**Master Knowledge Gain’s template – to be used in the creation of templates tailored to each Knowledge Gains pre- and post-questionnaire**

**Steps to create templates tailored to each training**

1. **Replace the blue highlight with the name of the training folder**
2. **In the “Change column names by column number” section:**
   1. **correct the number of rows to match the number of questions in the questionnaire and,**
   2. **replace the green highlights with numbers that reflect what column each question is in**
3. **In the “Using if statement” section:**
   1. **replace the pink highlight with the correct answer for each question and,**
   2. **correct the number of commands to match the number of questions in the questionnaire**
4. **In the “Count the number correct for each question” and “Calculate percentile score” sections,** **correct the number of rows to match the number of questions in the questionnaire**

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#FINAL INSTRUCTIONS BEGIN HERE

## COPY AND PASTE THE SCRIPT BELOW INTO A NEW DOCUMENT.

### USE REPLACE ALL TO UPDATE ALL YELLOW HIGHLIGHTS WITH CURRENT INFORMATION

#### RUN IN R CONSOLE

##### REPEAT WITH EVERY QUIZ

# Set working directory

setwd("P:/RE/Private/middle school knowledge measures")

# Import and change file name

library(readxl)

KG.test <- read\_excel("INSERT FILE NAME.xls")

KG.test <-as.data.frame(KG.test)

View(KG.test)

# Change column names by column number

names(KG.test)[1]<-paste("Q1")

names(KG.test)[2]<-paste("Q2")

names(KG.test)[3]<-paste("Q3")

names(KG.test)[4]<-paste("Q4")

names(KG.test)[5]<-paste("Q5")

# Count number of rows to determine # of practitioners

number.participants <- nrow(KG.test)

number.participants

# Using if statement - create a new column for each question that indicates correct or not correct (this will need to be done for each question)

#Q1

extractcorrectQ1 <- function(Q1) {

Q1 <- as.factor(Q1)

if (length(grep("1", Q1)) > 0) {

return ("1")

} else {

return ("0")

}

}

correctQ1 <- NULL

for (i in 1:nrow(KG.test)) {

correctQ1 <- c(correctQ1, extractCorrectQ1(KG.test[i,"Q1"]))

}

KG.test$correctQ1 <- as.numeric(correctQ1)

#Q2

extractCorrectQ2 <- function(Q2) {

Q2 <- as.factor(Q2)

if (length(grep("2?", Q2)) > 0) {

return ("1")

} else {

return ("0")

}

}

correctQ2 <- NULL

for (i in 1:nrow(KG.test)) {

correctQ2 <- c(correctQ2, extractCorrectQ2(KG.test[i,"Q2"]))

}

KG.test$correctQ2 <- as.numeric(correctQ2)

#Q3

extractCorrectQ3 <- function(Q3) {

Q3 <- as.factor(Q3)

if (length(grep("3", Q3)) > 0) {

return ("1")

} else {

return ("0")

}

}

correctQ3 <- NULL

for (i in 1:nrow(KG.test)) {

correctQ3 <- c(correctQ3, extractCorrectQ3(KG.test[i,"Q3"]))

}

KG.test$correctQ3 <- as.numeric(correctQ3)

#Q4

extractCorrectQ4 <- function(Q4) {

Q4 <- as.factor(Q4)

if (length(grep("4", Q4)) > 0) {

return ("1")

} else {

return ("0")

}

}

correctQ4 <- NULL

for (i in 1:nrow(KG.test)) {

correctQ4 <- c(correctQ4, extractCorrectQ4(KG.test[i,"Q4"]))

}

KG.test$correctQ4 <- as.numeric(correctQ4)

#Q5

extractCorrectQ5 <- function(Q5) {

Q5 <- as.factor(Q5)

if (length(grep("5", Q5)) > 0) {

return ("1")

} else {

return ("0")

}

}

correctQ5 <- NULL

for (i in 1:nrow(KG.test)) {

correctQ5 <- c(correctQ5, extractCorrectQ5(KG.test[i,"Q5"]))

}

KG.test$correctQ5 <- as.numeric(correctQ5)

head(KG.test)

# Count the number correct for each question

correctQ1sum <- sum(KG.test$correctQ1)

correctQ1sum

correctQ2sum <- sum(KG.test$correctQ2)

correctQ2sum

correctQ3sum <- sum(KG.test$correctQ3)

correctQ3sum

correctQ4sum <- sum(KG.test$correctQ4)

correctQ4sum

correctQ5sum <- sum(KG.test$correctQ5)

correctQ5sum

# calculate percentile score

Q1percentile <- correctQ1sum / number.participants

Q1percentile

Q2percentile <- correctQ2sum / number.participants

Q2percentile

Q3percentile <- correctQ3sum / number.participants

Q3percentile

Q4percentile <- correctQ4sum / number.participants

Q4percentile

Q5percentile <- correctQ5sum / number.participants

Q5percentile

# make list with number of practitioners and calculations

KG.test.list <- list(number.participants, correctQ1sum, Q1percentile, correctQ2sum,Q2percentile, correctQ3sum, Q3percentile, correctQ4sum, Q4percentile, correctQ5sum, Q5percentile)

write.table(KG.test.list, file="("P:/RE/Private/middle school knowledge measures/Working directory for file exports/ INSERT FILE NAME .csv", sep=" , ", row.names=" INSERT FILE NAME ", col.names = FALSE)