INVESTIGATE THE ROLE OF IMPULSIVITY IN DECISIONS MAKING DURING GAMBLING TASK: CASE STUDY

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Abstract - The aim of the current study is to understand impulsivity, reward and loss sensitivity in decision making using Iowa Gambling Task and investigate how impulsivity affects decision- making using BIS/BAS scale. We investigate how the personality trait determines decision making using NEO-FFI scale. Method: We assessed 130 participants for conducting two types of experiment (1) Choice Behavior Test is conducted with the help of Iowa Gambling Task (IGT) on the computer screen.(2) Personality Test is conducted with the help of Behavior Inhibition system and Behavior Approach System (BIS/BAS), NEO-F FI(NEO-Five Factor Inventory) scale and Rational-Experiential Inventory (REI).Results: The result indicated that participants who were low on impulsivity fared worst on IGT task compared to the participants who were high on impulsivity. Similar results were demonstrated for personality traits and information processing styles. The results imply that personality traits determine decision-making process. Similarly, information processing styles evaluate preferences for information processing that determine the decisions making and Impulsivity affects decision making.

Keywords - Decisions Making, Impulsivity, Iowa Gambling Task, Personality and Information Processing Style**.**

1. Introduction

1.1 General:

In day to day life, an individual has to decide between options that have immediate consequences and delayed consequences. The decision to opt for immediate or delayed reward is strongly related to professional success in life. For example; one student might decide to go for a party on a given day, or stay at home to study for the exam that is scheduled next day. To function effectively, one has to postpone immediate, for long-term positive outcomes in the future. Decision making involves the outcome of cognitive processes leading to a choice between alternative courses of action. Poor decision making has been described as "deciding against one's best interests and inability to learn from previous mistakes, with repeated decisions leading to negative consequences" (Bechara and Damasio, 2005).

Impulsivity is a personality trait of an individual to initiate behavior without adequate forethought and lack of foresightedness for momentary gains at a particular point in time. Impulsivity tends to risk-taking, lack of planning, and making up one's mind quickly. There is 3-factor model according to impulsivity Attention ("getting easily bored"), motor ("going into action") and cognitive ("inability to plan") factors. Impulsive individuals have increased reward sensitivity

and reduced punishment sensitivity, reflected by their lowered negativity during loss and enhanced positivity during a win. Impulsive decision-makers are those who operate on the far end of the decision-making continuum. Impulsivity has been found to be related to a variety of antisocial behaviors, delinquency, and a lack of social adjustment. High impulsivity shows weakness in learning of reward and punishment Association, to make appropriate decisions. This hyperactive BAS and hypoactive BIS may result into disadvantageous and risky decision making, concentrating more on prospective rewards than punishments. The system mediates anxiety, and it is activated by goal conflicts of all kinds paradigmatic between approach and avoidance is re-offered as the Behavioral Inhibition System. Implicit in all definitions of impulsivity are the two key features. First, impulsivity involves action. Second, impulsivity involves lack of planning. The method of determining whether the action was truly unplanned in two of the definitions above is to look at the outcome of the action, with poor planning being associated with long-term losses in spite of short-term gains.

Personality is commonly defined as "the total of all the behavioral and mental characteristics using which an individual is rewarded for being unique." Personality type paradigm of the thinking (T) and Feeling (F) preference dichotomy has the most significant influence on the decision-making process. A preference for the thinking (T) function constitutes an objective, impersonal approach to decision making while a preference for the feeling (F) function constitutes a subjective values-driven approach. Sensing and Thinking focus on experience, and objective, tangible/ concrete data. The sensing (S) and Intuition (N) preference dichotomy is the second factor that comes into play in the decision-making process. Individuals with a preference for sensing (S) focus on experience and tangible/concrete criteria when confronted with decision-making and problem-solving while those with a preference for intuition (N) concentrate on future possibilities and broad, general issues. Personality types with a preference for intuition (N) and thinking (T) utilize objective criteria while focusing on future directed broad concepts and possibilities. Personality types with a preference intuition (N) and feeling (F) utilize subjective criteria and focus on future directed broad concepts and possibilities. Individuals with a preference for the perceiving (P) attitude want to continue to take in information and defer decision making to acquire additional information. While those with a preference for judging (J) want to take in data and come to closure as quickly as possible.Individuals with a preference for judging(J) are more at ease once a decision has been made.

Decision making is a fundamental process in organizations and the quality of the decisions that managers make influences their effectiveness as managers. The effectiveness of managers, in turn, impacts the success or failure of the organization. Rational models of decision-making often ignore individual decision-maker characteristics and assume individuals process information and arrive at a decision in a similar manner (Hambrick, 1987). These models ignore the actual decision process and how individual differences affect that process (Bourgeois and Eisenhardt, 1988; Rajagopalan, Rasheed and Datta, 1993). Observation of actual decision-making situations indicates that decision-making behavior is characterized by differences in many areas, including the number of criteria used, the type of information search which is undertaken, sources of information used, the use of heuristics and the number of alternatives generated (Eisenhardt and Zbaracki, 1992). An individual characteristic which is often linked to differences in decision-making behavior is the way in which individuals process information, also termed as cognitive style.

In this paper, we study the relationship between the impulsivity, reward and loss sensitivity in decision making using Iowa Gambling Task. Iowa Gambling Task is one tool which provides help to

a researcher to find the sensitivity in a human decision when he (subject) plays some gambling task. We also investigate that how impulsivity affects the decision-making of subject using BIS/BAS scale.BIS/BAS scale is one of the parameters which helps to find impulsivity of subjects. We study the relationship between the personality trait and decision making using NEO-FFI scale. This scale is one of the parameters which evaluates the personality of subject hence we integrate the personality evaluation with IGT to find what are the affect on subject decisions? Our contribution of work follows as:

1. Study the human decision making regarding reward and loss sensitivity using IGT
2. Evaluate the impulsivity using BIS/BAS scale and find the affects on decisions making
3. Measure the personality trait using NEO-FFI scale and study the impact on human decision making.
4. We integrate the personality trait and IGT and find the impact on decisions making.

1.3 Scope

This project aims to investigate the reward and loss sensitivity in decisions making which will be helpful to persons who are in financial investment for different long and short term gains. It can also be used for academic areas while introducing different educational programs keeping in mind the progress of the country. This work will also be useful to differentiate between the decisions making a process of normal individual and individual with some abnormalities.

2. Material & Methods

2.1 Participants:

2.1.1 Sample:

One hundred Thirty (130) participants visited the Psychophysiology Laboratory at IIT Bombay individually to take part in the experiment. There were 101 males and 29 females participants in this study. The mean age of male participants (Mean age=25.14 years, SD=4.52 years) and female participants (Mean age=27.00 years, SD=6.87 years). The participants educational level was three percent (5%) undergraduate (the student had a high school diploma or some college), thirty percent (33%) graduate (had a bachelor's degree and sixty-seven percent (62%) post-graduate (had Master degree or pursuing Ph.D.).

2.2 Design:

5 (Block: Block1 (Trials 1-20) v/s Block2 (Trials 21-40) v/s Block3 (Trials 41-60) v/s Block4 (Trials 61-80) v/s Block5 (Trials 81-100)) X 2 (Impulsivity: High v/s Low) X 5 (Personality: Neuroticism v/s Extroversion v/s Openness v/s Agreeableness v/s Conscientiousness) X 2 (Rational v/s Experiential).

2.3 Materials:

Iowa Gambling Task: The Iowa Gambling Task (IGT) was originally developed as a card game by Bechara et al. (1994). Here, we used a computerized version 1.00(1.00.029). There are four decks of cards namely; A, B, C, and D. There were 100 trials in this task that lasted for 12 minutes. Here two types of indicator bar such as the green bar which indicates subject winning and losing condition and red bar indicates borrow amount means how much money borrow subject for performing task

Subjects have to develop a long-term and profitable monetary scenario in a situation of uncertainty and conflict between the chance of encountering an immediate reward. No information was given before the task on the task features, task duration or the number of trials except for the task objective is win much more money as much possible and avoid losing money.

Performance on the IGT was evaluated in three ways: Advantageous deck, Disadvantageous decks, and NET score. The advantageous deck was calculated by summation of Deck A and B (A+B) in overall 100 trials, and a disadvantageous deck was calculated by summation of Deck C and D (C+D) in overall 100 trials. The net score was calculated as the difference between the advantageous deck and disadvantageous decks, with the latter being subtracted from the former. The net score can be thought of as a measure of overall performance, integrating sensitivity to gains and losses. Thus, if a participant were presented with advantageous decks (Decks C or D) on 20 trials during Block1 and chose to play 3rd times Deck A, 4th times Deck B, 8th times Deck C and 5th Times Deck D, his or her Advantageous Deck play Score would be 13. If the same participant were presented with the disadvantageous decks (Decks A or B) on 20 trials during the same Block1 3rd times Deck A, 4thtimes Deck B, 8th times Deck C and 5th Times Deck D, his or her Advantageous Deck play Score would be 7. The net score for this participant would be percentage Advantageous Deck plays (13), Disadvantageous Deck play (7), yielding a net score of 6 for 20 trials in Block1. The Net Score is calculated as [Deck(C+D)-(A+B)]. The Net score was calculated for 20 trials for all five blocks as well.

2.3.1 Behavioral Inhibition System/Behavioral Approach System Scale (BIS/BAS):

Behavior Inhibition System/Behavioral Activation System Scale (Carver, C., and White, T., 1994) is used for assessing the individual differences in the sensitivity of these systems. A behavioral avoidance (or inhibition) system (BIS) is said to regulate aversive motives, in which the goal is to move away from something unpleasant. BIS/BAS Scale is 20-item questionnaire which scales are classified in four type subscales such as BAS Drive, BAS Fun Seeking, BAS Reward Responsiveness, and BIS or Punishment Sensitivity. Its Alpha coefficient (α=0.67).Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, the participants were requested to indicated how much you agree or disagree with the item. It is a four-point Likert-type scale. The participants had to rate their response from "very true for me =1" to "very false for me = 4". It has potential influence punishment mediated and reward mediated behavior. BAS is activated by appetitive stimuli and mediates the emotion of anticipatory pleasure is referred as Behavioral Approach System. BAS is the conceptual substrate for sensitivity to secondary appetitive stimuli and is the proposed causal basis of impulsivity. It is sensitive to (a) conditioned stimuli associated with reward, and (b) conditioned stimuli associated with the termination/omission of punishment.

The purpose of the BAS is to initiate exploratory, approach behavior that brings the organism closer to final biological reinforces (e.g. food, sexual partners, etc.). Individuals with an overactive BAS are more susceptible to impulsivity.The BIS and BAS have the potential to influence punishment mediated and reward mediated behavior. The BIS and BAS exert two effects that are facilitators and another antagonist. More particular BAS facilitates BIS antagonize the process of reward Stimuli. High BAS/LOW BIS individual should display the highest appetitive response and positive emotions of these stimuli. Similarly, BIS facilitates BAS antagonize the process of punishment Stimuli. High BIS /Low BAS individual should show the highest aversive response and

negative emotions to these stimuli. Several theorists have argued that two general motivational systems underlie behavior. A behavioral approach system (BAS) is believed to regulate appetitive motives, in which the goal is to move toward something desired. A behavioral avoidance (or inhibition) system (BIS) is said to regulate aversive motives, in which the goal is to move away from something unpleasant. Several theorists have argued that two general motivational systems underlie behavior.BAS subscale: there are three aspects of BAS that were tapped in this scale; namely BAS Drive, BAS Fun Seeking and BAS Reward Responsiveness. **BAS Drive Subscale:** This scale includes four items that focus on the pursuit of desired goals. Its Alpha coefficient ($\acute{\alpha}$= 0.51). Statements such as "I go out of my way to get things I want" and "When I go after something I use a "no holds barred" approach" tapped this measure. **BAS Fun Seeking:** This scale has four items focusing on a desire for new rewards and a willingness to approach a potentially rewarding event on the spur of the moment. Its Alpha coefficient ($\acute{\alpha}$= 0.34). Statements such as "I'm always willing to try something new if I think it will be fun" and "I crave excitement and new sensations" tapped this measure.**BAS Reward Responsiveness:** This scale has five items about positive responses to the anticipation or occurrence of reward. Its Alpha coefficient ($\acute{\alpha}$= 0.63). Statements such as "When I'm doing well at something I love to keep at it" and "When I see an opportunity for something I like I get excited right away." tapped this measure. **BIS or Punishment Sensitivity Subscale:** This scale has seven items referencing reactions to the anticipation of punishment. Its Alpha coefficient ($\acute{\alpha}$= 0.42). Statements such as "Even if something bad is about to happen to me, I rarely experience fear or nervousness" and "I feel pretty worried or upset when I think or know somebody is angry at me" tapped this measure.

2.3.2 NEO-Five Factor Inventory (NEO-FFI) Scale:

NEO-Five Factor Inventory (NEO-FFI) scales (Costa, P. T., and McCrae, R. R., 1992) is a self-report inventory scale. The NEO-FFI can help you understand an individual's basic emotional, interpersonal, experiential, attitudinal, and motivational styles. It also can help you quickly develop the rapport with the examinee, provide meaningful feedback and insight that will help your client develop a greater self-understanding, enable you to anticipate the course of therapy, and help you select the optimal treatment based on his or her personality. NEO-FFI Scale is 60- item questionnaire ($\acute{\alpha}$=0.51) that has subscales such as Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness.The participants could agree with or disagree with each statement. For each statement, the participants could indicate how much they agreed or disagreed with a declaration on a 5point Likert-type scale. The participants had to rate their response from "Strongly Agree =5" to "Strongly Disagree= 1".

Neuroticism Subscale ($\acute{\alpha}$=0.70):
This scale included 12-items that tapped the negative effect and self-reproach. Statements such as "I often feel tense and jittery." tapped this measure. **Extraversion Subscale ($\acute{\alpha}$=0.54):** This scale has included 12-items which are characterized by positive effect, sociability, and activity. Statements such as "I usually prefer to do things alone." tapped this measure. **Openness subscale** ($\acute{\alpha}$= 0.43): This scale has included 12-items which are characterized by aesthetic interest, intellectual interest, unconventionality, and activity. It is referred to as Culture because of its emphasis on intellectualism, polish, and independence of mind and Intellect because of its emphasis on intelligence, "I have a lot of intellectual curiosity" tapped this measure. **Agreeableness Subscale ($\acute{\alpha}$=0.58):** This scale has included 12-items which are characterized by nonantagonistic orientation and prosocial orientation. It can also be seen as a combination of friendliness and compliance. Statements such as "I often get into arguments with my family and co-workers" tapped this measure.

Conscientiousness Subscale (ά=0.76): This scale has included 12-items which are characterized by orderliness, responsibility, and dependability. Statements such as "I keep my belongings clean and neat" tapped this measure.

2.3.3. Rational-Experiential Inventory (REI Scale):

REI Scale (Pacini, and Epstein, 1999) is a self-report inventory that assesses rational and experiential thinking styles.REI Scale is 24- item questionnaire that has two subscales namely; Rational Subscale and Experiential Subscale. Its Alpha coefficient was (ά=0.50). Each item of this questionnaire is a statement that a person may either agree or disagree with. For each item, the participants indicated how much they agreed or disagreed with the item. The statements were rated on a 5 point Likert-type rating scale with gradations of "Definitely False = 1" to "Definitely True = 5". The two subscales are discussed in detail below.

Rational Subscale (ά=0.47): This scale included 12-items that measure engagement in and favorability of cognitive activities and corresponds to rational-analytic thinking. The rational scale was found to be positively associated with openness, conscientiousness, and favorable basic beliefs, and negatively associated with neuroticism and conservatism. Statements such as "I am not very good at solving problems that require careful logical analysis." tapped this measure. **Experiential Subscale (ά= 0.41):** This scale included 12-items that measured engagement in and favorability of intuitive activities and corresponds to experiential-intuitive thinking. The experiential scale has been found to be positively associated with extraversion, agreeableness, and emotional expressivity, and negatively associated with categorical thinking and intolerance. It is experiential processing is affective, heuristic, and holistic. Statements such as "I often go by my instincts when deciding on a course of action." when one should rely on one's intuition" tapped this measure.

2.4 Procedure:

The students from Indian Institute of Technology Bombay participated voluntarily in this study. There were 130 student participants. The participants were tested individually in the Psychophysiology Laboratory. On arrival, the participants were informed that the experiment consisted of two parts namely a computerized test and a paper pencil test. The computerized task consisted of Iowa Gambling Task and the paper pencil test consisted of the various questionnaires namely, NEO-FFI, REI and BIS/BAS scales. The computerized and paper pencil tasks were counterbalanced during administration.

The participants were briefed about the nature of the experiment. The participants were comfortably seated in front of the computer screen. The participants who were administered the computerized task were instructed as "In front of you on the screen, there four decks of cards A, B, C, and D. If you want to you select one card at a time, by clicking on the card, from any deck you choose. Each time you select a card, the computer will tell you that you won some money. I don't know how much money you will win. You will find out as we go along. Every time you win, the green bar gets bigger, every so often, however, when you click on the card, the computer tells you that you won some money, but then it says that you lost some money too. I don't know when you will lose, or how much you will lose. You will find out as we go along. Every time you lose, the green bar gets smaller. You are free to switch from one deck to the other at any time, and as often as you wish. The goal of the game is to win as much money as possible, and if you can't win avoid losing money as much as possible. You won't know when the game will end. You must keep on

playing until the computer stops. I am going to give you this $ 2000 credit, the green bar, to start the game. The red bar here is a reminder of how much money you borrowed to play the game, and how much money you have to pay back before we see how much you won or lost. It is important to know that just like in the real card game; the computer does not change the order of the cards after the game starts. You may not be able to figure out exactly when you will lose money, but the game is fair. The computer does not make you lose money at random, or make you lose money based on the last card you picked. Also, each deck contains an equal number of cards of each color, so the color of the reds does not tell you which decks are better in this game. So you must not try to figure out what the computer is doing. All I can say is that some decks are worse than the others. You may find all of them bad, but some are worse than the others. No matter how much you find yourself losing, you can still win if you stay away from the worst decks. Please treat the play money in this game as real money, and any decisions on what to do with it should be made as if you were using your money". The participants entered their demographic details on the computer screen and subsequently started. With the gambling task. The screenshot of IGT is shown in Fig. 1.
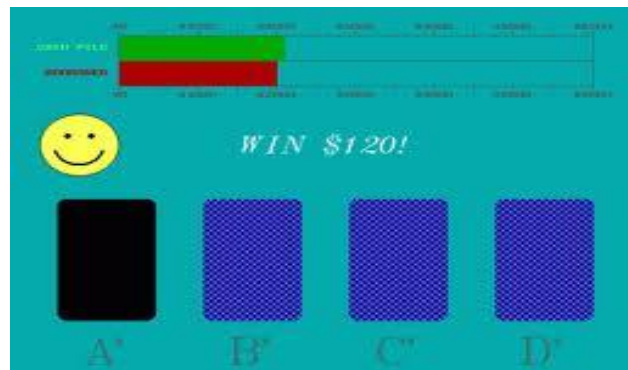

Fig-1 Screenshot of Iowa Gambling Task

Followed by the gambling task, the participants rated the statements in various questionnaires on NEO-FFI, REI, and BIS/BAS. For the BIS/BAS scale, they were instructed as "Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being "consistent" in your responses. Choose from the following four response options: 1 = very true for me, 2 = somewhat true for me, 3 = somewhat false for me and 4 = very false for me", for NEO-FFI the participants were informed that "Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree" and for REI they were instructed as "There are two primary ways in which people processes information resulting in a decision that could be either made 'analytically' or based on a 'gut feeling'. Please answer the following questionnaire to understand better what your preferred way of processing information. Please rate the following statements about your feelings, beliefs, and behaviors using the scale below. Work rapidly as first impressions are as good as any". After completion of a task, the participants were debriefed and were thanked for their valuable time. The participants were finally asked to fill a post-task questionnaire.

3 Result & Discussions

3.1 Result:

The results focus on the role of impulsivity, Personality and information processing styles in decision making. The result indicated that participants who were low on impulsivity fared worst on IGT task compared to the participants who were high on impulsivity. Similar results were demonstrated for personality traits and information processing styles. The results imply that personality traits determine decision-making process. Similarly, information processing styles evaluate preferences for information processing that determine the decisions making and Impulsivity affects decision making.

3.1.1 Correlation Analysis:

As shown in Table 1, the model that best fit the data is the model that includes the interaction between the Extroversion and Neuroticism scales (Pearson correlation r = -0.198, p < 0.05), Agreeableness and Neuroticism scales (Pearson correlation r=-0.22, p<0.05) and Conscientiousness and Neuroticism (Pearson correlation r=-0.201, p<0.05) and Conscientiousness and Extroversion scale (Pearson correlation r=0.299, p<0.001) because they are internally correlated to each other. This table shows the interaction between BAS and Openness scale (Pearson correlation r=-0.201, p<0.05), BAS and Extroversion scale (Pearson correlation r=-0.472, p<0.001). It happens as Extraversion primarily implies an approach tendency towards BAS & Conscientiousness scales (Pearson correlation r=-0.190, p<0.01) is negatively associated with BAS. This table shows an interaction between BIS and Neuroticism scale (Pearson correlation r=-0.445, p<0.001) which is negatively associated with BIS. This table shows correlation between Rational and Extroversion scale (Pearson correlation r=0.176, p<0.05), Rational and Conscientiousness scale (0.383, p<0.001) and Rational and BAS scale (Pearson correlation r=-0.189, p<0.05) because the rational scale was found to be positively associated with openness, conscientiousness, and favorable basic beliefs. This table shows the correlation between experiential and extroversion scale (Pearson correlation r= 0.177, P<0.05) and Experiential and BAS scale (Pearson correlation r=-0.189, p<0.05) because the experiential scale has been found to be positively associated with extraversion.

3.1.2 Repeated Measures:

There were main effects for Rational-Experiential Inventory high/low (REI) and Block wise Iowa Gambling Task (F (4,119) =3.065, P=0.01, Partial eta squared=0.093). The interaction between Block wise IGT, Personality, Impulsivity and REI ((F (4,119) =2.9, P<0.01, partial eta squared=0.089). The Mauchly's Test of Sphericity was significant for IGT Block wise (Chi-Square=(x2(9) =57.185,Mauchly's W = 0.622, P<0.05). There was main effects for Behavior Inhibition System/ Behavior Approach System high/low (BIS/BAS) and NEO-V high/Low with Deck wise Iowa Gambling Task (F (3,120) =2.727, P<0.05, Partial eta squared=0.064). The Mauchly's Test of Sphericity was significant for IGT Deck wise (Chi- Square=(x2(5) =6.149, Mauchly's W = 0.950, P<0.05).

Table-1 Correlation Tables for showing the correlation between NEO, BIS/BAS and REI for 130 Subjects.

	NEO1	NEO2	NEO3	NEO4	NEO5	BAS	BIS	REI-R	REIE
NEO1	1								
NEO2	-0.198*	1							
NEO3	-0.075	0.044	1						
NEO4	-0.222*	0.161	0.009	1					
NEO5	-0.201*	0.299**	-0.156	0.072	1				
BAS	0.048	-0.472**	0.201*	0.106	-0.190*	1			
BIS	-0.445**	-0.007	-0.007	0.048	0.054	0.153	1		
REIR	-0.051	0.176*	0.162	-0.078	0.383**	-0.189*	0.039	1	
REIE	0.157	0.177*	0.143	0.124	0.015	-0.189*	-0.029	0.122	1

NEO 1 = Neuroticism, NEO FFI 2= Extroversion, NEO-FFI 3 = Openness NEO FFI 4= Agreeableness, NEO-FFI 5= Conscientiousness BIS=Behavior Inhibition System BAS=Behavior Approach System REI-R=Rational Experiential Inventory-Rational REI-E= Rational Experiential Inventory- Experiential $* P < .05$, $** P < .001$.

4.1.3 Descriptive Statistical Analysis:

It was conducted to check the relation between Iowa Gambling Task Block wise and high/low BIS/BAsS, NEO-V and REI scale. Accordingly, in the two verses, high and low, the statistical comparison in the BIS/BAS scale with Block1, the mean for the high was -1.91 in a case of the BIS/BAS with Block1 the mean was; the mean obtained in a case of the low was -2.13. In next NEO-V scale with Block1, the mean obtained for the case of high was -1.49; the mean obtained for the low was -2.64; in the last REI scale with Block1 the mean obtained for the case of high was –1.09; the mean obtained in the case of the low was -2.91.Similarly, the statistical comparison in the BIS/BAS scale with Block2, the mean for the high was 0.38 in a case of the BIS/BAS with Block2 the mean was; the mean obtained in the case of the low was -1.22. In next NEO-V scale withBlock2, the mean obtained for the case of high was 0.82; the mean obtained for the low was0.14. In the last REI scale with Block2, the mean obtained for the case of high was 1.56; the mean obtained in the case of the low was -0.91. Similarly, the statistical comparison in the BIS/BAS scale with Block3, the mean for the high was 1.56 in a case of the BIS/BAS with Block3 the mean was; the mean obtained in a case of the low was 0.29. In next NEO-V scale with Block3, the mean obtained for the case of high was 0.17; the mean obtained for the low was 1.9. In the last REI scale with Block3, the mean obtained for the case of high was 0.94; the mean obtained in the event of the low was 0.97. Similarly, the statistical comparison in the BIS/BAS scale with Block4, the mean for the high was 2.26 in a case of the BIS/BAS with Block4 the mean was; the mean obtained in the case of the low was 1.00. In next NEO-V scale with Block4, the mean obtained for the case of high was 0.37; the mean obtained for the low was 3.22. In the last REI scale with Block4, the mean obtained for the case of high was 0.28; the mean obtained in the case of the low was 3.00. A descriptive statistical analysis was done to check the relation between IGT Block wise and high/low BIS/BAS, NEO-V and REI scales. Similarly, the statistical comparison in the BIS/BAS scale with Block5, the mean for high was1.24 in a case of the BIS/BAS with Block5 the mean was; the mean obtained in a case of the low was 2.29. In NEO-V scale with Block5, the mean obtained for the case of high was 1.24; the mean obtained for the low was 2.34. In the last REI scale with Block4, the mean obtained for the case of high was 0.22; the mean obtained in the case of the low was 3.21. A descriptive statistical analysis was done to

check the relation between IGT Block wise and high/low BIS/BAS, NEO and REI scales. The type of IGT Descriptive statistical analysis with Block wise was referred as (Table2 in an appendix). Descriptive statistical analysis was conducted to check the relation between Iowa Gambling Task Deck wise and high/low BIS/BAS, NEO-V and REI sales. Accordingly, in the two verses, high and low, the statistical comparison in the BIS/BAS scale with DeckA, the mean for the high was 20.69 in a case of the BIS/BAS with DeckA the mean was; the mean obtained in a case of the low was 20.89. In next NEO-V scale with DeckA, the mean obtained for the case of high was 21.27; the mean obtained for the low was 20.20. In the last REI scale with DeckA, the mean obtained for the case of high was 21.58; the mean obtained in the case of the low was 20.02. Similarly, the statistical comparison in the BIS/BAS scale with DeckB, the mean for the high was 27.57 in a case of the BIS/BAS with DeckB the mean was; the mean obtained in a case of the low was 29.29. In next NEO-V scale with DeckB, the mean obtained for the case of high was 29.31; the mean obtained for the low was 27.29. In the last REI scale with DeckB, the mean obtained for the case of high was 28.55; the mean obtained in the case of the low was 28.24. Similarly, the statistical comparison in the BIS/BAS scale with DeckC, the mean for the high was 25.40 in a case of the BIS/BAS with DeckC the mean was; the mean obtained in a case of the low was 23.00. In next NEO-V scale with DeckC, the mean obtained for the case of high was 23.18; the mean obtained for the low was 25.54. In the last REI scale with DeckC, the mean obtained for the case of high was 24.17; the mean obtained in the case of the low was 24.43. Similarly, the statistical comparison in the BIS/BAS scale with DeckD, the mean for the high was 26.49 in a case of the BIS/BAS with DeckD the mean was; the mean obtained in a case of the low was 27.32. In next NEO-V scale with DeckD, the mean obtained for the case of high was 26.66; the mean obtained for the low was 27.15. In the last REI scale with DeckD, the mean obtained for the case of high was 26.33; the mean obtained in the case of the low was 27.42. A descriptive statistical analysis was done to check the relation between IGT Deck wise and high/low BIS/BAsS, NEO-V and REI scale. The type of IGT Descriptive statistical analysis with Deck wise was referred as (Table3 in an appendix).

For each participant of the IGT, we counted the total number of card selections from the disadvantageous decks and the advantageous decks. (Bechara et al., 2000b). Then, we derived a net score for each block (the number of advantageous decks minus the number of disadvantageous decks). A net score below zero indicates that the subjects were selecting disadvantageously, whereas the net score above zero indicates that subjects were selecting advantageously.

The figure2 represents the IGT Block wise performance with BIS/BAS, NEO-V, and REI scale. The graph indicates block-wise data values for each in each scale with low and high values. The responses to the Block1, Bolck2, Bolck3, Block4, & Bolck5 indicated that the person who had achieved high on BIS/BAS performed worst on IGT compared to scores on low on BIS/BAS. The participants who scored high on NEO-V had lower performance scores for IGT task whereas participants who scored low on NEO-V had higher performance scores for IGT task. Similarly, for participants who scored high on REI performed worst on IGT. The participant who scored low on REI performed well on IGT task. The Fig. 2 depicts the participants' performance on IGT task. The Fig 2 indicates that as IGT trials proceeded, the participants' performance on IGT task improved.

The figure3 represents the IGT Deck wise performance with BIS/BAS, NEO-V, and REI scale. The graph indicates block-sensible data values for each in each scale with low and high values. The responses to the DeckA, DeckB, DeckC, DeckD, indicated that the person who had achieved high on BIS/BAS performed worst on IGT compared to scores on low on BIS/BAS.
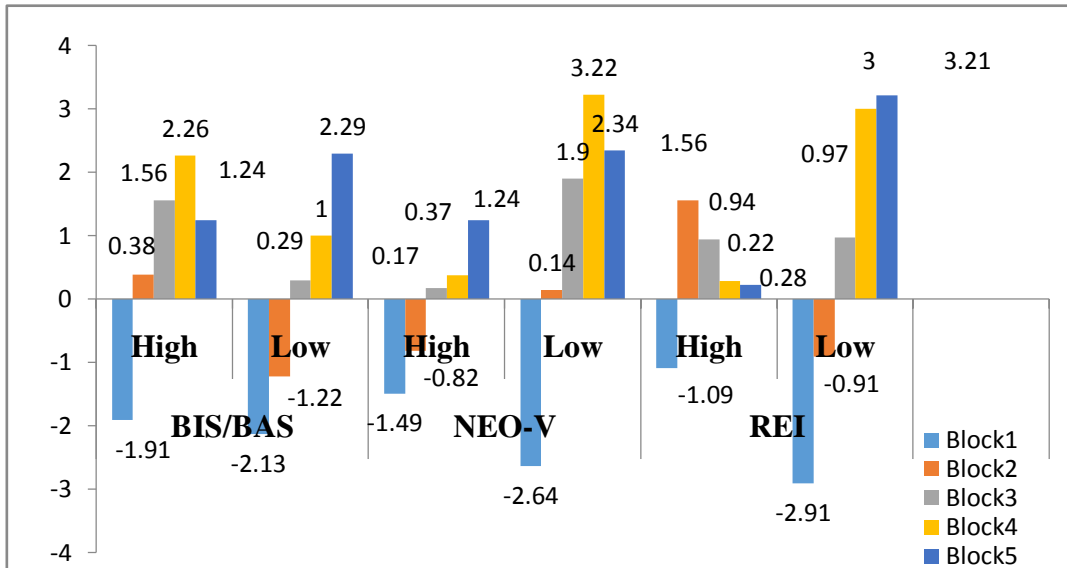
Fig-2 Relationship between, Impulsivity, Personality Traits, Information Processing Style and Block wise IGT trials (100 trials).

The participants who scored high on NEO-V had higher performance scores for IGT task whereas participants who scored low on NEO-V had lower performance scores for IGT task. Similarly, for participants who scored high on REI performed well on IGT. The participant who scored low on REI performed worst on IGT task. The Fig. 2 depicts the participants' performance on IGT task. The Fig 3 indicates that as the participants' Performance in IGT DeckA & DeckC on worst and DeckB and DeckD on the good performance.
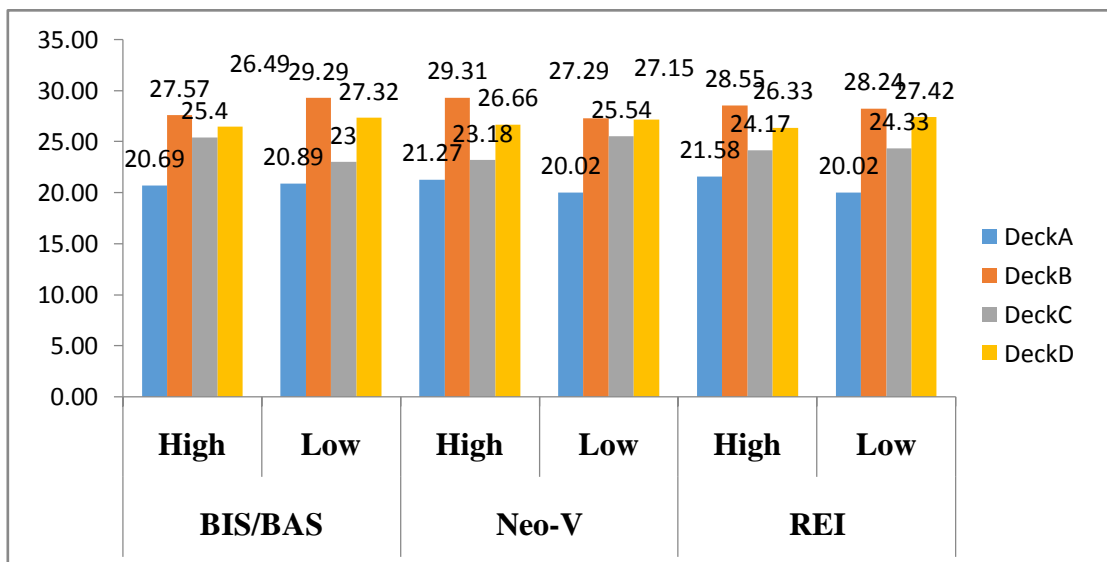

Fig-3 Relationship between, Impulsivity, Personality Traits, Information Processing Style and Deck wise IGT trials (100 trials).

3.2 Discussions:

Advantageous deck, Disadvantageous deck, and NET sore. The advantageous layer was calculated by summation of Deck A and B (A+B) in overall 100 trials, and a disadvantageous deck was calculated by summation of Deck C and D (C+D) in overall 100 trials. In result, we found the relationship between IGT block wise and impulsivity, personality and information processing style with the help of high/low. In both samples, the structure of the BIS/BAS scales turned out to be four-dimensional: one dimension for the BIS scale and one for each of the three BAS scales. These results were confirmed by differential relations of the BIS scale and the three BAS scales with the Big-Five scales. Also, Carver & White (1994), Heubeck et al. (1998), Jorm et al. (1999), Leone et al. (2001) and Ross et al. (2002) found that four dimensions are needed. The fact that we found the expected four-dimensional structure for the translated BIS/BAS questionnaire also supports the validity of the translation. Sometimes, BAS activity is measured as the sum of the three BAS scales (e.g. Harmon-Jones, 2003, Gable et al., 2000, Gomez & Gomez, 2002, Gomez & McLaren, 1997, O'Gorman & Baxter, 2002). This was confirmed by the differential relational pattern of the BIS/BAS latent variables with the Big-Five personality dimensions. Several authors assume, although sometimes implicitly, that BIS/BAS underlies part of the surface of personality as described for example by the Big-Five (e.g. Corr, 2001; Gray, 1970; Matthews & Gilliland, 1999). However, the relation between Neuroticism and Extraversion of the BIS/BAS scale. By our hypotheses and earlier findings, Neuroticism is highly positively related with BIS and negatively with several BAS measures, but they can nevertheless shed light on the meaning of the personality factor Neuroticism. In the literature Neuroticism is defined in different ways: as emotional control (Fiske, 1949), negative emotionality, as negative affect and as emotional (in) stability (Guilford, 1975; Hofstee, Raad, & Goldberg, 1992; Lorr, 1986).About information factor, the result shows that there was a significant relationship between information and rational decision-making style. Participants had the higher field of expertise, knowledge and decision-making skill.

Finally, the findings show that there was no significant relationship between uncertainty and time with intuitive decision-making style of academic staffs. The two factors were not significantly affecting intuition decision making; therefore it is urged to gather more and adequate data to support these two factors.

4. Conclusion

The results imply personality traits determine decision-making process and information processing styles evaluate preferences for information processing for determines the decisions were making. Impulsivity affects decision making. The responses to the Block1, Bolck2, Bolck3, Block4, & Bolck5 indicated that the person who had achieved high on BIS/BAS performed worst on IGT compared to scores on low on BIS/BAS. The participants who scored high on NEO-V had lower performance scores for IGT task where as participants that scored low on NEO-V had higher performance scores for IGT task. Similarly, for participants who scored high on REI performed worst on IGT. The participant who scored low on REI performed well on IGT task. The result indicated that as IGT trials preceded, the participants' performance on IGT task improved. The responses to the DeckA, DeckB, DeckC, DeckD, indicated that the person who had achieved high on BIS/BAS performed worst on IGT compared to scores on low on BIS/BAS. The participants who scored high on NEO-V had higher performance scores for IGT task whereas participants who scored low on NEO-V had lower performance scores for IGT task. Similarly, for participants who scored

high on REI performed well on IGT. The participant who scored low on REI performed worst on IGT task. The result indicates that as the participants' performance in IGT DeckA & DeckC on worst and DeckB and DeckD on the good performance. We are used IGT for each participant.

5. Acknowledgement

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