**Intelligence vs. Age Correlational Study**

1. If people of different ages are given an intelligence test, then as age increases, intelligence test score will also increase.
2. The independent variable is the age of the participants. When the participants take the test, the participants were asked to write down their age on the test form; 3 participants of every age between 9 and 26 participated. The dependent variable is intelligence test score. The intelligence test is a Mensa 18 question test; therefore, the score recorded is a number out of 18.
3. The study was done on Sunday at the Blue Ash Recreation Center between 9:00 AM and 3:00 PM. The recreation center was chosen because a wide variety of people come to it—anyone from a student to an adult. Sunday was chosen for a similar reason (i.e. students would not be at school and adults not at work). The time range was chosen to maximize the random sample (i.e. early birds would not be preferred over evening ones).
4. Our sample included people from the ages of 9 to 26 who go to BARC from 9:00 AM to 3:00 AM. Although some confounds were addressed, the sample was limited to the type of person who goes to the Rec center which introduces bias; only people not currently fit (and are trying to become fit), people coming simply to play, and people who are training for a sport came. Everyone was questioned on whether or not they wanted to participate in the study. This introduces convenience bias because no matter how adamant the researcher is about trying to sample randomly, people who seem more friendly and approachable naturally chosen; this will skew the data. Since the sample contained people from a wide variety of ages, it can be said that it is fairly representative of the population of all people; but at the same time, the elderly or children under age of 9 were not tested. However, the sample size is large enough that it can be confidently said that the results are fairly reliable. Therefore, the results (that as age increases, intelligence test scores increases), can be generalized to the population of all people between age of 9 and 26 with confidence; this cannot be generalized to other age groups because of the *danger of extrapolation.*  Because r2 = .4021, 40.21 percent of variation in score (y) can be attributed to age (x).
5. Please see graph on next page
6. Between the ages of 9 and 26, there is a moderate positive relationship between age and performance on the Mensa intelligence test. Because of the reasons mentioned in question four, the results of this study can be generalized to population of all people between age 9 and 26.
7. If this study were to be again, data would be taken at several locations to mitigate any confounding variables related to the type of person who would go to said location. Additionally, an attempt would be made to sample a wider range of ages to see if this relationship carries on past early adulthood where, physically, our development is complete or in late life. We discovered that a correlational study is surprisingly simple to perform; however, it is difficult to eliminate confounding variables when sampling.

#8 – Raw Data

|  |  |
| --- | --- |
| **Age** | **Score (/18)** |
| 10 | 8 |
| 11 | 6 |
| 12 | 8 |
| 22 | 15 |
| 21 | 8 |
| 25 | 4 |
| 25 | 12 |
| 16 | 11 |
| 15 | 7 |
| 17 | 8 |
| 18 | 14 |
| 18 | 9 |
| 17 | 5 |
| 15 | 6 |
| 16 | 5 |
| 16 | 12 |
| 19 | 7 |
| 10 | 5 |
| 9 | 8 |
| 11 | 3 |
| 11 | 4 |
| 21 | 8 |
| 21 | 7 |
| 23 | 13 |
| 23 | 13 |
| 24 | 11 |
| 23 | 8 |
| 18 | 8 |
| 20 | 15 |
| 20 | 11 |
| 12 | 10 |
| 12 | 2 |
| 14 | 6 |
| 13 | 5 |
| 17 | 8 |
| 14 | 2 |
| 13 | 13 |
| 15 | 2 |
| 24 | 15 |
| 24 | 14 |
| 26 | 16 |
| 25 | 11 |
| 26 | 13 |
| 18 | 13 |
| 19 | 9 |
| 19 | 6 |
| 20 | 8 |
| 22 | 13 |
| 10 | 6 |
| 9 | 3 |
| 9 | 1 |
| 22 | 13 |
| 14 | 8 |
| 13 | 9 |

Mean Score –> 8.61

Variance –> 15.30

Standard Deviation –> 3.91

N 🡪 54

Regression line –> y = 0.4915x + 0.0146

r2 –> 0.4021

r –> 0.6341

**Data Analysis (Computer Output):**

**Linear Regression** Monday, March 16, 2013, 6:59:46 PM

**Data source: Age vs Intelligence Correlational Study**

Score= 0.0146 + (0.4915 \*Age)

N = 54

R = 0.6341 Rsqr =0.4021 Adj Rsqr = 0.382

Standard Error of Estimate = 4.013

**Coefficient Std. Error t P**

Constant 0.0146 0.4915 7.744 <0.001

Score 0.818 0.141 5.805 <0.001

Analysis of Variance:

**DF SS MS F P**

Regression 1 542.756 542.756 33.697 <0.001

Residual 52 837.559 16.107

Total 53 1380.315 26.044

Normality Test (Shapiro-Wilk) Passed (P = 0.624)

Constant Variance Test: Passed (P = 0.848)

Power of performed test with alpha = 0.050: 1.000

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | | **24 H in a D** | |  |
| 1 | **1024 B in a K** | |  | |
| 2 | **The S R of -1 is an I N** | |  | |
| 3 | **666 is the N of the B** | |  | |
| 4 | **12 N on a C** | |  | |
| 5 | **4 C in the H H** | |  | |
| 6 | **40 D of L** | |  | |
| 7 | **99 B of B on the W** | |  | |
| 8 | **2 L in a S P of G** | |  | |
| 9 | **12 D of J** | |  | |
| 10 | **2 P in a D** | |  | |
| 11 | **S W and the 7 D** | |  | |
| 12 | **2 S of a C** | |  | |
| 13 | **4 S in a D of C** | |  | |
| 14 | **8 H in a R W D** | |  | |
| 15 | **150 P in the B** | |  | |
| 16 | **E S H M P N S with 555** | |  | |
| 17 | **42 is the A to L, the U, and E** | |  | |
| 18 | **3 M T S - C, F and K** | |  | |
| **Scoring:** 1 to 6 is Average, 7 - 11 Somewhat Intelligent, 12 to 15 Very Intelligent, 16+ Genius | | | | |
| **CORRECT ANSWERS:** | | | / 18 | |

**Intelligence Assessment**

**Age:**