附录二：操作代码

```
library(readxl)
library(dplyr)
library(psych)
library(lavaan)
library(semPlot)
library(plspm)
edu <- read_excel("学习策略.xlsx")
education4 <- read_excel("心理资本.xlsx")
EDU <- read_excel("原数据.xlsx")
education1 <- select(edu, "准备复述", "归纳整理", "精加工", "过程监控", "目标工
作", "总结评价", "环境选择", "学业求助", "时间管理", "学习动机", "学习信念", "
意志努力")
edu2 <- select(edu, "认知", "元认知", "资源管理", "动机信念")
cortest.bartlett(edu2)
KMO(cor(edu2))
fa.parallel(EDU)
scree(EDU)
factanal(EDU, 4)
renzhi <- select(edu, "准备复述", "归纳整理", "精加工")
yuanrenzhi <- select(edu, "过程监控", "目标工作", "总结评价")
ziyuanguanli <- select(edu, "环境选择", "学业求助", "时间管理")
dongjixinnian <- select(edu, "学习动机", "学习信念", "意志努力")
alpha(renzhi)
alpha(yuanrenzhi)
alpha(ziyuanguanli)
alpha(dongjixinnian)
mean(education1$准备复述)
sd(education1$准备复述)
```

mean(education1$目标工作)

sd(education1$目标工作)

mean(education1$总结评价)

sd(education1$总结评价)

mean(education1$归纳整理)

sd(education1$归纳整理)

mean(education1$时间管理)

sd(education1$时间管理)

mean(education1$学业求助)

sd(education1$学业求助)

mean(education1$精加工)

sd(education1$精加工)

mean(education1$过程监控)

sd(education1$过程监控)

mean(education1$环境选择)

sd(education1$环境选择)

mean(education1$学习动机)

sd(education1$学习动机)

mean(education1$学习信念)

sd(education1$学习信念)

mean(education1$意志努力)

sd(education1$意志努力)

cor(education1$准备复述,education4$grade)

cor(education1$目标工作,education4$grade)

cor(education1$总结评价,education4$grade)

cor(education1$归纳整理,education4$grade)

cor(education1$时间管理,education4$grade)

cor(education1$学业求助,education4$grade)

cor(education1$精加工,education4$grade)

cor(education1$过程监控,education4$grade)

cor(education1$环境选择,education4$grade)

cor(education1$学习动机,education4$grade)

cor(education1$学习信念,education4$grade)

cor(education1$意志努力,education4$grade)

cor(education1$准备复述,education4$自我效能)

cor(education1$目标工作,education4$自我效能)

cor(education1$总结评价,education4$自我效能)

cor(education1$归纳整理,education4$自我效能)

cor(education1$时间管理,education4$自我效能)

cor(education1$学业求助,education4$自我效能)

cor(education1$精加工,education4$自我效能)

cor(education1$过程监控,education4$自我效能)

cor(education1$环境选择,education4$自我效能)

cor(education1$学习动机,education4$自我效能)

cor(education1$学习信念,education4$自我效能)

cor(education1$意志努力,education4$自我效能)

cor(education1$准备复述,education4$乐观)

cor(education1$目标工作,education4$乐观)

cor(education1$总结评价,education4$乐观)

cor(education1$归纳整理,education4$乐观)

cor(education1$时间管理,education4$乐观)

cor(education1$学业求助,education4$乐观)

cor(education1$精加工,education4$乐观)

cor(education1$过程监控,education4$乐观)

cor(education1$环境选择,education4$乐观)

cor(education1$学习动机,education4$乐观)

cor(education1$学习信念,education4$乐观)

cor(education1$意志努力,education4$乐观)

cor(education1$准备复述,education4$韧性)

cor(education1$目标工作,education4$韧性)

cor(education1$总结评价,education4$韧性)

cor(education1$归纳整理,education4$韧性)

cor(education1$时间管理,education4$韧性)

cor(education1$学业求助,education4$韧性)

cor(education1$精加工,education4$韧性)

cor(education1$过程监控,education4$韧性)

cor(education1$环境选择,education4$韧性)

cor(education1$学习动机,education4$韧性)

cor(education1$学习信念,education4$韧性)

cor(education1$意志努力,education4$韧性)

cor(education1$准备复述,education4$希望)

cor(education1$目标工作,education4$希望)

cor(education1$总结评价,education4$希望)

cor(education1$归纳整理,education4$希望)

cor(education1$时间管理,education4$希望)

cor(education1$学业求助,education4$希望)

cor(education1$精加工,education4$希望)

cor(education1$过程监控,education4$希望)

cor(education1$环境选择,education4$希望)

cor(education1$学习动机,education4$希望)

cor(education1$学习信念,education4$希望)

cor(education1$意志努力,education4$希望)

nrow(filter(education1，准备复述<3))/nrow(education1)

nrow(filter(education1，目标工作<3))/nrow(education1)

nrow(filter(education1, 总结评价＜3))/nrow(education1)

nrow(filter(education1, 归纳整理＜3))/nrow(education1)

nrow(filter(education1, 时间管理＜3))/nrow(education1)

nrow(filter(education1, 学业求助＜3))/nrow(education1)

nrow(filter(education1, 精加工＜3))/nrow(education1)

nrow(filter(education1, 过程监控＜3))/nrow(education1)

nrow(filter(education1, 环境选择＜3))/nrow(education1)

nrow(filter(education1, 学习动机＜3))/nrow(education1)

nrow(filter(education1, 学习信念＜3))/nrow(education1)

nrow(filter(education1, 意志努力＜3))/nrow(education1)

or.test(education1$准备复述,education4$grade)

cor.test(education1$目标工作,education4$grade)

cor.test(education1$总结评价,education4$grade)

cor.test(education1$归纳整理,education4$grade)

cor.test(education1$时间管理,education4$grade)

cor.test(education1$学业求助,education4$grade)

cor.test(education1$精加工,education4$grade)

cor.test(education1$过程监控,education4$grade)

cor.test(education1$环境选择,education4$grade)

cor.test(education1$学习动机,education4$grade)

cor(education1$学习信念,education4$grade)

cor.test(education1$意志努力,education4$grade)

cor.test(education1$准备复述,education4$自我效能)

cor.test(education1$目标工作,education4$自我效能)

cor.test(education1$总结评价,education4$自我效能)

cor.test(education1$归纳整理,education4$自我效能)

cor.test(education1$时间管理,education4$自我效能)

cor.test(education1$学业求助,education4$自我效能)

```
cor.test(education1$精加工,education4$自我效能)
cor.test(education1$过程监控,education4$自我效能)
cor.test(education1$环境选择,education4$自我效能)
cor.test(education1$学习动机,education4$自我效能)
cor.test(education1$学习信念,education4$自我效能)
cor.test(education1$意志努力,education4$自我效能)


cor.test(education1$准备复述,education4$乐观)
cor.test(education1$目标工作,education4$乐观)
cor.test(education1$总结评价,education4$乐观)
cor.test(education1$归纳整理,education4$乐观)
cor.test(education1$时间管理,education4$乐观)
cor.test(education1$学业求助,education4$乐观)
cor.test(education1$精加工,education4$乐观)
cor.test(education1$过程监控,education4$乐观)
cor.test(education1$环境选择,education4$乐观)
cor.test(education1$学习动机,education4$乐观)
cor.test(education1$学习信念,education4$乐观)
cor.test(education1$意志努力,education4$乐观)


cor.test(education1$准备复述,education4$韧性)
cor.test(education1$目标工作,education4$韧性)
cor.test(education1$总结评价,education4$韧性)
cor.test(education1$归纳整理,education4$韧性)
cor.test(education1$时间管理,education4$韧性)
cor.test(education1$学业求助,education4$韧性)
cor.test(education1$精加工,education4$韧性)
cor.test(education1$过程监控,education4$韧性)
cor.test(education1$环境选择,education4$韧性)
cor.test(education1$学习动机,education4$韧性)
```

cor.test(education1$学习信念,education4$韧性)

cor.test(education1$意志努力,education4$韧性)

cor.test(education1$准备复述,education4$希望)

cor.test(education1$目标工作,education4$希望)

cor.test(education1$总结评价,education4$希望)

cor.test(education1$归纳整理,education4$希望)

cor.test(education1$时间管理,education4$希望)

cor.test(education1$学业求助,education4$希望)

cor.test(education1$精加工,education4$希望)

cor.test(education1$过程监控,education4$希望)

cor.test(education1$环境选择,education4$希望)

cor.test(education1$学习动机,education4$希望)

cor.test(education1$学习信念,education4$希望)

cor.test(education1$意志努力,education4$希望)

attach(education4)

mean(自我效能)

mean(希望)

mean(乐观)

mean(韧性)

sd(自我效能)

sd(希望)

sd(乐观)

sd(韧性)

cor(自我效能,education4$grade)

cor(希望,education4$grade)

cor(乐观,education4$grade)

cor(韧性,education4$grade)

cor(education4$sum,education4$grade)

```
cor.test(自我效能,education4$grade)

cor.test(希望,education4$grade)

cor.test(乐观,education4$grade)

cor.test(韧性,education4$grade)

cor.test(education4$sum,education4$grade)


model1<- '
        method =~ 准备复述+归纳整理+精加工+过程监控+目标工作+总结评
价+环境选择+学业求助+时间管理+学习动机+学习信念+意志努力
        psy =~ 自我效能+希望+乐观+韧性
        grade ~ method + psy
        method ~ psy '
EDU0 <- cbind(education1, education4)
fit1 <- sem(model1,EDU0)
summary(fit1, standardized = TRUE)
fitMeasures(fit1,c("chisq","df","pvalue","cfi","nfi","ifi","rmsea","EVCI"))
semPaths(fit1,what = "stand")
```