lil' SUPERGirls in STEM @ UHCL Pre and Post inquiries Analysis

Marwa El Awik

2022-10-29

```
library(tidyverse)
library(RColorBrewer)
library(plotly)
library(plyr)
library(gt)
library(stringr)
library(stringi)
library(mapquestr)
library(leaflet)
```

About Dataset The dataset refers to 52 SUPERGirls from the lil'SUPERGirls in STEM @ UHCL event. It includes data collected from pre and post -inquiries filled out by those Girls.

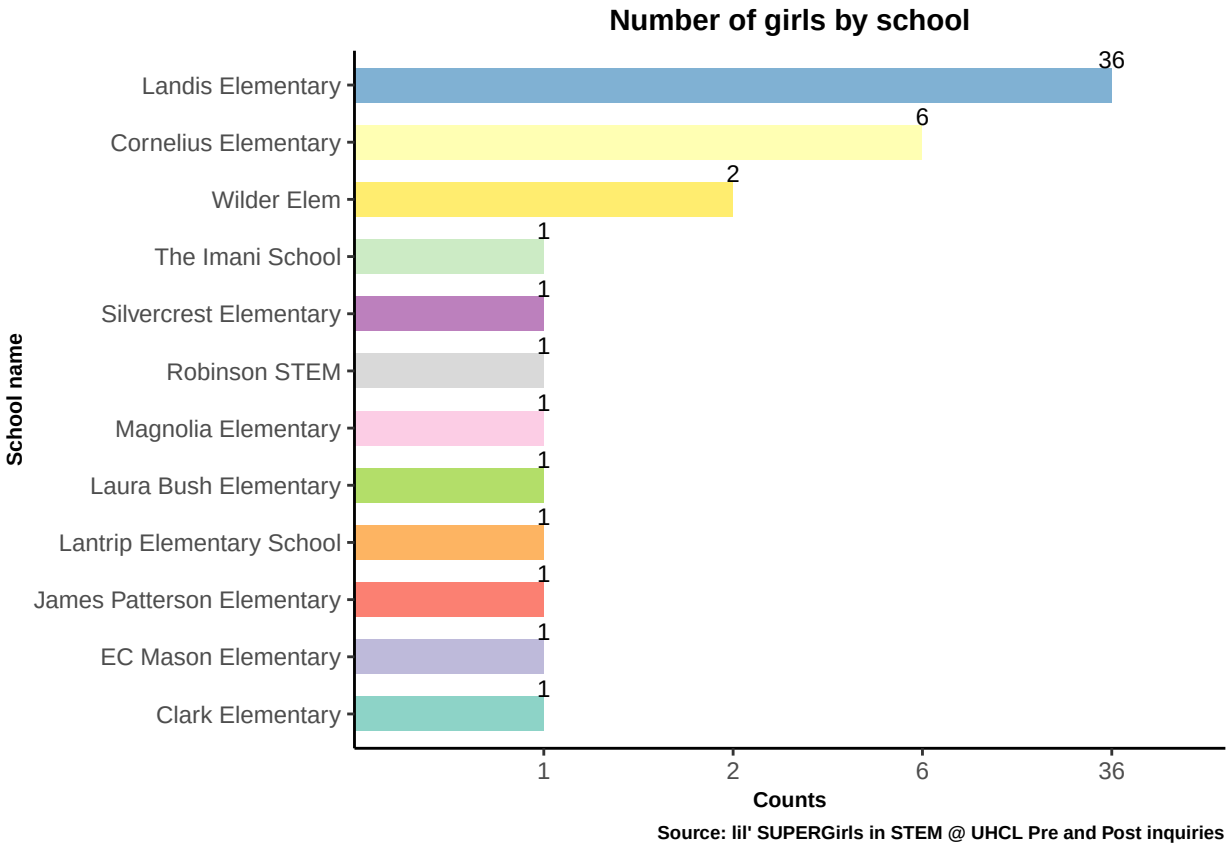
Looking ahead, of interest in this project will be to apply data preparation to be ready for further analysis, then to apply some EDA, to get all the information about our variable of interest, in addition to visualizing the data.

Here is a glimpse of what we will be working with.

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
colnames(data)
```

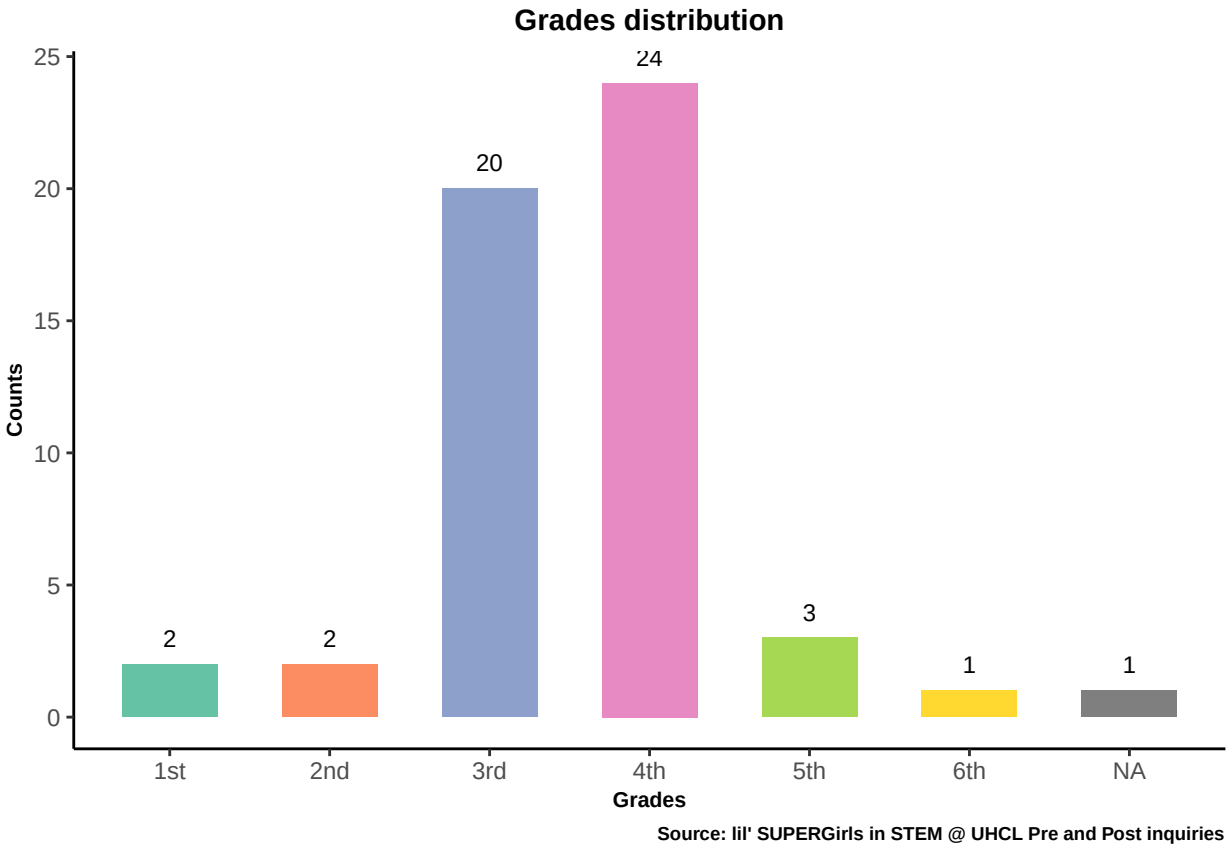
```
##  [1] "Pre/post"
##  [2] "Name of School"
##  [3] "Date"
##  [4] "Name of SUPERGirl"
##  [5] "Age"
##  [6] "Grade"
##  [7] "Confident Speaker with others"
##  [8] "Problem solver"
##  [9] "Work well with others"
## [10] "Interact positively in public setting"
## [11] "Confident in who I am"
## [12] "Ability to verbally communicate well"
## [13] "Can speak up to contribute ideas"
## [14] "Leader in group settings"
## [15] "STEM is fun"
## [16] "Sad feeling if it is the last class in STEM"
## [17] "Real interest in learning STEM"
## [18] "Like to persue STEM pathway"
```

```r
data <- filter(data, data$`Pre/post` == "Post")
School_counts<-count(data$`Name of School`)
names(School_counts)[1] <- 'Name of School'
School_counts$`Name of School`[School_counts$`Name of School` == "Robinson Stem"] <- "Robinson STEM"

colourCount = length(unique(School_counts$`Name of School`))
getPalette = colorRampPalette(brewer.pal(colourCount, "Set3"))


p1<-ggplot(School_counts, aes(x= fct_reorder(factor(School_counts$`Name of School`),+ School_counts$freq
                        text=paste("Schools distribution:",School_counts$`Name of School`,
                                   "<br>Count:",School_counts$freq
                        )))+

  geom_bar(stat = 'identity',width = 0.6)+
  ggtitle("Number of girls by school")+
  theme_classic()+
  theme(legend.position="none")+
  coord_flip()+
  labs(y="Counts",x="School name", caption = "Source: lil' SUPERGirls in STEM @ UHCL Pre and Post inqui
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        legend.position="none",
        panel.grid.minor = element_blank())+
  geom_text(aes(label = signif(freq)),position=position_dodge(0.9),vjust = -1, size=3)

p1+scale_fill_manual(values = getPalette(colourCount))
```



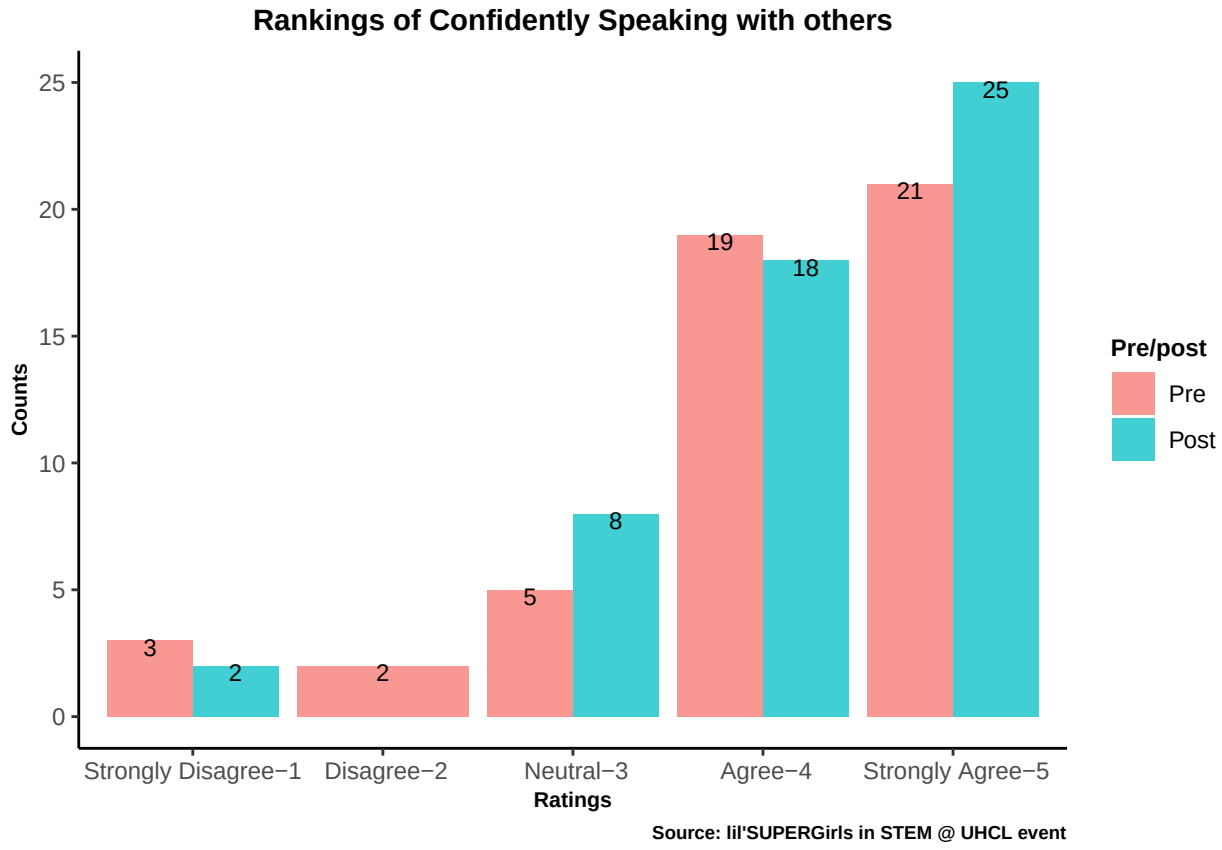

```
library(dplyr)
data <- filter(data, data$`Pre/post` == "Post")
Grade_counts<-count(data$Grade)
names(Grade_counts)[1] <- 'Grade'


colourCount = length(unique(Grade_counts$Grade))
getPalette = colorRampPalette(brewer.pal(colourCount, "Set2"))


p2<-ggplot(Grade_counts, aes(x= factor(Grade) , y=Grade_counts$freq, fill=Grade_counts$Grade,
                        text=paste("Grades distribution:",Grade_counts$Grade,
                                   "<br>Count:",Grade_counts$freq
                        )))+

  geom_bar(stat = 'identity',width = 0.6)+
  ggtitle("Grades distribution")+
  theme_classic()+
  theme(legend.position="none")+
  labs(y="Counts",x="Grades", caption = "Source: lil' SUPERGirls in STEM @ UHCL Pre and Post inquiries")
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        legend.position="none",
        panel.grid.minor = element_blank())+
```

```
  geom_text(aes(label = signif(freq)),position=position_dodge(0.9),vjust = -1, size=3)

p2+scale_fill_manual(values = getPalette(colourCount))
```



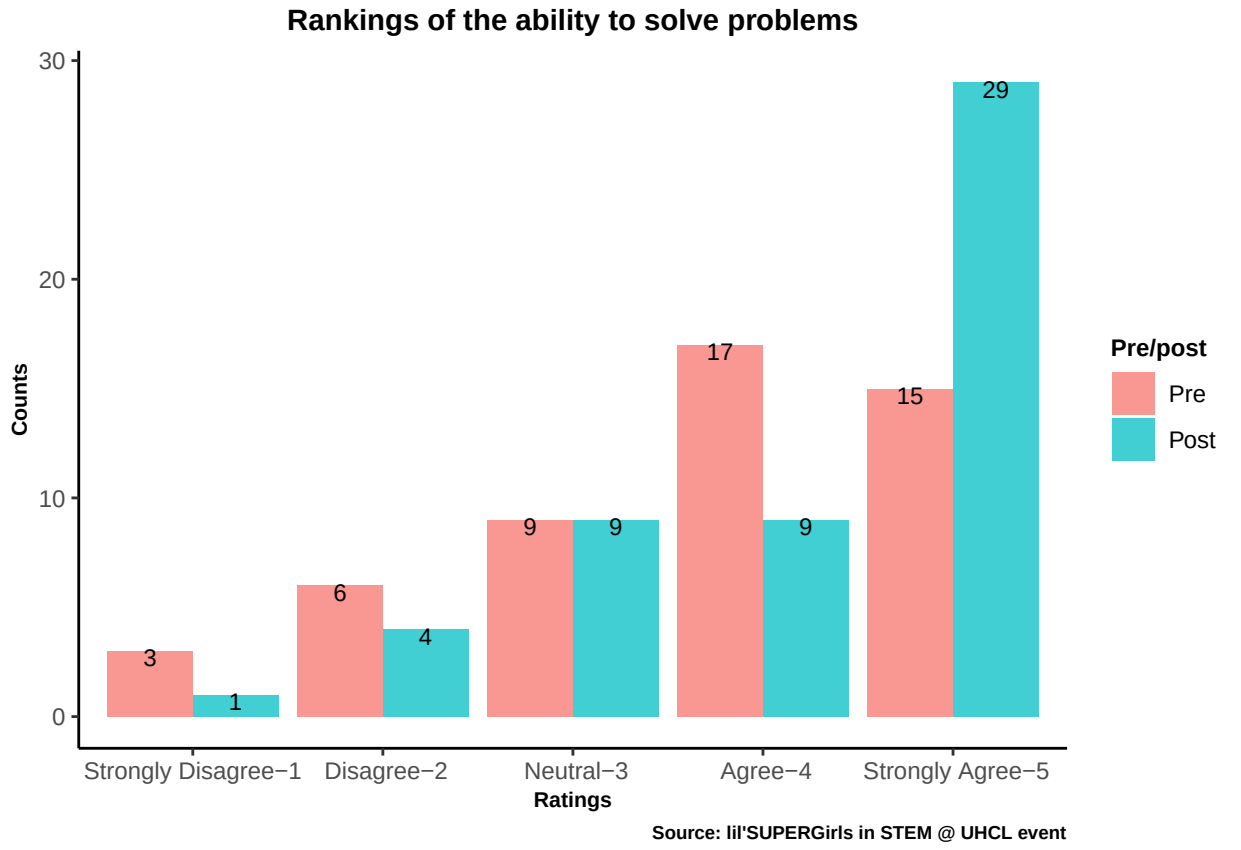

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Confident Speaker with others`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Confident Speaker with others`[agg_tbl$`Confident Speaker with others`==1]<-"Strongly Disagree

agg_tbl$`Confident Speaker with others`[agg_tbl$`Confident Speaker with others`==2]<-" Disagree-2"

agg_tbl$`Confident Speaker with others`[agg_tbl$`Confident Speaker with others`==3]<-" Neutral-3"

agg_tbl$`Confident Speaker with others`[agg_tbl$`Confident Speaker with others`==4]<-" Agree-4"

agg_tbl$`Confident Speaker with others`[agg_tbl$`Confident Speaker with others`==5]<-" Strongly Agree-5

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p3 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Confident Speaker with others`,Ratings )  , y=total_count
```

```
  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of Confidently Speaking with others") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p3
```



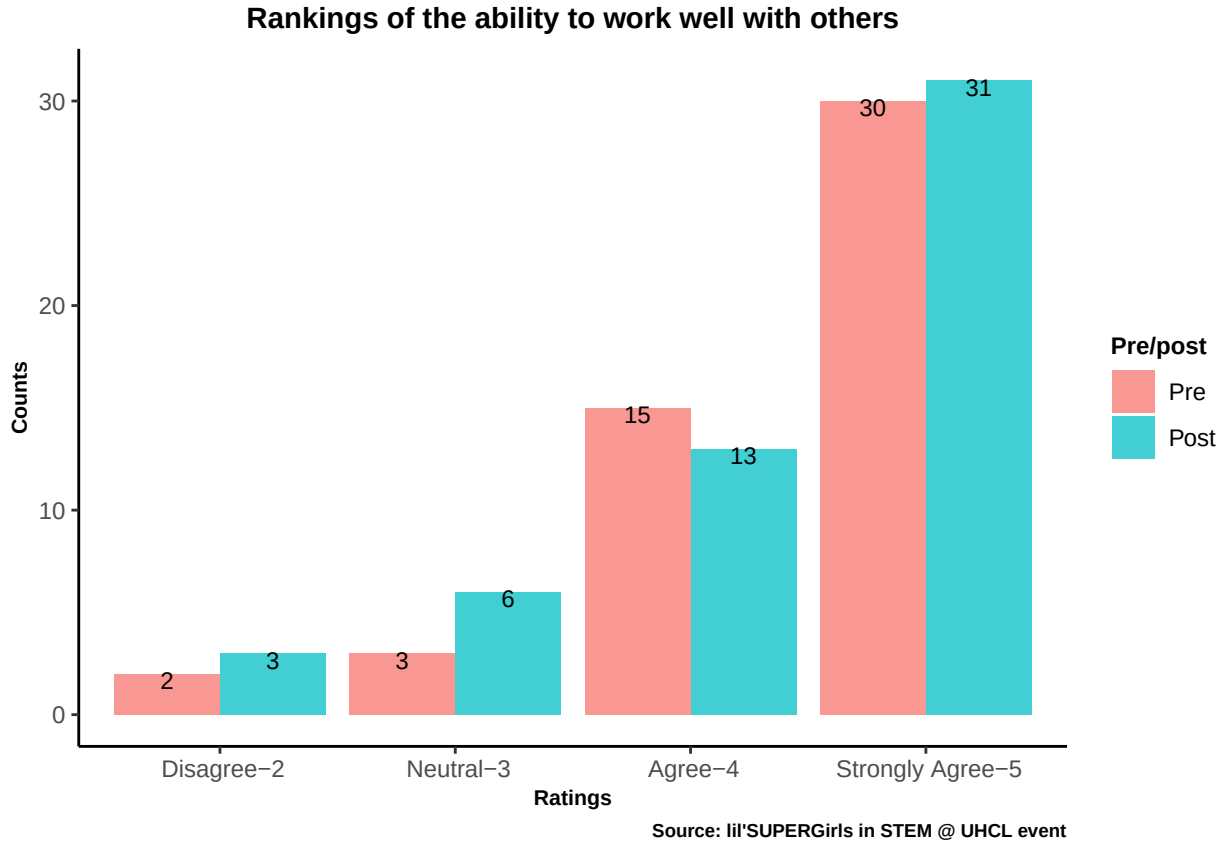

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Problem solver`) %>%
  dplyr::summarise(total_count=n())

calc_mode <- function(x){

  # List the distinct / unique values
  distinct_values <- unique(x)

  # Count the occurrence of each distinct value
  distinct_tabulate <- tabulate(match(x, distinct_values))
```

```
  # Return the value with the highest occurrence
  distinct_values[which.max(distinct_tabulate)]
}

agg_tbl<- agg_tbl %>%
  mutate(`Problem solver` = if_else(is.na(`Problem solver`),
                           calc_mode(`Problem solver`),
                           `Problem solver`))


agg_tbl$`Problem solver`[agg_tbl$`Problem solver`==1]<-"Strongly Disagree-1"

agg_tbl$`Problem solver`[agg_tbl$`Problem solver`==2]<-" Disagree-2"

agg_tbl$`Problem solver`[agg_tbl$`Problem solver`==3]<-" Neutral-3"

agg_tbl$`Problem solver`[agg_tbl$`Problem solver`==4]<-" Agree-4"

agg_tbl$`Problem solver`[agg_tbl$`Problem solver`==5]<-" Strongly Agree-5"

agg_tbl <- agg_tbl %>% filter(row_number() <= n()-1)
agg_tbl [6,3]<-3


Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p4<-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Problem solver`,Ratings )  , y=total_count , fill= `Pre/pos

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to solve problems") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p4
```



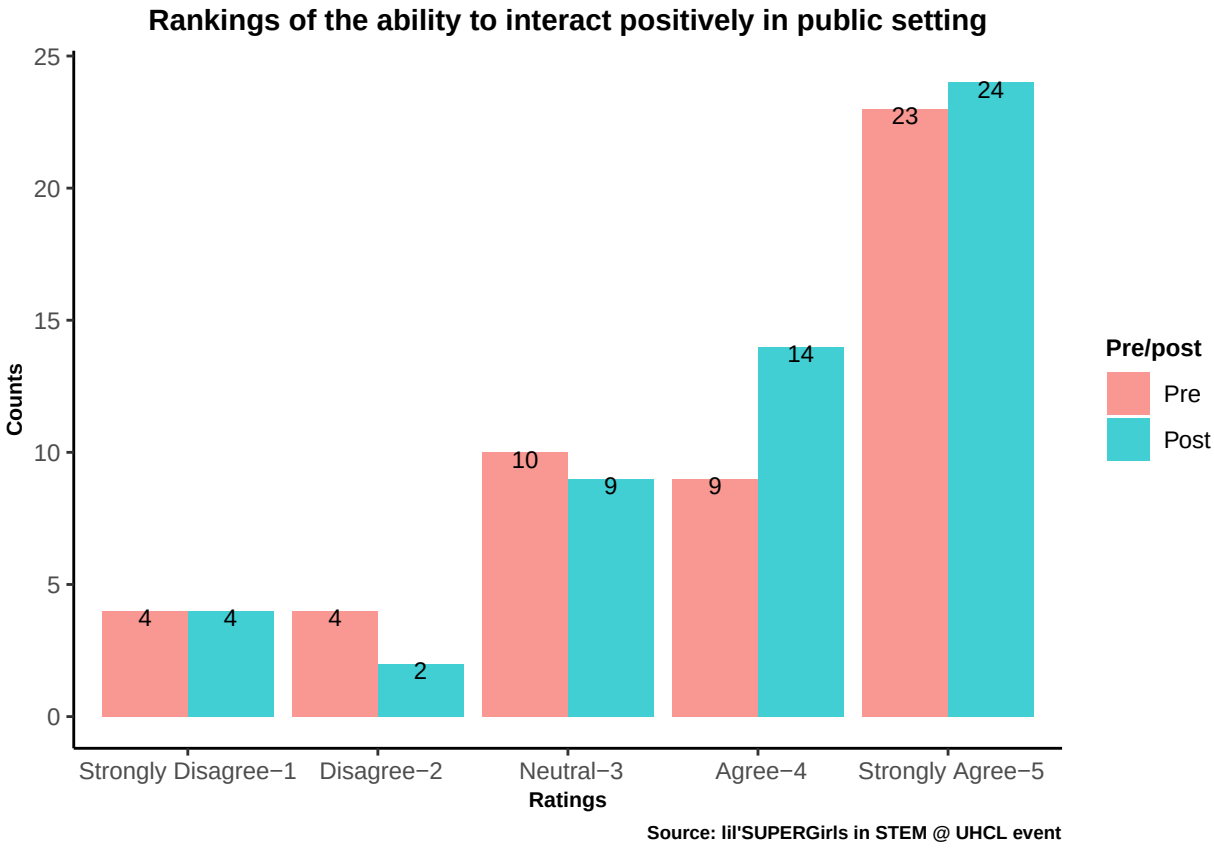

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Work well with others`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Work well with others`[agg_tbl$`Work well with others`==1]<-"Strongly Disagree-1"

agg_tbl$`Work well with others`[agg_tbl$`Work well with others`==2]<-" Disagree-2"

agg_tbl$`Work well with others`[agg_tbl$`Work well with others`==3]<-" Neutral-3"

agg_tbl$`Work well with others`[agg_tbl$`Work well with others`==4]<-" Agree-4"

agg_tbl$`Work well with others`[agg_tbl$`Work well with others`==5]<-" Strongly Agree-5"

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Work well with others` = if_else(is.na(`Work well with others`),
                                    calc_mode(`Work well with others`),
                                    `Work well with others`))

agg_tbl [1,3]<-3
agg_tbl<-agg_tbl[-5,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))
```

```
p4 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Work well with others`,Ratings )  , y=total_count , fill= 

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to work well with others") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p4
```



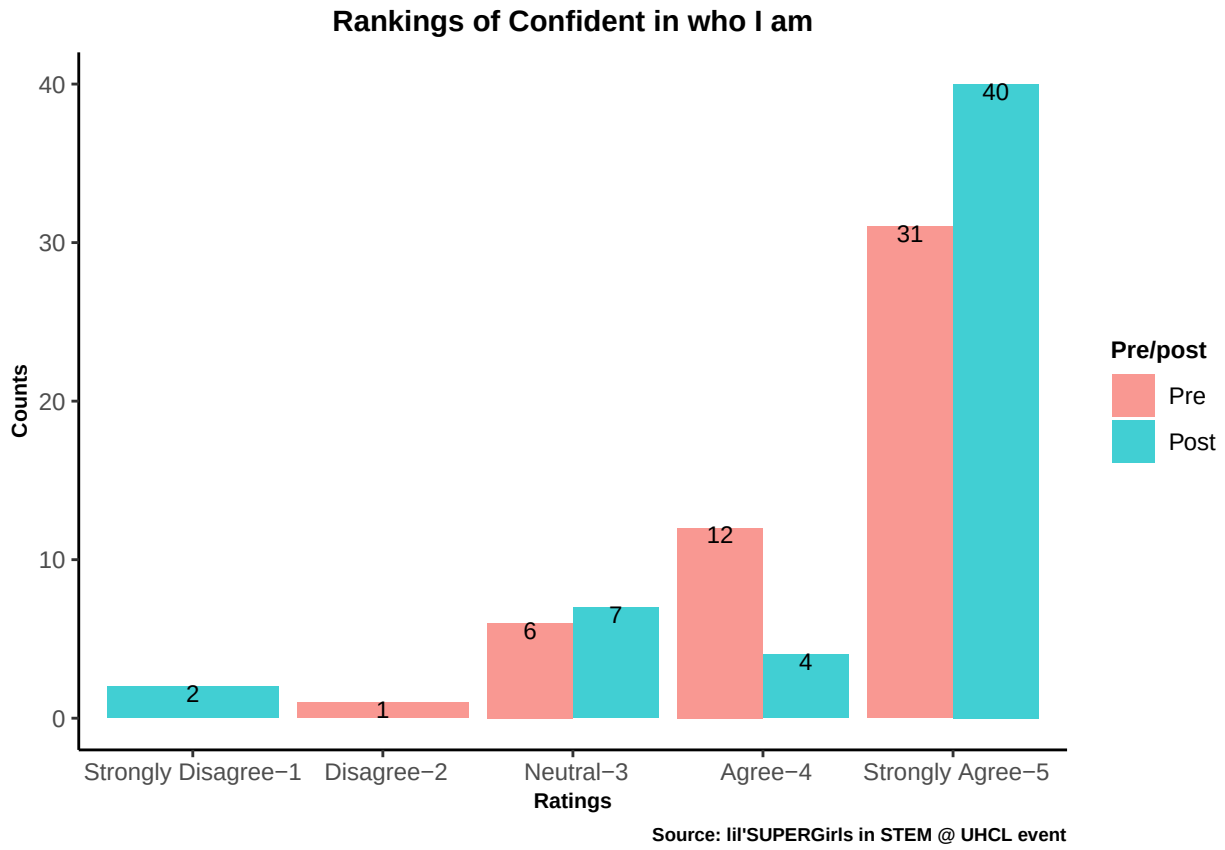

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Interact positively in public setting`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Interact positively in public setting`[agg_tbl$`Interact positively in public setting`==1]<-"S

agg_tbl$`Interact positively in public setting`[agg_tbl$`Interact positively in public setting`==2]<-" 
```

```r
agg_tbl$`Interact positively in public setting`[agg_tbl$`Interact positively in public setting`==3]<-" N

agg_tbl$`Interact positively in public setting`[agg_tbl$`Interact positively in public setting`==4]<-" A

agg_tbl$`Interact positively in public setting`[agg_tbl$`Interact positively in public setting`==5]<-" S

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Interact positively in public setting` = if_else(is.na(`Interact positively in public setting`
                                          calc_mode(`Interact positively in public setting`),
                                          `Interact positively in public setting`))

agg_tbl [6,3]<-4
agg_tbl<-agg_tbl[-11,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p5 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Interact positively in public setting`,Ratings )  , y=total

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to interact positively in public setting") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p5
```



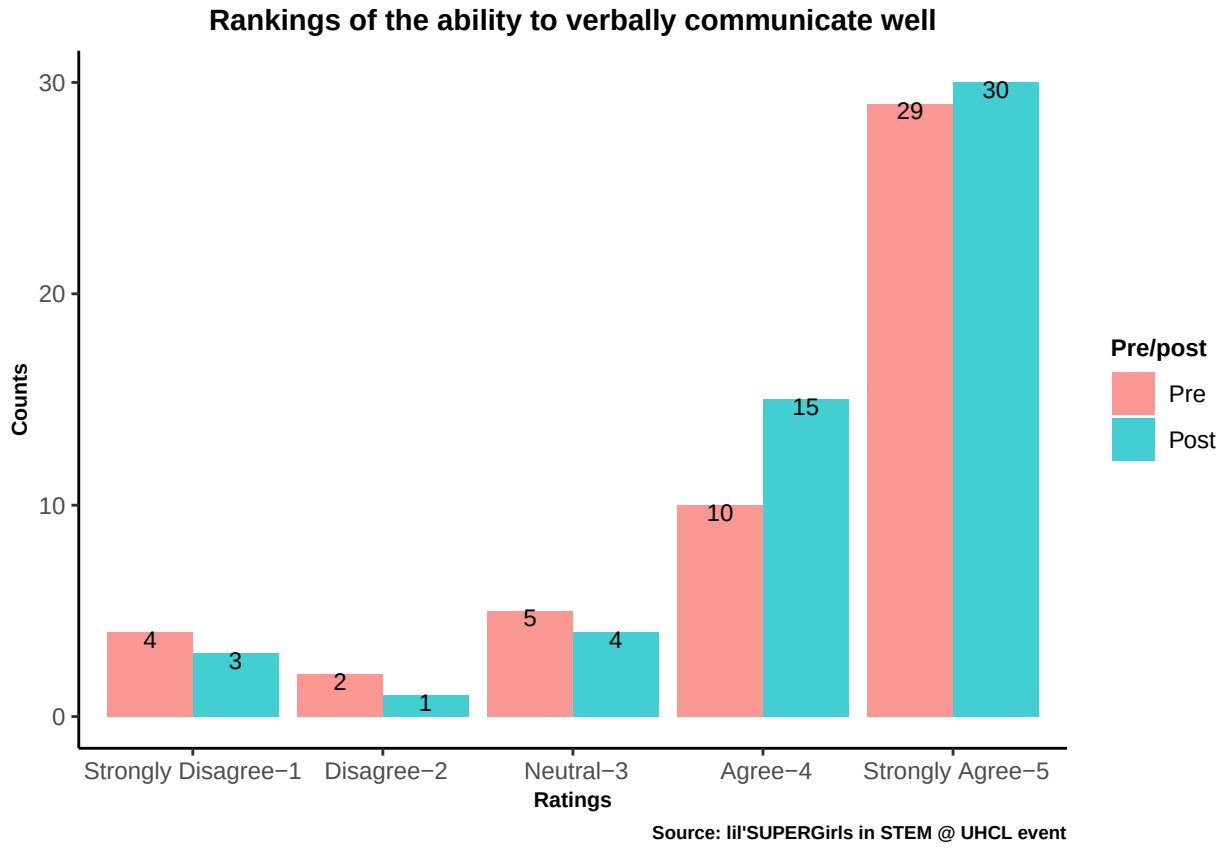

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Confident in who I am`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Confident in who I am`[agg_tbl$`Confident in who I am`==1]<-"Strongly Disagree-1"

agg_tbl$`Confident in who I am`[agg_tbl$`Confident in who I am`==2]<-" Disagree-2"

agg_tbl$`Confident in who I am`[agg_tbl$`Confident in who I am`==3]<-" Neutral-3"

agg_tbl$`Confident in who I am`[agg_tbl$`Confident in who I am`==4]<-" Agree-4"

agg_tbl$`Confident in who I am`[agg_tbl$`Confident in who I am`==5]<-" Strongly Agree-5"

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Confident in who I am` = if_else(is.na(`Confident in who I am`),
                                                    calc_mode(`Confident in who I am`),
                                          `Confident in who I am`))

agg_tbl [2,3]<-7
agg_tbl<-agg_tbl[-5,]

agg_tbl [6,3]<-6
```

```
agg_tbl<-agg_tbl[-9,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p6 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Confident in who I am`,Ratings )  , y=total_count , fill=

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of Confident in who I am") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p6
```



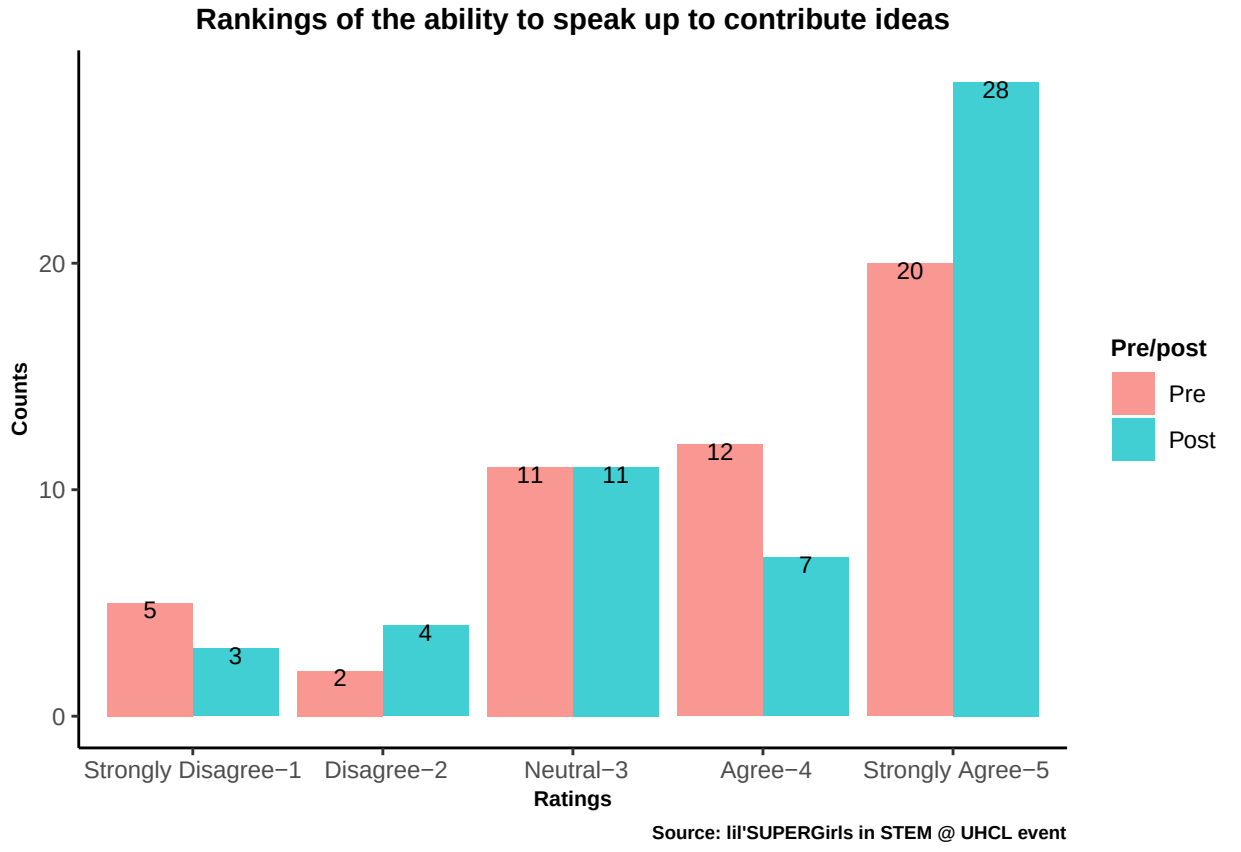

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Ability to verbally communicate well`) %>%
  dplyr::summarise(total_count=n())
```

```r
agg_tbl$`Ability to verbally communicate well`[agg_tbl$`Ability to verbally communicate well`==1]<-"Str

agg_tbl$`Ability to verbally communicate well`[agg_tbl$`Ability to verbally communicate well`==2]<-" Dis

agg_tbl$`Ability to verbally communicate well`[agg_tbl$`Ability to verbally communicate well`==3]<-" Neu

agg_tbl$`Ability to verbally communicate well`[agg_tbl$`Ability to verbally communicate well`==4]<-" Agr

agg_tbl$`Ability to verbally communicate well`[agg_tbl$`Ability to verbally communicate well`==5]<-" Str

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Ability to verbally communicate well` = if_else(is.na(`Ability to verbally communicate well`)
                                          calc_mode(`Ability to verbally communicate well`),
                                          `Ability to verbally communicate well`))

agg_tbl [1,3]<-3
agg_tbl<-agg_tbl[-6,]

agg_tbl [6,3]<-4
agg_tbl<-agg_tbl[-11,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p7 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Ability to verbally communicate well`,Ratings )  , y=total_

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to verbally communicate well") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p7
```



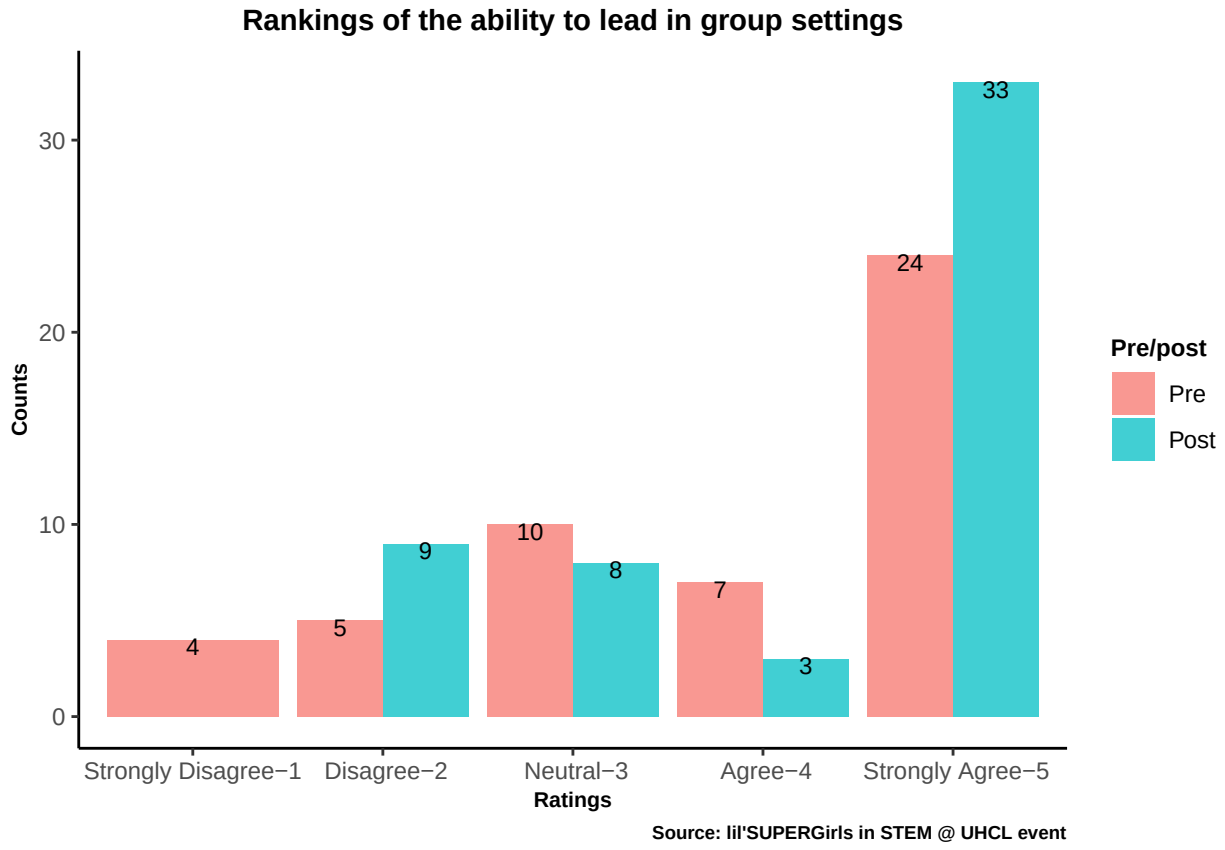

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Can speak up to contribute ideas`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Can speak up to contribute ideas`[agg_tbl$`Can speak up to contribute ideas`==1]<-"Strongly Di

agg_tbl$`Can speak up to contribute ideas`[agg_tbl$`Can speak up to contribute ideas`==2]<-" Disagree-2

agg_tbl$`Can speak up to contribute ideas`[agg_tbl$`Can speak up to contribute ideas`==3]<-" Neutral-3"

agg_tbl$`Can speak up to contribute ideas`[agg_tbl$`Can speak up to contribute ideas`==4]<-" Agree-4"

agg_tbl$`Can speak up to contribute ideas`[agg_tbl$`Can speak up to contribute ideas`==5]<-" Strongly Ag

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Can speak up to contribute ideas` = if_else(is.na(`Can speak up to contribute ideas`),
                                                      calc_mode(`Can speak up to contribute ideas`)
                                                    `Can speak up to contribute ideas`))

agg_tbl [1,3]<-3
agg_tbl<-agg_tbl[-6,]

agg_tbl [6,3]<-5
```

```
agg_tbl<-agg_tbl[-11,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p8 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Can speak up to contribute ideas`,Ratings )  , y=total_cou

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to speak up to contribute ideas") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p8
```



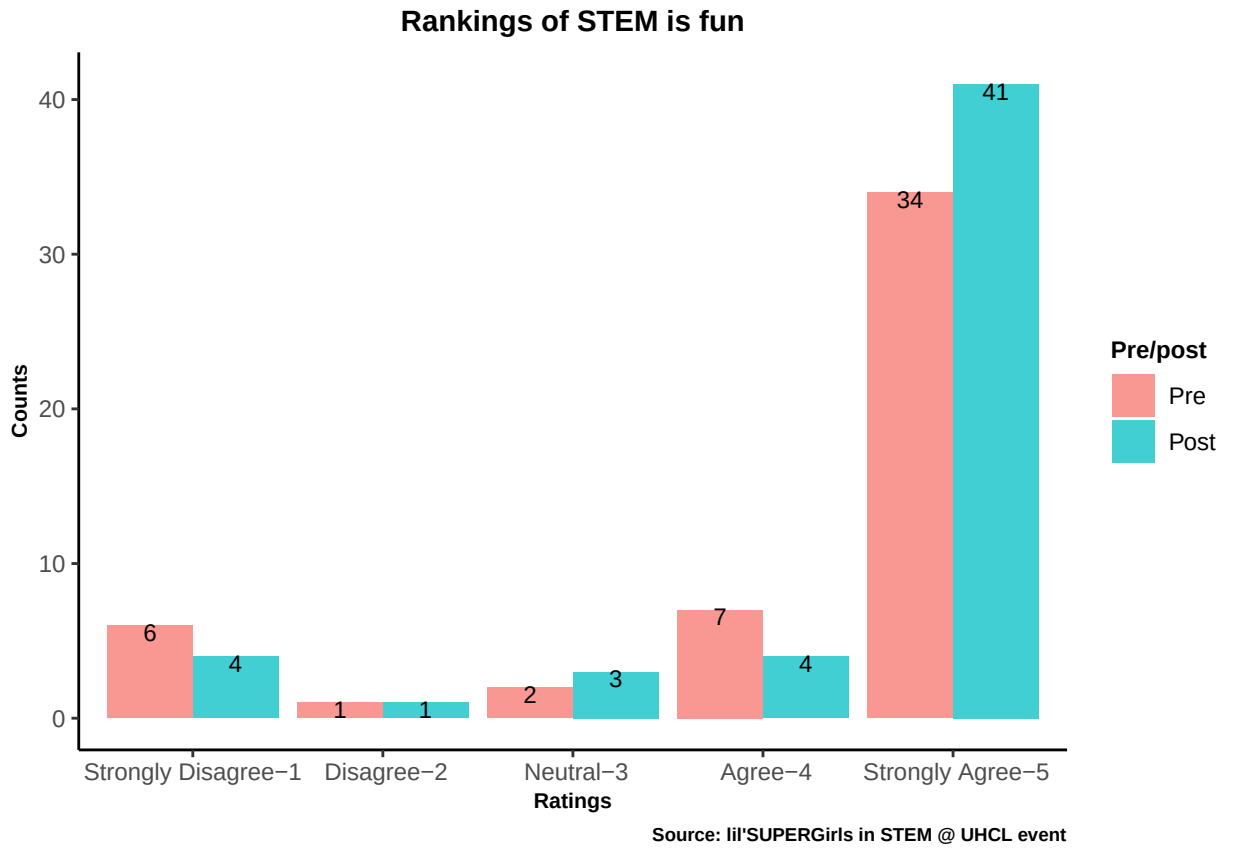

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Leader in group settings`) %>%
  dplyr::summarise(total_count=n())
```

```r
agg_tbl$`Leader in group settings`[agg_tbl$`Leader in group settings`==1]<-"Strongly Disagree-1"

agg_tbl$`Leader in group settings`[agg_tbl$`Leader in group settings`==2]<-" Disagree-2"

agg_tbl$`Leader in group settings`[agg_tbl$`Leader in group settings`==3]<-" Neutral-3"

agg_tbl$`Leader in group settings`[agg_tbl$`Leader in group settings`==4]<-" Agree-4"

agg_tbl$`Leader in group settings`[agg_tbl$`Leader in group settings`==5]<-" Strongly Agree-5"

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Leader in group settings`= if_else(is.na(`Leader in group settings`),
                                                    calc_mode(`Leader in group settings`),
                                             `Leader in group settings`))

agg_tbl [1,3]<-9
agg_tbl<-agg_tbl[-5,]

agg_tbl [6,3]<-5
agg_tbl<-agg_tbl[-10,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p9 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Leader in group settings`,Ratings )  , y=total_count , fil

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of the ability to lead in group settings") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p9
```



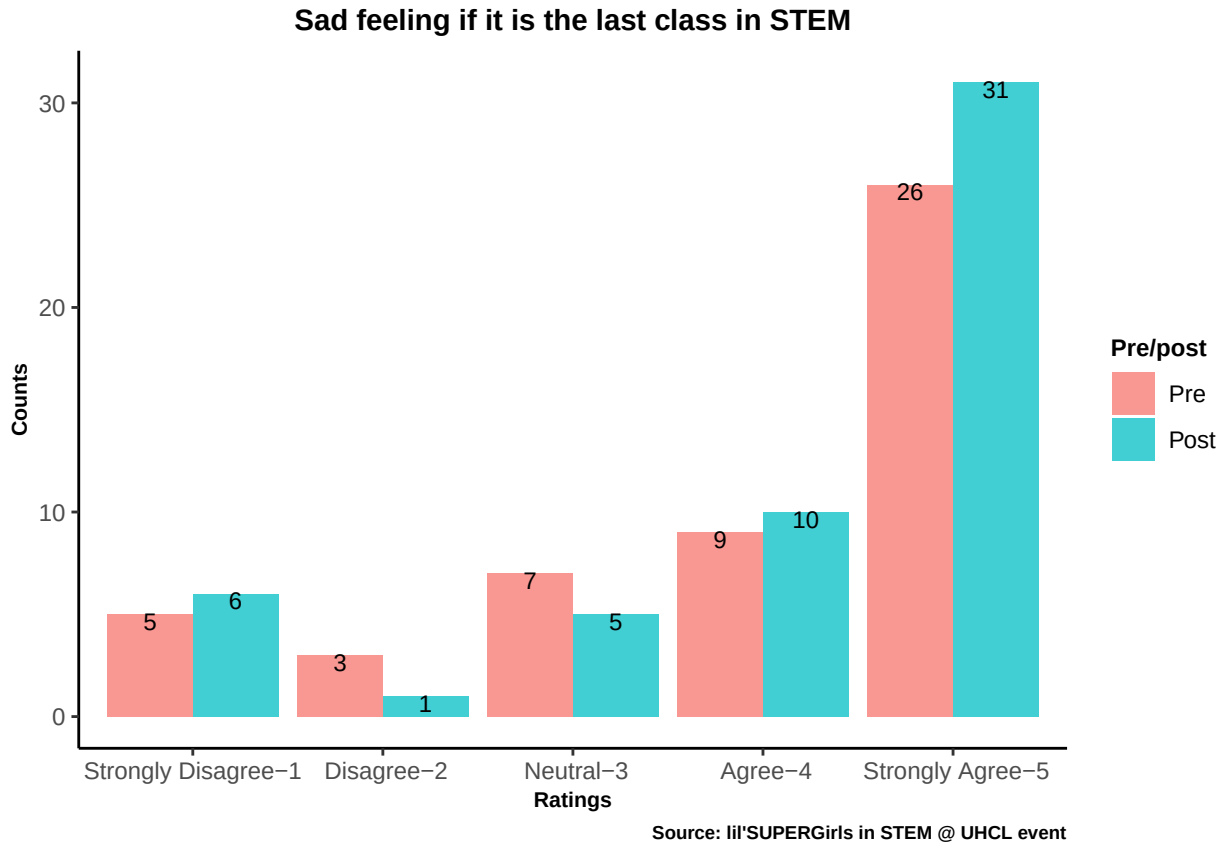

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`STEM is fun`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`STEM is fun`[agg_tbl$`STEM is fun`==1]<-"Strongly Disagree-1"

agg_tbl$`STEM is fun`[agg_tbl$`STEM is fun`==2]<-" Disagree-2"

agg_tbl$`STEM is fun`[agg_tbl$`STEM is fun`==3]<-" Neutral-3"

agg_tbl$`STEM is fun`[agg_tbl$`STEM is fun`==4]<-" Agree-4"

agg_tbl$`STEM is fun`[agg_tbl$`STEM is fun`==5]<-" Strongly Agree-5"

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`STEM is fun`= if_else(is.na(`STEM is fun`),
                                          calc_mode(`STEM is fun`),
                                          `STEM is fun`))

agg_tbl [1,3]<-4
agg_tbl<-agg_tbl[-6,]

agg_tbl [6,3]<-6
```

```
agg_tbl<-agg_tbl[-11,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p10 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`STEM is fun`,Ratings )  , y=total_count , fill= `Pre/post`

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Rankings of STEM is fun") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p10
```



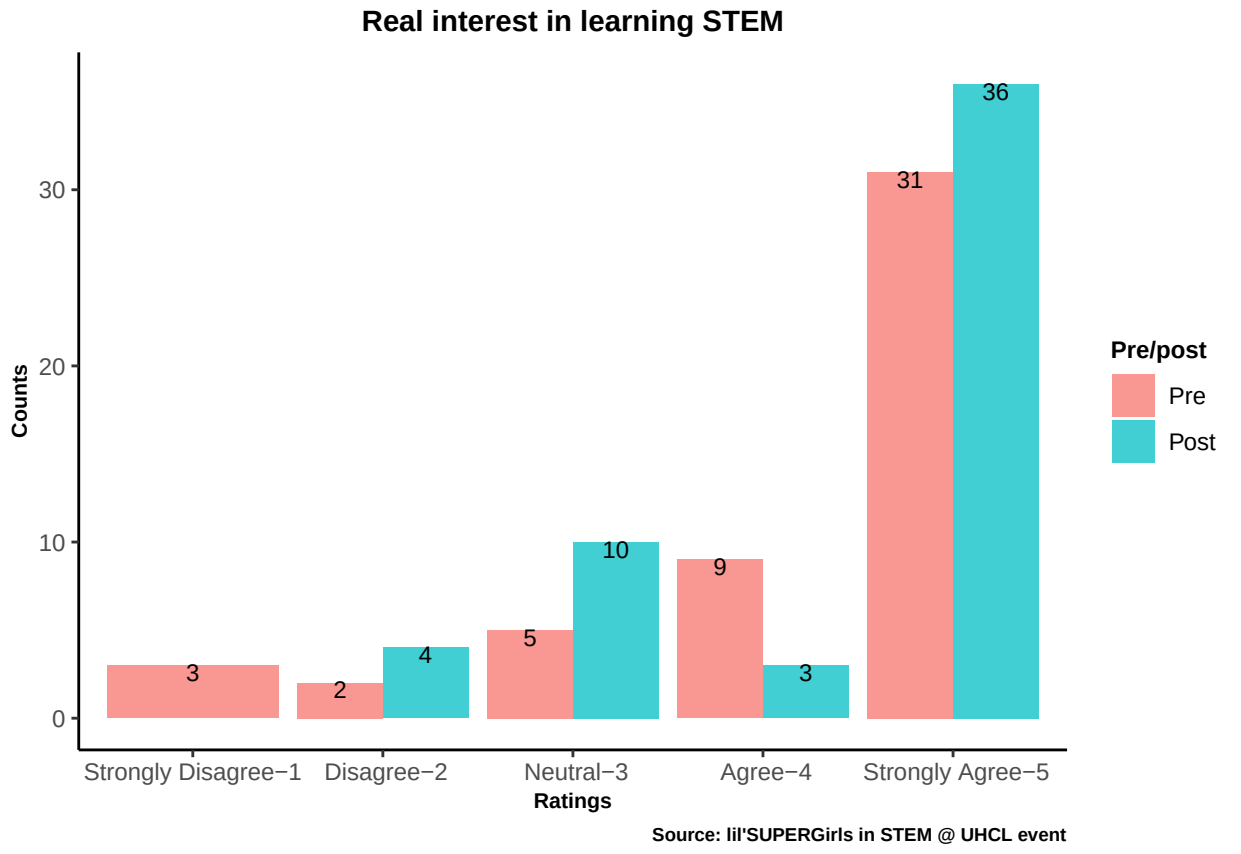

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Sad feeling if it is the last class in STEM`) %>%
  dplyr::summarise(total_count=n())
```

```
agg_tbl$`Sad feeling if it is the last class in STEM`[agg_tbl$`Sad feeling if it is the last class in S

agg_tbl$`Sad feeling if it is the last class in STEM`[agg_tbl$`Sad feeling if it is the last class in S

agg_tbl$`Sad feeling if it is the last class in STEM`[agg_tbl$`Sad feeling if it is the last class in S

agg_tbl$`Sad feeling if it is the last class in STEM`[agg_tbl$`Sad feeling if it is the last class in S

agg_tbl$`Sad feeling if it is the last class in STEM`[agg_tbl$`Sad feeling if it is the last class in S

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Sad feeling if it is the last class in STEM`= if_else(is.na(`Sad feeling if it is the last cla
                                calc_mode(`Sad feeling if it is the last class in STEM`),
                                `Sad feeling if it is the last class in STEM`))

agg_tbl [1,3]<-6
agg_tbl<-agg_tbl[-6,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p11 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Sad feeling if it is the last class in STEM`,Ratings )  ,

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Sad feeling if it is the last class in STEM") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p11
```



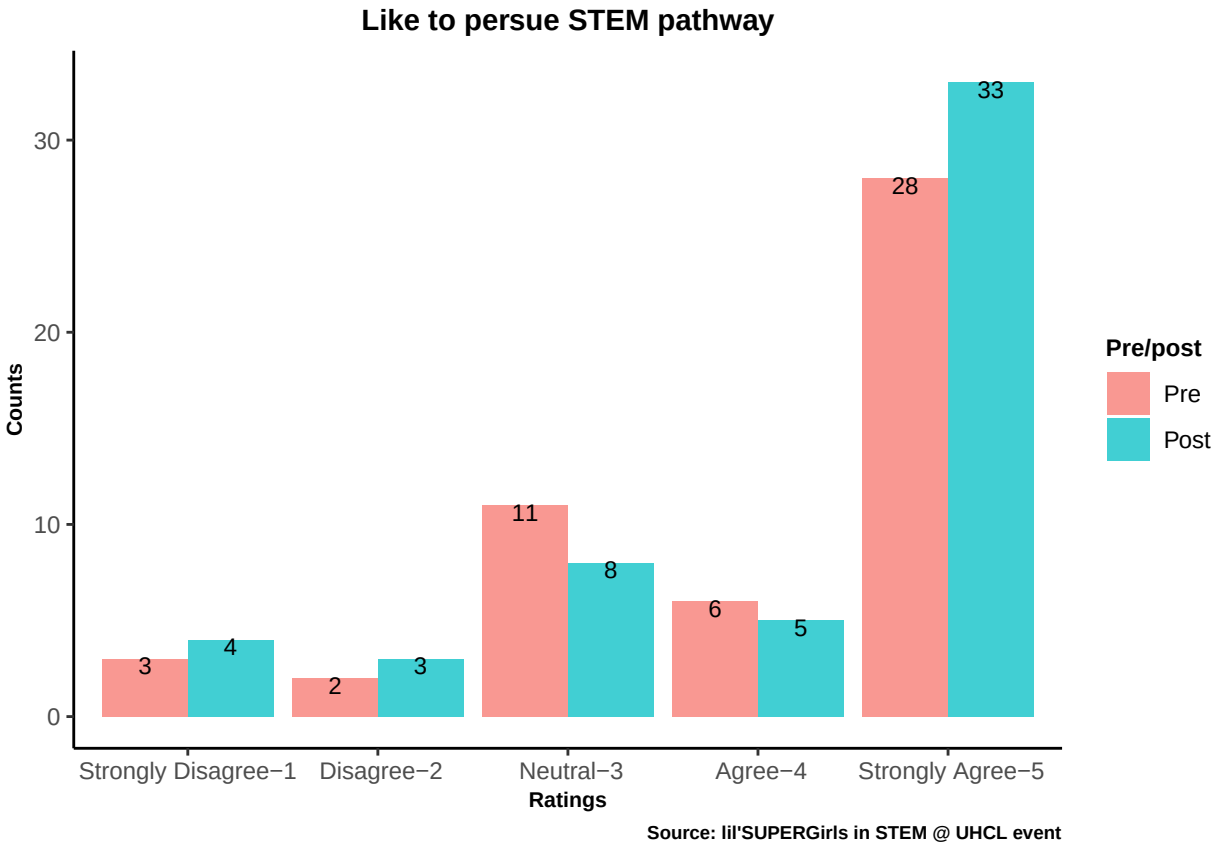

```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Real interest in learning STEM`) %>%
  dplyr::summarise(total_count=n())


agg_tbl$`Real interest in learning STEM`[agg_tbl$`Real interest in learning STEM`==1]<-"Strongly Disagr

agg_tbl$`Real interest in learning STEM`[agg_tbl$`Real interest in learning STEM`==2]<-" Disagree-2"

agg_tbl$`Real interest in learning STEM`[agg_tbl$`Real interest in learning STEM`==3]<-" Neutral-3"

agg_tbl$`Real interest in learning STEM`[agg_tbl$`Real interest in learning STEM`==4]<-" Agree-4"

agg_tbl$`Real interest in learning STEM`[agg_tbl$`Real interest in learning STEM`==5]<-" Strongly Agree

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Real interest in learning STEM`= if_else(is.na(`Real interest in learning STEM`),
                                                   calc_mode(`Real interest in learning ST
                                                 `Real interest in learning STEM`))

agg_tbl [1,3]<-4
agg_tbl<-agg_tbl[-5,]

agg_tbl [6,3]<-2
```

```
agg_tbl<-agg_tbl[-10,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p12 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Real interest in learning STEM`,Ratings )  , y=total_coun

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Real interest in learning STEM") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p12
```




```
data<- readr::read_csv("SGSF lil' SUPERGirls @ UHCL Inquiry.csv")
agg_tbl <- data %>% group_by(`Pre/post`,`Like to persue STEM pathway`) %>%
  dplyr::summarise(total_count=n())
```

```
agg_tbl$`Like to persue STEM pathway`[agg_tbl$`Like to persue STEM pathway`==1]<-"Strongly Disagree-1"

agg_tbl$`Like to persue STEM pathway`[agg_tbl$`Like to persue STEM pathway`==2]<-" Disagree-2"

agg_tbl$`Like to persue STEM pathway`[agg_tbl$`Like to persue STEM pathway`==3]<-" Neutral-3"

agg_tbl$`Like to persue STEM pathway`[agg_tbl$`Like to persue STEM pathway`==4]<-" Agree-4"

agg_tbl$`Like to persue STEM pathway`[agg_tbl$`Like to persue STEM pathway`==5]<-" Strongly Agree-5"

Ratings <- c("Strongly Disagree-1", " Disagree-2" , " Neutral-3" , " Agree-4" ," Strongly Agree-5")

agg_tbl<- agg_tbl %>%
  mutate(`Like to persue STEM pathway`= if_else(is.na(`Like to persue STEM pathway`),
                                                calc_mode(`Like to persue STEM pathway`),
                                              `Like to persue STEM pathway`))

agg_tbl [1,3]<-4
agg_tbl<-agg_tbl[-6,]

agg_tbl [6,3]<-3
agg_tbl<-agg_tbl[-11,]

agg_tbl$`Pre/post` = factor(agg_tbl$`Pre/post`, levels = c('Pre', 'Post'))

p13 <-ggplot(agg_tbl,  aes(x= factor(agg_tbl$`Like to persue STEM pathway`,Ratings )  , y=total_count ,

  geom_bar(stat = 'identity',position=position_dodge(), alpha= 0.75 )+
  geom_text(aes(label=total_count), vjust=0.9,
            position=position_dodge(.9), size=3)+
  ggtitle("Like to persue STEM pathway") +
  theme_classic()+
  labs(y="Counts",x="Ratings", caption = "Source: lil'SUPERGirls in STEM @ UHCL event") +
  theme(title = element_text(size = 9, face = "bold"),
        plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 8, face = "bold"),
        axis.title.y = element_text(size = 8, face = "bold"),
        panel.grid.minor = element_blank())

p13
```


Like to persue STEM pathway
Counts
30
20
10
0
3
4
2
3
11
8
6
5
28
33
Strongly Disagree−1
Disagree−2
Neutral−3
Agree−4
Strongly Agree−5
Ratings
Pre/post
Pre
Post
Source: lil'SUPERGirls in STEM @ UHCL event