ROCF Data Analysis Report

4.21.2011

SITUATION:
- DATA: unbiased ROCF scores generated in randomized sequence, including completing time (without knowing the information of Subject, Condition or Trial)
- SYSTEM: Installed in desktop computer. A sample data was input into the system for testing prior to scoring and scored as 36(full), with exactly correct dimensions.
- All recognizing problems are fixed (including Unit 11 and Unit 14).

1. The data analysis were conducted twice, with the first time including subject09 and the second time excluding subject 09, considering the completing time of the post test of subject 09 was only 197s, which is less than half of the average.

2. Column Charts for three conditions (with subject 09)

3. Column Charts for three conditions (without subject 09)
4. Condition doesn't have significant influence on improvement with subject 09.

   > print(summary(aov(improvement ~ condition, data=data)))
   Df Sum Sq Mean Sq F value Pr(>F)
   condition 2 64.02 32.010 1.8104 0.1882
   Residuals 21 371.31 17.682

5. Condition has significant influence on improvement without subject 09.

   > print(summary(aov(improvement ~ condition, data=data)))
   Df Sum Sq Mean Sq F value Pr(>F)
   condition 2 86.478 43.239 3.0077 0.0721
   Residuals 20 287.522 14.376

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   Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

6. Pre test score could influence the improvement, since if the pretest score is high enough, the space for improvement could be very limited, which means the influence of therapy and carefulness during the test will be very limited. However, the influence of noise remains the same. The following analysis shows that the factor of pretest is significant to the improvement.
7. Considering both the factors of condition and pretest scores, they have significant effect on the improvement. (95%)

8. No significant effect was shown of trial or condition or interaction on the total score.

9. There is no significant effect of conditions on time reduction (value) or time reduction (percentage).
10. There is no significant influence of trial, condition, or the interaction effect on Unit scores (from unit 1 to unit 18)

```r
> print(summary(aov(TimeRdV ~ condition, data=data)))
  Df  Sum Sq  Mean Sq  F value  Pr(>F)
condition     2  67064 33532.0  1.3783    0.2739
Residuals    21  510906 24329.3
> print(summary(aov(TimeRdF ~ condition, data=data)))
  Df  Sum Sq  Mean Sq  F value  Pr(>F)
condition     2  2159.4 1079.7  1.1892    0.3242
Residuals    21  19066.6  907.9
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