

# **The Good, the Bad, & the Ugly**

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## **Interpreting the Results from Your Multiple Choice Test**

**The best car on the market today  
Is the**

- A. BMW 328i**
- B. Tesla Model 3**
- C. Volvo XC 90**
- D. Ford F150**
- E. Toyota Yaris**

**The boiling point of ethanol is**

- A. 173.07 degrees C**
- B. 78.37 degrees C**
- C. 100.00 degrees C**
- D. 100.00 degrees F**
- E. not calculable**

# Reliability

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- **Is test consistent?**
- **Similar results at different times?**
- **Stairs method of grading...**

# Validity

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- **Does test measure what it is supposed to measure?**
- **Does test reflect objectives?**
- **Was the test fair?**

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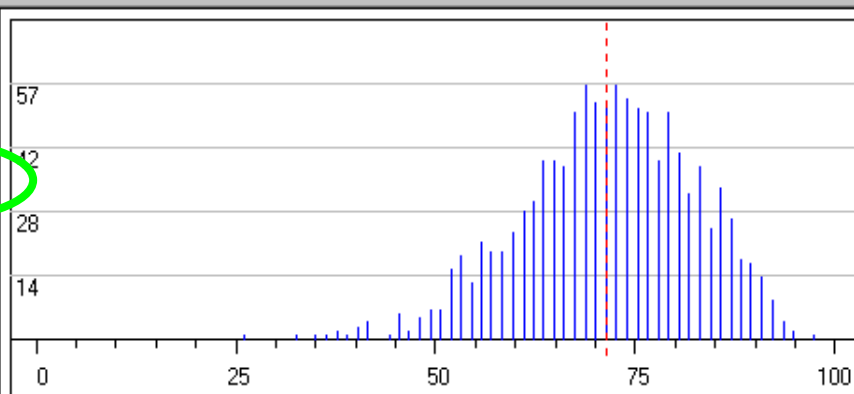
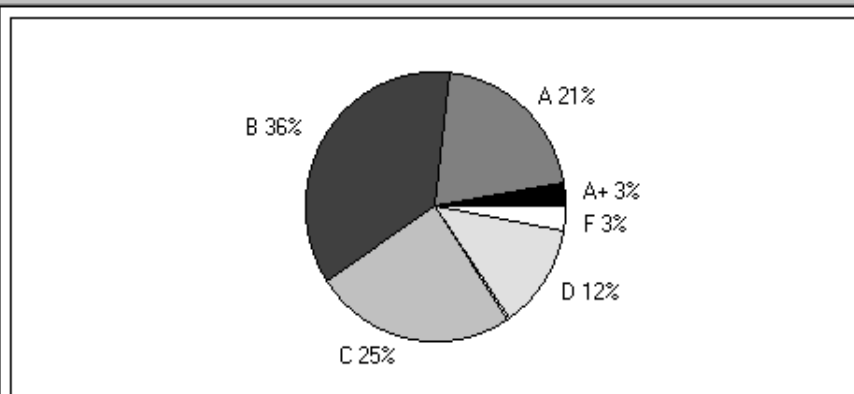
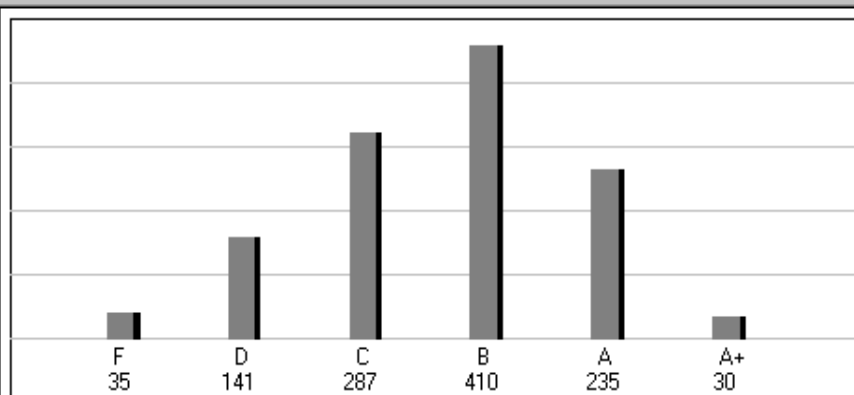
## Software Downloads

The Social Science Technology Services (SSTS) provides the software for [Scan Exam-II](#) and [Marks Management System](#). We provide an [examination scanning service](#) for Faculty of Social Science courses. Other course exams should be taken to the WTS examination services office.

**Assistance:** Please use the *Usage Notes* and *Frequently Asked Questions* links below. Also note that help for any menu item can be found by pressing the *F1* key while hovering over the menu item. You can print a copy of the [course notes](#) previously used in the former introductory course.

- [Scan Exam-II \(SCANEXII\)](#)
- [Marks Management System \(MMS\)](#)
- [Other Software](#)

# **Descriptive Analysis**



Mean: 71.4  
 Standard Deviation: 11.0  
 Median: 72.7  
 Mode: multi  
 Minimum: 26.0  
 Maximum: 97.4  
 Skew: -0.431  
 N of Statistic: 1138  
 A+: 30  
 A: 235  
 B: 410  
 C: 287  
 D: 141  
 F: 35

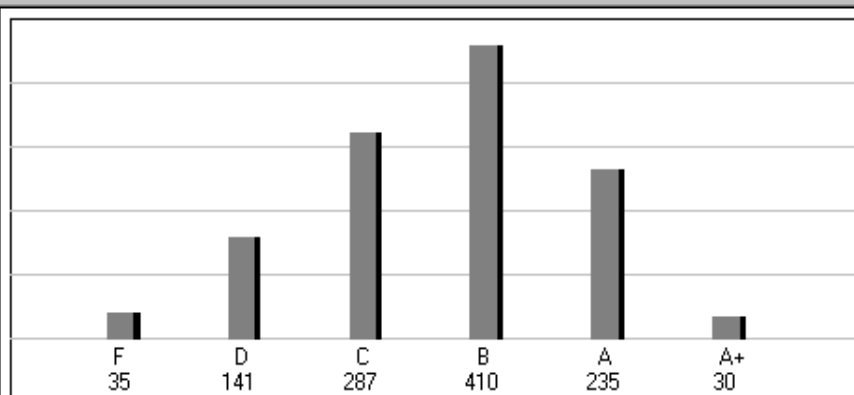
**Student Grade RawScore**

|           |      |      |
|-----------|------|------|
| 000626432 | 68.8 | 53.0 |
| 001403500 | 80.5 | 62.0 |
| 001424563 | 75.3 | 58.0 |
| 001462563 | 64.9 | 50.0 |
| 001906288 | 75.3 | 58.0 |
| 001908797 | 77.9 | 60.0 |
| 002694651 | 67.5 | 52.0 |
| 002826410 | 90.9 | 70.0 |
| 003259512 | 62.3 | 48.0 |
| 005669171 | 76.6 | 59.0 |
| 150113267 | 85.7 | 66.0 |
| 250006571 | 64.9 | 50.0 |
| 250006589 | 70.1 | 54.0 |
| 250006778 | 70.1 | 54.0 |
| 250008673 | 55.8 | 43.0 |
| 250012763 | 80.5 | 62.0 |
| 250013638 | 72.7 | 56.0 |
| 250014129 | 75.3 | 58.0 |
| 250015166 | 59.7 | 46.0 |

**Statistics**

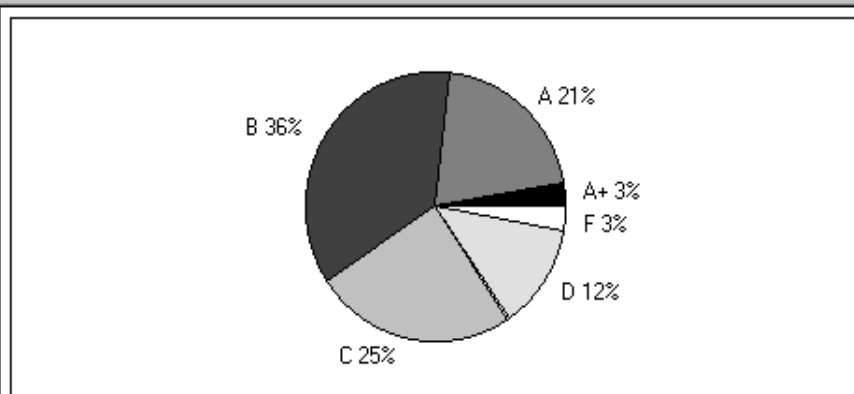
- ☒ Descriptive
- ☐ General Item Analysis
- ☐ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations



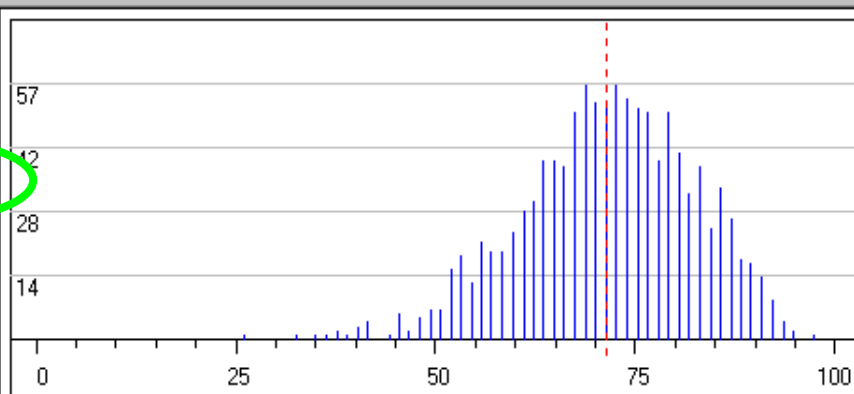


## Distribution of Scores

← Frequency chart  
by letter grade



← Pie chart



← Raw frequencies

### Statistics

- ☒ Descriptive
- ☐ General Item Analysis
- ☐ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations

# Summary Statistics for the exam

Mean: 71.4  
 Standard Deviation: 11.0  
 Median: 72.7  
 Mode: multi  
 Minimum: 26.0  
 Maximum: 97.4  
 Skew: -0.431  
 N of Statistic: 1138  
 A+: 30  
 A: 235  
 B: 410  
 C: 287  
 D: 141  
 F: 35

# Student grades

Student Grade RawScore

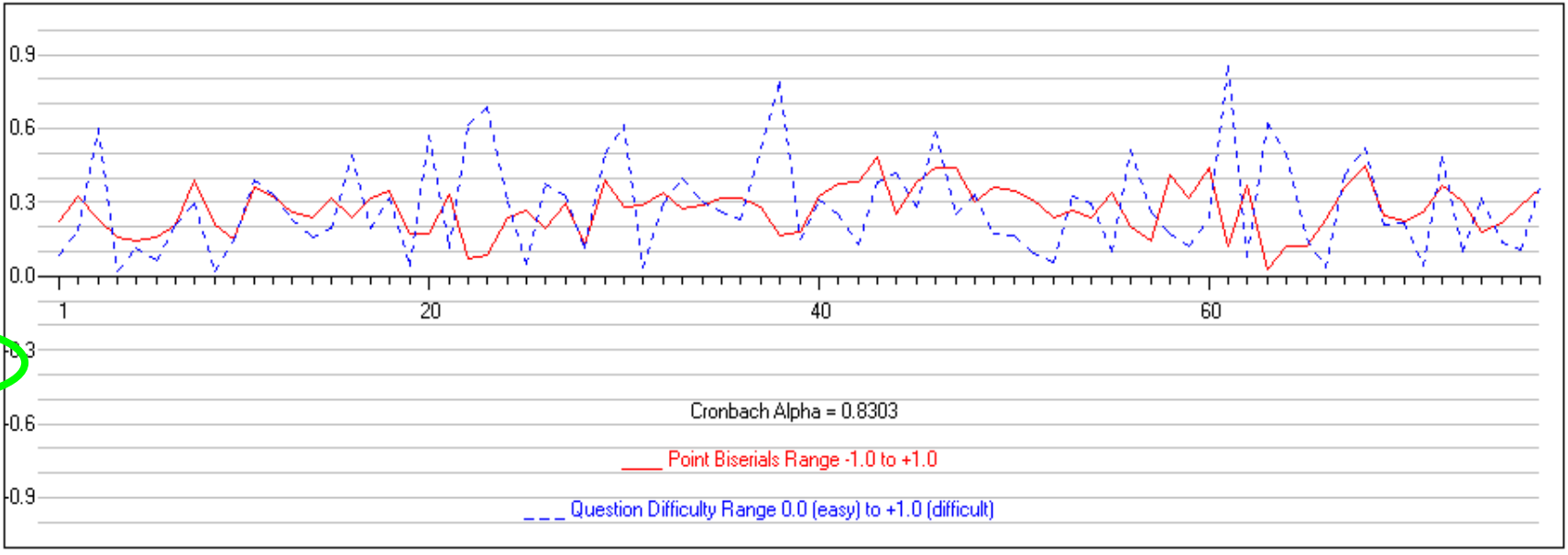
|           |      |      |
|-----------|------|------|
| 000626432 | 68.8 | 53.0 |
| 001403500 | 80.5 | 62.0 |
| 001424563 | 75.3 | 58.0 |
| 001462563 | 64.9 | 50.0 |
| 001906288 | 75.3 | 58.0 |
| 001908797 | 77.9 | 60.0 |
| 002694651 | 67.5 | 52.0 |
| 002826410 | 90.9 | 70.0 |
| 003259512 | 62.3 | 48.0 |
| 005669171 | 76.6 | 59.0 |
| 150113267 | 85.7 | 66.0 |
| 250006571 | 64.9 | 50.0 |
| 250006589 | 70.1 | 54.0 |
| 250006778 | 70.1 | 54.0 |
| 250008673 | 55.8 | 43.0 |
| 250012763 | 80.5 | 62.0 |
| 250013638 | 72.7 | 56.0 |
| 250014129 | 75.3 | 58.0 |
| 250015166 | 59.7 | 46.0 |

- Statistics
- ☒ Descriptive
- ☐ General Item Analysis
- ☐ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations

# **General Item Analysis**

| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 001         | 0.08         | 0.22              | 1044         | 0094         | C          | 0046                    | 0033 | 1044 | 0015 | 0000 | 0000  |
| 002         | 0.19         | 0.33              | 0922         | 0216         | C          | 0094                    | 0108 | 0922 | 0014 | 0000 | 0000  |
| 003         | 0.60         | 0.23              | 0456         | 0681         | C          | 0034                    | 0224 | 0456 | 0423 | 0000 | 0001  |
| 004         | 0.02         | 0.15              | 1118         | 0020         | B          | 0002                    | 1118 | 0016 | 0002 | 0000 | 0000  |
| 005         | 0.11         | 0.14              | 1011         | 0127         | C          | 0043                    | 0044 | 1011 | 0040 | 0000 | 0000  |
| 006         | 0.06         | 0.16              | 1069         | 0069         | D          | 0033                    | 0007 | 0028 | 1069 | 0001 | 0000  |
| 007         | 0.21         | 0.21              | 0904         | 0234         | B          | 0088                    | 0904 | 0078 | 0068 | 0000 | 0000  |
| 008         | 0.30         | 0.39              | 0798         | 0338         | B          | 0229                    | 0798 | 0091 | 0017 | 0001 | 0002  |
| 009         | 0.02         | 0.21              | 1113         | 0025         | D          | 0015                    | 0005 | 0004 | 1113 | 0001 | 0000  |
| 010         | 0.15         | 0.15              | 0971         | 0167         | C          | 0018                    | 0112 | 0971 | 0037 | 0000 | 0000  |
| 011         | 0.39         | 0.36              | 0695         | 0440         | D          | 0147                    | 0204 | 0089 | 0695 | 0000 | 0003  |
| 012         | 0.33         | 0.33              | 0757         | 0380         | B          | 0157                    | 0757 | 0120 | 0103 | 0000 | 0001  |
| 013         | 0.23         | 0.26              | 0878         | 0259         | B          | 0032                    | 0878 | 0181 | 0046 | 0000 | 0001  |
| 014         | 0.16         | 0.24              | 0957         | 0179         | B          | 0040                    | 0957 | 0132 | 0006 | 0001 | 0002  |
| 015         | 0.19         | 0.32              | 0917         | 0220         | D          | 0033                    | 0030 | 0157 | 0917 | 0000 | 0001  |
| 016         | 0.49         | 0.24              | 0578         | 0560         | D          | 0411                    | 0022 | 0127 | 0578 | 0000 | 0000  |
| 017         | 0.20         | 0.31              | 0915         | 0223         | C          | 0142                    | 0031 | 0915 | 0050 | 0000 | 0000  |
| 018         | 0.32         | 0.35              | 0773         | 0365         | B          | 0277                    | 0773 | 0057 | 0031 | 0000 | 0000  |
| 019         | 0.04         | 0.17              | 1088         | 0050         | D          | 0008                    | 0012 | 0030 | 1088 | 0000 | 0000  |
| 020         | 0.57         | 0.17              | 0488         | 0650         | D          | 0218                    | 0027 | 0405 | 0488 | 0000 | 0000  |

- Statistics
- ☐ Descriptive
  - ☒ General Item Analysis
  - ☐ Distracter Analysis
  - ☐ Discriminator Analysis
  - ☐ Inter-Item Correlations



| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 001         | 0.08         | 0.22              | 1044         | 0094         | C          | 0046                    | 0033 | 1044 | 0015 | 0000 | 0000  |
| 002         | 0.19         | 0.33              | 0922         | 0216         | C          | 0094                    | 0108 | 0922 | 0014 | 0000 | 0000  |
| 003         | 0.60         | 0.23              | 0456         | 0681         | C          | 0034                    | 0224 | 0456 | 0423 | 0000 | 0001  |
| 004         | 0.02         | 0.15              | 1118         | 0020         | B          | 0002                    | 1118 | 0016 | 0002 | 0000 | 0000  |
| 005         | 0.11         | 0.14              | 1011         | 0127         | C          | 0043                    | 0044 | 1011 | 0040 | 0000 | 0000  |
| 006         | 0.06         | 0.16              | 1069         | 0069         | D          | 0033                    | 0007 | 0028 | 1069 | 0001 | 0000  |
| 007         | 0.21         | 0.21              | 0904         | 0234         | B          | 0088                    | 0904 | 0078 | 0068 | 0000 | 0000  |
| 008         | 0.30         | 0.39              | 0798         | 0338         | B          | 0229                    | 0798 | 0091 | 0017 | 0001 | 0002  |
| 009         | 0.02         | 0.21              | 1113         | 0025         | D          | 0015                    | 0005 | 0004 | 1113 | 0001 | 0000  |
| 010         | 0.15         | 0.15              | 0971         | 0167         | C          | 0018                    | 0112 | 0971 | 0037 | 0000 | 0000  |
| 011         | 0.39         | 0.36              | 0695         | 0440         | D          | 0147                    | 0204 | 0089 | 0695 | 0000 | 0003  |
| 012         | 0.33         | 0.33              | 0757         | 0380         | B          | 0157                    | 0757 | 0120 | 0103 | 0000 | 0001  |
| 013         | 0.23         | 0.26              | 0878         | 0259         | B          | 0032                    | 0878 | 0181 | 0046 | 0000 | 0001  |
| 014         | 0.16         | 0.24              | 0957         | 0179         | B          | 0040                    | 0957 | 0132 | 0006 | 0001 | 0002  |
| 015         | 0.19         | 0.32              | 0917         | 0220         | D          | 0033                    | 0030 | 0157 | 0917 | 0000 | 0001  |
| 016         | 0.49         | 0.24              | 0578         | 0560         | D          | 0411                    | 0022 | 0127 | 0578 | 0000 | 0000  |
| 017         | 0.20         | 0.31              | 0915         | 0223         | C          | 0142                    | 0031 | 0915 | 0050 | 0000 | 0000  |
| 018         | 0.32         | 0.35              | 0773         | 0365         | B          | 0277                    | 0773 | 0057 | 0031 | 0000 | 0000  |
| 019         | 0.04         | 0.17              | 1088         | 0050         | D          | 0008                    | 0012 | 0030 | 1088 | 0000 | 0000  |
| 020         | 0.57         | 0.17              | 0488         | 0650         | D          | 0218                    | 0027 | 0405 | 0488 | 0000 | 0000  |

Total number right & wrong

Number of people who  
choose each alternative

Statistics

☐ Descriptive

☒ General Item  
Analysis

☐ Distracter  
Analysis

☐ Discriminator  
Analysis

☐ Inter-Item  
Correlations

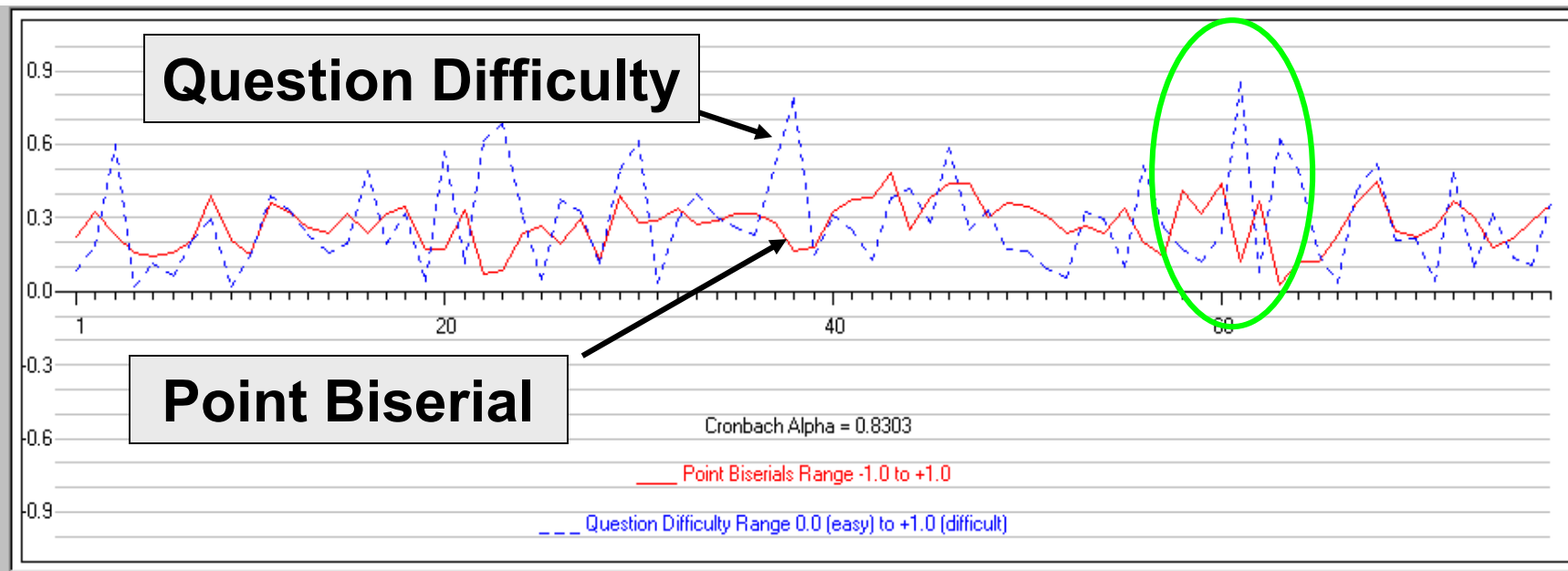
| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 001         | 0.08         | 0.22              | 1044         | 0094         | C          | 0046                    | 0033 | 1044 | 0015 | 0000 | 0000  |
| 002         | 0.19         | 0.33              | 0922         | 0216         | C          | 0094                    | 0108 | 0922 | 0014 | 0000 | 0000  |
| 003         | 0.60         | 0.23              | 0456         | 0681         | C          | 0034                    | 0224 | 0456 | 0423 | 0000 | 0001  |
| 004         | 0.02         | 0.15              | 1118         | 0020         | B          | 0002                    | 1118 | 0016 | 0002 | 0000 | 0000  |
| 005         | 0.11         | 0.14              | 1011         | 0127         | C          | 0043                    | 0044 | 1011 | 0040 | 0000 | 0000  |
| 006         | 0.06         | 0.16              | 1069         | 0069         | D          | 0033                    | 0007 | 0028 | 1069 | 0001 | 0000  |
| 007         | 0.21         | 0.21              | 0904         | 0234         | B          | 0088                    | 0904 | 0078 | 0068 | 0000 | 0000  |
| 008         | 0.30         | 0.39              | 0798         | 0338         | B          | 0229                    | 0798 | 0091 | 0017 | 0001 | 0002  |
| 009         | 0.02         | 0.21              | 1113         | 0025         | D          | 0015                    | 0005 | 0004 | 1113 | 0001 | 0000  |
| 010         | 0.15         | 0.15              | 0971         | 0167         | C          | 0018                    | 0112 | 0971 | 0037 | 0000 | 0000  |
| 011         | 0.39         | 0.36              | 0695         | 0440         | D          | 0147                    | 0204 | 0089 | 0695 | 0000 | 0003  |
| 012         | 0.33         | 0.33              | 0757         | 0380         | B          | 0157                    | 0757 | 0120 | 0103 | 0000 | 0001  |
| 013         | 0.23         | 0.26              | 0878         | 0259         | B          | 0032                    | 0878 | 0181 | 0046 | 0000 | 0001  |
| 014         | 0.16         | 0.24              | 0957         | 0179         | B          | 0040                    | 0957 | 0132 | 0006 | 0001 | 0002  |
| 015         | 0.19         | 0.32              | 0917         | 0220         | D          | 0033                    | 0030 | 0157 | 0917 | 0000 | 0001  |
| 016         | 0.49         | 0.24              | 0578         | 0560         | D          | 0411                    | 0022 | 0127 | 0578 | 0000 | 0000  |
| 017         | 0.20         | 0.31              | 0915         | 0223         | C          | 0142                    | 0031 | 0915 | 0050 | 0000 | 0000  |
| 018         | 0.32         | 0.35              | 0773         | 0365         | B          | 0277                    | 0773 | 0057 | 0031 | 0000 | 0000  |
| 019         | 0.04         | 0.17              | 1088         | 0050         | D          | 0008                    | 0012 | 0030 | 1088 | 0000 | 0000  |
| 020         | 0.57         | 0.17              | 0488         | 0650         | D          | 0218                    | 0027 | 0405 | 0488 | 0000 | 0000  |

% wrong answers

Item-total correlation: did the students who did well overall get this item correct? ...as the index approaches +1.0, the best students got it right. As it approaches -1.0, the poorest students got the item correct.

- Statistics
- ☒ Descriptive
- ☒ General Item Analysis
- ☐ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations

**Plot of question difficulty against the point biserial**  
→ look for items with high difficulty and a near-zero or negative point biserial



## Psych 1000 Midterm - Dec 14 - Total Scores

| Delete | Name | UserID   | Role    | Submit Date                  | Time              | Score | Adjustment | Final Score | Comments for Student (What's This?) |
|--------|------|----------|---------|------------------------------|-------------------|-------|------------|-------------|-------------------------------------|
| ✕      |      | nabdall8 | Student | Dec 14, 2020 4:13 PM<br>LATE | 2 hr 9 min 42 sec | 53    | 0.0        | 53          | <div>Add Attachments</div>          |
| ✕      |      | aabdula8 | Student | Dec 14, 2020 4:07 PM         | 2 hr 1 min 24 sec | 70    | 0.0        | 70          |                                     |





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## Psych 1000 Midterm - Dec 14 - Item Analysis

Submission Status Total Scores Questions Statistics Item Analysis Export

View Highest Submission

| Question | N(678) | % Correct: Whole Group | % Correct: Upper 27% | % Correct: Lower 27% | Discrim | No Answer | A  | B  | C  | D   | E   |
|----------|--------|------------------------|----------------------|----------------------|---------|-----------|----|----|----|-----|-----|
|          | 215    | 92                     | 93                   | 91                   | 0.01    | 0         | 7  | 3  | 3  | 3   | 199 |
|          | 230    | 73                     | 82                   | 61                   | 0.2     | 0         | 4  | 13 | 38 | 170 | 5   |
|          | 232    | 73                     | 77                   | 70                   | 0.06    | 1         | 8  | 31 | 0  | 22  | 171 |
|          | 107    | 64                     | 92                   | 32                   | 0.6     | 0         | 15 | 69 | 4  | 17  | 2   |
|          | 97     | 48                     | 69                   | 26                   | 0.42    | 0         | 6  | 10 | 47 | 29  | 5   |
|          | 85     | 68                     | 95                   | 40                   | 0.54    | 0         | 58 | 14 | 6  | 4   | 3   |
|          | 104    | 61                     | 78                   | 28                   | 0.5     | 0         | 12 | 17 | 10 | 64  | 1   |
|          | 102    | 89                     | 100                  | 74                   | 0.25    | 0         | 4  | 4  | 91 | 1   | 2   |
|          | 89     | 79                     | 95                   | 62                   | 0.33    | 0         | 3  | 4  | 3  | 71  | 8   |
|          | 93     | 67                     | 84                   | 36                   | 0.48    | 1         | 3  | 16 | 1  | 63  | 10  |

Number of people who choose each alternative

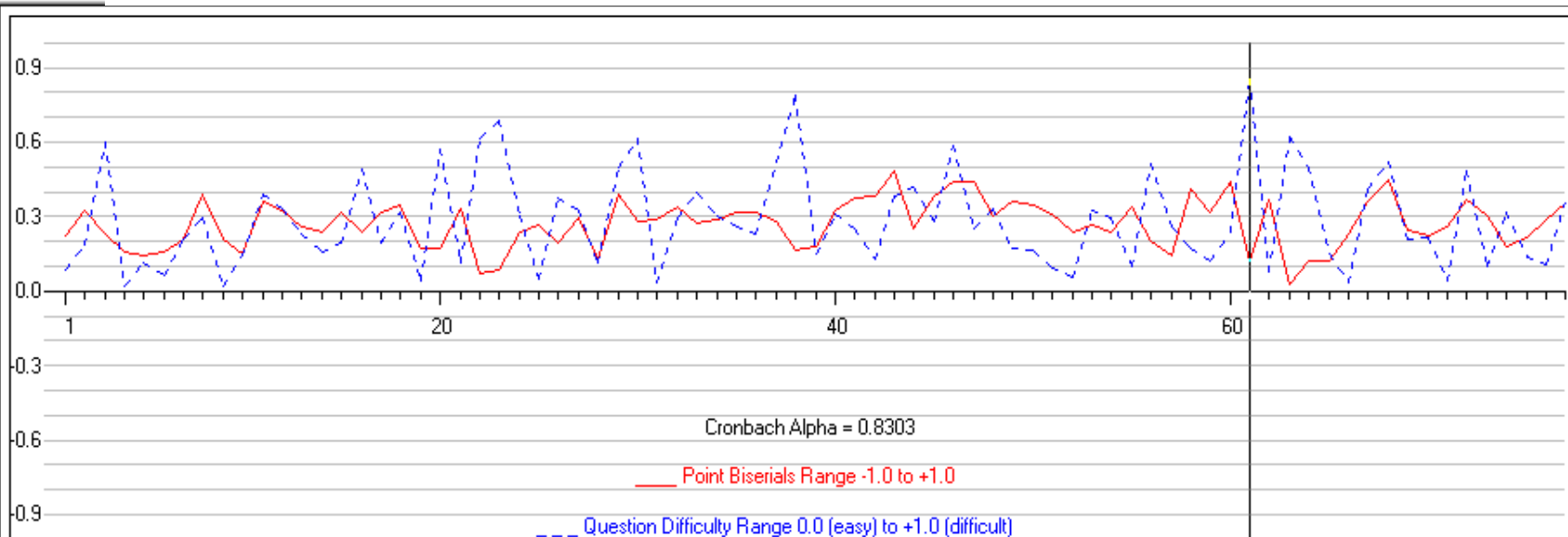
% right

Point Biserial

**On one of my exams, item #61 had high difficulty and a low correlation. Here is the distribution for this item.**

| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |           |            |            |   |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|-----------|------------|------------|---|-------|
|             |              |                   |              |              |            | A                       | B         | C          | D          | E | Blank |
| 047         |              |                   |              |              |            |                         |           |            |            |   |       |
| 048         |              |                   |              |              |            |                         |           |            |            |   |       |
| 049         |              |                   |              |              |            |                         |           |            |            |   |       |
| 050         |              |                   |              |              |            |                         |           |            |            |   |       |
| 051         |              |                   |              |              |            |                         |           |            |            |   |       |
| 052         |              |                   |              |              |            |                         |           |            |            |   |       |
| 053         |              |                   |              |              |            |                         |           |            |            |   |       |
| 054         |              |                   |              |              |            | <b>A</b>                | <b>B</b>  | <b>C</b>   | <b>D</b>   |   |       |
| 055         |              |                   |              |              |            |                         |           |            |            |   |       |
| 056         | <b>.86</b>   | <b>.12</b>        | <b>162</b>   | <b>976</b>   | <b>D</b>   | <b>105</b>              | <b>17</b> | <b>854</b> | <b>162</b> |   |       |
| 057         |              |                   |              |              |            |                         |           |            |            |   |       |
| 058         |              |                   |              |              |            |                         |           |            |            |   |       |
| 059         |              |                   |              |              |            |                         |           |            |            |   |       |
| 060         |              |                   |              |              |            |                         |           |            |            |   |       |
| 061         |              |                   |              |              |            |                         |           |            |            |   |       |
| 062         |              |                   |              |              |            |                         |           |            |            |   |       |
| 063         |              |                   |              |              |            |                         |           |            |            |   |       |
| 064         |              |                   |              |              |            |                         |           |            |            |   |       |
| 065         |              |                   |              |              |            |                         |           |            |            |   |       |
| 066         |              |                   |              |              |            |                         |           |            |            |   |       |

## Statistics

☐ Descriptive☒ General Item Analysis☐ Distracter Analysis☐ Discriminator Analysis☐ Inter-Item Correlations

**The actual item from the exam is shown in the next slide.**

**Correct answer is D**

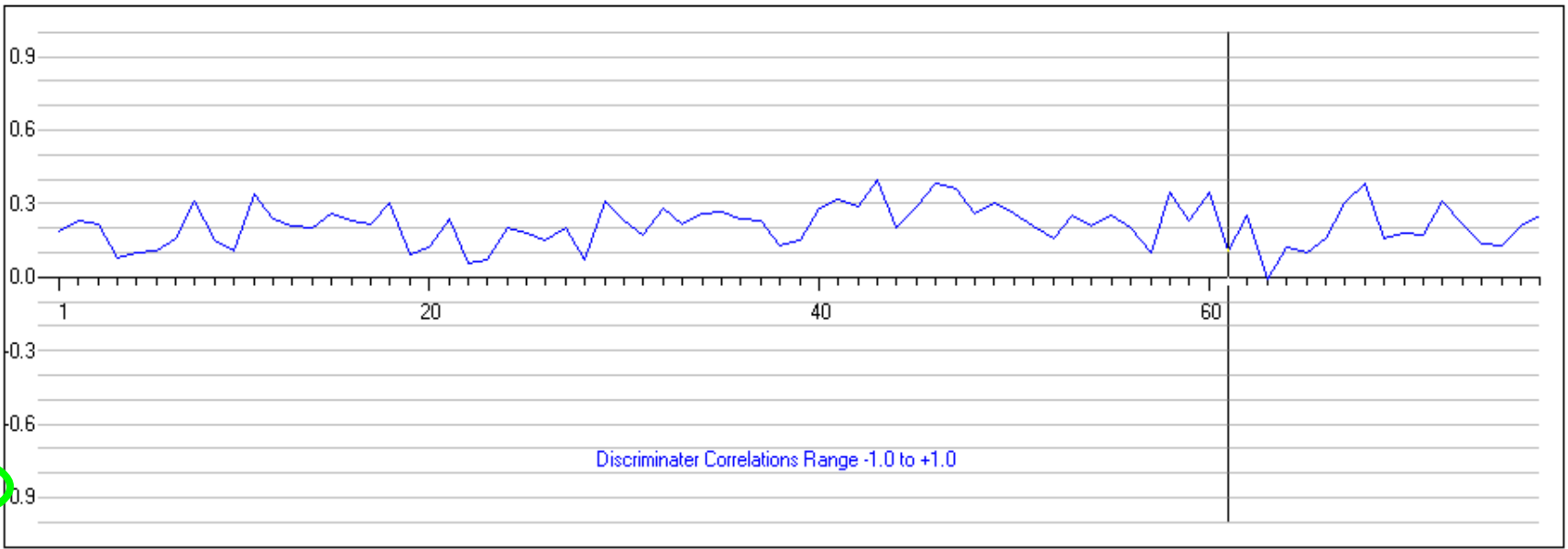
**The Reverend Rickey finds that when she publishes the annual contributions of church members by name, people give more than they would otherwise. This phenomenon is best thought of as an example of**

- A. the low-ball technique**
- B. burnout**
- C. social facilitation**
- D. social loafing** 

**We can examine this item further by looking at the Discriminator Analysis.** On the following slide, we compare the performance of the top 50% of the class to the bottom 50% on this item only. We then look at the top 30% and finally at the top 10%

| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|------|------|------|------|-------|
|             |              | Upper 50%           | Lower 50% |            | A                       | B    | C    | D    | E    | Blank |
| 055         | 0.10         | .25                 |           | D          | 0127                    | 0345 | 0044 | 0051 | 0000 | 0002  |
|             |              |                     |           |            | 0008                    | 0001 | 0004 | 0556 | 0000 | 0000  |
|             |              |                     |           |            | 0061                    | 0023 | 0015 | 0470 | 0000 | 0000  |
| 056         | 0.51         | .20                 |           | C          | 0035                    | 0047 | 0332 | 0155 | 0000 | 0000  |
|             |              |                     |           |            | 0048                    | 0112 | 0221 | 0187 | 0000 | 0001  |
| 057         | 0.26         | .10                 |           | B          | 0097                    | 0444 | 0027 | 0001 | 0000 | 0000  |
|             |              |                     |           |            | 0083                    | 0396 | 0073 | 0016 | 0000 | 0001  |
| 058         | 0.17         | .35                 |           | D          | 0008                    | 0010 | 0005 | 0546 | 0000 | 0000  |
|             |              |                     |           |            | 0053                    | 0083 | 0039 | 0394 | 0000 | 0000  |
| 059         | 0.12         | .23                 |           | A          | 0544                    | 0002 | 0007 | 0016 | 0000 | 0000  |
|             |              |                     |           |            | 0459                    | 0010 | 0035 | 0065 | 0000 | 0000  |
| 060         | 0.24         | .35                 |           | B          | 0035                    | 0518 | 0007 | 0009 | 0000 | 0000  |
|             |              |                     |           |            | 0138                    | 0347 | 0036 | 0048 | 0000 | 0000  |
| 061         | 0.86         | .11                 |           | D          | 0033                    | 0010 | 0424 | 0102 | 0000 | 0000  |
|             |              |                     |           |            | 0072                    | 0007 | 0430 | 0060 | 0000 | 0000  |
| 062         | 0.08         | .25                 |           | A          | 0562                    | 0003 | 0002 | 0002 | 0000 | 0000  |
|             |              |                     |           |            | 0485                    | 0037 | 0020 | 0027 | 0000 | 0000  |
| 063         | 0.62         | -.01                |           | D          | 0070                    | 0105 | 0182 | 0212 | 0000 | 0000  |
|             |              |                     |           |            | 0074                    | 0166 | 0109 | 0220 | 0000 | 0000  |
| 064         | 0.50         | .12                 |           | D          | 0019                    | 0022 | 0208 | 0319 | 0000 | 0001  |

- Statistics
- ☐ Descriptive
  - ☐ General Item Analysis
  - ☐ Distracter Analysis
  - ☒ Discriminator Analysis
  - ☐ Inter-Item Correlations

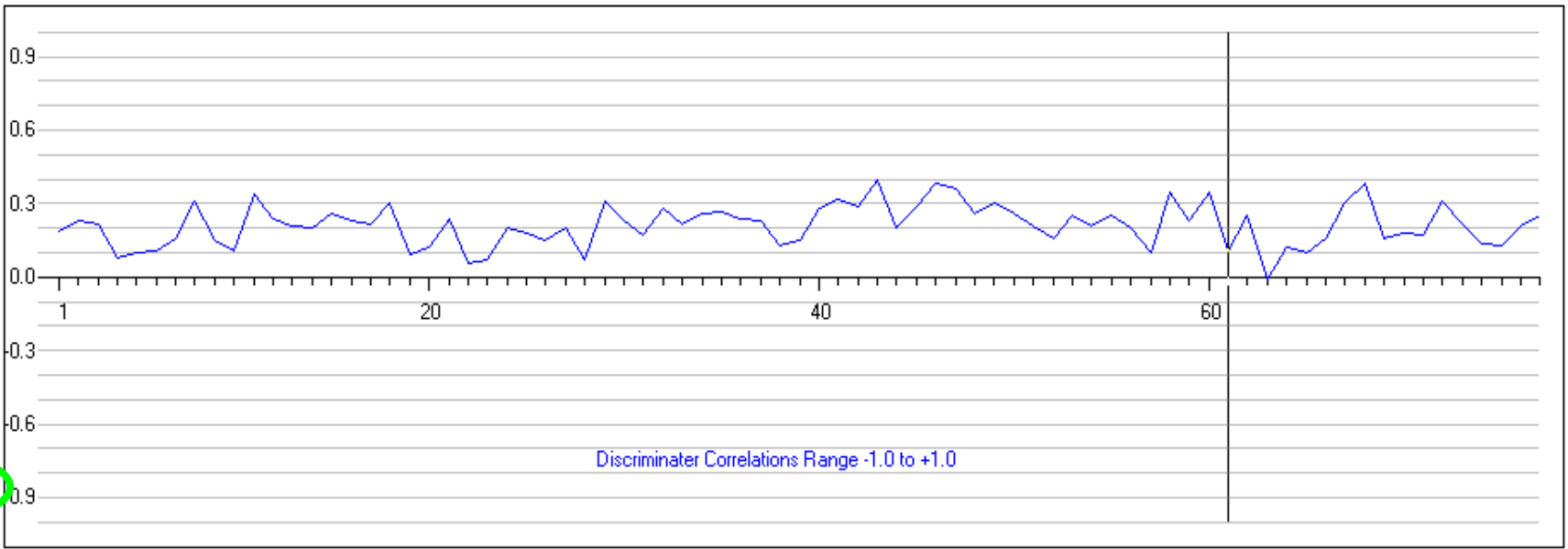


| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |   |   |   |   |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|---|---|---|---|-------|
|             |              | Upper 50%           | Lower 50% |            | A                       | B | C | D | E | Blank |

|     |  |  |  |  |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|--|--|--|--|
| 055 |  |  |  |  |  |  |  |  |  |  |
| 056 |  |  |  |  |  |  |  |  |  |  |
| 057 |  |  |  |  |  |  |  |  |  |  |
| 058 |  |  |  |  |  |  |  |  |  |  |
| 059 |  |  |  |  |  |  |  |  |  |  |
| 060 |  |  |  |  |  |  |  |  |  |  |
| 061 |  |  |  |  |  |  |  |  |  |  |
| 062 |  |  |  |  |  |  |  |  |  |  |
| 063 |  |  |  |  |  |  |  |  |  |  |
| 064 |  |  |  |  |  |  |  |  |  |  |

|         | A  | B  | C   | D   |
|---------|----|----|-----|-----|
| Top 50% | 33 | 10 | 424 | 102 |
|         | 72 | 7  | 430 | 60  |

- Statistics
- ☐ Descriptive
  - ☐ General Item Analysis
  - ☐ Distracter Analysis
  - ☒ Discriminator Analysis
  - ☐ Inter-Item Correlations



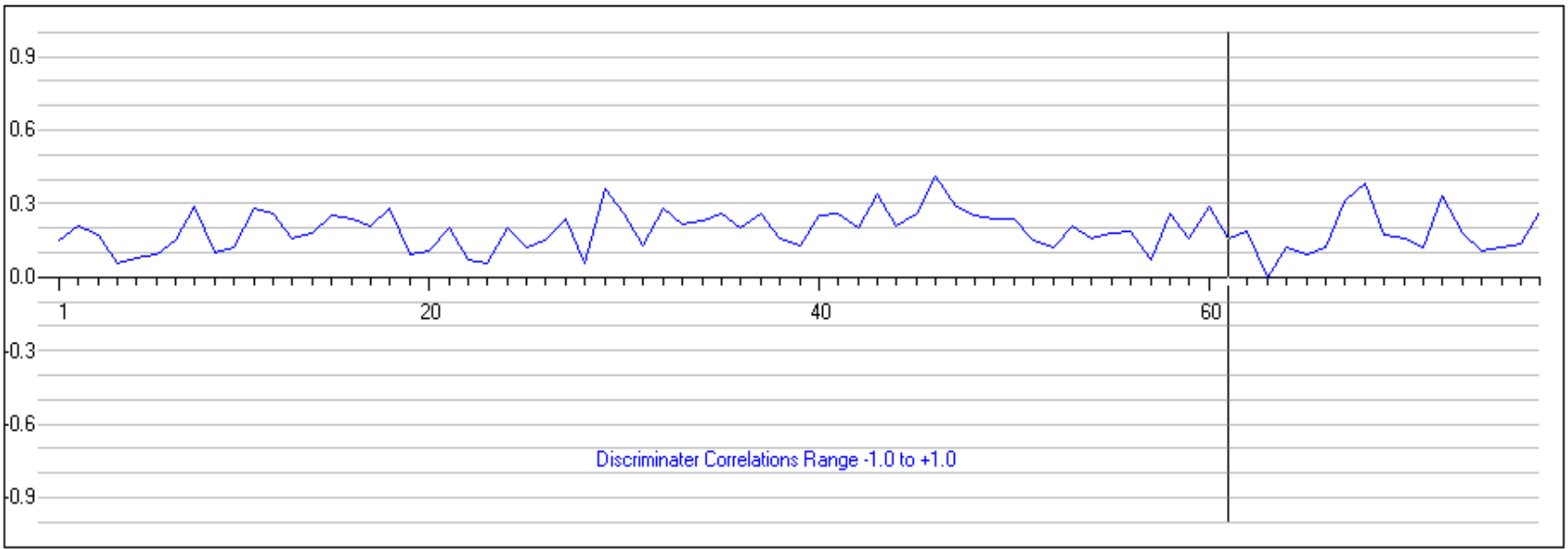


| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |   |   |   |   |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|---|---|---|---|-------|
|             |              | Upper 30%           | Lower 70% |            | A                       | B | C | D | E | Blank |

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**061**  
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063

|         |    |    |     |    |
|---------|----|----|-----|----|
| Top 30% | A  | B  | C   | D  |
|         | 14 | 6  | 243 | 78 |
|         | 91 | 11 | 611 | 84 |

- Statistics
- ☐ Descriptive
  - ☐ General Item Analysis
  - ☐ Distracter Analysis
  - ☒ Discriminator Analysis
  - ☐ Inter-Item Correlations



| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |   |   |   |   |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|---|---|---|---|-------|
|             |              | Upper 10%           | Lower 90% |            | A                       | B | C | D | E | Blank |

056

057

058

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063

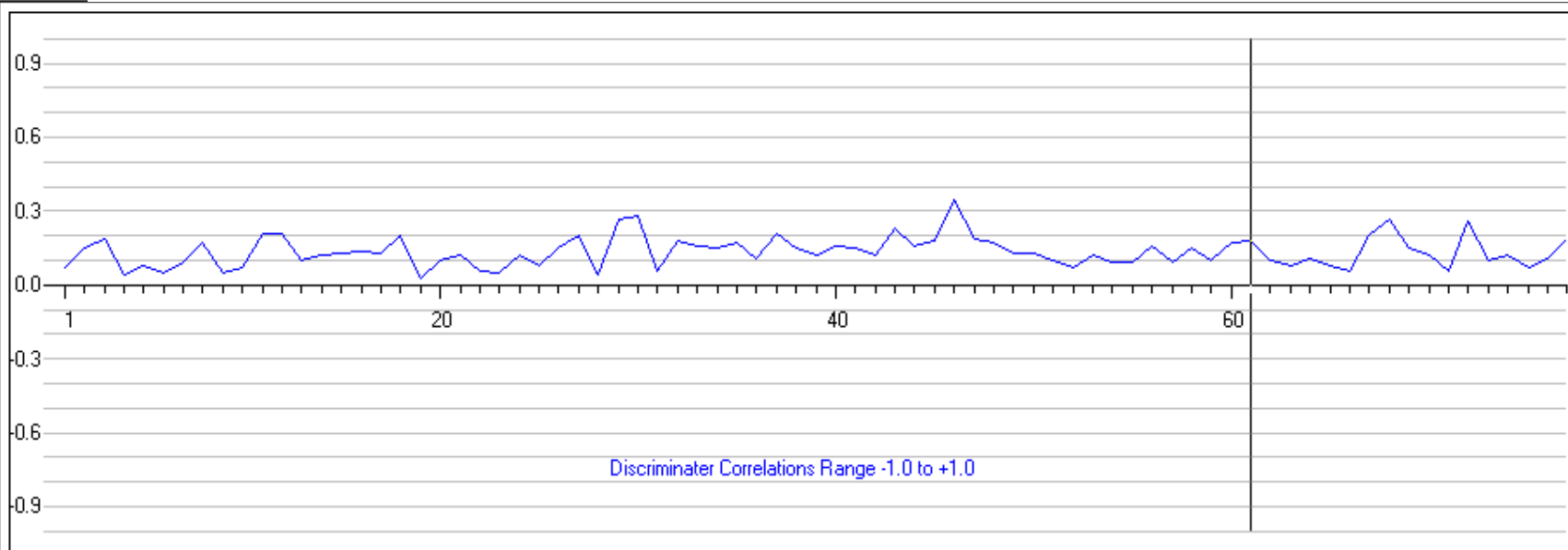
064

065

|         |     |    |     |     |
|---------|-----|----|-----|-----|
|         | A   | B  | C   | D   |
| Top 10% | 4   | 2  | 70  | 38  |
|         | 101 | 15 | 784 | 124 |

# Statistics

- ☐ Descriptive
- ☐ General Item Analysis
- ☐ Distracter Analysis
- ☒ Discriminator Analysis
- ☐ Inter-Item Correlations





★ PSYCHOL 1000 001 FW19 ★ Voluntary Retirement Incentive Window for Faculty

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## Tests & Quizzes

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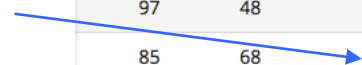
## Psych 1000 Midterm - Dec 14 - Item Analysis

Submission Status Total Scores Questions Statistics Item Analysis Export

View Highest Submission

| Question | N(678) | % Correct:<br>Whole Group | % Correct:<br>Upper 27% | % Correct:<br>Lower 27% | Discrim | No Answer | A  | B  | C  | D   | E   |
|----------|--------|---------------------------|-------------------------|-------------------------|---------|-----------|----|----|----|-----|-----|
|          | 215    | 92                        | 93                      | 91                      | 0.01    | 0         | 7  | 3  | 3  | 3   | 199 |
|          | 230    | 73                        | 82                      | 61                      | 0.2     | 0         | 4  | 13 | 38 | 170 | 5   |
|          | 232    | 73                        | 77                      | 70                      | 0.06    | 1         | 8  | 31 | 0  | 22  | 171 |
|          | 107    | 64                        | 92                      | 32                      | 0.6     | 0         | 15 | 69 | 4  | 17  | 2   |
|          | 97     | 48                        | 69                      | 26                      | 0.42    | 0         | 6  | 10 | 47 | 29  | 5   |
|          | 85     | 68                        | 95                      | 40                      | 0.54    | 0         | 58 | 14 | 6  | 4   | 3   |
|          | 104    | 61                        | 78                      | 28                      | 0.5     | 0         | 12 | 17 | 10 | 64  | 1   |
|          | 102    | 89                        | 100                     | 74                      | 0.25    | 0         | 4  | 4  | 91 | 1   | 2   |
|          | 89     | 79                        | 95                      | 62                      | 0.33    | 0         | 3  | 4  | 3  | 71  | 8   |
|          | 93     | 67                        | 84                      | 36                      | 0.48    | 1         | 3  | 16 | 1  | 63  | 10  |

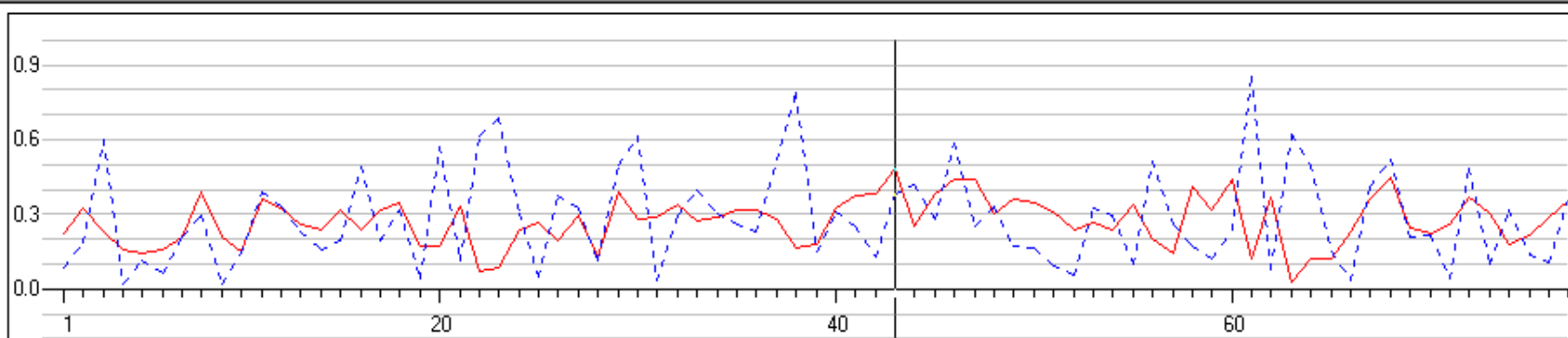
Upper and lower  
27%



**In each case, more people choose alternative “C” than the correct answer, “D”. Even for the top 10%, twice as many choose “C”. Most likely, there is a problem with this item. You should delete the item, or re-score.**

**In this second example, we see that almost everyone in the top 30% of the class gets the item correct. Note that the point-biserial correlation is positive and not near zero.**

| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 029         | 0.50         | 0.39              | 0571         | 0567         | D          | 0131                    | 0126 | 0310 | 0571 | 0000 | 0000  |
| 030         | 0.62         | 0.28              | 0437         | 0701         | B          | 0365                    | 0437 | 0134 | 0202 | 0000 | 0000  |
| 031         | 0.04         | 0.29              | 1097         | 0041         | C          | 0012                    | 0013 | 1097 | 0016 | 0000 | 0000  |
| 032         | 0.30         | 0.34              | 0802         | 0336         | D          | 0191                    | 0137 | 0008 | 0802 | 0000 | 0000  |
| 033         | 0.40         | 0.27              | 0684         | 0454         | C          | 0148                    | 0108 | 0684 | 0198 | 0000 | 0000  |
| 034         | 0.30         | 0.29              | 0794         | 0344         | A          | 0794                    | 0132 | 0105 | 0107 | 0000 | 0000  |
| 035         | 0.26         | 0.32              | 0846         | 0292         | A          | 0846                    | 0054 | 0012 | 0226 | 0000 | 0000  |
| 036         | 0.23         | 0.32              | 0877         | 0261         | B          | 0036                    | 0877 | 0013 | 0212 | 0000 | 0000  |
| 037         | 0.52         | 0.28              | 0546         | 0592         | C          | 0131                    | 0348 | 0546 | 0113 | 0000 | 0000  |
| 038         | 0.79         | 0.16              | 0243         | 0894         | A          | 0243                    | 0178 | 0583 | 0133 | 0000 | 0001  |
| 039         | 0.15         | 0.18              | 0969         | 0169         | D          | 0158                    | 0004 | 0007 | 0969 | 0000 | 0000  |
| 040         | 0.31         | 0.33              | 0787         | 0351         | D          | 0134                    | 0072 | 0145 | 0787 | 0000 | 0000  |
| 041         | 0.25         | 0.38              | 0852         | 0285         | B          | 0152                    | 0852 | 0097 | 0036 | 0000 | 0001  |
| 042         | 0.13         | 0.38              | 0990         | 0148         | B          | 0099                    | 0990 | 0014 | 0035 | 0000 | 0000  |
| 043         | 0.38         | 0.48              | 0703         | 0435         | A          | 0703                    | 0093 | 0083 | 0258 | 0000 | 0000  |
| 044         | 0.42         | 0.25              | 0660         | 0478         | A          | 0660                    | 0278 | 0037 | 0163 | 0000 | 0000  |
| 045         | 0.28         | 0.38              | 0817         | 0321         | D          | 0240                    | 0034 | 0045 | 0817 | 0002 | 0000  |
| 046         | 0.59         | 0.44              | 0468         | 0670         | C          | 0442                    | 0083 | 0468 | 0145 | 0000 | 0000  |
| 047         | 0.25         | 0.44              | 0851         | 0287         | C          | 0013                    | 0236 | 0851 | 0038 | 0000 | 0000  |
| 048         | 0.34         | 0.30              | 0756         | 0382         | B          | 0051                    | 0756 | 0095 | 0236 | 0000 | 0000  |



**Difficulty = .38**  
**Point Biserial = + .40**

Statistics

- ☐ Descriptive
- ☒ General Item Analysis
- ☐ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations

**Recent research indicates that cognitive dissonance tends to arise only when the**

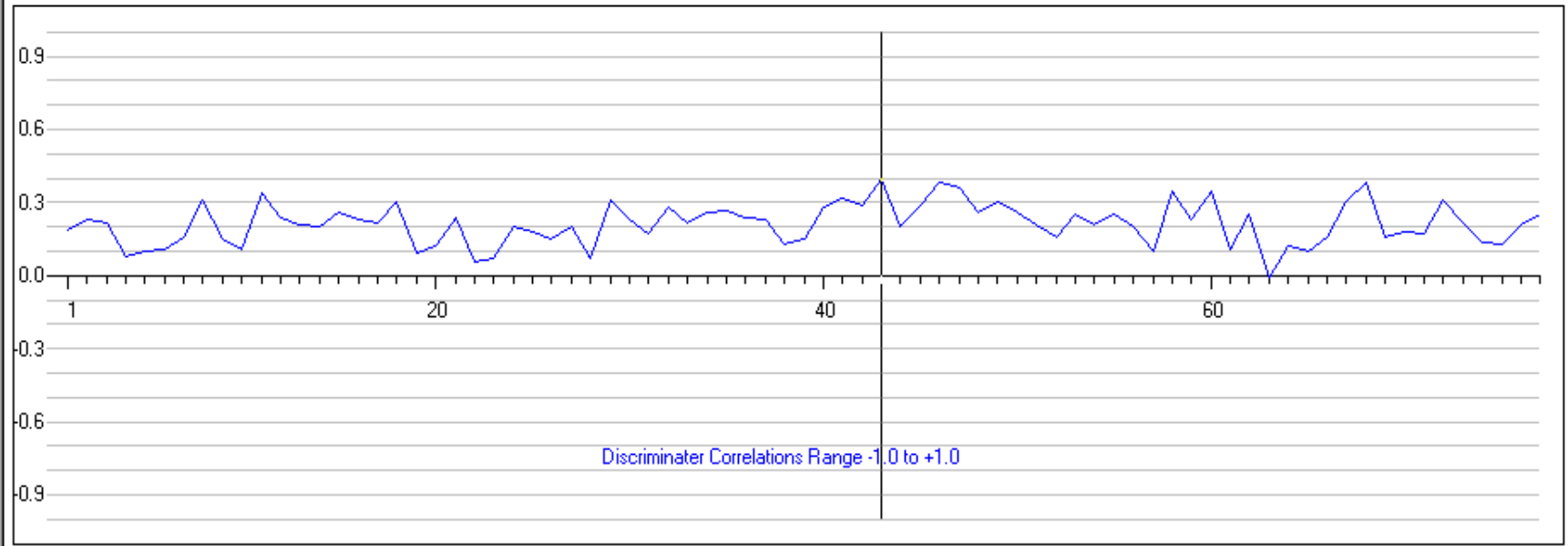
- A. person's behaviour is voluntary** ←
- B. person does not feel responsible for his or her actions**
- C. person does not feel guilty or anxious about his or her actions**
- D. person is coerced into performing some behaviour**

| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |   |   |   |   |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|---|---|---|---|-------|
|             |              | Upper 50%           | Lower 50% |            | A                       | B | C | D | E | Blank |

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**043**  
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048

|                |  |            |           |           |            |
|----------------|--|------------|-----------|-----------|------------|
| <b>Top 50%</b> |  | <b>A</b>   | <b>B</b>  | <b>C</b>  | <b>D</b>   |
|                |  | <b>462</b> | <b>10</b> | <b>3</b>  | <b>94</b>  |
|                |  | <b>241</b> | <b>83</b> | <b>80</b> | <b>164</b> |

- Statistics**
- ☒ Descriptive
  - ☐ General Item Analysis
  - ☐ Distracter Analysis
  - ☐ Discriminator Analysis
  - ☐ Inter-Item Correlations



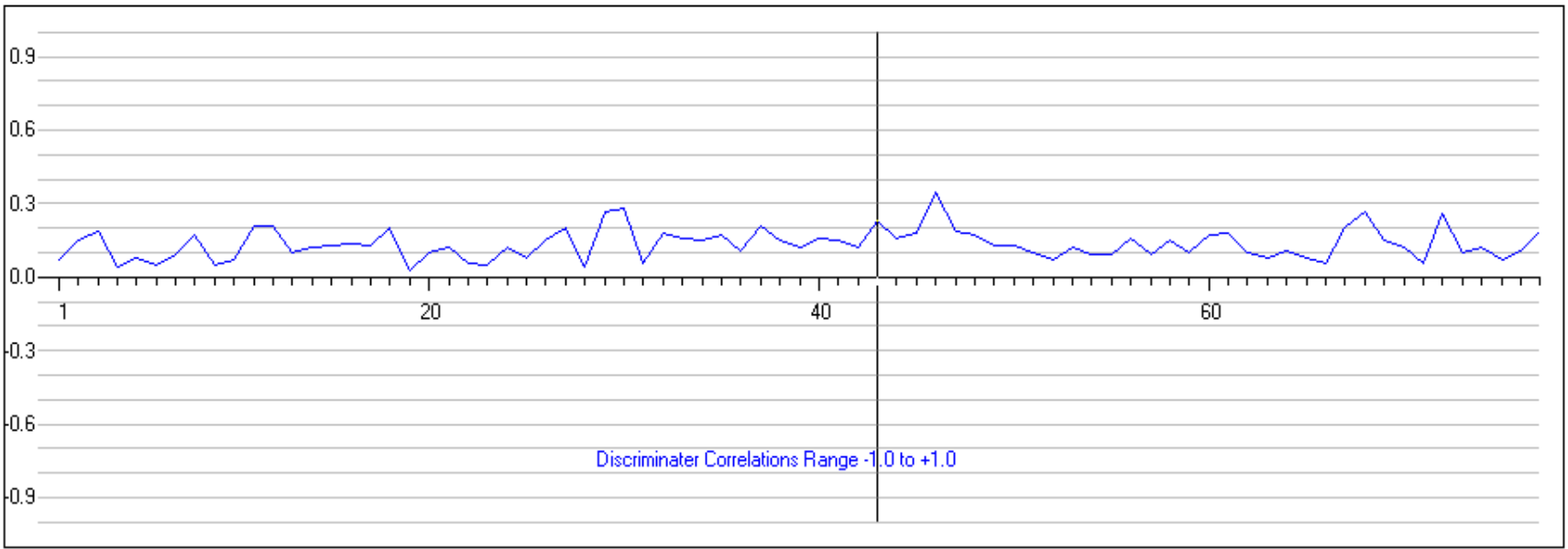


| Ques<br>Num | Diff<br>Rate | Discriminator Coeff |           | Cor<br>Ans | Distribution of Answers |   |   |   |   |       |
|-------------|--------------|---------------------|-----------|------------|-------------------------|---|---|---|---|-------|
|             |              | Upper 10%           | Lower 90% |            | A                       | B | C | D | E | Blank |

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|         |     |    |    |     |
|---------|-----|----|----|-----|
| Top 10% | A   | B  | C  | D   |
|         | 108 | 0  | 0  | 6   |
|         | 595 | 93 | 83 | 252 |

- Statistics
- ☐ Descriptive
  - ☐ General Item Analysis
  - ☐ Distracter Analysis
  - ☒ Discriminator Analysis
  - ☐ Inter-Item Correlations



**The worst case would be to  
have the correlation go  
negative.**

**When this happens, you  
almost always should delete  
or re-score.**

| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Distribution of Answers |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 066         | 0.97         | -0.13             | 0030         | 1148         | D          | 0001                    | 0006 | 0002 | 0030 | 1139 | 0001  |
| 067         | 0.23         | 0.25              | 0912         | 0267         | D          | 0006                    | 0123 | 0121 | 0912 | 0017 | 0000  |
| 068         | 0.16         | 0.24              | 0984         | 0194         | C          | 0004                    | 0066 | 0984 | 0122 | 0002 | 0001  |
| 069         | 0.06         | 0.21              | 1103         | 0076         | E          | 0052                    | 0001 | 0016 | 0007 | 1103 | 0000  |
| 070         | 0.53         | 0.25              | 0557         | 0622         | B          | 0053                    | 0557 | 0541 | 0010 | 0018 | 0000  |
| 071         | 0.21         | 0.31              | 0929         | 0250         | D          | 0004                    | 0014 | 0200 | 0929 | 0032 | 0000  |
| 072         | 0.53         | 0.09              | 0551         | 0627         | C          | 0007                    | 0022 | 0551 | 0006 | 0592 | 0001  |
| 073         | 0.43         | 0.33              | 0677         | 0502         | B          | 0018                    | 0677 | 0209 | 0031 | 0244 | 0000  |
| 074         | 0.09         | 0.29              | 1076         | 0103         | B          | 0005                    | 1076 | 0019 | 0027 | 0052 | 0000  |
| 075         | 0.17         | 0.42              | 0981         | 0198         | D          | 0009                    | 0139 | 0023 | 0981 | 0027 | 0000  |
| 076         | 0.17         | 0.23              | 0974         | 0204         | D          | 0004                    | 0026 | 0043 | 0974 | 0131 | 0001  |
| 077         | 0.29         | 0.48              | 0838         | 0340         | B          | 0303                    | 0838 | 0003 | 0008 | 0025 | 0001  |
| 078         | 0.17         | 0.41              | 0978         | 0201         | C          | 0015                    | 0029 | 0978 | 0118 | 0039 | 0000  |
| 079         | 0.06         | 0.34              | 1107         | 0072         | C          | 0008                    | 0033 | 1107 | 0026 | 0005 | 0000  |
| 080         | 0.26         | 0.34              | 0874         | 0305         | A          | 0874                    | 0066 | 0115 | 0119 | 0005 | 0000  |
| 081         | 0.47         | 0.29              | 0629         | 0550         | B          | 0205                    | 0629 | 0020 | 0029 | 0296 | 0000  |
| 082         | 0.28         | 0.39              | 0848         | 0331         | B          | 0017                    | 0848 | 0017 | 0024 | 0273 | 0000  |
| 083         | 0.47         | 0.32              | 0622         | 0557         | A          | 0622                    | 0050 | 0048 | 0007 | 0452 | 0000  |
| 084         | 0.17         | 0.40              | 0979         | 0200         | D          | 0091                    | 0021 | 0057 | 0979 | 0031 | 0000  |
| 085         | 0.20         | 0.32              | 0936         | 0241         | C          | 0045                    | 0134 | 0936 | 0031 | 0031 | 0002  |

Right = 30  
Wrong = 1148

1139 choose E

# Statistics

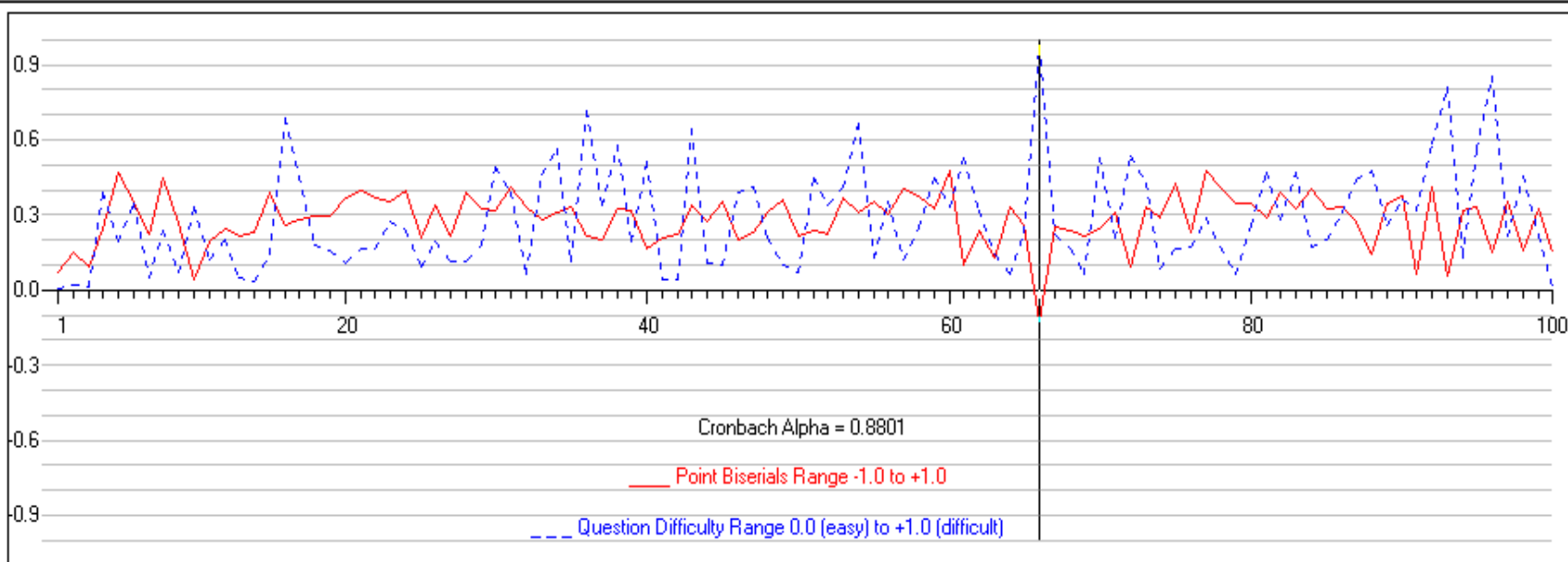
☒ Descriptive

☒ General Item Analysis

☐ Distracter Analysis

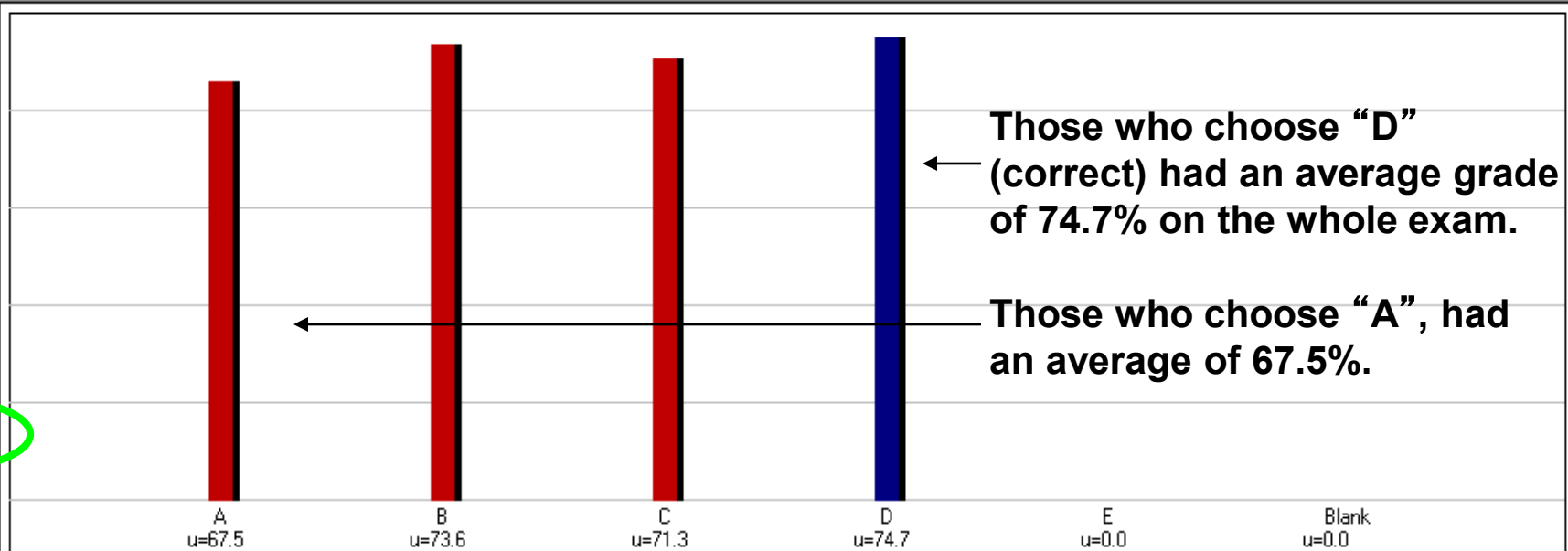
☐ Discriminator Analysis

☐ Inter-Item Correlations



**Finally, it is useful to look at the Distractor Analysis. For any item, this will show you the average grade on the exam for those students who choose each alternative. This can help you to decide if you should re-score an item.**

| Ques<br>Num | Diff<br>Rate | Point<br>Biserial | Num<br>Right | Num<br>Wrong | Cor<br>Ans | Mean Grade Distribution |      |      |      |      |       |
|-------------|--------------|-------------------|--------------|--------------|------------|-------------------------|------|------|------|------|-------|
|             |              |                   |              |              |            | A                       | B    | C    | D    | E    | Blank |
| 046         | 0.59         | 0.44              | 0468         | 0670         | C          | 68.3                    | 65.6 | 77.3 | 65.6 | 00.0 | 00.0  |
| 047         | 0.25         | 0.44              | 0851         | 0287         | C          | 65.0                    | 63.8 | 74.2 | 58.6 | 00.0 | 00.0  |
| 048         | 0.34         | 0.30              | 0756         | 0382         | B          | 73.0                    | 73.8 | 65.6 | 65.9 | 00.0 | 00.0  |
| 049         | 0.17         | 0.36              | 0944         | 0194         | C          | 62.4                    | 60.2 | 73.2 | 67.0 | 00.0 | 00.0  |
| 050         | 0.16         | 0.35              | 0952         | 0186         | D          | 55.8                    | 64.2 | 57.6 | 73.1 | 00.0 | 00.0  |
| 051         | 0.09         | 0.31              | 1034         | 0104         | A          | 72.5                    | 61.7 | 61.2 | 58.5 | 00.0 | 00.0  |
| 052         | 0.06         | 0.24              | 1075         | 0063         | C          | 60.7                    | 61.7 | 72.1 | 60.5 | 00.0 | 00.0  |
| 053         | 0.32         | 0.26              | 0770         | 0368         | A          | 73.4                    | 66.5 | 68.9 | 62.7 | 77.9 | 00.0  |
| 054         | 0.30         | 0.24              | 0797         | 0339         | B          | 68.4                    | 73.2 | 68.1 | 63.9 | 00.0 | 63.6  |
| 055         | 0.10         | 0.34              | 1026         | 0112         | D          | 60.5                    | 58.9 | 60.8 | 72.7 | 00.0 | 00.0  |
| 056         | 0.51         | 0.20              | 0553         | 0584         | C          | 70.2                    | 66.7 | 73.7 | 70.3 | 00.0 | 63.6  |
| 057         | 0.26         | 0.14              | 0840         | 0297         | B          | 71.7                    | 72.4 | 64.7 | 62.3 | 00.0 | 68.8  |
| 058         | 0.17         | 0.41              | 0940         | 0198         | D          | 61.2                    | 62.1 | 61.2 | 73.5 | 00.0 | 00.0  |
| 059         | 0.12         | 0.32              | 1003         | 0135         | A          | 72.7                    | 61.0 | 61.5 | 62.4 | 00.0 | 00.0  |
| 060         | 0.24         | 0.44              | 0865         | 0273         | B          | 63.7                    | 74.2 | 62.3 | 60.7 | 00.0 | 00.0  |
| 061         | 0.86         | 0.12              | 0162         | 0976         | D          | 67.5                    | 73.6 | 71.3 | 74.7 | 00.0 | 00.0  |
| 062         | 0.08         | 0.37              | 1047         | 0091         | A          | 72.6                    | 58.4 | 54.7 | 59.4 | 00.0 | 00.0  |
| 063         | 0.62         | 0.03              | 0432         | 0706         | D          | 71.1                    | 68.1 | 74.2 | 71.8 | 00.0 | 00.0  |
| 064         | 0.50         | 0.12              | 0567         | 0570         | D          | 67.5                    | 67.4 | 70.9 | 72.8 | 00.0 | 72.7  |
| 065         | 0.15         | 0.13              | 0966         | 0172         | B          | 69.8                    | 72.0 | 68.7 | 67.8 | 00.0 | 00.0  |



Statistics

- ☐ Descriptive
- ☐ General Item Analysis
- ☒ Distracter Analysis
- ☐ Discriminator Analysis
- ☐ Inter-Item Correlations

# Issues

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- 1. Delete or re-score?**
- 2. Tolerance levels**
- 3. Item construction**
- 4. Grade inflation?**

# **The Good, the Bad, & the Ugly**

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## **Interpreting the Results from Your Multiple Choice Test**

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