PaperAss\_LVM\_conF.R

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library('lavaan')

## This is lavaan 0.6-10  
## lavaan is FREE software! Please report any bugs.

library(RColorBrewer)  
library(reshape2)  
  
  
conf\_data = read.csv('LVMQ\_v2\_nosubject.csv', sep=';', header = TRUE)  
  
  
model3='Competence=~CO01+CO02+CO03+CO04+CO05+CO06+CO07+CO08+CO09+CO09+CO10  
 Autonomy=~AU01+AU02+AU03+AU04+AU05+AU06+AU07+AU08+AU09+AU09+AU10  
 Relatedness=~RE01+RE02+RE03+RE04+RE05+RE06+RE07+RE08+RE09+RE09+RE10'  
  
fit3\_conf=cfa(model=model3, data=conf\_data, std.lv= TRUE, )   
summary(fit3\_conf, standardized=TRUE)

## lavaan 0.6-10 ended normally after 31 iterations  
##   
## Estimator ML  
## Optimization method NLMINB  
## Number of model parameters 63  
##   
## Number of observations 107  
##   
## Model Test User Model:  
##   
## Test statistic 615.058  
## Degrees of freedom 402  
## P-value (Chi-square) 0.000  
##   
## Parameter Estimates:  
##   
## Standard errors Standard  
## Information Expected  
## Information saturated (h1) model Structured  
##   
## Latent Variables:  
## Estimate Std.Err z-value P(>|z|) Std.lv Std.all  
## Competence =~   
## CO01 -0.011 0.099 -0.107 0.915 -0.011 -0.013  
## CO02 -0.434 0.094 -4.619 0.000 -0.434 -0.552  
## CO03 -0.277 0.089 -3.127 0.002 -0.277 -0.374  
## CO04 0.143 0.130 1.099 0.272 0.143 0.134  
## CO05 0.073 0.122 0.600 0.548 0.073 0.073  
## CO06 -0.307 0.108 -2.853 0.004 -0.307 -0.342  
## CO07 -0.325 0.091 -3.568 0.000 -0.325 -0.426  
## CO08 0.088 0.113 0.780 0.435 0.088 0.095  
## CO09 0.099 0.118 0.832 0.405 0.099 0.101  
## CO10 -0.471 0.115 -4.089 0.000 -0.471 -0.487  
## Autonomy =~   
## AU01 0.685 0.128 5.353 0.000 0.685 0.593  
## AU02 -0.135 0.149 -0.907 0.364 -0.135 -0.106  
## AU03 0.616 0.120 5.148 0.000 0.616 0.570  
## AU04 0.333 0.109 3.040 0.002 0.333 0.347  
## AU05 0.534 0.103 5.188 0.000 0.534 0.575  
## AU06 0.114 0.134 0.854 0.393 0.114 0.100  
## AU07 -0.342 0.126 -2.713 0.007 -0.342 -0.311  
## AU08 -0.031 0.139 -0.224 0.823 -0.031 -0.026  
## AU09 0.192 0.089 2.152 0.031 0.192 0.248  
## AU10 0.114 0.110 1.034 0.301 0.114 0.120  
## Relatedness =~   
## RE01 0.293 0.138 2.117 0.034 0.293 0.238  
## RE02 0.278 0.123 2.255 0.024 0.278 0.253  
## RE03 -0.458 0.119 -3.845 0.000 -0.458 -0.421  
## RE04 -0.603 0.096 -6.257 0.000 -0.603 -0.661  
## RE05 -0.654 0.104 -6.300 0.000 -0.654 -0.666  
## RE06 0.434 0.134 3.248 0.001 0.434 0.359  
## RE07 -0.409 0.132 -3.093 0.002 -0.409 -0.343  
## RE08 -0.363 0.108 -3.363 0.001 -0.363 -0.371  
## RE09 -0.189 0.091 -2.073 0.038 -0.189 -0.233  
## RE10 -0.355 0.111 -3.214 0.001 -0.355 -0.356  
##   
## Covariances:  
## Estimate Std.Err z-value P(>|z|) Std.lv Std.all  
## Competence ~~   
## Autonomy -0.637 0.129 -4.957 0.000 -0.637 -0.637  
## Relatedness 0.100 0.151 0.664 0.507 0.100 0.100  
## Autonomy ~~   
## Relatedness 0.038 0.141 0.268 0.789 0.038 0.038  
##   
## Variances:  
## Estimate Std.Err z-value P(>|z|) Std.lv Std.all  
## .CO01 0.653 0.089 7.314 0.000 0.653 1.000  
## .CO02 0.430 0.080 5.358 0.000 0.430 0.695  
## .CO03 0.473 0.072 6.599 0.000 0.473 0.860  
## .CO04 1.129 0.156 7.235 0.000 1.129 0.982  
## .CO05 0.991 0.136 7.291 0.000 0.991 0.995  
## .CO06 0.712 0.106 6.733 0.000 0.712 0.883  
## .CO07 0.476 0.075 6.338 0.000 0.476 0.819  
## .CO08 0.857 0.118 7.275 0.000 0.857 0.991  
## .CO09 0.936 0.129 7.269 0.000 0.936 0.990  
## .CO10 0.714 0.120 5.933 0.000 0.714 0.763  
## .AU01 0.866 0.159 5.435 0.000 0.866 0.649  
## .AU02 1.605 0.221 7.276 0.000 1.605 0.989  
## .AU03 0.787 0.140 5.640 0.000 0.787 0.675  
## .AU04 0.810 0.118 6.850 0.000 0.810 0.880  
## .AU05 0.577 0.103 5.601 0.000 0.577 0.670  
## .AU06 1.302 0.179 7.281 0.000 1.302 0.990  
## .AU07 1.095 0.157 6.951 0.000 1.095 0.903  
## .AU08 1.420 0.194 7.312 0.000 1.420 0.999  
## .AU09 0.563 0.079 7.092 0.000 0.563 0.938  
## .AU10 0.883 0.122 7.265 0.000 0.883 0.985  
## .RE01 1.429 0.200 7.143 0.000 1.429 0.943  
## .RE02 1.124 0.158 7.119 0.000 1.124 0.936  
## .RE03 0.972 0.145 6.692 0.000 0.972 0.823  
## .RE04 0.468 0.094 5.000 0.000 0.468 0.563  
## .RE05 0.538 0.109 4.947 0.000 0.538 0.557  
## .RE06 1.269 0.184 6.888 0.000 1.269 0.871  
## .RE07 1.255 0.181 6.931 0.000 1.255 0.882  
## .RE08 0.825 0.120 6.854 0.000 0.825 0.862  
## .RE09 0.623 0.087 7.150 0.000 0.623 0.946  
## .RE10 0.871 0.126 6.898 0.000 0.871 0.873  
## Competence 1.000 1.000 1.000  
## Autonomy 1.000 1.000 1.000  
## Relatedness 1.000 1.000 1.000

# global fit  
fitmeasures(fit3\_conf)[['rmsea']]

## [1] 0.07037908

fitmeasures(fit3\_conf)[['cfi']]

## [1] 0.4288716

fitmeasures(fit3\_conf)[['tli']]

## [1] 0.381988

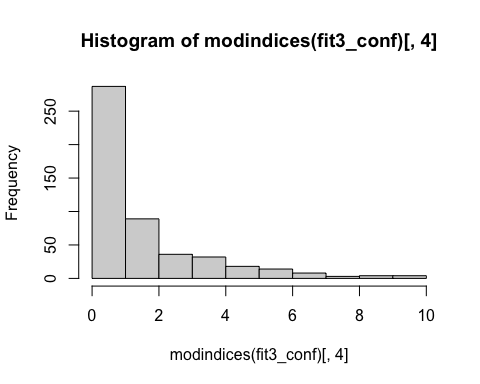
fitmeasures(fit3\_conf)[['tli']]

## [1] 0.381988

# local fit  
max(modindices(fit3\_conf)[,4])

## [1] 9.944249

hist(modindices(fit3\_conf)[,4])



# plot  
heatmap(cor(conf\_data), scale='column', Colv = NA, Rowv = NA, col= colorRampPalette(brewer.pal(8, "Blues"))(25))  
legend(,x="bottomleft", legend=c("<0.125", "0.25", "0.375", "0.5", "0.625", "0.75", '0.875','>0.875'),  
title= 'Correlation',   
 fill=colorRampPalette(brewer.pal(8, "Blues"))(8))

