APA Style Cheat Sheet

Enter Yo' Name

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##install papaja special library  
##you only have to do this part once  
##comment it out when you are done  
#devtools::install\_github("crsh/papaja")  
  
##load papaja  
library(papaja)  
  
##load MOTE for decimals  
library(MOTE)

You can print out information that you have saved and used in R chunks. The papaja library also allows you to use special functions that will format your work in APA style. The MOTE library additionally has a decimal format function for when you cannot use papaja.

##here you will have loaded some data you are working with, like the homework  
##I've used the airquality dataset to compare temps between aug and sept  
master = subset(airquality, Month == 8 | Month == 9)  
  
##calculate M, SD, N in the normal way  
M = tapply(master$Temp, master$Month, mean)  
stdev = tapply(master$Temp, master$Month, sd)  
N = tapply(master$Temp, master$Month, length)

Remember that we used M[1] to indicate the first mean from tapply, and M[2] for the second mean. We used those numbers to help us calculate effect size. We can also use that to help us report those numbers. Big R chunks get three ` signs, while little R chunks get one (see below):

83.9677419

76.9

To really see what is happening, you will need to knit the document. Instead of seeing the r code, you will see the actual numbers that those represent. However, they might have 17 decimal places, so we can use the apa() function in MOTE to clean them up:

83.97

76.90

The apa function takes several arguments: - a single number or set of numbers - the number of decimal places you want - T includes the leading zero (i.e. 0.51) or F excludes the leading zero (i.e. .51)

Now, we can string a lot of those things together to report the M and SD in a paragraph:

The mean temperature for August was *M* = 83.97 (*SD* = 6.59), and the mean temperature for September was *M* = 76.90 (*SD* = 8.36).

The \* creates italics when you knit.

##compare Aug and Sept  
toutput = t.test(Temp ~ Month,  
 data = master,  
 var.equal = T,  
 paired = F)  
  
toutput

##   
## Two Sample t-test  
##   
## data: Temp by Month  
## t = 3.6757, df = 59, p-value = 0.0005138  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## 3.220204 10.915280  
## sample estimates:  
## mean in group 8 mean in group 9   
## 83.96774 76.90000

apa\_print(toutput)

## $estimate  
## [1] "$\\Delta M = -7.07$, 95\\% CI $[3.22$, $10.92]$"  
##   
## $statistic  
## [1] "$t(59) = 3.68$, $p = .001$"  
##   
## $full\_result  
## [1] "$\\Delta M = -7.07$, 95\\% CI $[3.22$, $10.92]$, $t(59) = 3.68$, $p = .001$"  
##   
## $table  
## NULL

You will need to save the t-test information, so you can print it outside of the r chunk. The apa\_print function produces several results: - $estimate, which is the mean change and confidence interval - $statistic, which is the t-test statistic and p value, appropriately formatted - $full\_result, which is both of the above combined

Since we are doing an independent t-test, I want to report both of the means separately, as I did above. So, I am going to only use the $statistic information.

These temperatures were different, , .

##calculate d  
effect = d.ind.t(M[1], M[2], stdev[1], stdev[2], N[1], N[2], a = .05)

## Warning: package 'MBESS' was built under R version 3.4.2

effect$d

## 8   
## 0.941385

I can combine my test statistic with the d values and confidence interval: - The dollar sign section creates special coding for subscripts (may only work with people who have install Latex). - You use the \_ to denote subscript and everything in the {} will be lowered. - These codes allow you to write Greek symbols too , . - They will automatically be italicized.

These temperatures were different with a large effect size, , , = 0.94, *95% CI*[0.41 - 1.47].