

**THE EFFECT OF PERCEIVED INTELLIGENCE AMONG PEERS IN DESIRE
TO CO-OPERATE IN QUALITATIVE TASKS**

Final Evaluation Experimental Study

In EC-542: Experimental Methods in Economics

Under Dr. Sujoy Chakravarty

Suvi Agrawal (86581/2014)

Shivangi Dewan (21507/2014)

Rohan Arora (05978/2014)

Navanshu Pandey

INTRODUCTION

Cooperation may be defined as the voluntary contribution of personal resources such as effort toward the realization of interdependent tasks. Competition on the other hand, is the attempt to outperform others in the same or similar task or situation. Both cooperation and competition affect achievements of groups. In some situations cooperation dominates, whereas in others competition produces better results. Personalities of the individuals, communication between members, size of the group, difficulty of the task, etc. determine whether individuals compete or cooperate in a particular situation.

Individualism-collectivism is a concept that deals with the relative importance that people accord to shared interests and to personal pursuits. Define individualism as the condition wherein personal interests are awarded greater importance as compared to the needs of groups. Individualists tend to work alone and ignore group interests if they disagree with personal desires. On the contrary, under collectivism the interests of groups take precedence over personal needs and desires. Variations in individualism and collectivism influence tendencies of people to cooperate.

What causes variation in individualism-collectivism? The motivation behind individualistic versus collectivist perspectives may be dependent on factors like altruism, cultural background, incentive design, self-worth and confidence, etc. For example, evidence suggests that individuals from collectivist cultures (Japan, China India) are more likely to cooperate in groups as compared to people from individualistic cultures (USA, Canada, Australia) [Wagner, 1995].

This paper focuses on the “self-worth” of individuals as a factor influencing decisions regarding cooperation. In order to capture self-worth, we collect data on perceived intelligence of the subjects and create an incentive structure wherein cooperation would increase the probability of performing better at a quiz, but at the same time divide total gains according to the number of members. By using data collected from 60 students of Jawaharlal Nehru University (JNU), we analyse the individualistic versus collectivist rationality of individuals with varying degrees of perceived intelligence. Students are asked to participate in a quiz, and given the option of working individually or in teams of two. We then verify whether a relationship exists that people with higher levels of perceived intelligence are more likely to work alone.

REVIEW OF LITERATURE

There is not much literature that has focused on the role played by perception of intelligence in determining decisions regarding cooperation. A study by Van Lange and Liebrand (1991) has examined the impact of preferences between individualism and collectivism on perceptions of rationality. From two surveys in The Netherlands and USA, it was found that people with cooperative orientation expected more cooperation from people described as intelligent as compared to people described as unintelligent. On the other hand, people with individualistic orientations expected less cooperation from people described as intelligent compared to people described as unintelligent. Their social value preferences were determined through a series of questions in which subjects had to choose between different reward schemes for themselves and another individual. This study highlights the inter-linkage present between social orientation and perception of intelligence. While this paper studies the impact of the former on the latter, we examine the reverse causality.

Another very important aspect that had to be dealt with adequately was concerned with designing the task and proper payoff structures embedded in the task, as there would be no monetary payoffs. There was therefore a need to tap into the intrinsic motivation of the participants. A lot of seminal work on intrinsic motivation was conducted by Deci (1971). In this study, Deci demonstrated that external rewards like money based on performance could negatively impact people's inherent interest in solving interesting tasks or problems by impinging on their intrinsic motivation, or "the enjoyment from the task being its own reward."

Although the perception of intelligence was not to be arrived at through performance in the task, the task had to provide enough incentive for people to continue with the survey while at the same time it had to be neutral enough so as not to elicit negative or biased responses because of preconceptions about the nature of the task; all the while ensuring perceptions of intelligence remain the driving force behind the demonstrated behaviour.

There have been critiques of Deci and his later collaborators' approach to assessment of intrinsic motivation; a meta-analysis [Cameron and Pierce, 1994] demonstrated that both rewards and reinforcements (both distinctions of the authors) had either minimal impact on the four indicators of intrinsic motivation (as observed in the literature in this field) or the impacts were statistically unsatisfactory. Deci et al (1999) conducted a meta-analysis of their own, indicating the point of differences vis-à-vis Cameron and Pearce. The resulting progress in literature suggests that extrinsic or tangible rewards are more suitable for mechanical tasks requiring low inputs of intelligence or 'creativity' while they undermine intrinsic motivation towards tasks requiring greater cognitive effort [Pink, D. H. (2011), Penguin Books]

The challenge was thus to select an appropriate task that would naturally bring out desires to co-operate or compete; and to this end a quiz was considered effective. Since subjects would not be compensated for their participation and thus could not be impinged on for long periods, it was necessary to determine the level of correlation that could be expected between conventional I.Q. parameters and self-reported assessment of the same. A study that utilised pre-available proxy I.Q. tests that used both direct and indirect methods of evaluation suggest that even though Proxy I.Q. test can be made reliable through proper emphasis on a composite of direct and indirect indicators along with aggregation, their validity remains modest; besides the fact that lay perceptions of I.Q. in society are yet to satisfactorily be reflected in conventional I.Q. scores. [Paulhus, Bruce & Yik, 1998]. Besides, it is suggested that such lay indicators of perceived intelligence do indeed merit inclusion in I.Q. assessment.

A final important issue that was sought to be learned through the extant literature was the effect of reward mechanisms (the payoff structure in the case of this study) by themselves driving co-operation. Indeed, a study by Slavin and Tanner (1979) implied that co-operative reward structures could potentially be more effective in learning outcomes. They also tested for differences in individual accountability having an impact on individual learning. The relevance for the current study is more towards ensuring that individual accountability or relatedness did not confound with the desire to co-operate by itself, i.e. the presence of a known person around the participant did not completely override their desire to participate individually.

HYPOTHESIS

We explore the possibility of a relationship between levels of (perceived) intelligence and decision to cooperate. Given such a relationship, we then analyse our results to derive conclusions about what choice leads to better outcomes for which type of individual.

Hypothesis:

H_0 : Individuals with higher levels of perceived intelligence will choose to cooperate.

H_1 : Individuals with higher levels of perceived intelligence will not choose to cooperate.

The reasoning behind this is that people who feel more intelligent than the average individual find themselves more capable of performing a task on their own thus expropriating the entire surplus. Individuals who are feel that they are “weaker” than the average are more likely to agree to working in a team thus raising chances of winning at the expense of sharing the gains.

SURVEY DESIGN

For the purpose of this study, a two part questionnaire was put up to the participants — 60 students of Jawaharlal Nehru University (JNU). The first part of the study consisted of an anonymous survey called ‘Preliminaries’. The questions in the survey can be broadly classified in three sections:

- Demographics: Age, gender, Annual Family Income, Caste, Parental Education Level
- Markers of conventional I.Q.: Percentage in Class 10th, Percentage in Class 12th, Self indicated interest in strategy games (visual, physical or team sports)
- Markers of perceived intelligence: Perception of number of days required to be good at a personal choice of hobby, direct question on perceived intelligence as compared to peers, belief on the competence level of teachers.

The rationale for the above will be expounded on the methodology section.

This was followed by a sample question that indicated the kind of questions that could be expected in the quiz.

The participants, after agreeing to participate in the study, were first given an instruction set to read (or were sometimes conveyed verbally), and then administered the preliminary. In the preliminary, the participants were required to indicate if they would like to participate by themselves or with a partner. This was followed by a quiz, the design of which will be explained later.

It was explained to the participants that individual participation would bring ten points per right question while team participation would bring six points per person — twelve points in all.

After providing the respondents some time to evaluate the quiz, they were then asked if they would like to change their decision. In the event that a respondent chose to change

her/his mind, another volunteer was asked to participate with the respondent. If a parallel volunteer was available who had earlier chosen to co-operate, these two people would then subsequently be matched; else a new volunteer would be found who wouldn't be a part of the study but would just participate on the quiz.

DESIGN OF THE QUIZ

It should be made clear that it was not the quiz itself but the expectation of having to answer the quiz and the priming on the perception of the nature of the quiz that was important in the first half of the design. The actual nature of the quiz itself comes into play only in the case of those individuals who had earlier chosen to attempt the quiz all by themselves and were given an option to later change their decision in favour of associating with a partner. Keeping this in mind, the quiz was designed across two parameters:

- A. In spirit the questions themselves were close to a study conducted earlier (Paulhus, Bruce, & Lysy, 1996). However, instead of asking the participants to rate their familiarity over a series of books, people, places, events and so on with 20% of the items being fictional, in the quizzes used by the authors the incorrect options were manipulated to seem more relevant than the correct ones. It was hoped that a generally more aware person would not tend to change their decision given the direct nature of the questions.
- B. The overall design incorporated six diverse questions which tested different skills: two mathematical questions of intermediate and above intermediate difficulty respectively, one question of lateral thinking¹, one question regarding awareness of geographical and factual awareness about JNU and adjoining areas, and two questions of general knowledge – one with options and the other requiring to connect abstract clues.

The quiz was thus more amenable to being attempted in co-operation rather than individually. A tendency to not change their decision on the part of a respondent would therefore imply a strong tendency of being individualistic given that they have higher levels of perceived intelligence. A higher score on quiz then could be used to verify whether the perception was indeed sound or unfounded.

Two critical aspects needed to be tested: i) The average level of questions on all four quizzes would need to be similar and ii) The points structure would have to be designed in a manner so as not to overly bias the desire to participate individually in anticipation of the points from co-operating being 'too low'. To address the first issue, the quizzes were put up to various peers and associates in order to make sure that the average scores did not vary too much (confidence interval tests were not performed for this, this was done informally). To address the second issue, the quizzes 1 and 2 were subsequently used in an initial pilot to gain experience in conducting surveys and also to determine the point structure that could be utilised. Since the median level of answering on individual and co-operative quizzes were one and three answers respectively, a point structure of ten for correct answers individually and six while co-operating turned out to be appropriate.

-
1. Lateral Thinking is the idea that certain creative problem solving requires thought processes that are not immediately obvious and don't necessarily have a logical flow to them. See Edward De Bono (1970).

Participants were also (informally) asked for their feedback on the questions, levels of interest and the point structure in this part of the study.

The reason to not take formal feedback was the same as the reason for keeping only six questions in the quiz: too much load on the participants ran the danger of causing unpredictable random behaviour owing to the time consuming nature of the exercise. It is for this reason that trying to for example find a reverse causality between perceived levels of intelligence and the type of questions (say lateral or mathematical) that were answered more correctly on average wasn't worthwhile.

METHODOLOGY

We begin by categorising several of our survey variables. We introduce binary variables such as field of education (social sciences and others), gender, caste (general and others), effort needed to learn the favourite hobby (high and low) imputed from the number of days required to learn the hobby as perceived by the respondent, etc. and categorical variables for perceived intelligence, annual family income, level of interest in strategy games, etc. on a scale of 1 to 5.

A measure of actual intelligence is calculated using the following formula:

$$ACTUAL INTELLIGENCE = \left[0.8 \left\{ \left(\frac{2}{3} \right) * Marks \text{ in class } X + \left(\frac{1}{3} \right) * Marks \text{ in class } XII \right\} + 0.2 * Marks \text{ in the Survey Quiz} \right]$$

In order to compute this index, information on past academic performance of respondent and performance on a test administered as part of this experiment is gathered. Weight of 66.67% is assigned to Class X results and 33.33% to Class XII results as students have generic curricula until the 10th standard with limited social interference. Further, this academic performance in national level examination is weighed to 80% with the rest being awarded to the performance of respondent in the test administered.

Having calculated this index, we regress it on several variables to analyse impact of each. This is modelled as follows:

$$Actual\ Intelligence_i = \alpha + \beta_1 Gender_i + \beta_2 (Interest\ in\ Strategy\ Games)_i + \beta_3 (Parents' Highest\ Qualification)_i + \beta_4 (Family\ Annual\ Income)_i + e_i \quad (1)$$

This is estimated as an Ordinary Least Squares model. Interest in strategy games is expected to have a positive impact on actual intelligence, so is parents' educational qualification and family income. Gender (females=1) may have a positive or negative impact and would vary from sample to sample.

Next, "perceived intelligence" of the respondent is regressed as follows:

$$Perceived\ Intelligence_i = \alpha + \beta_1 Gender_i + \beta_2 Caste_i + \beta_3 (Effort\ for\ hobby)_i + \beta_4 (Smartness\ of\ teacher\ as\ perceived\ by\ respondent)_i + e_i \quad (2)$$

This is estimated as a Probit model as the outcome variable is bi-variate (high=1 and low=0). Gender differences may have differential impacts on perception of intelligence. For example, males may perceive themselves to be more intelligent. Similarly, the amount of effort needed to learn one's hobby may affect their perception, with greater effect expected to be associated with higher perceived intelligence. If one feels that their department could have better teachers, this is also expected to be associated with higher perceived levels of intelligence.

The objective of the experiment is to observe effects of “actual intelligence” and “perceived intelligence” on decisions made by the respondent regarding his participation. This is estimated as follows:

$$Decision_i = \alpha + \beta_1(Actual\ Intelligence)_i + \beta_2(Perceived\ Intelligence)_i + \beta_3(Field\ of\ Study)_i + \beta_4Gender_i + e_i \quad (3)$$

The above is regressed as a Probit model as the outcome variable is a bi-variate (Independent=1, Cooperate=0). The calculated index for actual intelligence and perceived intelligence of respondents is expected to have positive coefficients. As per our hypothesis, people with higher perceived intelligence are expected to not cooperate. Similarly, field of study (social sciences or otherwise) as well as gender could affect individualist versus cooperative orientations.

Next, the above decision making is modelled using “Perceived Intelligence” as an instrument. The following regression is carried out:

$$Decision_i = \alpha + \beta_1(Actual\ Intelligence)_i + \beta_2(Perceived\ Intelligence)_i + \beta_3(Field\ of\ Study)_i + \beta_4Gender_i + e_i \quad (4)$$

We also estimate a 2SLS regression using perceived intelligence as an instrumented variable. The first stage regression is estimated as per equation 2. This was done in order to check for the endogeneity in the model. Accordingly, “perceived intelligence” is used as an instrument variable.

RESULTS

The sample demographics are presented graphically in Appendix 1 and regression results are presented in Appendix 2. Table 1 estimates *equation 1*. Contrary to expectations, parents' education has a negative coefficient, though not significant. This could be because of sample selection bias. Students of JNU are usually graduates and post-graduates, for whom parental education does not affect much, as compared to a younger sample. Categorical variables for family income have positive coefficients as expected. For example, actual intelligence increases by 3 units when income range is between 2.5 to 5 lakh as compared to the baseline group (0-2.5 lakh). Similarly, interest in strategy games also tends to increase actual intelligence, while our sample reflects males to have higher intelligence than females. These results are also not significant.

Results of *equation 2 (Table 2)* show that in our sample women perceive themselves to be more intelligent and people belonging to general category also perceive themselves to be smarter. As expected, people with hobbies that require greater effort to learn are likely to increase their perception of intelligence, and those who believe that their department could have better faculty are more likely to perceive themselves to be intelligent. These results however are not significant.

Coming to our main hypothesis, the results from *equation 3 (Table 3)* should show a positive and significant coefficient on perceived intelligence to reject our null hypothesis. The sign on the perceived coefficient variable is of the correct sign, but not significant. Hence, we cannot reject our null hypothesis that people with higher levels of perceived intelligence will cooperate. A higher level of actual intelligence also tends to make people choose to work individually. Females and students from social science backgrounds are more likely to cooperate. These coefficients are not significant either.

The results for the instrument variable regression show a positive and significant effect of perceived intelligence on decision to cooperate. People with higher perceived levels of intelligence are significantly more likely to work independently. Thus, we reject our null hypothesis. The sign of the coefficient on actual intelligence reverses in this case, i.e., people with higher levels of intelligence are more likely to cooperate. The signs on the coefficients against gender and field of study remain the same as the previous regression. None of these coefficients are significant, except that against perceived intelligence.

CONCLUSION

This paper highlights the role of intelligence, actual and self-perceived, on social value preferences of individuals. For this purpose, a survey was conducted to model demographics, national level examination results and perceived intelligence on social behaviours regarding cooperation. Each parameter was estimated using proxy variables that influence 'actual' and 'perceived' intelligence.

Analysis revealed that variables such as gender, field of study, annual family income, effort in hobbies, etc. have an insignificant impact. Parents' education seems to have a negative impact on intelligence but this is expected to be a sample specific phenomenon. Probit regression for testing our main hypothesis reveals that perceived intelligence increases (although insignificantly) chances of non-cooperation. This coefficient becomes significant after accounting for the endogeneity in perceived intelligence by using an instrument variable (IV). Thus, our null hypothesis is rejected for the 2SLS regression. Higher levels of perceived intelligence significantly increases non-cooperation in the sample considered. However, there is limited external validity of this result due to the small sample size and possible selection bias arising from using students from a particular university as respondents.

LIMITATIONS IN THE STUDY

As with any study on human behaviour that involves uncontrolled field experiments, some limitations are naturally encountered, some anticipated and compensated at the time of design and others while working in the field. Following are the major limitations that were faced by the designers of this particular study:

1. Our sample size was small and there is selection bias. For external validity, sample size should be large and the sample must be representative of the population. Our sample, however, due to time and resource constraints was limited to JNU.
2. A study of this kind is best conducted in a lab environment, whereby the respondents can be better matched as per requirement in case of co-operation, whether *ex ante* or *ex post*.
3. The need to not impinge exceptionally on the time of the participant and hence encounter non-participation very often. This limited the number of questions that could be asked as the part of the quiz as explained earlier.
4. There are major differences in scholastic achievement across various national and regional boards and regional variation in the scores of the same national boards. An acceptable methodology to normalise these scores was not available at the time of the study and it wasn't feasible to do this effectively ourselves as that would require a much larger sample and perhaps a dedicated study altogether.
5. The choice of a quiz as the choice of task in the quiz ultimately carries the cross of being too academic centric and perhaps inordinately biased in the direction of requiring classical I.Q. strengths, even though it was tried best by the authors to keep the questions as broad based as possible.

APPENDIX 1

DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

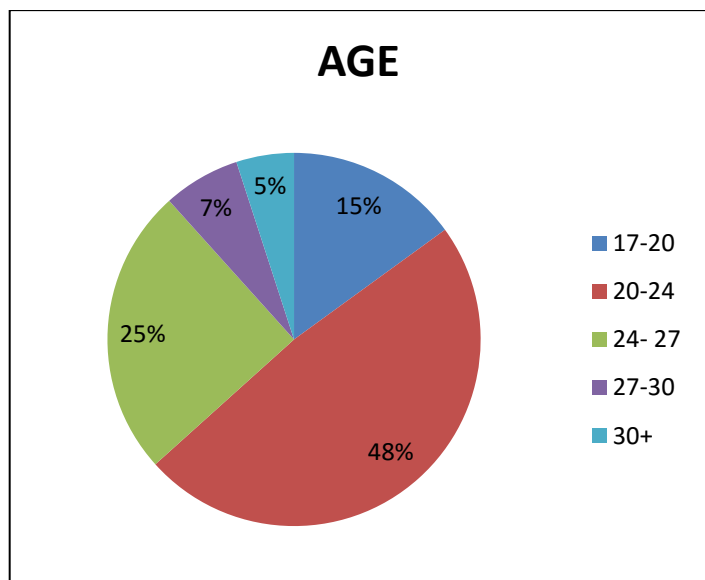


Figure 1: Age composition of sample

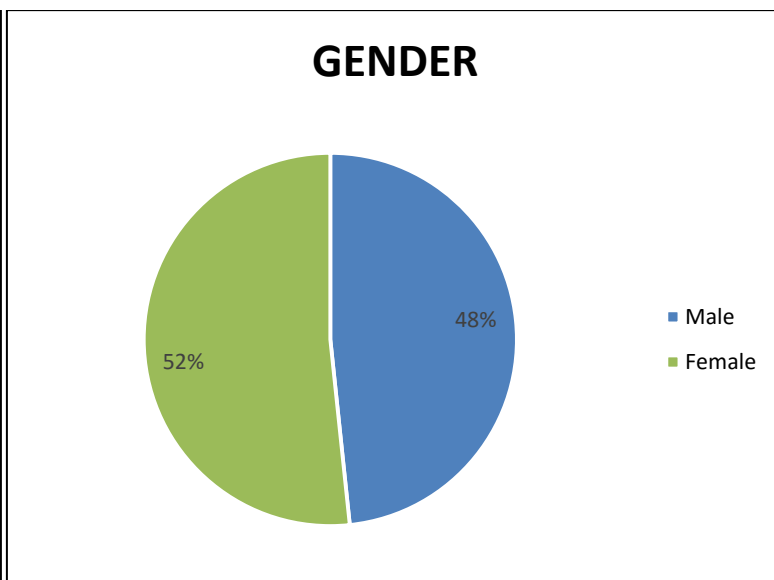


Figure 2: Gender Composition of sample

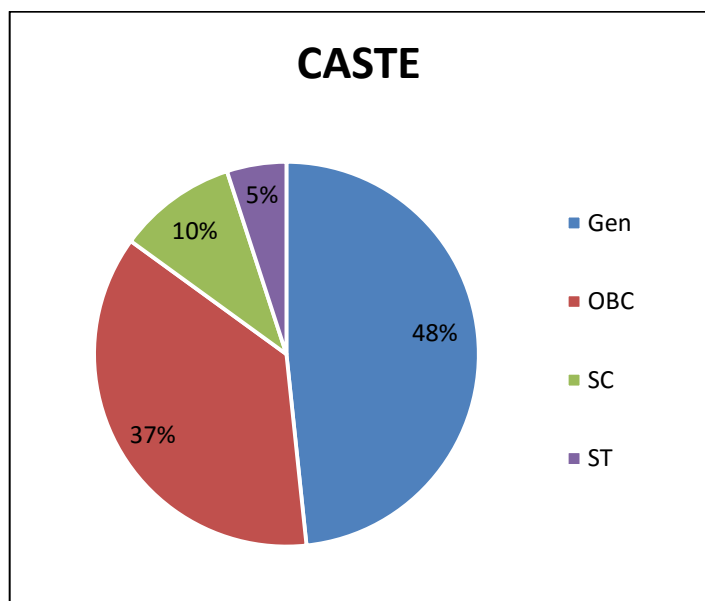


Figure 3: Caste Composition of Sample

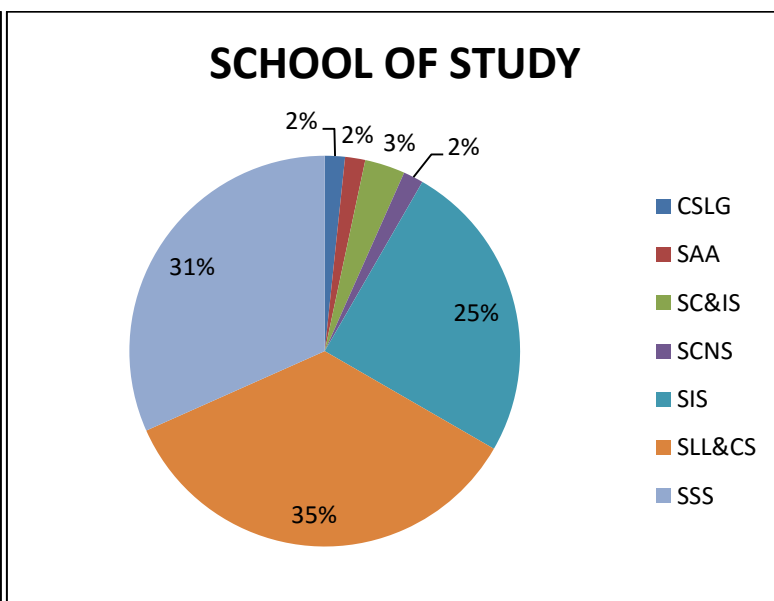


Figure 4: School of Study of Sample

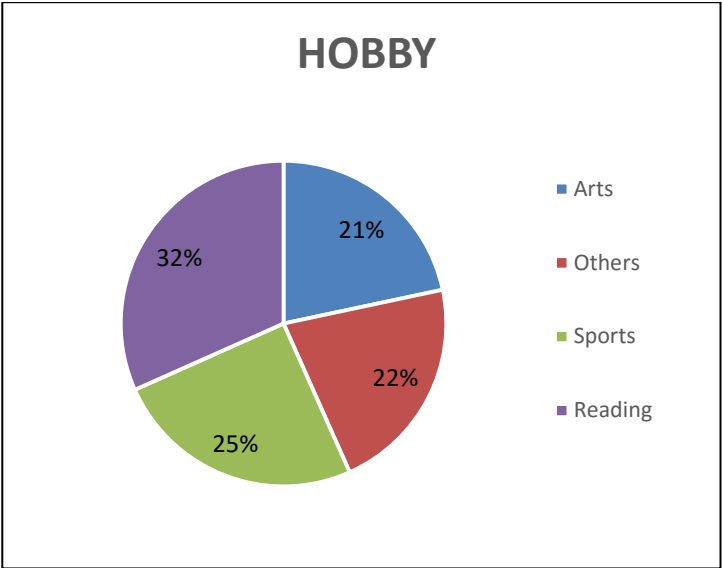


Figure 5: Major Hobbies of Respondents

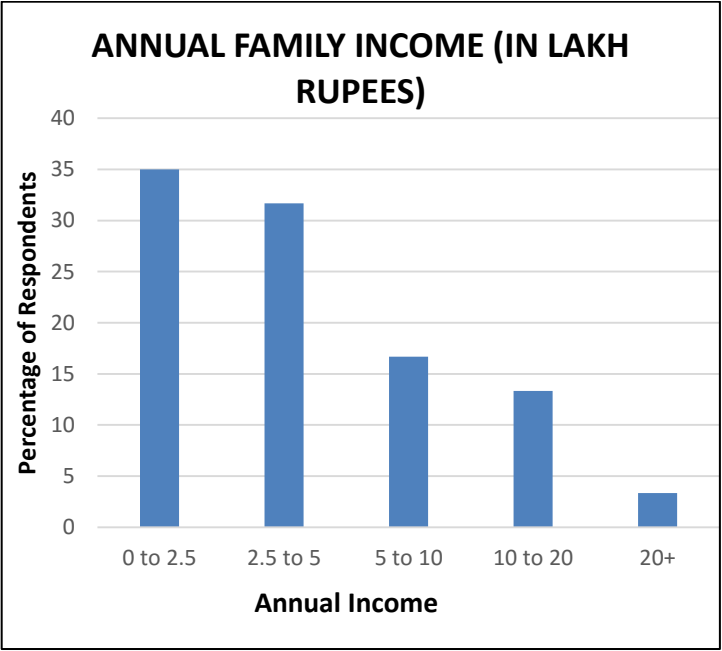


Figure 6: Annual Family Income (INR Lakh)

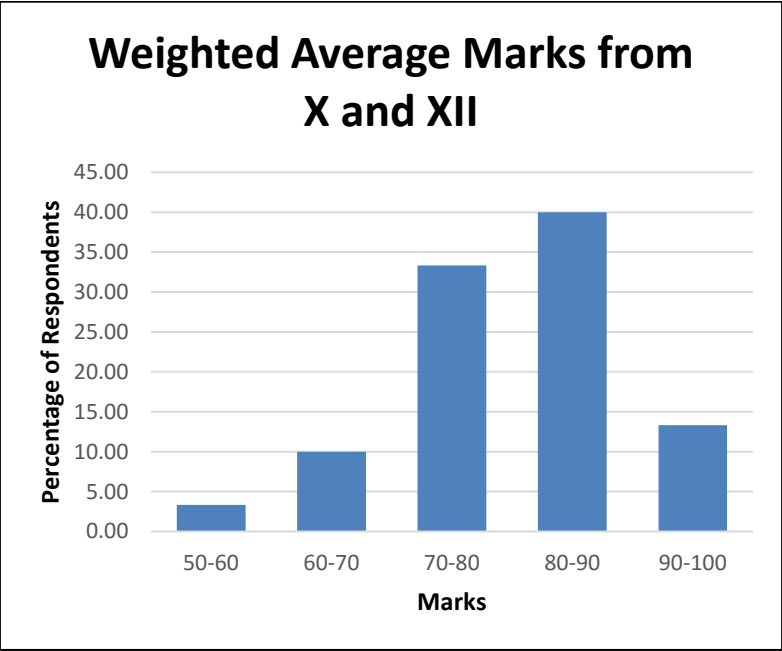


Figure 7: Weighted Average Marks from X and XII Standards

APPENDIX 2

Table 1. Actual Intelligence

| | | | | | | | |
|-------------------------|-------|------------|-----------|------------|-------------------------|----------------------|----------|
| Source | | SS | df | MS | Number of obs = 60 | | |
| | | | | | F(10, 49) = 0.50 | | |
| Model | | 719.999216 | 10 | 71.9999216 | Prob > F = 0.8795 | | |
| Residual | | 7011.17818 | 49 | 143.085269 | R-squared = 0.0931 | | |
| | | | | | Adj R-squared = -0.0919 | | |
| Total | | 7731.17739 | 59 | 131.036905 | Root MSE = 11.962 | | |
| | | | | | | | |
| ACTUALINTELLIGENCE | | Coef. | Std. Err. | t | P> t | [95% Conf. Interval] | |
| PARENTQUALIFICATIONlow0 | | -4.443559 | 4.621029 | -0.96 | 0.341 | -13.72987 | 4.842747 |
| familyincomecategories | | | | | | | |
| | 2 | 3.031833 | 4.783848 | 0.63 | 0.529 | -6.581669 | 12.64534 |
| | 3 | 6.800394 | 5.835025 | 1.17 | 0.249 | -4.925528 | 18.52632 |
| | 4 | 12.40328 | 7.451231 | 1.66 | 0.102 | -2.570534 | 27.37708 |
| | 5 | 6.206565 | 10.1742 | 0.61 | 0.545 | -14.23927 | 26.65239 |
| GENDERmale0 | | -.7457574 | 3.67231 | -0.20 | 0.840 | -8.125541 | 6.634026 |
| strategygames | | | | | | | |
| | 2 | 5.245224 | 7.131743 | 0.74 | 0.466 | -9.08655 | 19.577 |
| | 3 | 4.571194 | 6.795479 | 0.67 | 0.504 | -9.084833 | 18.22722 |
| | 4 | 1.145334 | 7.083068 | 0.16 | 0.872 | -13.08862 | 15.37929 |
| | 5 | 5.385091 | 8.709266 | 0.62 | 0.539 | -12.11684 | 22.88702 |
| | _cons | 62.8454 | 6.182121 | 10.17 | 0.000 | 50.42196 | 75.26883 |

Table 2. Perceived Intelligence

| PerceivedIntelligenceLow0 | Coef. | Std. Err. | z | P> z | [95% Conf. Interval] | |
|---------------------------|-----------|-----------|-------|-------|----------------------|-----------|
| GENDERmale0 | .8602129 | .3604511 | 2.39 | 0.017 | .1537417 | 1.566684 |
| CasteGen0 | -.0953367 | .3424708 | -0.28 | 0.781 | -.7665672 | .5758938 |
| DAYSFORHOBBYLow0 | .2462115 | .3511659 | 0.70 | 0.483 | -.4420609 | .934484 |
| CENTREDUMMY | .5307067 | .4536285 | 1.17 | 0.242 | -.3583888 | 1.419802 |
| _cons | -1.090306 | .5516551 | -1.98 | 0.048 | -2.17153 | -.0090819 |

Table 3. Decision about Cooperation

| DecisionIndependent1 | Coef. | Std. Err. | z | P> z | [95% Conf. Interval] | |
|---------------------------|-----------|-----------|-------|-------|----------------------|----------|
| ACTUALINTELLIGENCE | .0232846 | .0183588 | 1.27 | 0.205 | -.0126981 | .0592672 |
| PerceivedIntelligenceLow0 | .5606953 | .3932096 | 1.43 | 0.154 | -.2099813 | 1.331372 |
| FIELDOFEDUCATIONDUMMY | -.5553543 | .3776451 | -1.47 | 0.141 | -1.295525 | .1848164 |
| GENDERmale0 | -.0742625 | .354221 | -0.21 | 0.834 | -.7685229 | .619998 |
| _cons | -1.256862 | 1.177744 | -1.07 | 0.286 | -3.565197 | 1.051473 |

Table 4. Decision about Cooperation (IV Regression)

| | Coef. | Std. Err. | z | P> z | [95% Conf. Interval] | |
|--|-----------|-----------|-------|-------|----------------------|-----------|
| PerceivedIntelligencelow0 | 2.036807 | .7353349 | 2.77 | 0.006 | .5955773 | 3.478037 |
| ACTUALINTELLIGENCE | -.0116014 | .0301025 | -0.39 | 0.700 | -.0706011 | .0473984 |
| GENDERmale0 | -.4529839 | .3629518 | -1.25 | 0.212 | -1.164356 | .2583886 |
| FIELDOFEDUCATIONDUMMY | -.3640213 | .4111082 | -0.89 | 0.376 | -1.169779 | .441736 |
| _cons | .4621628 | 1.660295 | 0.28 | 0.781 | -2.791956 | 3.716282 |
| /athrho | -.9340901 | .848495 | -1.10 | 0.271 | -2.59711 | .7289295 |
| /lnsigma | -.8508672 | .0913556 | -9.31 | 0.000 | -1.029921 | -.6718135 |
| Rho | -.7324951 | .3932357 | | | -.9889641 | .62241 |
| sigma | .4270445 | .0390129 | | | .3570352 | .5107814 |
| Instrumented: PerceivedIntelligencelow0 | | | | | | |
| Instruments: ACTUALINTELLIGENCE GENDERmale0 FIELDOFEDUCATIONDUMMY CasteGen0 DAYSFORHOBBYLow0 CENTREDUMMY | | | | | | |

APPENDIX 3

Preliminaries

1. **Assigned Number**

.....

2. **Centre of study**

.....

3. **Registration Number with Year**

.....

4. **Age**

Mark only one oval.

- ☐ 17-20
☐ 20-24
☐ 24-27
☐ 27-30
☐ 30+

5. **Gender**

Mark only one oval.

- ☐ Male
☐ Female
☐ Other

6. **Annual Family Income**

(in lakhs)

Mark only one oval.

- ☐ 0 to 2.5
☐ 2.5 to 5
☐ 5 to 10
☐ 10 to 20
☐ 20+

7. **Education of mother**

Highest qualified educational level

Mark only one oval.

- ☐ College Graduate and Above
☐ Below College Graduate

8. **Education of father**

Highest qualified educational level

Mark only one oval.

- ☐ College Graduate and Above
- ☐ Below College Graduate

9. **Caste**

Mark only one oval.

- ☐ Gen
- ☐ OBC
- ☐ SC
- ☐ ST

10. **Percentage of marks scored in class 10th**

.....

11. **Board**

.....

12. **Percentage of marks scored in class 12th**

.....

13. **Board**

.....

14. **On a scale of 1-5, indicate your interest in strategy games like chess, poker, DoTA, AoE, Monopoly, competitive team sports, etc**

Everyone has interests in some form of games, please indicate if you enjoy games that involve a lot of strategizing, i.e. thinking ahead in time to see the benefits of your moves, like Chess for example, or deciding field positioning in a game of football.

Mark only one oval.

- ☐ Dislike them
- ☐ Indifferent
- ☐ Like them
- ☐ Enjoy them
- ☐ Very passionate about them

15. **Name your favourite hobby**

A lot of people have interests in pursuing some kind of skilful hobby that helps them unwind and recreate. Please write yours.

.....

16. **How many days would a beginner take to be reasonably good at this hobby?**

Every skilful hobby requires spending some amount of time in picking up the finer details of it, or some amount of regular practice to be able to overcome the frustration phase and then have it become enjoyable. Please indicate how many it would take to be good in your hobby.

Mark only one oval.

- ☐ <10
- ☐ 10 to 20
- ☐ 20 to 50
- ☐ 50+

17. **How intelligent do you feel among your peers?**

Mark only one oval.

- ☐ Below Average
- ☐ Average
- ☐ Above Average
- ☐ Smart
- ☐ Genius

18. **Do you think your centre of study could do with smarter teachers?**

Do you think that the current faculty at your centre is lacking in terms of knowledge, ability to teach, credentials, ability to address student problems properly, delivery during lectures, etc.

Mark only one oval.

- ☐ Yes
- ☐ No

19. **This is a sample question, indicating the kind of questions you could potentially face in the quiz that follows. The questions, like this one can be abstract. However, all questions are from diverse directions and there is plenty of possibility for everyone to participate and get right answers.**

Connect the following seemingly abstract clues: 1. The Diplomatic Divide 2. Aravali Range 3. 011-267xxxxx (All these clues combine to point towards one specific answer)

20. **These options were filled out by the conductors of the study as per the choice of the respondents**

(The text in brackets explains the coding)

Tick all that apply.

- ☐ CO (Participant chooses to co-operate)
- ☐ IN (Participant chooses to work independently)
- ☐ CH (An independent participant changes her mind)
- ☐ NO CH (An independent participant sticks with her choice)

Quiz

*Required

1. Please enter your assigned number: *

e.g. 2A, 4B, 32 etc.

2. For some positive real number 'a', the first 3 terms of a geometric progression are $a - 1$, $a + 3$ and $3a + 1$. What is the numerical value of the fourth term?

Mark only one oval.

- ☐ 25
☐ 36
☐ 32
☐ 4

3. Which of the following ministries does not have a chair in JNU?

Mark only one oval.

- ☐ MHRD
☐ Ministry of Environment And Forests
☐ Ministry of External Affairs
☐ Ministry of Women and Child Development

4. Which of the following is not a type of shoe?

Mark only one oval.

- ☐ Stilettos
☐ Uggs
☐ Choo
☐ Brogues

5. A man called to a waiter in a restaurant, "There's a fly in my tea!" The waiter replied, "I will bring you a fresh cup." After a few moments, the man called out, "This is the same cup of tea!" How did he know?

Clue: There isn't just tea in there

6. In a group of 200 high school students, 36 are taking biology, 52 are taking Spanish, and 126 are taking neither biology nor Spanish. If one of these 200 students is to be chosen at random, what is the probability that the student chosen is taking biology but not Spanish?

Mark only one oval.

- ☐ 9%
☐ 11%
☐ 14%
☐ 13%

7. Connect the following clues - Gangs of Wasseyapur, Gulaal, Husna

Please be as specific as possible; partial answers will be given half credit

REFERENCES

1. Cameron, J., & Pierce, W. D. (1994). *Reinforcement, reward, and intrinsic motivation: A meta-analysis. Review of Educational research*, 64(3), 363-423.
2. Deci, E. L., Koestner, R., & Ryan, R. M. (1999). *A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. Psychological bulletin*, 125(6), 627.
3. Deci, E. L. (1971). *Effects of externally mediated rewards on intrinsic motivation. Journal of personality and Social Psychology*, 18(1), 105.
4. Paulhus, D. L., Harms, P. D., Bruce, M. N., & Lysy, D. C. (2003). *The over-claiming technique: measuring self-enhancement independent of ability. Journal of personality and social psychology*, 84(4), 890.
5. Paulhus, D. L., Lysy, D. C., & Yik, M. S. (1998). *Self-report measures of intelligence: Are they useful as proxy IQ tests?. Journal of Personality*, 66(4), 525-554.
6. Pink, Daniel H. *Drive: The surprising truth about what motivates us*. Penguin, 2011.
7. Slavin, R. E., & Tanner, A. M. (1979). *Effects of cooperative reward structures and individual accountability on productivity and learning. The Journal of Educational Research*, 72(5), 294-298.
8. Van Lange, P. A., & Liebrand, W. B. (1991). *Social value orientation and intelligence: A test of the goal prescribes rationality principle. European journal of social psychology*, 21(4), 273-292.
9. Wagner, J. A., & Moch, M. K. (1986). *Individualism-collectivism: Concept and measure. Group & Organization Management*, 11(3), 280-304.
10. Wagner, J. A. (1995). *Studies of individualism-collectivism: Effects on cooperation in groups. Academy of Management journal*, 38(1), 152-173.