CTT Assignment

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Initial alpha() call

The data set was reverse-coded based on my item interpretations.

```
mt_rev <- read_excel("Bruce_CTT_data.xlsx", sheet = "Reverse Coded")
alpha(mt_rev)$total[1]
```

```
Warning in alpha(mt_rev): Some items were negatively correlated with the total scale and probably
should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option
```

```
Some items ( Q1_EMPOW Q2_ADOL Q6_AVCM Q8_WHOURS Q10_SUMM Q12_STATUS Q14_FAMLY Q17_PPEERS Q19_NOACAD Q20_
probably should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option
```

```
 raw_alpha
 0.3029083
```

alpha() call with "check.keys=TRUE"

```
alpha(mt_rev, check.keys=TRUE)$total[1]
```

```
Warning in alpha(mt_rev, check.keys = TRUE): Some items were negatively correlated with total scale and
 This is indicated by a negative sign for the variable name.
```

```
 raw_alpha
 0.7293692
```

alpha() with original scores

This data set is the original data with no items that are reverse-coded.

```
mt_orig <- read_excel("Bruce_CTT_data.xlsx", sheet = "Transposed Responses")
alpha(mt_orig[,1:23])$total[1]
```

```
Some items ( Q1_EMPOW Q2_ADOL Q13_NOADMIT ) were negatively correlated with the total scale and
probably should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option

 raw_alpha
 0.7051619
```

```
alpha(mt_orig[,1:23], check.keys = TRUE)$total[1]
```

```
 raw_alpha
 0.7293692
```

First pass at eliminating items

```
keep <- c(1,3,4,6,8,10,11,12,14,15,16,17,18,20,21,23)
alpha(mt_orig[,keep])
```

```
Warning in alpha(mt_orig[, keep]): Some items were negatively correlated with the total scale and probal
should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option

Some items ( Q1_EMPOW Q21_CUND ) were negatively correlated with the total scale and
probably should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option

Reliability analysis
Call: alpha(x = mt_orig[, keep])

  raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
      0.72      0.69    0.78      0.12 2.2 0.043  2.8 0.32    0.097

 lower alpha upper     95% confidence boundaries
0.64 0.72 0.8

 Reliability if an item is dropped:
           raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
Q1_EMPOW        0.73      0.71    0.79      0.14 2.4    0.042 0.032 0.117
Q3_SOCIETY      0.72      0.69    0.78      0.13 2.2    0.042 0.033 0.102
Q4_SCHANGE      0.71      0.68    0.76      0.12 2.1    0.043 0.032 0.102
Q6_AVCM         0.72      0.70    0.78      0.14 2.4    0.042 0.029 0.102
Q8_WHOURS       0.68      0.65    0.75      0.11 1.9    0.049 0.030 0.095
```

```
Q10_SUMM        0.71      0.68    0.76      0.12 2.1    0.045 0.029 0.095
Q11_HELP        0.72      0.69    0.76      0.13 2.2    0.043 0.032 0.099
Q12_STATUS      0.69      0.65    0.76      0.11 1.9    0.048 0.032 0.085
Q14_FAMLY       0.67      0.65    0.75      0.11 1.8    0.051 0.029 0.093
Q15_INEQL       0.71      0.68    0.75      0.12 2.1    0.043 0.030 0.093
Q16_INCOM       0.67      0.64    0.74      0.11 1.8    0.050 0.029 0.089
Q17_PPEERS      0.73      0.70    0.78      0.13 2.3    0.040 0.033 0.102
Q18_SJOB        0.69      0.66    0.74      0.12 2.0    0.047 0.028 0.099
Q20_FLEXR       0.71      0.67    0.77      0.12 2.1    0.045 0.033 0.093
Q21_CUND        0.73      0.70    0.77      0.13 2.3    0.041 0.029 0.102
Q23_STEAD       0.69      0.66    0.76      0.12 2.0    0.047 0.031 0.099

 Item statistics
            n raw.r std.r r.cor r.drop mean   sd
Q1_EMPOW   82  0.10  0.19 0.057  0.013  3.7 0.46
Q3_SOCIETY 82  0.20  0.31 0.218  0.118  3.8 0.47
Q4_SCHANGE 81  0.37  0.42 0.385  0.234  3.4 0.72
Q6_AVCM    79  0.25  0.21 0.127  0.118  1.3 0.62
Q8_WHOURS  81  0.64  0.60 0.576  0.530  2.7 0.88
Q10_SUMM   82  0.46  0.41 0.361  0.315  2.8 0.82
Q11_HELP   82  0.28  0.34 0.295  0.175  3.7 0.52
Q12_STATUS 81  0.58  0.59 0.544  0.482  2.2 0.82
Q14_FAMLY  81  0.68  0.63 0.618  0.564  2.3 0.94
Q15_INEQL  81  0.35  0.40 0.371  0.238  3.3 0.64
Q16_INCOM  80  0.68  0.66 0.665  0.589  2.3 0.81
Q17_PPEERS 81  0.32  0.27 0.175  0.145  2.4 0.96
Q18_SJOB   82  0.57  0.52 0.522  0.457  2.6 0.78
Q20_FLEXR  81  0.43  0.44 0.365  0.326  1.5 0.69
Q21_CUND   81  0.15  0.24 0.174  0.046  3.6 0.51
Q23_STEAD  79  0.56  0.54 0.496  0.439  2.8 0.77

Non missing response frequency for each item
               1    2    3    4 miss
Q1_EMPOW    0.00 0.00 0.29 0.71 0.00
Q3_SOCIETY  0.00 0.02 0.17 0.80 0.00
Q4_SCHANGE  0.02 0.06 0.36 0.56 0.01
Q6_AVCM     0.72 0.23 0.04 0.01 0.04
Q8_WHOURS   0.12 0.25 0.48 0.15 0.01
Q10_SUMM    0.09 0.20 0.55 0.17 0.00
Q11_HELP    0.00 0.02 0.27 0.71 0.00
Q12_STATUS  0.19 0.48 0.27 0.06 0.01
Q14_FAMLY   0.21 0.36 0.32 0.11 0.01
Q15_INEQL   0.00 0.09 0.48 0.43 0.01
Q16_INCOM   0.20 0.34 0.44 0.03 0.02
Q17_PPEERS  0.23 0.19 0.48 0.10 0.01
Q18_SJOB    0.11 0.26 0.56 0.07 0.00
Q20_FLEXR   0.60 0.33 0.04 0.02 0.01
Q21_CUND    0.00 0.01 0.36 0.63 0.01
Q23_STEAD   0.06 0.25 0.54 0.14 0.04
```

```
alpha(mt_orig[,keep], check.keys = TRUE)$total$raw_alpha
```

```
Warning in alpha(mt_orig[, keep], check.keys = TRUE): Some items were negatively correlated with total s
 This is indicated by a negative sign for the variable name.
```

```
[1] 0.7163267
```

Second pass at eliminating items

```
# keep <- c(1,4,6,8,10,11,12,14,15,16,17,18,20,21,23)
# alpha(mt_orig[,keep], check.keys = TRUE)
```