AI-stat.R

91939

2023-11-27

```r
setwd("C:/Users/91939/Desktop/1st-MCA/R")
std_data=read.csv("13-Influence of AI TOOLS on Student's Learning Process.csv",header=T)

#Dropping unwanted columns and cleaning the dataset
drop=c("Timestamp","Username","Any.Comments..Review")
std_data= std_data[,!(names(std_data) %in% drop)]

#change column_names
colnames(std_data)=c("ar","g","e","freq","access","sat_per","impt","recall","mot_ler","sat_info","sat",
str(std_data)
```

```
## ’data.frame’:    158 obs. of  22 variables:
##  $ ar      : chr  "18-24" "18-24" "18-24" "18-24" ...
##  $ g       : chr  "Male" "Male" "Male" "Male" ...
##  $ e       : chr  "Postgraduate" "Postgraduate" "Postgraduate" "Undergraduate" ...
##  $ freq    : chr  "Strongly agree" "Agree" "Strongly agree" "Agree" ...
##  $ access  : chr  "Strongly agree" "Agree" "Strongly agree" "Agree" ...
##  $ sat_per : chr  "Strongly agree" "Agree" "Strongly agree" "Strongly agree" ...
##  $ impt    : chr  "Strongly Agree" "Agree" "Agree" "Neutral" ...
##  $ recall  : chr  "Strongly Agree" "Agree" "Agree" "Agree" ...
##  $ mot_ler : chr  "Strongly Agree" "Agree" "Neutral" "Neutral" ...
##  $ sat_info: chr  "Strongly Agree" "Agree" "Disagree" "Agree" ...
##  $ sat     : chr  "Strongly Agree" "Agree" "Strongly Agree" "Agree" ...
##  $ anx     : chr  "Strongly Agree" "Agree" "Strongly Agree" "Agree" ...
##  $ prcy    : chr  "Neutral" "Agree" "Disagree" "Disagree" ...
##  $ saw     : chr  "Agree" "Agree" "Neutral" "Agree" ...
##  $ p_att   : chr  "Neutral" "Agree" "Agree" "Neutral" ...
##  $ flex    : chr  "Disagree" "Agree" "Disagree" "Agree" ...
##  $ under   : chr  "Agree" "Agree" "Strongly Disagree" "Agree" ...
##  $ i_feed  : chr  "Strongly Agree" "Agree" "Disagree" "Agree" ...
##  $ m_obj   : chr  "Strongly Agree" "Agree" "Strongly Agree" "Agree" ...
##  $ p_alter : chr  "Strongly Agree" "Agree" "Strongly Agree" "Agree" ...
##  $ add_s   : chr  "Strongly Agree" "Agree" "Disagree" "Agree" ...
##  $ l_exp   : chr  "Strongly Agree" "Agree" "Agree" "Agree" ...
```

```r
#checking for null values
is.na(std_data)
```

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##           ar     g     e  freq access sat_per  impt recall mot_ler sat_info
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##   [2,] FALSE FALSE FALSE FALSE  FALSE   FALSE FALSE  FALSE   FALSE    FALSE
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##          sat   anx  prcy   saw p_att  flex under i_feed m_obj p_alter add_s
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```

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##  [63,] FALSE
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## [150,] FALSE
## [151,] FALSE
## [152,] FALSE
## [153,] FALSE
## [154,] FALSE
## [155,] FALSE
## [156,] FALSE
## [157,] FALSE
## [158,] FALSE
```

```r
summary(std_data)
```

```
##       ar                  g                  e                 freq          
##  Length:158         Length:158         Length:158         Length:158        
##  Class :character   Class :character   Class :character   Class :character  
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character  
##     access            sat_per              impt              recall         
##  Length:158         Length:158         Length:158         Length:158        
##  Class :character   Class :character   Class :character   Class :character  
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character  
##    mot_ler            sat_info             sat                anx           
```

```
##  Length:158         Length:158         Length:158         Length:158
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##      prcy               saw               p_att               flex
##  Length:158         Length:158         Length:158         Length:158
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##     under              i_feed             m_obj             p_alter
##  Length:158         Length:158         Length:158         Length:158
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##     add_s              l_exp
##  Length:158         Length:158
##  Class :character   Class :character
##  Mode  :character   Mode  :character
```

```r
ar=factor(std_data$ar)
g=factor(std_data$g)
e=factor(std_data$e)

#Graph-1
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.3.2
```

```r
library(dplyr)
```

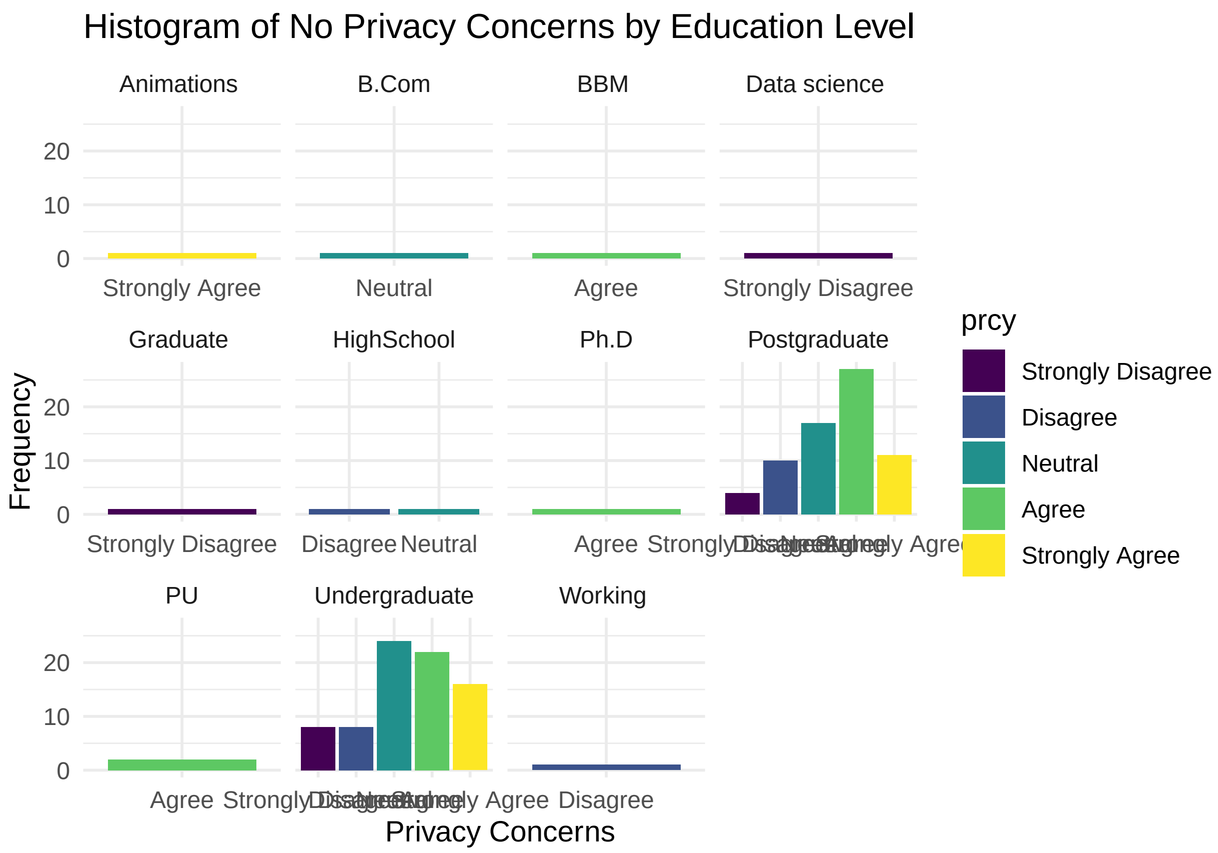
```
## Warning: package 'dplyr' was built under R version 4.3.2
```

```
##
## Attaching package: 'dplyr'
```

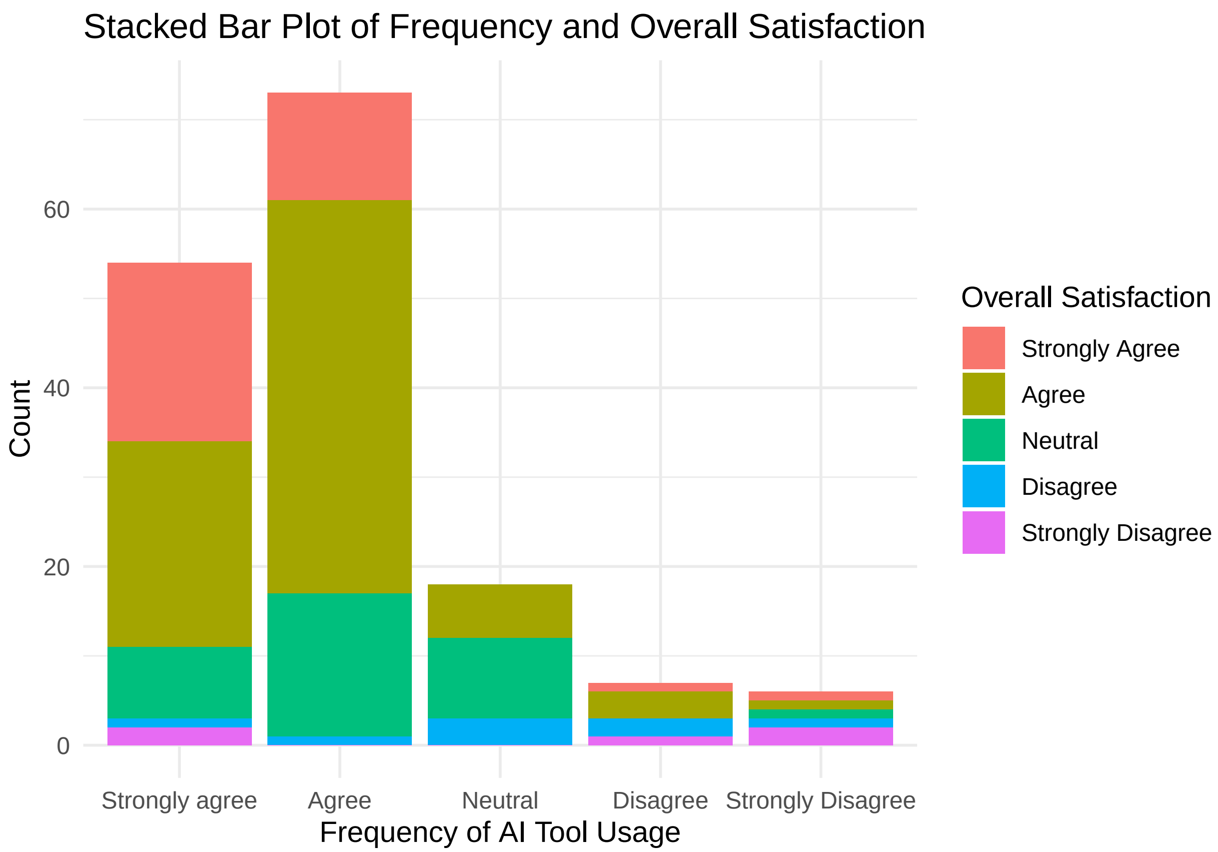
```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
std_data$prcy <- factor(std_data$prcy, ordered = TRUE,
                        levels = c("Strongly Disagree", "Disagree", "Neutral", "Agree", "Strongly Agree
ggplot(std_data, aes(x = prcy, fill = prcy)) +
  geom_bar(position = "stack") +
  facet_wrap(~ e, scales = "free_x") +
  labs(title = "Histogram of No Privacy Concerns by Education Level",
       x = "Privacy Concerns",
       y = "Frequency") +
  theme_minimal()
```

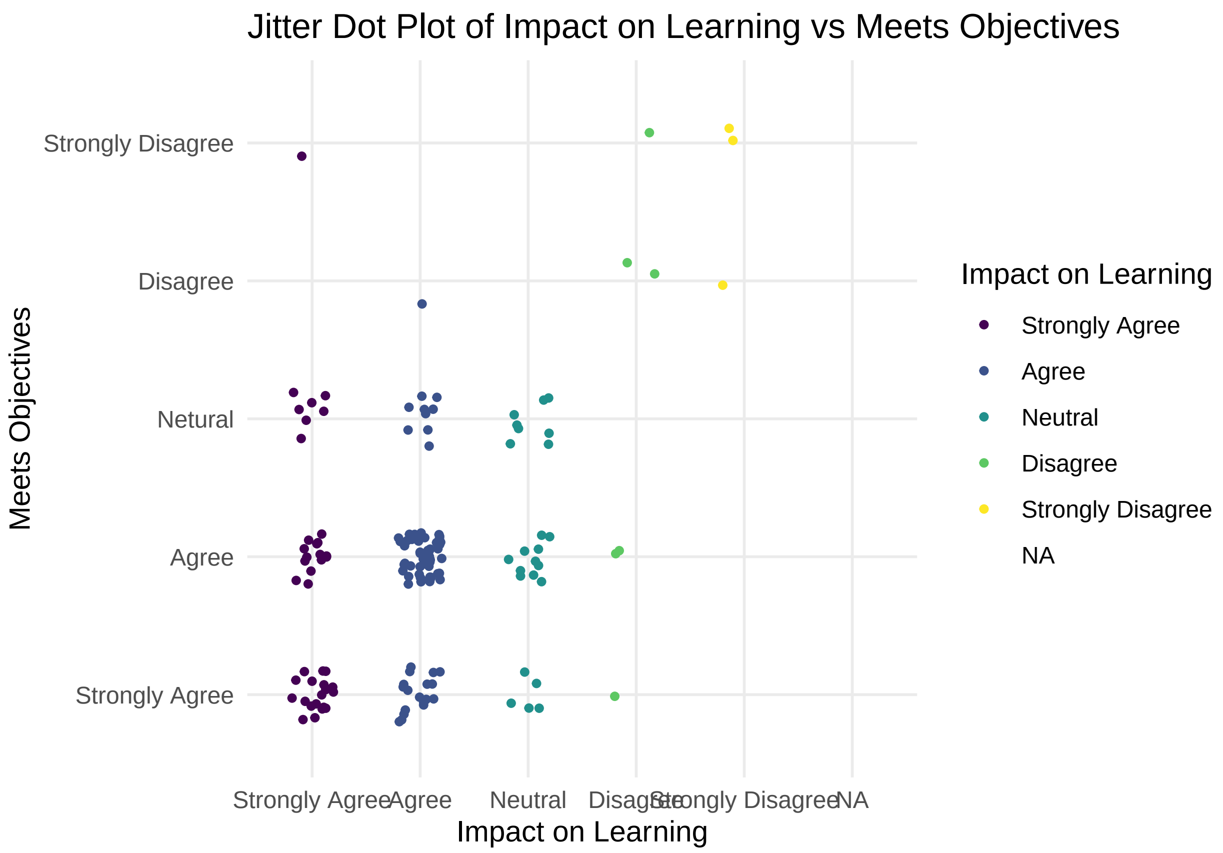


```
#UNDERSTANDING THE GRAPH - 1
# The maximum number of responses are from respondents who are Undergraduates or Postgraduates.
# Most of the respondants who frequently use AI Tools have less privacy concerns(Agree), whereas few ha




#Graph-2
std_data$freq <- factor(std_data$freq, ordered = TRUE, levels = c("Strongly agree", "Agree", "Neutral",
std_data$sat <- factor(std_data$sat, ordered = TRUE, levels = c("Strongly Agree", "Agree", "Neutral", "
count_data <- as.data.frame(table(std_data$freq, std_data$sat))
colnames(count_data) <- c("Frequency", "Overall_Satisfaction", "Count")
ggplot(count_data, aes(x = Frequency, y = Count, fill = Overall_Satisfaction)) +
  geom_bar(stat = "identity", position = "stack") +
  labs(title = "Stacked Bar Plot of Frequency and Overall Satisfaction",
       x = "Frequency of AI Tool Usage",
       y = "Count",
       fill = "Overall Satisfaction") +
  theme_minimal()
```

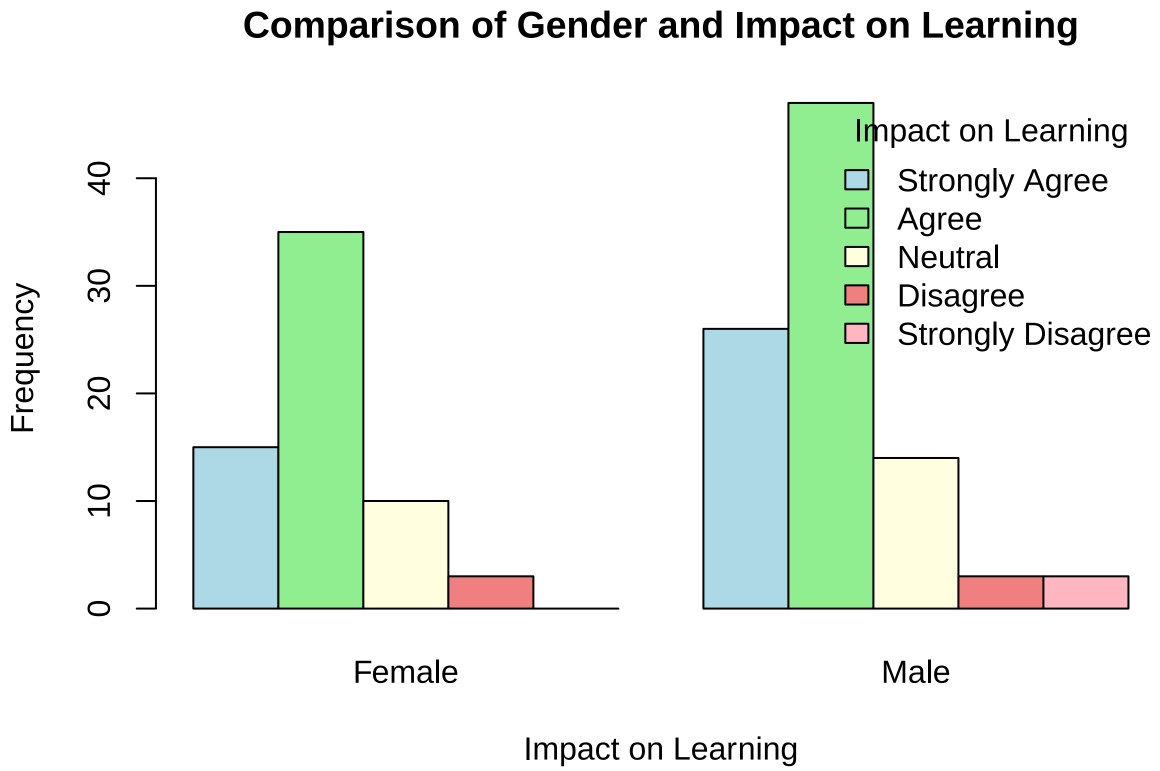


```
#UNDERSTANDING THE GRAPH - 2
#Most users who use Ai Tools Frequently are overall satisfied with the services provided
#Anyhow very few who use the AI tools are not satisfied



#Graph-3
std_data$impt <- factor(std_data$impt, ordered = TRUE, levels =c("Strongly Agree", "Agree", "Neutral",
std_data$m_obj <- factor(std_data$m_obj, ordered = TRUE, levels =  c("Strongly Agree", "Agree", "Netura
ggplot(std_data, aes(x = impt, y = m_obj, color = impt)) +
  geom_jitter(position = position_jitter(width = 0.2, height = 0.2), size = 1) +
  labs(title = "Jitter Dot Plot of Impact on Learning vs Meets Objectives",
       x = "Impact on Learning",
       y = "Meets Objectives",
       color = "Impact on Learning") +
  theme_minimal()
```

```
## Warning: Removed 2 rows containing missing values (‘geom_point()‘).
```



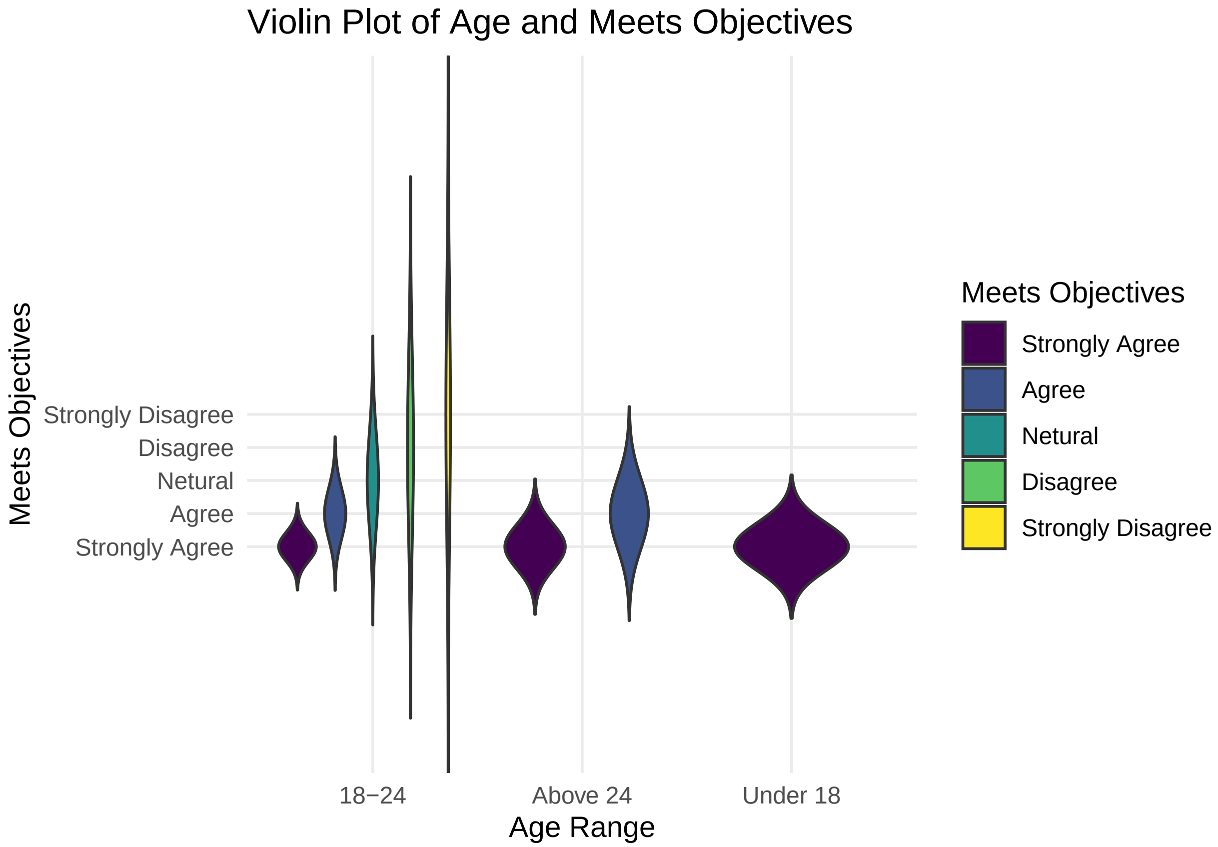
```
#UNDERSTANDING THE GRAPH - 3
#Most users who use Ai Tools Frequently are overall satisfied with the services provided
#Anyhow very few who use the AI tools are not satisfied





#Graph-4
barplot(t(table(std_data$g, std_data$impt)), beside = TRUE,
        col = c("lightblue", "lightgreen", "lightyellow", "lightcoral", "lightpink"),
        main = "Comparison of Gender and Impact on Learning",
        xlab = "Impact on Learning",
        ylab = "Frequency",
        names.arg = levels(std_data$g),
        legend.text = levels(std_data$impt),
        args.legend = list(x = "topright", bty = "n", title = "Impact on Learning")) +
  theme(legend.position = "bottom")  # Adjust legend position
```



```
## NULL
```

```
#UNDERSTANDING THE GRAPH - 4
#The respondents have a positive impact on their learning by using AI tool
#Very few respondents disagree that the AI tools impact their learning





#Graph-5
std_data$ar <- factor(std_data$ar)
std_data$m_obj <- factor(std_data$m_obj, ordered = TRUE, levels = c("Strongly Agree", "Agree", "Netural
ggplot(std_data, aes(x = ar, y = m_obj, fill = m_obj)) +
  geom_violin(trim = FALSE) +
  labs(title = "Violin Plot of Age and Meets Objectives",
       x = "Age Range",
       y = "Meets Objectives",
       fill = "Meets Objectives") +
  theme_minimal()
```

```
## Warning: Groups with fewer than two data points have been dropped.

## Warning: Groups with fewer than two data points have been dropped.
## Groups with fewer than two data points have been dropped.
## Groups with fewer than two data points have been dropped.
```



```
#UNDERSTANDING THE GRAPH - 5
#Teenagers(Under-18) and above-24 aged people who use AI tools gets their responses which meets the obj
#For the people who are aged between 18-24 AI have met most of the objectives but still few people are
```