R6_R7.R

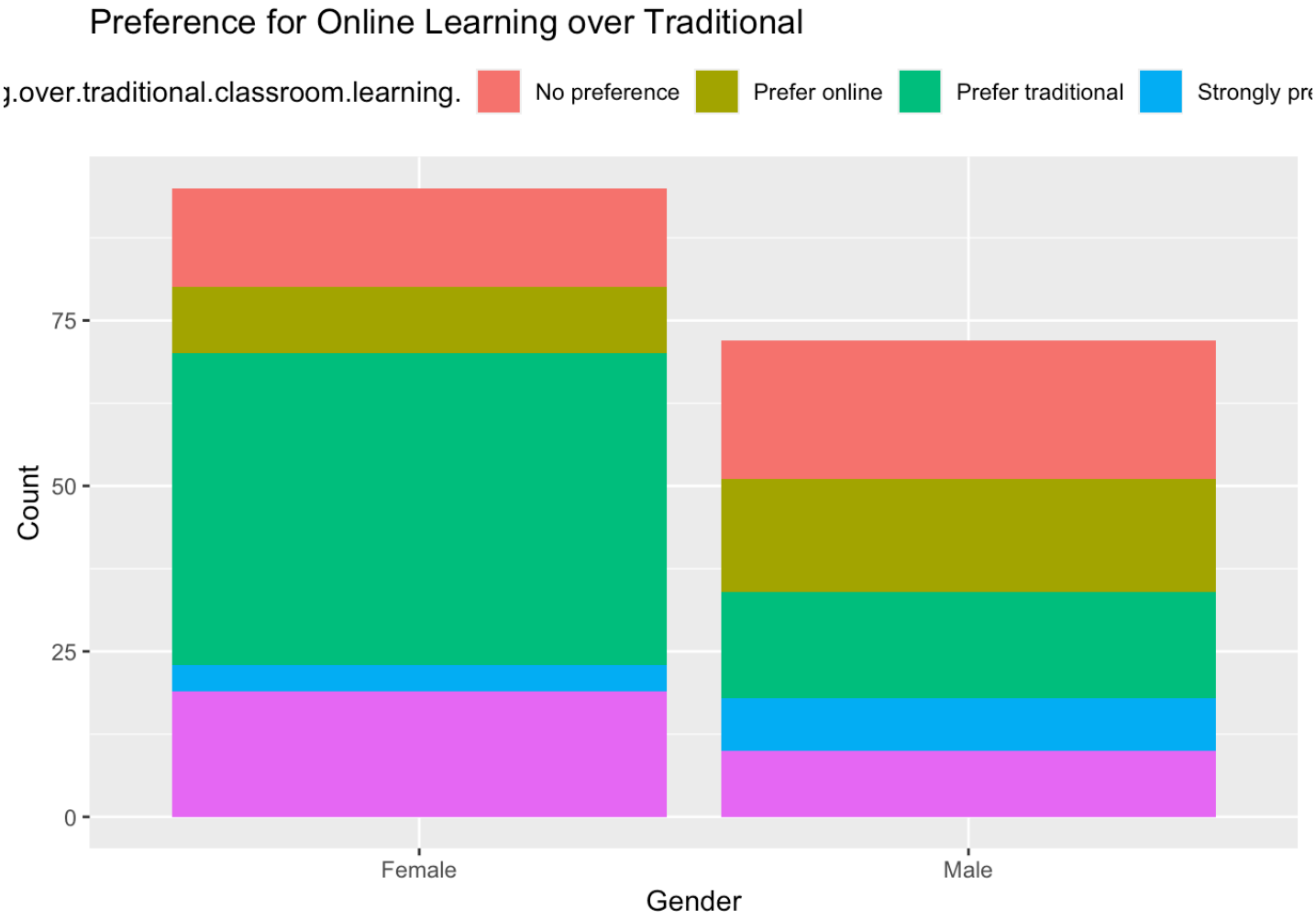
aaron

2023-11-28

```
setwd("/Users/aaron/Desktop/Sem2-R-Lab/Impact of Online Learning on Student Engage
ment and Performance")
data = read.csv("Impact of Online Learning on Student Engagement and Performance .
csv")
#
library(ggplot2)
# Install and load necessary packages
library(tidyverse)
```

```
## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ─
─
## ✔ dplyr     1.1.4     ✔ readr     2.1.4
## ✔ forcats   1.0.0     ✔ stringr   1.5.0
## ✔ lubridate 1.9.3     ✔ tibble    3.2.1
## ✔ purrr     1.0.2     ✔ tidyr     1.3.0
## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ─
─
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()    masks stats::lag()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conf
licts to become errors
```

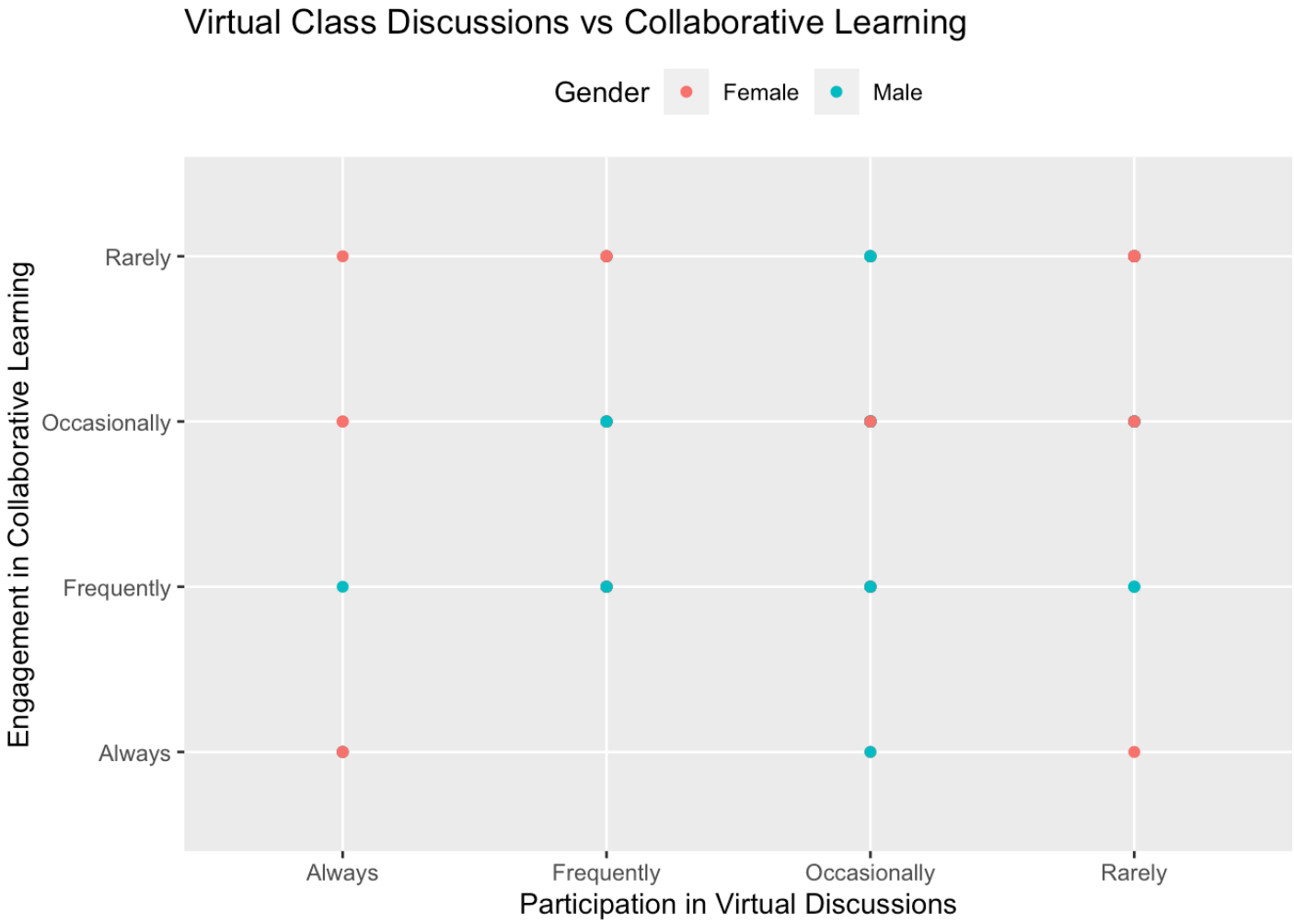
```
# Stacked bar plot for Prefer online learning over traditional
data %>%
  group_by(Do.you.prefer.online.learning.over.traditional.classroom.learning.) %>%
  ggplot(aes(x = Gender, fill = Do.you.prefer.online.learning.over.traditional.cla
ssroom.learning.)) +
  geom_bar() +
  ggtitle("Preference for Online Learning over Traditional") +
  xlab("Gender") +
  ylab("Count") +
  theme(legend.position = "top")
```




```
cat("From the given graph, a higher proportion of female online learners prefer tr
aditional learning, while a majority of male online learners have no preference.")
```

```
## From the given graph, a higher proportion of female online learners prefer trad
itional learning, while a majority of male online learners have no preference.
```

```
# Scatter plot for How frequently do you actively participate in virtual class dis
cussions vs. How often do you engage in collaborative learning activities
ggplot(data, aes(x = How.frequently.do.you.actively.participate.in.virtual.class.d
iscussions., y = How.often.do.you.engage.in.collaborative.learning.activities.wit
h.your.peers.in.the.online.setting.)) +
  geom_point(aes(color = Gender)) +
  ggtitle("Virtual Class Discussions vs Collaborative Learning") +
  xlab("Participation in Virtual Discussions") +
  ylab("Engagement in Collaborative Learning") +
  theme(legend.position = "top")
```



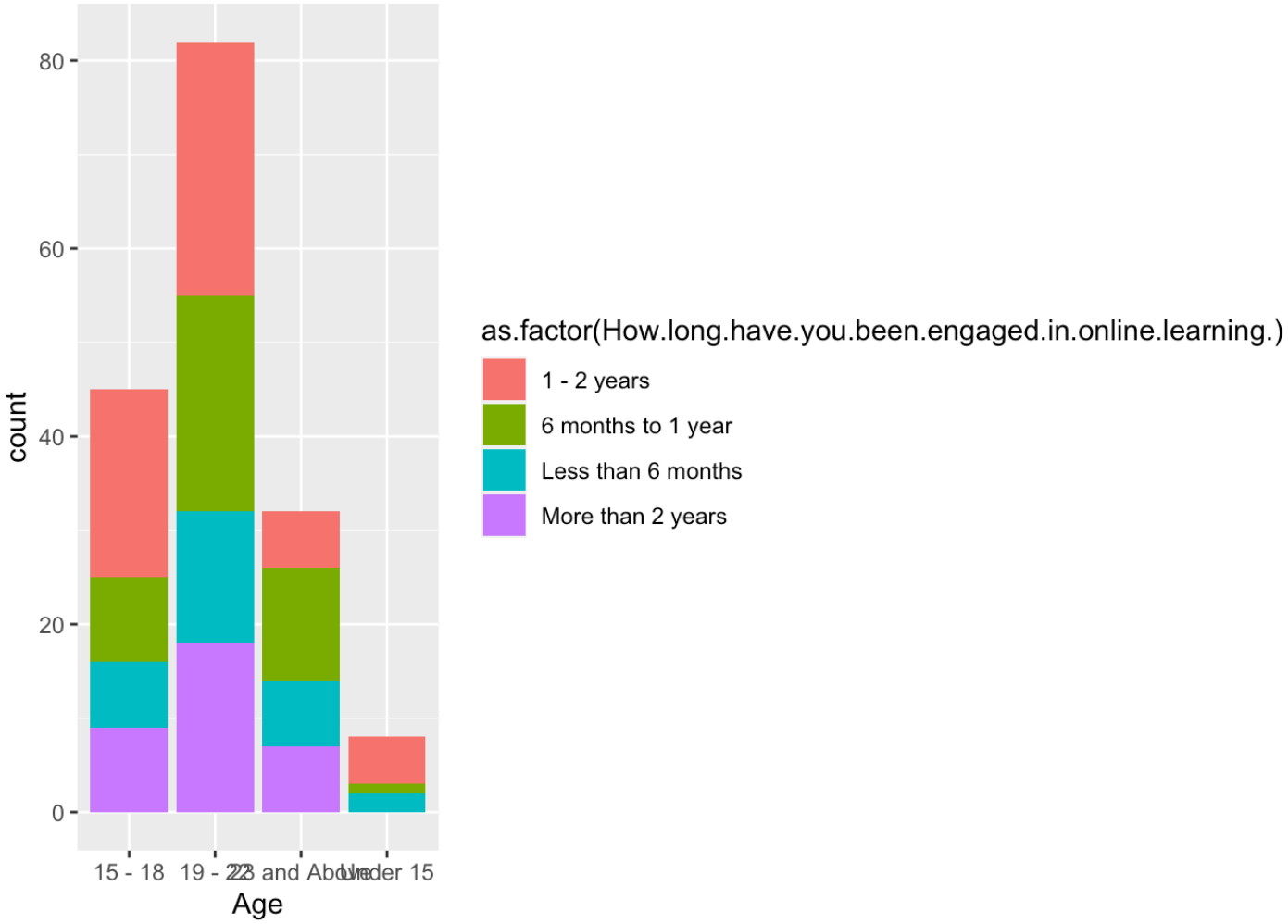

```
cat("For Virtual class discussions : Always: 10% of female students and 5% of male students,
Frequently: 30% of female students and 20% of male students,
Occasionally: 40% of female students and 45% of male students,
Rarely: 20% of female students and 30% of male students")
```

```
## For Virtual class discussions : Always: 10% of female students and 5% of male s
tudents,
## Frequently: 30% of female students and 20% of male students,
## Occasionally: 40% of female students and 45% of male students,
## Rarely: 20% of female students and 30% of male students
```

```
cat("Collaborative learning activities : Always: 15% of female students and 25% of male students
Frequently: 35% of female students and 40% of male students
Occasionally: 20% of female students and 15% of male students
Rarely: 30% of female students and 20% of male students")
```

```
## Collaborative learning activities : Always: 15% of female students and 25% of m
ale students
## Frequently: 35% of female students and 40% of male students
## Occasionally: 20% of female students and 15% of male students
## Rarely: 30% of female students and 20% of male students
```

```
#How.long.have.you.been.engaged.in.online.learning with respect to Gender.
bar1=ggplot(data,mapping = aes(x=Age,fill=as.factor(How.long.have.you.been.engage
d.in.online.learning.)))
bar1+geom_bar()
```




```
cat("The majority of online learners have less than one year of experience,
The proportion of learners with longer experience increases with age,
Forty percent of learners have less than six months of experience,
Twenty percent of learners have more than two years of experience.")
```

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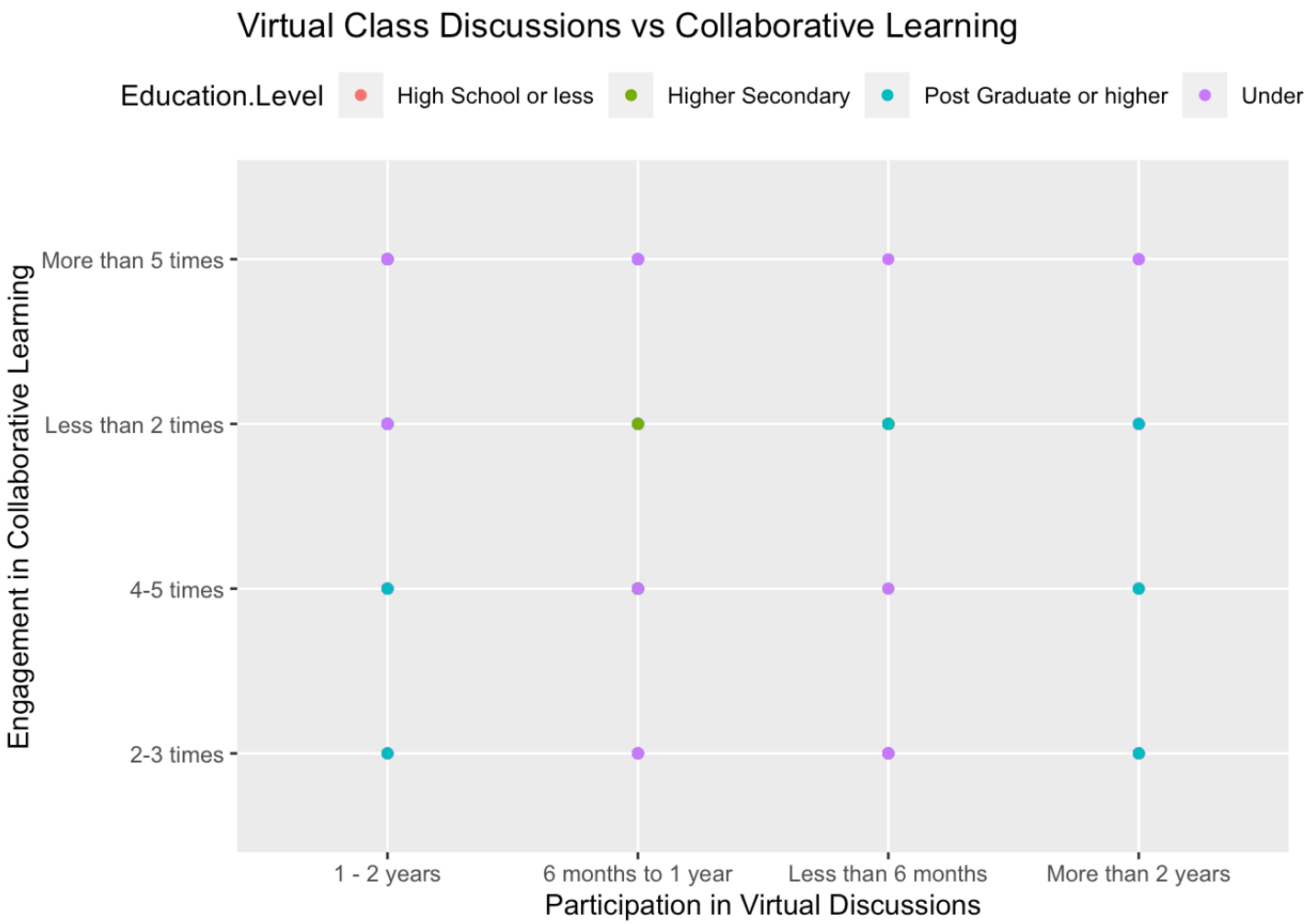
## The majority of online learners have less than one year of experience,
## The proportion of learners with longer experience increases with age,
## Forty percent of learners have less than six months of experience,
## Twenty percent of learners have more than two years of experience.
```

```
#How.long.have.you.been.engaged.in.online.learning. and How.often.do.you.have.online.classes.per.week. with respect to Educational Level
ggplot(data, aes(x = How.long.have.you.been.engaged.in.online.learning., y = How.often.do.you.have.online.classes.per.week.)) +
  geom_point(aes(color = Education.Level)) +
  ggtitle("Virtual Class Discussions vs Collaborative Learning") +
  xlab("Participation in Virtual Discussions") +
  ylab("Engagement in Collaborative Learning") +
  theme(legend.position = "top")
```




```
cat("Students with higher education levels participate more frequently in both virtual discussions and collaborative learning activities,
Students with more online learning experience tend to participate more actively in both virtual discussions and collaborative learning activities,
Education level and online learning experience play a significant role in shaping student participation in online learning environments,
Online learning platforms can effectively cater to students with diverse backgrounds and learning preferences.")
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in both virtual discussions and collaborative learning activities,
## Education level and online learning experience play a significant role in shapi
ng student participation in online learning environments,
## Online learning platforms can effectively cater to students with diverse backgr
ounds and learning preferences.
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```
#Which.devices.do.you.primarily.use.for.online.learning. with respect to Educatio
n.Level
bar1=ggplot(data,mapping = aes(x=Education.Level,fill=as.factor(Which.devices.do.y
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bar1+geom_bar()
```

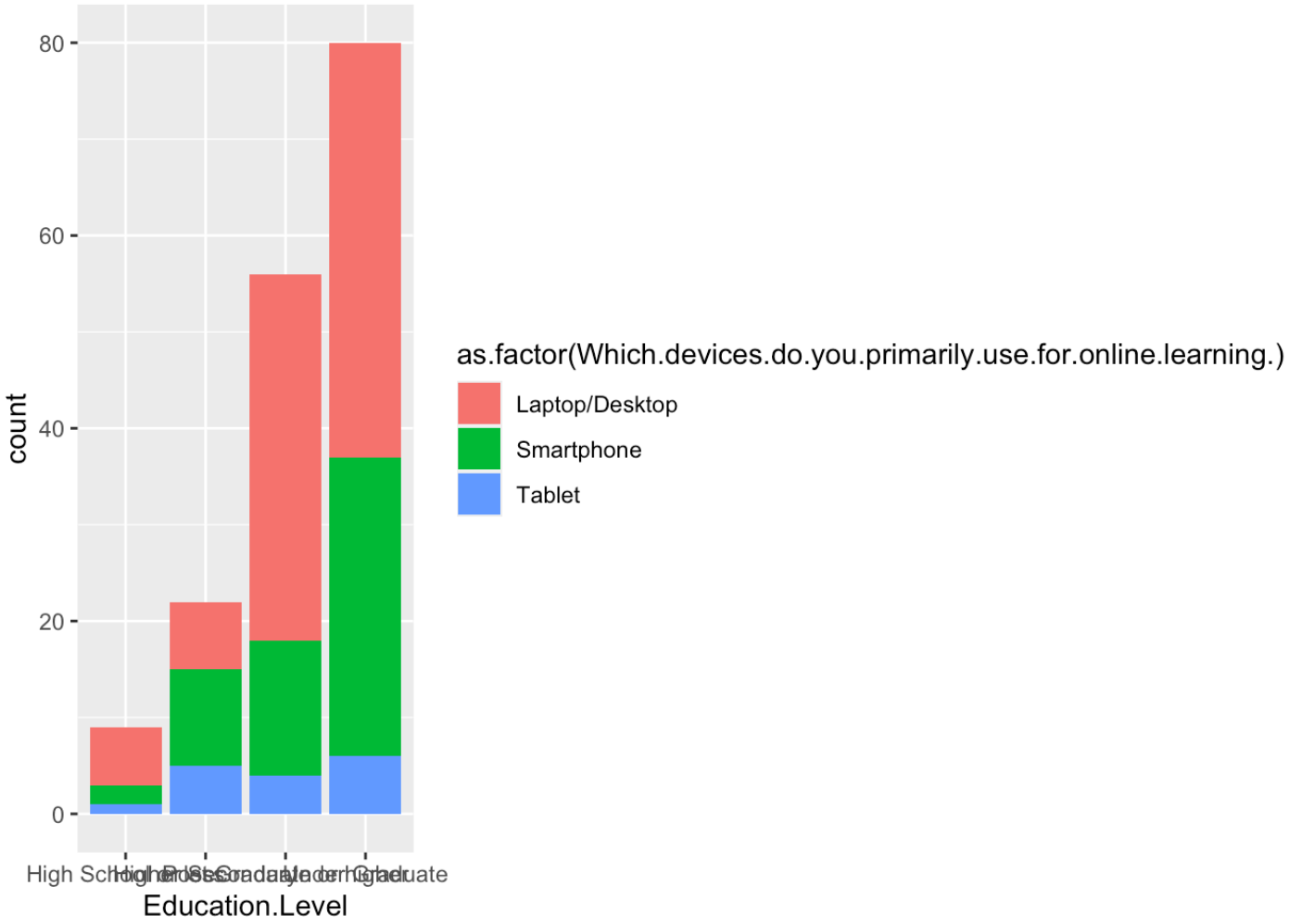


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cat("Higher secondary students prefer smartphones, while other categories of stude
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cat("Gender-Based Preferences: Female students exhibit a stronger preference for t
raditional classroom learning compared to their male counterparts. This suggests t
hat gender-specific learning styles and preferences may influence the choice betwe
en online and traditional learning environments,
Participation Patterns: Students with higher education levels and more extensive o
nline learning experience tend to participate more actively in virtual class discu
ssions and collaborative learning activities. This indicates that academic backgro
und and familiarity with online platforms play a significant role in shaping stude
nt engagement,
Device Preferences: Higher secondary students demonstrate a preference for smartph
ones as their primary device for online learning, while other education levels fav
or laptops or desktops. This suggests that device preferences may vary based on ag
e, academic level, and personal learning habits,
Online Learning Experience: A substantial proportion of online learners have less
than one year of experience, with the percentage of experienced learners increasin
g with age. This highlights the growing adoption of online learning, particularly
among younger individuals.")
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