequences of these choices. After being conscious of choices and consequences, the person selects the best option, according his personal situation. For example, in a relationship, a person needs to be conscious that during a discussion he can choose to say something that will either help or hinder the discussion. In other words, he knows that there is a preferable (or more useful) behavior. This knowledge depends on individual differences such as personality factors. If the person has the knowledge and chooses to say the wrong thing during a discussion it is most likely to get worse, even if he doesn't know in what way. This means that he is somewhat conscious of the consequences of his actions, even if he doesn't know the full consequence of his

behavior. In our example, a form of intelligent behavior would be to choose to say something that would help during the discussion.

The Expected Utility Model states that a "rational decision maker will prefer the prospect that offers the highest expect[ed] utility" (Tversky & Kahneman, 1981), meaning that an intelligent person would be capable of always choosing the option that represents the greatest benefit to him or her. Yet, this model is unable to predict decision making under uncertain situations (Kahneman & Tversky, 1979), showing that people take the context into consideration when making a decision.

Due to the Expected Utility Model's inability to predict decision making under uncertainty, Tversky and Kahneman established Prospect Theory which explores the biases, heuristics, rationality and irrationality of decision making. Since choices made under risky circumstances heighten the idea of what is most practical or beneficial, the introduction of Prospect Theory allows us to see intelligent behavior reflected on decision making under risky situations, which will be the dependent measure.

Research on Prospect Theory has found typical ways in which people respond to decisions under uncertainty. For example, the responses associated with losses are more extreme than with earnings, small gains and loses are overvalued while big gains and loses are undervalued, and people try to avoid losses at all cost by avoiding risks (Tversky and Kahneman, 1979). In addition, the isolation effect states that people ignore components that are shared by all choices and focus on the components that distinguish them, leading to inconsistent preferences when the same choices are presented in different ways or frames (1979). This points out the most interesting finding of Prospect

Theory, namely, that the framing of situations, acts, and contingencies is capable of making a person change his decision on what to do.

An example of the framing effect on decision making was seen in a study pertaining to Tversky and Kahneman (1981). The percentages in parenthesis next to the answers indicate the percentage of participants that chose either "Yes" or "No". Each problem was given to a different group of subjects.

Condition X ($N = 183$): Imagine that you have decided to see a play where admission is $10. As you enter the theater you discover that you have lost a $10 bill. Would you still pay $10 for a ticket for the play?

Yes (88%)   No (12 %)

Condition Y ($N = 200$): Imagine that you have decided to see a play and paid the admission price of $10 per ticket. As you enter the theater, you discover that you have lost the ticket. The seat was not marked and the ticket cannot be recovered. Would you pay $10 for another ticket?

Yes (46%)   No (54%)

These results are due to psychological accounting. In condition Y, the ticket would seem to cost $20, while in condition X, the ticket and the lost $10 bill are independent. Even though the two situations were the same, the two groups reacted differently to each frame. However, it is postulated that if a person with certain personal characteristics (such as scoring high on IQ tests) answers both questions, he would be able to resist the frame and see the two questions as the same, thus being consistent in his answers.

Tversky and Kahneman explained that "the frame that is adopted is controlled partly by the formulation of the problem and partly by norms, habits, and personal

characteristics of the decision maker" (1981), stating that personal characteristics are significant determinants of how the frame of a problem affects a person. However, most research on Prospect Theory tests the formulation or framing of the problems and how it affects decision making. Since it was theorized that the way people conceive decisions is influenced by the framing or conception of acts, outcomes, and contingencies of a particular choice, past research and experiments concentrated on creating questions that changed the framing of problems. This allowed for inconsistent choices, as seen in the example above (for more studies in this area see Tversky and Kahneman, 1981; Tversky and Kahneman 1991; Winter and Parker, 2007 and Larrick and Blount, 1997). When studying this phenomenon, experiments generally obtained samples from every part of the distribution, ignoring individual and personal characteristics that may influence the frame taken by a person. The purpose of this study is to investigate the personal characteristics that may control the frame a person adopts. More specifically, this study will explore the relationship between intellectual abilities and such decision making problems, and how non-intellective factors may influence the frame adopted.

Jones, Frisch, Yurak, and Kim (1998) explain that the findings of Prospect Theory (particularly the importance of framing situations and consequences) is a throughout investigation of the irrationality of men and our lack of rational when making decisions. The authors explain that Prospect Theory reveals how controlled we are by the circumstances and situations in our everyday life. However, there is no reference to those who are capable of resisting the frame, which may do so because they hold an underlying principle that guides their choices. After all, there wasn't a total reversal of opinions in the example given above. Each person's underlying principle gives him a reason for

behaving as he does, and it involves values, ideas of what is right and wrong, and priorities to be kept. The guiding principle could allow them to be rational and consistent in their decision-making process. This rationality is hypothesized to require more than intellectual abilities, and it involves non intellective factors, which is the reason why non intellective factors are included in this study (personality, EI, and SWB). It will examine the way in which intelligent behavior, reflected in decision making, is influenced by intellectual abilities, personality, EI and subjective well-being.

It is hypothesized that intellectual abilities are related to intelligent or useful behavior (which in this case is decision making) because behaving intelligently requires the person to use intellectual abilities such as logic and memory. Since general intelligence involves the capacity to act purposefully (Wechsler, 1975), and IQ tests attempt to measure general intelligence, it was theorized that those who score high on intellectual abilities tests are more likely to have a purpose for answering as they do, and thus answer consistently. Therefore we expected a positive relationship between the intellectual ability test and decision making measures. It was believed that EI would have a positive effect on decision making; if emotions are purposeful and Emotional Intelligence leads a person to use emotions to their maximum utility, then higher EI would allow a person to make consistent decisions by enhancing their capacity to think rationally and being less influenced by the frame. For this reason EI was included as a factor to predict intelligent behavior. A measure of subjective well-being was also included because no previous study has explored the relationship between feeling good with one's life and making good decisions. It is possible that those who have made

intelligent decisions before have higher life satisfaction, which in turn would drive them to continue making good decisions.

Since previous research has shown that openness to experience correlates with measures of intellectual abilities, it is hypothesized that in this study it will be positively correlated with intellectual abilities. It will also be positively correlated with decision making since a person with this personality trait might have facility at looking beyond the frame and being able to resist it. The relationship between decision making and neuroticism was expected to be negative since anxious people should have a greater difficulty answering consistently and resisting the frame if the question is capable of altering their emotions greatly (Chamorro-Premuzic & Furnham, 2006). Conscientiousness was included in this study as a predictor of good decision making in spite of the lack of relationship with IQ because of the nature of the decision making task. Since conscientious people cautiously consider their options before taking any decision, it could make them better decision makers. Therefore, it was predicted that it would correlate positively with the decision making task.

In summary, we expect a positive correlation between intellectual factors, subjective well-being, Emotional Intelligence, openness to experience, and conscientiousness with good decision making. We expect a negative relationship between neuroticism and decision making. In order to see the hypothesized path diagram, refer to Figure 1.

<div align="center">Method</div>

Participants

Ninety seven participants (85 were current students at Bishop's University), volunteered to participate in this study. All participants were aged 18 or older (28 male and 69 females). They had the chance to win one of four $10 gift certificates and those taking a psychology class could earn 1.5 bonus points towards most psychology classes. Of the 97 participants, two participants' data was removed due to low English language proficiency levels.

Materials

Several psychometric tests were employed in this study. The Wonderlic Personnel Test (WPT) was used in order to measure intellectual abilities. This test has been shown to have high test-retest reliability at $r = .94$ with a time period of wait of 5.28 years average (Dodril, 1983), an internal consistency of $r = .88$ (Wonderlic, 1983), and a high predictability of the Wechsler Adult Intelligence Scale (WAIS) scores, with correlations ranging from .91 and .93 (Dodrill, 1981). This is a highly timed test (12 minutes) containing 50 items. The final score is achieved by subtracting the number of wrong answers from the total number of questions answered.

As a personality measure the IPIP-NEO short version was utilized. This test is a free, online, research-based test that is accessible to anyone doing research. The test measures personality in terms of the well-established five traits, extroversion, openness to experience, neuroticism, agreeableness and conscientiousness and it contains 120 items. The answers indicate how much a subject agrees with the statement as applied to him or her; the answers are in multiple-choice format ranging from "very inaccurate" to "very accurate". This test revealed a total of five scores, one for every personality factor. The higher the score the more the person displayed the trait. Goldberg reports an alpha

coefficient of r = .84 (1992) for the IPIP-NEO. As evidence of validity, he reports that compared to other personality tests (such as the NEO Personality Inventory) the IPIP-NEO was the best predictor of risk avoidance and total health related practices (1999); also the scales of the IPI-NEO have a r = .73 correlation with the scales of the NEO Personality Inventory. Since the test has a good correlation (for research) with the well known NEO Personality Inventory and since the IPIP-NEO is free, this test was used for this study.

In order to measure decision making, a Decision Making task was created based on several problems written by Kahneman and Tversky (1981, 1991) Winter and Parker, (2007) and Larrick and Blount (1997). A study on the effectiveness of the framing effect found that the most effective designs or questions for producing a framing effect are those that deal with the Asian disease, gambling, or tax evasion. The bargaining and escalation of commitment designs produce middle effect sizes. Other designs such as game theory and clinical reasoning were shown to be ineffective in producing the desired effect (Kühnberg, 1998). Accordingly, the designs or items of the dependent variable were chosen in accordance with their effectiveness at producing the framing effect. However, not all designs could be translated into a pencil and paper exam because their nature required group interaction. Therefore, it was attempted to choose effective and yet easily-performed items that could be executed by a single subject and whose answer could be written easily. In total there were 6 designs, which allowed for 12 items, considering that every problem had two frames. Several of the items dealt with human relationships and ways of dealing with interactions. For an example of the items, see Appendix 1.

When someone answered consistently to both items of the same problem framed differently, the person received one point. When the person didn't answer consistently, that is, they chose differently to the same problem framed differently, the person received zero points. The maximum score revealing absolute consistency is 6 while the minimum score revealing no consistency is 0. The items were chosen so that there would not be one right answer and in this way avoid judging why a person thinks that one decision is better than another one, and whether this judgment is correct or not. It is for this reason that consistency in decisions is the scoring method.

In order to measure Emotional Intelligence the Levels of Emotional Awareness (LEAS) was used. The test contains social situations involving two characters, the person reading the test and some other person. All scenes elicit an emotional response and the subject must answer how the two people involved in the situation would feel. The short version, which contains 10 items, was used because of time restraint. The answer to each scenario is rated from 0 to 5 based on the emotional deepness revealed in the answer, which ads up to a total maximum score of 50 in the case of the short version. The scoring of the items is based on the LEAS manual (Lane, 1991). Myers et al (2008) report that it possesses an alpha coefficient of $r = .81$ to .89. Lane et al (1990) correlated the total score of the LEAS with the Washington University Completion Sentence Test (SCT), a measure of psychological maturity, and the Parental Description Scale, which measures the level of complexity in the representations of others. The authors found a significant positive correlation with both tests, indicating that those who have higher levels of maturity, and those who understand the complexity found in people score higher on the LEAS. For an example see Appendix 2.

The General Well Being Scale or Schedule (GWB) was used to assess subjective well-being. This test contains 18 items, and there are six possible answers for each question ranging from 0 (all the time) to 5 (none of the time); the subject answers in accordance to how he has felt for the past month. Only items 15 to 18 have scores that range from 0 to 10. The test taps into different aspects of well-being such as depression, how rested the person is, and satisfaction with personal relationships. The participants are asked to choose the answer that best reflects how they have felt for the past months. To score the GWB, the numbers chosen by the participants in each of the 18 items are added in order to give a global score that ranges from 0 to 110 points, where larger scores indicate greater well-being. Internal consistency for the GWB ranges from .90 to .94 and test-retest reliability ranging from .68 to .85, which is good enough for research (Taylor et al, 2003).

Procedure

Most participants came into either the psychology lab or the library, even though some participated in their own home. Participants filled out the consent form and took the tests and scales in a counterbalanced order. In order to avoid fatigue subjects had the choice of taking a five minute break after every two tests, allowing for two breaks and three test periods. The intelligences tests (WPT and EI) were given first in order to avoid the effect of subjects' fatigue on the intelligence tests. It is for this same reason that the decision making test was taken alone and in the second session. In the last block the LEAS and the GWB were given. To minimize the effect of order, the order of the tests within each period was counterbalanced. Then the debriefing form was given. For more details on the four counterbalanced conditions see Figure 2.

Results

To test the path analysis, a standard multiple regression was performed between the predictors (intellectual abilities, personality factors, EI, and subjective well-being), and the decision making task. If any of the predictors act as a mediator, there should be a direct relationship (a significant correlation) between intellectual abilities and the decision making task, as well as a significant relationship between the mediator variable, the intellectual abilities test and the dependant variable. Also the correlation between the test of intellectual abilities and the decision making task would be smaller when the predictor is removed from the equation (by partialling out the variable) (Keith, 2006). If any of the variables act as a moderator, it would change the nature of the relationship between intellectual abilities at different points and decision making (sometimes it would be positive and some others negative). To test for moderation, the variable will be included and removed by partialling the possible moderator, and the results will be observed in the correlation value (Keith, 2006).

A one way ANOVA was carried out over the four counterbalancing conditions in order to compare their decision making means score, and see whether there was any effect due to test order. The ANOVA revealed no significant mean difference, with an F value for condition of $F (3, 90) = .237$, $p = .871$. For means, standard deviations and number of participants please see Table 1.

Correlations were performed between the number of consistent responses on the Decision Making task (our dependent variable), and intellectual abilities, the five personality scores, EI and subjective well-being. All the correlations were run at an alpha level of .05. If personality, subjective well-being or emotional intelligence mediated the

relationship between intelligence and decision making, we would firstly expect a significant correlation between intellectual abilities and decision making. However, our results reveal that there was no significant main relationship between the WPT (intellectual abilities test) and the decision making task, $r(94) = .148$, $p = 0.150$. Also, the correlation between Emotional Intelligence and decision making was found to be non significant, $r(93) = -.11$, $p = 0.295$, as was the relationship between EI and intellectual ability, $r = .17$, $p = 0.099$. There was no significant correlation between the decision making task and the aubjective well-being measure (GWB), $r(94) = -.066$, $p = 0.527$. The relationship between decision making and the hypothesized personality factors was non significant; with Openness to Experience the correlation is $r(86) = .120$, $p = 0.253$; the correlation with Neuroticism is $r(86) = .055$, $p = 0.613$ and with Conscientiousness, $r(85) = .078$, $p = 0.473$. The same is true of the relationship between the WPT and the two hypothesized personality factors. The correlation between the intellectual factor score and Openness is $r(92) = .184$, $p = 0.085$ and with Neuroticism it is $r(92) = .014$, $p = 0.893$. To see the correlation matrix please see Table 2. For means, standard deviations and number of participants, please see Table 3. Tolerance is a collinearity statistic that indicates the degree to which each variable is independent (or orthogonal) from another variable. A tolerance score of 1 indicates total independence and 0 entire dependence. If any of our variables was acting as a moderator, it would have a low tolerance level when correlated with the predictor, indicating the shared variance. Our results indicate that all our variables high Tolerance, ranging from .929 for the WPT scores to .724 for Conscientiousness. To see all the Tolerance values refer to Table 4.

In order to see if there was any hidden mediating effects, we partialed every one of our hypothesized mediating or moderating variables (EI, Openness to Experience, Neuroticism, and Conscientiousness) as the WPT scores were correlated with Decision Making. When controlling for EI, the correlation between Decision Making and WPT approached significance, r (90) = .186, p= .075. When partialing Openness, the correlation between decision making and the Wonderlic showed almost no change, r (89) = .147, p = 0.164. Finally, when controlling for Neuroticism, the relationship between WTP and decision making became more significant, r (89) = .167, p = .113. However, none of the results were statistically significant.

Discussion

The ANOVA analysis showed that the order in which tests are given does not affect the results. With this assumption met we can continue interpreting the other results. It was hypothesized that the scores of the intellectual ability test would positively correlate with the decision making task. However, no significant correlation was found, even though it was the correlation that was the closest to significance. It was also hypothesized that openness to experience and conscientiousness would positively correlate with the decision making task, while neuroticism would negatively correlate with the dependent variable. Yet, no significant correlation was found here either. Also, there was no significant correlation between subjective well-being and the decision making task nor with the WPT. In the latter case, we replicated Diener's (1984) results. Observing the lack of significance in all correlations, it could be concluded that there is no mediating effect between decision making and our intelligence measures, since mediation would require the mediating factors to correlate with decision making and with

intellectual abilities. Also, the high tolerance value of every factor indicates that no mediation or moderation occurs because every factor is independent from each other. Additionally, the lack of moderation can be seen in that none of the variables are significantly or negatively correlated to begin with.

Understanding the results can be simplified by stating that there is no relationship between intelligence and personality in the prediction of intelligent behavior, and that intellectual abilities do not predict how consistently a person makes decisions. However this would be oversimplifying the results. Although the relationship between intellectual abilities and decision making is not significant, its correlation is the highest of those that were predicted ($r = .148$), which indicates that there is a positive trend in this direction. Also, one of the three personality variables that were hypothesized to be related to decision making, namely openness, had higher correlations than the other personality factors with decision making ($r = .253$). These findings imply that maybe this study did not have enough participants or enough variability in participants to get significance in the correlations. This makes sense because, as pointed out by Ackerman and Heggestad (1997), openness to experience positively correlates with Intellectual Abilities. However, in the present study, no such relationship was found, which indicates that there may have been a restriction of range due to the homogenous sample of undergraduate students. Also, Gallagher and Vella-Brodick (2008) report a high correlation between Emotional Intelligence and Subjective Well-Being. However, this study found no significant correlation. This may be another indicator of the restriction of the sample. Unfortunately, most of the participants were university students, who are very similar to each other in intellectual abilities, and even in certain personality traits. Therefore, it could be

concluded that sampling might have influenced the results of the study, lowering variance and thus the correlation between variables.

An additional problem with this study is the fact that Bishop's University has a great number of international students as well as French-speaking students. This becomes a problem particularly with the Wonderlic Personnel Test because it is a test that measures intellectual abilities and as such, some of the questions are culture and language bound; this means that only those whose mother tongue is English would know the answer. As such, people who do not know native English expressions had a lower score than they would have had in another intellectual abilities test; their intellectual ability score may not reflect their real score. Another criticism regarding the choice of intelligence test is that, as mentioned in the introduction (Chamorro-Prezumic and Furham, 2006), people who score low on Extroversion do worse in speed tests. If we consider that the WPT is a highly speeded test, and that a positive, yet non-significant correlation is found between WPT and Extroversion, we can understand that unfortunately introvert's score on the WPT is lower than their true score.

The other criticism refers to our dependent variable. By making it a decision making task, it was understood that this study was an exploration of how people make decisions and of the personal variables that affect their choices. Additionally, our decision making task was testing the notion that people make choices partly based on their guiding values, motivations and cognitions. Those with certain personal factors, such as being high on Conscientiousness, and with a guiding principle would be more likely to take the same decision when a problem was presented under different frames (thus being faithful to their guiding principles) than those possessing a guiding principle

but being low on Conscientiousness. Also, if a person was high on Conscientiousness but had no underlying principle to explain his choice, it was assumed that the frame or situation would have a greater effect on him. Yet, at no point were participants asked about their reasons for choosing one option over another. This was done in order to avoid judging their rational, and because it would be hard to distinguish situational reasons (caused by the frame) from personal reasons (such as values). Yet, without this information it is hard to know whether our dependent variable was measuring if people with a guiding principle could resist the frame. Since most questions were presented as possessing dichotomous answers, it is not possible to know why the participants took the decisions they did and if they chose based on a guiding principle. It is hard to know the exact reason why people choose as they do, and at times it might seem that they are behaving inconsistently but this is only because their underlying principle is unknown to outside observers. In this way, the dependent measure might not have been ideal to measuring consistency according to values because the underlying principles were not being tested.

Another assumption in the decision making task is that that the reactions to decisions made on a piece of paper are similar to those faced in real life. However, this assumption may not be correct; imagining oneself in a situation is not the same actually being in the situation. For example, one of the items asks participants to imagine that they were in a car accident and they are loosing and regaining consciousness constantly. The doctor tells them that there is a 40% chance that they will fall into a deep coma, and if this is the case, whether they would want to use life support or not. Even though this question in itself can arouse emotions similar to those that would be felt under the

particular circumstance, the intensity of these emotions would not be the same. The decision the participants take in this problem does not represent a big loss nor does it have a big value (death) because in reality participants are not in that situation. Since the nature of the task is a paper exam, it may not accurately represent real life situations. This means that the decision making task may not posses ecological validity.

An additional criticism about the dependent variable is that it contained 12 items, or a total of 6 decisions and a maximum score of 6. Yet, 90 of the 95 participants scored 3 or more. This has two meanings. Firstly, the dependent variable didn't have enough variance in itself to catch the variability in subjects, or in other words, it had restriction of range. If more items would have been included there would have been more variance which would allow us to see a stronger relationship between our predicted factors and participants' consistency. The other issue that arises with having a high "low" score is that it means that many people are capable of resisting the frame when faced with the same situation framed differently. This would indicate that most people have an underlying reason for choosing what they do and it is possible that many of the changes in preference found in Prospect Theory research would not exist if more within-subjects experiments were performed. Nonetheless, Kühberger (1998), in his meta-analysis on Prospect Theory, describes that the least frequently used within-subjects design had stronger framing effect than the most common between- subjects comparison. This effect was not replicated, as described above. Nevertheless, a replication could have existed if there had been two testing sessions separated by a somewhat-large time period, and if a different frame to each problem was presented at every session. In this way, participants would have vaguer memories about the items and their content than if they answered all

items at the same time. This would have allowed us to distinguish between memory and acting (or not acting) upon values in the resistance of the frame. Future research should try to improve the methodological problems described above since this will more likely reveal the real relationship between good decision making and intelligence, and if there is any personality factor influencing this relationship.

In conclusion, this study aimed at understanding the relationship between intellectual abilities and non-intellectual factors. A review of previous research had shown that intellectual abilities are not enough to explain life useful behavior, and it was hypothesized that certain non-intellective factors (such as Openness to Experience) would make this relationship stronger. It examined Wechsler's statement that intelligence goes beyond the use of intellectual abilities as measured by IQ tests and that a certain personality and motivation is important in order to really be intelligent. Unfortunately, this study was unable to contribute to this field due to its lack of significance, but it opened the possibility for different ways of measuring life useful behavior, and even more, it was unique in trying to explain the relationship between intellectual factors, non-intellectual factors and life useful behavior using path analysis and examining the interaction between these factors. It also opens the possibility of conceiving human interrelationship as a form of intelligent behavior.

Cattell (1987) once expressed that "a thing is a unity when its parts move together, change together, and respond together to some treatment or stimulation". Following this quote, it could be said that even though a person is composed of several parts such as two arms, two legs and one brain, this person is not counted as the sum of his or her parts but as a person, as a unity. The same is the case with our nature. Even

though we are composed of intellectual abilities, personality, emotional intelligence and subjective well-being, when describing these parts in respect to ourselves we begin with the word "I", indicating that this pronoun is the essence that holds all other variables together. For this reason, it seems important to consider and remind ourselves that in order to understand ourselves, this "I" that only each individual knows, it is necessary to look globally at it, not just at its separate parts.

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Table 1

Means, Standard Deviations and Participant Numbers for Each Counterbalancing Condition

(see Figure 2)

Condition	n	M	SD
1	25	4.48	0.23
2	23	4.32	0.25
3	24	4.50	0.24
4	23	4.60	0.24

Table 2

Correlations between Intellectual Abilities EI, SWB, Personality Factors and Decision Making

	1	2	3	4	5	6	7	8	9
1. WPTscore	--	0.171	0.08	0.184	-0.051	0.102	-0.03	0.012	0.148
2. LEASscore	0.171	--	-0.007	0.104	0.158	-0.03	.212*	0.043	-0.11
3. GWB	0.08	-0.007	--	-0.207	-0.371**	0.117	-0.04	0.197	-0.066
4. Openness	0.184	0.104	-0.207	--	-0.095	.241*	0.167	0.093	0.129
5. Neuroticism	-0.051	0.158	0.371**	-0.095	--	-0.2	-0.07	-.253*	0.055
6. Extraversion	0.102	-0.034	0.117	.241*	-0.202	--	0.03	0.077	0.042
7. Agreeableness	-0.028	.212*	-0.036	0.167	-0.074	0.03	--	.447**	-0.026
8. Conscientiousness	0.012	0.043	0.197	0.093	-.253*	0.077	.447**	--	0.078
9. Decision Making	0.148	-0.11	-0.066	0.129	0.055	0.042	-0.03	0.078	--

Table 3

Means, Standard Deviations and Participant Number for All Variables

	N	M	SD
WPT score	95	24.52	5.95
LEAS score	95	32.50	4.38
GWB	95	74.06	14.97
Openness	93	84.05	9.90
Neuroticism	93	65.43	10.22
Extraversion	93	83.00	12.03
Agreeableness	93	91.08	10.27
Conscientiousness	92	86.48	9.86
Decision Making	94	4.48	1.15

Table 4

Tolerance Value for Every Condition

Variable	Tolerance
WPT	0.88
Openness	0.86
Conscientiousness	0.75
Agreeableness	0.76
Extraversion	0.91
Neuroticism	0.81
GWB	0.78
LEAS	0.90
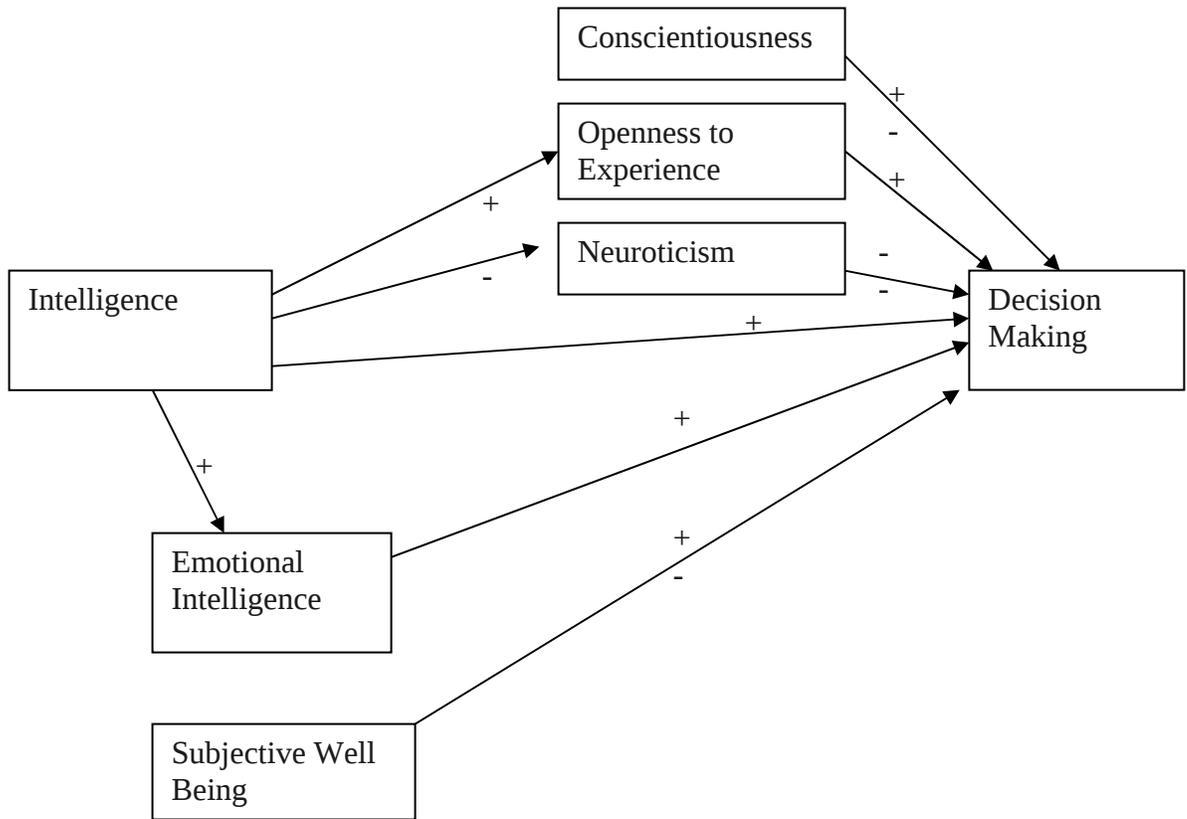
Figure 1: Hypothesized path analysis diagram

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                        ┌─────────────────────────┐
                        │      Participants        │
                        └─────────────────────────┘
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Condition 1	Condition 2	Condition 3	Condition 4
1) WPT	1) EI	1) WPT	1) EI
2) EI	2) WPT	2) EI	2) WPT
3) Decision Making	3) Decision Making	3) Decision Making	3) Decision Making
4) GWB	4) GWB	4) SWB	4) SWB
5) SWB	5)SWB	5)GWB	5)GWB

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                ┌─────────────────────────────────┐
                │  Multiple Regression Analysis    │
                └─────────────────────────────────┘
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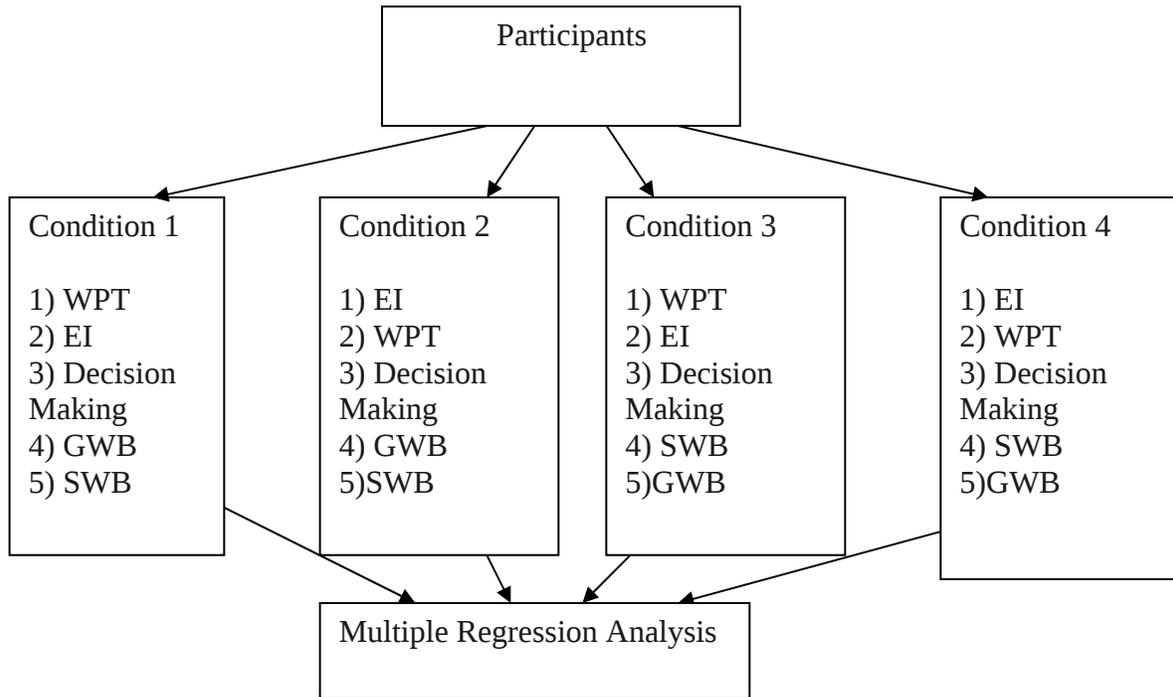*Figure 2*: Block diagram for counterbalancing conditions

Appendix 1

Problem 4

Imagine that you are in an experiment and you were randomly paired with another student to participate in a resource-distribution task. Also imagine that there is a pool of $7.00 made available by the experimenter. Each student was randomly assigned to the role of either Player 1 or Player 2. Player 1 will be asked to propose a division of $7.00 between the two players, such that $X for Player 1 and $7 - X for Player 2. Then, Player 2 will be asked whether he or she accepts or rejects this proposal. If Player 2 accepts the proposal, each player will get the amount Player 1 proposed. If Player 2 rejects the proposal, neither student will receive any money.

Imagine that you are Player 2. Player 1 has already divided the $7 in such way that Player 1 receives $5.50 and Player 2 receives $7-$5.50= $1.50. You can either decline the proposition and each Player will receive $0, or you can accept the proposition and receive $1.50.

What would you do?

○ Accept the proposition   Decli○ the proposition

Problem 11

Imagine that you arrive to class and your teacher announces that all student have to participate in an exercise that will reveal how students distribute money amongst themselves. You were randomly paired with another student and the teacher announces that there is a pool of $10.00 made available for every pair of students. Each student was randomly assigned to the role of either Player 1 or Player 2. The teacher explains that Player 1 will be asked to state a claim for some portion of $10.00, such as $X. Then, knowing $X, Player 2 will be asked to state his or her claim for some portion of $10.00, let's say $Y. If the total of the two claims ($X + $Y) is equal to or less than $10.00, each player will get the amount he or she claimed. If the total is more than $10.00, neither student will receive any money.

Imagine that you are Player 2. Player 1 has claimed $8.00 of the $10.00. You can claim as much as you wish to claim, but if the addition of your claim ($X) and Player 1's claim ($8.00) is more than $10.00, then neither of you will receive money.

You would claim:
○ $ .50   ○ $1.00   ○ $1.50   ○ $2.00   ○ $2.50   ○ $3.00   ○ $3.50   ○ $4.00

○ $4.50   ○ $5.00   ○ $5.50   ○ $ 6.00   ○ $6.50   ○ $7.00   ○ $ 7.50   ○ $8.00

○ $8.50   ○ $9.00   ○ $9.50   ○ $10.00

Appendix 2

1) A loved one gives you a back rub after you return from a hard day's work. How would you feel? How would your partner feel?