title: “survey design exercise” author: “Mahtash Esfandiari” date: “2024-05-01” output: word\_document \*\*\* Running Cronbach alpha …(r) attach(stemq2) library(psych) alpha(stemq2)

\*\*\* Finding the correlation between each item and the total score totalscore<-(q1+q2+q3+q4+q5+q6+q7+q8+q9+q10+q11+q12+q13+q14+q15+q16+q17+q18+q19+q20+q21+q22+q23+q24) newdata=data.frame(q1,q2,q3,q4,q5,q6,q7,q8,q9,q10,q11,q12,q13,q14,q15,q16,q17,q18,q19,q20,q21,q22,q23,q24,totalscore) attach(newdata) cor(newdata)

\*\*\*Running parallel analysis library(paran) library(MASS) paran(stemq2,cfa=TRUE, graph=TRUE,color=TRUE,col=c(“black”,“red”,“blue”))

\*\*\* R command for running exploratory factor analysis fa(stemq2,nfactors =2,rotate=“oblimin”)

\*\*\* command for running Kaiser-Meyer-Olkin factor adequacy - a value KMO values between 0.8 and 1indicate the sampling is adequate. KMO values less than 0.6 indicate the sampling is not adequate - some set the cut off at 0.50. We get a value of 0.82, so we are OK

KMO(stemq2)

\*\*\*\* Command for creating explanatory factor analysis (let us assume three underlying factors). Factors one, two, and three explain 60%, 24%, and 16% of the variance respectivley.

library(GPArotation) library(psych) fa(stemq2,nfactors = 2,rotate=“oblimin”)

\*\*\*\* Command for creation of diagram underlying extracted factors M1<-fa(stemq2,nfactors = 2,rotate=“oblimin”) fa.diagram(M1,main=“stemq2”)