SRP-99

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I. Downloading and Cleaning Data

```
data <- read.csv("C://SRP//AAP 2021-2022 Annual Survey, merged with membership data, deidentified.csv")
```

```
#head(data)
#colnames(data)
#View(data)
library(haven)
```

```
## Warning: package 'haven' was built under R version 4.2.3
```

```
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.2.3

## Warning: package 'ggplot2' was built under R version 4.2.3

## Warning: package 'tibble' was built under R version 4.2.3

## Warning: package 'tidyr' was built under R version 4.2.3

## Warning: package 'readr' was built under R version 4.2.3

## Warning: package 'purrr' was built under R version 4.2.3

## Warning: package 'dplyr' was built under R version 4.2.3

## Warning: package 'stringr' was built under R version 4.2.3

## Warning: package 'forcats' was built under R version 4.2.3

## Warning: package 'lubridate' was built under R version 4.2.3
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.2     v readr     2.1.4
## v forcats   1.0.0     v stringr   1.5.0
## v ggplot2   3.4.2     v tibble    3.2.1
## v lubridate 1.9.2     v tidyr     1.3.0
## v purrr     1.0.1
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(broom)
```

```
## Warning: package 'broom' was built under R version 4.2.3
```

```
library(pander)
```

```
## Warning: package 'pander' was built under R version 4.2.3
```

```
data <- read_sav("C://SRP//AAP 2021-2022 Annual Survey cleaned, merged with membership data, FTSP var, S
View(data)
```

```
unique(data$majorName)
```

```
##  [1] ""
##  [2] "Psychobiology"
##  [3] "Political Science"
##  [4] "Spanish and Linguistics"
##  [5] "Neuroscience"
##  [6] "Chicana and Chicano Studies"
##  [7] "Molecular, Cell, and Developmental Biology"
##  [8] "Microbiology,Immunology&Molecular Genetics"
##  [9] "Spanish and Portuguese"
## [10] "Human Biology and Society (BS)"
## [11] "Communication"
## [12] "Pre Psychobiology"
## [13] "Asian Studies"
## [14] "Marine Biology"
## [15] "Applied Mathematics"
## [16] "PreInternational Development Studies"
## [17] "Sociology"
## [18] "Education and Social Transformation"
## [19] "Korean"
## [20] "History"
## [21] "Pre Psychology"
## [22] "Biology"
## [23] "Pre Public Affairs"
## [24] "Pre Mathematics"
## [25] "Psychology"
## [26] "Pre-Data Theory"
## [27] "Presociology"
```

```
## [28] "Pre Economics"
## [29] "Pre Business-Economics"
## [30] "Pre Political Science"
## [31] "Physiological Science"
## [32] "Civil Engineering"
## [33] "Anthropology - B.S."
## [34] "Undeclared-Social Science"
## [35] "English"
## [36] "Public Affairs"
## [37] "Cognitive Science"
## [38] "Pre Cognitive Science"
## [39] "Ethnomusicology"
## [40] "Anthropology"
## [41] "Bioengineering"
## [42] "Gender Studies"
## [43] "Mathematics of Computation"
## [44] "Economics"
## [45] "Ecology,Behavior,and Evolution"
## [46] "Pre Mathematics/Economics"
## [47] "Environmental Science"
## [48] "Biochemistry"
## [49] "American Literature and Culture"
## [50] "Pre Human Biology and Society (BS)"
## [51] "Nursing-Generic/Prelicensure"
## [52] "Linguistics and Psychology"
## [53] "Mathematics for Teaching"
## [54] "Business-Economics"
## [55] "Electrical Engineering"
## [56] "Film & Television"
## [57] "Applied Linguistics"
## [58] "Undeclared-Humanities"
## [59] "International Development Studies"
## [60] "Global Studies"
## [61] "Philosophy"
## [62] "African American Studies"
## [63] "Aerospace Engineering"
## [64] "Mechanical Engineering"
## [65] "Spanish"
## [66] "Latin American Studies"
## [67] "Astrophysics"
## [68] "Middle Eastern Studies"
## [69] "Statistics"
## [70] "Pre Mathematics for Teaching"
## [71] "Dance"
## [72] "Chemical Engineering"
## [73] "Chemistry"
## [74] "Geography/Environmental Studies"
## [75] "Precomputational and Systems Biology"
## [76] "Geography"
## [77] "Biophysics"
## [78] "Atmospheric and Oceanic Sciences"
## [79] "Pre Statistics"
## [80] "Art History"
## [81] "Computational and Systems Biology"
```

```
## [82] "Undeclared"
## [83] "Pre Human Biology and Society"
## [84] "Preeducation and Social Transformation"
## [85] "Pre Applied Mathematics"
```

```
life_sci <- c("Psychobiology", "Pre Psychobiology", "Neuroscience",
              "Molecular, Cell, and Developmental Biology",
              "Microbiology,Immunology&Molecular Genetics", "Marine Biology", "Biology", "Physiological
              , "Human Biology and Society (BS)", "Cognitive Science",
              "Pre Cognitive Science", "Ecology,Behavior,and Evolution",
              "Environmental Science", "Pre Human Biology and Society (BS)",
              "Linguistics and Psychology", "Geography/Environmental Studies",
              "Precomputational and Systems Biology",
              "Computational and Systems Biology",
              "Pre Human Biology and Society", "Psychology", "Pre Psychology")

phy_sci <- c("Applied Mathematics", "Pre Mathematics", "Pre-Data Theory",
             "Mathematics of Computation", "Pre Mathematics/Economics",
             "Biochemistry", "Mathematics for Teaching",
             "Pre Mathematics/Economics", "Astrophysics",
             "Statistics", "Chemistry", "Biophysics",
             "Atmospheric and Oceanic Sciences", "Pre Statistics",
             "Pre Applied Mathematics")
```

II. Two-sample T-tests

```
life_science <- data[data$majorName %in% life_sci,]

physical_science <- data[data$majorName %in% phy_sci,]
```

#Finding n's

```
one <- life_science %>% count(SelfDoubt_Re_Ability) %>% as_factor()
two <- life_science %>% count(SelfConfidence_in_Academics)
three <- life_science %>% count(Sense_of_Belonging)

four <- physical_science %>% count(SelfDoubt_Re_Ability)
five <- physical_science %>% count(SelfConfidence_in_Academics)
six <-  physical_science %>% count(Sense_of_Belonging)

n_function <- function(n){

  last_number <- length(n$n)
  na <- n$n[last_number]

  the_sum <- sum(n$n[-last_number])

  my_data_frame <- data.frame(n = the_sum, na = na)

  my_data_frame
```

```
}

n_function(one)
```

```
##     n na
## 1 196 29
```

```
n_function(two)
```

```
##     n na
## 1 196 29
```

```
n_function(three)
```

```
##     n na
## 1 197 28
```

```
n_function(four)
```

```
##    n na
## 1 34  6
```

```
n_function(five)
```

```
##    n na
## 1 36  4
```

```
n_function(six)
```

```
##    n na
## 1 36  4
```

```
dim(life_science)
```

```
## [1] 225 231
```

```
dim(physical_science)
```

```
## [1]  40 231
```

```
life_science %>% count(majorName) %>% as_factor()
```

```
## # A tibble: 21 x 2
##    majorName                                   n
##    <chr>                                   <int>
##  1 Biology                                    44
##  2 Cognitive Science                           3
```

```
##  3 Computational and Systems Biology              1
##  4 Ecology,Behavior,and Evolution                 4
##  5 Environmental Science                          9
##  6 Geography/Environmental Studies                1
##  7 Human Biology and Society (BS)                10
##  8 Linguistics and Psychology                     1
##  9 Marine Biology                                 1
## 10 Microbiology,Immunology&Molecular Genetics    13
## # i 11 more rows
```

```
physical_science %>% count(majorName) %>% as_factor()
```

```
## # A tibble: 14 x 2
##    majorName                          n
##    <chr>                          <int>
##  1 Applied Mathematics                5
##  2 Astrophysics                       1
##  3 Atmospheric and Oceanic Sciences   1
##  4 Biochemistry                      13
##  5 Biophysics                         1
##  6 Chemistry                          7
##  7 Mathematics for Teaching           2
##  8 Mathematics of Computation         1
##  9 Pre Applied Mathematics            1
## 10 Pre Mathematics                    3
## 11 Pre Mathematics/Economics          2
## 12 Pre Statistics                     1
## 13 Pre-Data Theory                    1
## 14 Statistics                         1
```

```
life_science %>% count(degreeExpectedTerm) %>% as_factor()
```

```
## # A tibble: 7 x 2
##   degreeExpectedTerm     n
##   <chr>              <int>
## 1 222                    8
## 2 22F                    2
## 3 22S                   44
## 4 232                    2
## 5 23S                   61
## 6 24S                   36
## 7 25S                   72
```

```
physical_science %>% count(degreeExpectedTerm) %>% as_factor()
```

```
## # A tibble: 6 x 2
##   degreeExpectedTerm     n
##   <chr>              <int>
## 1 22F                    1
## 2 22S                    7
## 3 232                    1
## 4 23S                   13
```

```
## 5 24S                   5
## 6 25S                  13
```

```
life_science %>% count(gender_recoded) %>% as_factor()
```

```
## # A tibble: 2 x 2
##   gender_recoded     n
##   <fct>          <int>
## 1 Male              40
## 2 Female           185
```

```
physical_science %>% count(gender_recoded)
```

```
## # A tibble: 2 x 2
##   gender_recoded     n
##   <dbl+lbl>      <int>
## 1 0 [Male]          12
## 2 1 [Female]        28
```

```
life_science %>% count(gender) %>% as_factor()
```

```
## # A tibble: 5 x 2
##   gender                          n
##   <fct>                       <int>
## 1 Female                        182
## 2 Male                           38
## 3 Non-binary or non-conforming    2
## 4 Prefer not to respond           2
## 5 Different Identity:             1
```

```
physical_science %>% count(gender)  %>% as_factor()
```

```
## # A tibble: 2 x 2
##   gender     n
##   <fct>  <int>
## 1 Female    28
## 2 Male      12
```

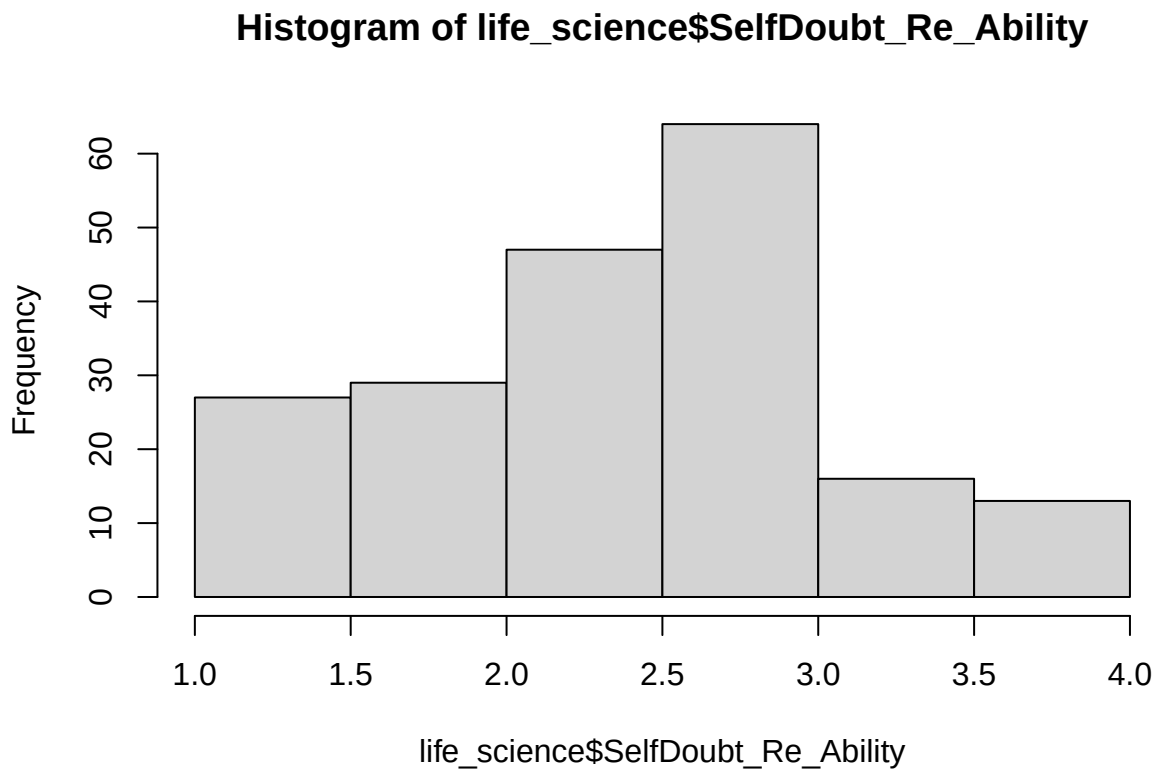
```
life_science %>% count(academic_status) %>% as_factor()
```

```
## # A tibble: 2 x 2
##   academic_status     n
##   <fct>           <int>
## 1 Freshman          189
## 2 Transfer           36
```

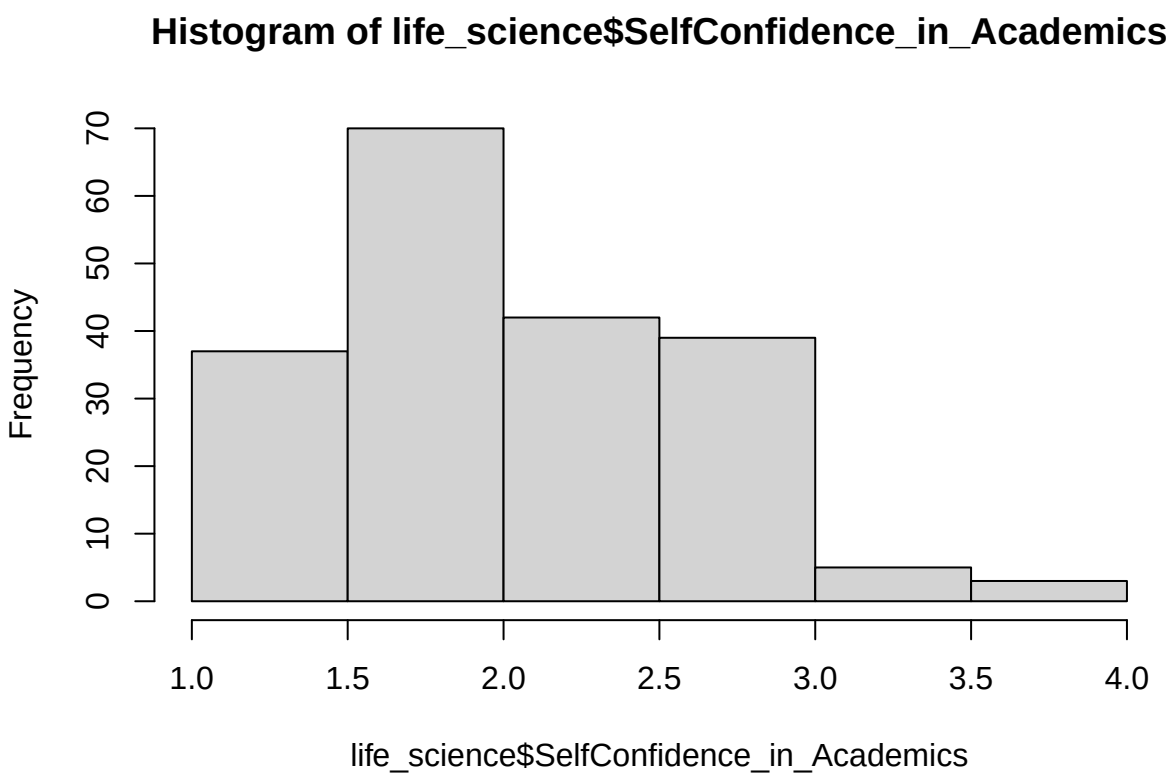
```
physical_science %>% count(academic_status) %>% as_factor()
```

```
## # A tibble: 2 x 2
##   academic_status     n
##   <fct>           <int>
## 1 Freshman           31
## 2 Transfer            9
```

```
hist(life_science$SelfDoubt_Re_Ability)
```




```
hist(life_science$SelfConfidence_in_Academics)
```




```
hist(life_science$Sense_of_Belonging)
```


```
shapiro.test(life_science$SelfDoubt_Re_Ability)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  life_science$SelfDoubt_Re_Ability
## W = 0.97076, p-value = 0.0004105
```

```
shapiro.test(life_science$SelfConfidence_in_Academics)
```

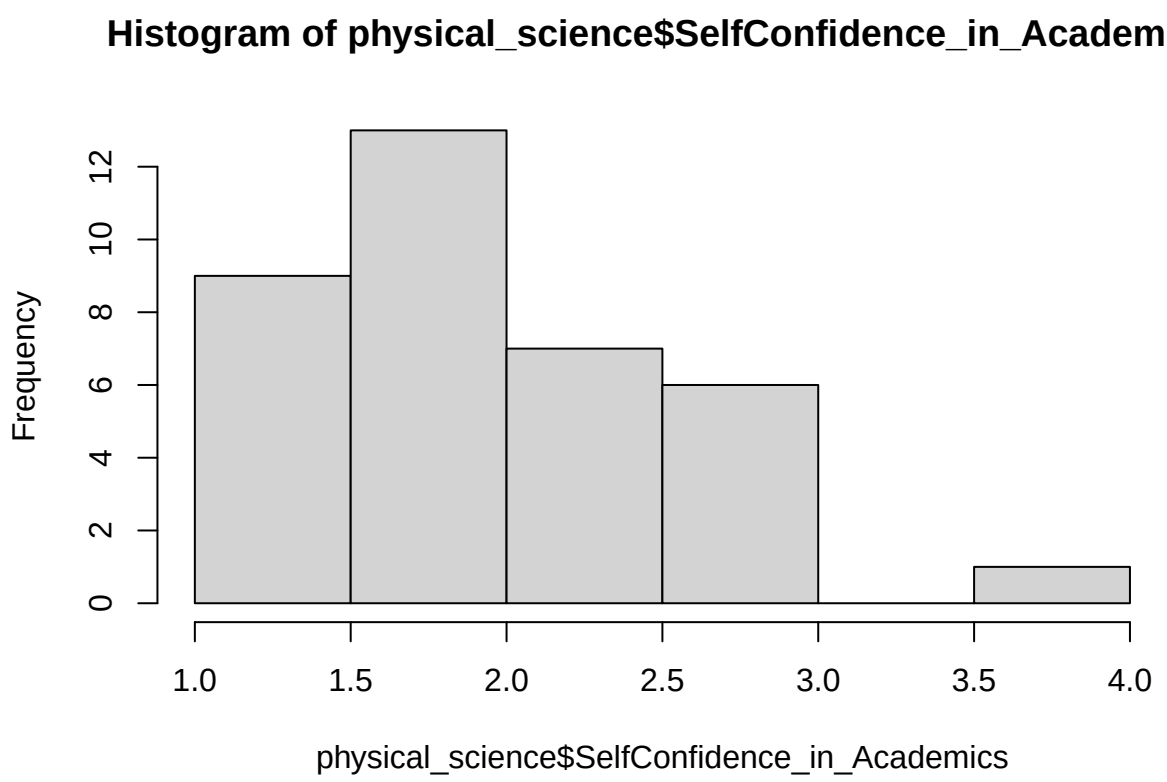
```
##
##  Shapiro-Wilk normality test
##
## data:  life_science$SelfConfidence_in_Academics
## W = 0.95095, p-value = 2.888e-06
```

```
shapiro.test(life_science$Sense_of_Belonging)
```

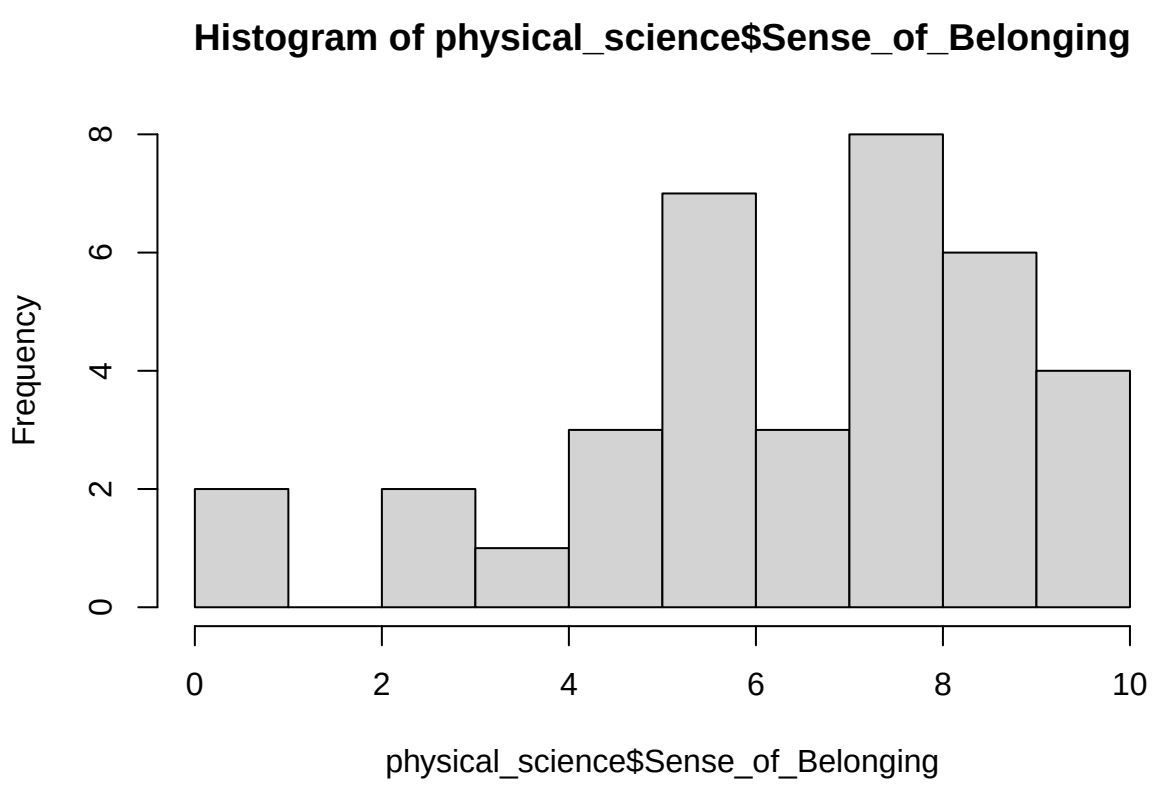
```
##
##  Shapiro-Wilk normality test
##
## data:  life_science$Sense_of_Belonging
## W = 0.94546, p-value = 8.362e-07
```

```
hist(physical_science$SelfDoubt_Re_Ability)
```


```
hist(physical_science$SelfConfidence_in_Academics)
```




```
hist(physical_science$Sense_of_Belonging)
```




```
shapiro.test(physical_science$SelfDoubt_Re_Ability)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  physical_science$SelfDoubt_Re_Ability
## W = 0.94258, p-value = 0.07363
```

```
shapiro.test(physical_science$SelfConfidence_in_Academics)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  physical_science$SelfConfidence_in_Academics
## W = 0.93779, p-value = 0.04337
```

```
shapiro.test(physical_science$Sense_of_Belonging)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  physical_science$Sense_of_Belonging
## W = 0.93384, p-value = 0.03277
```

```
t_test1 <- t.test(life_science$SelfDoubt_Re_Ability, physical_science$SelfDoubt_Re_Ability)
t_test2 <- t.test(life_science$SelfConfidence_in_Academics, physical_science$SelfConfidence_in_Academics
t_test3 <- t.test(life_science$Sense_of_Belonging, physical_science$Sense_of_Belonging)

table1 <- tidy(t_test1)
pander(t_test1)
```

Table 1: Welch Two Sample t-test: `life_science$SelfDoubt_Re_Ability` and `physical_science$SelfDoubt_Re_Ability` (continued below)

Test statistic	df	P value	Alternative hypothesis	mean of x
-2.092	42.16	0.04253 *	two.sided	2.423

mean of y
2.75

```
table2 <- tidy(t_test2)
pander(t_test2)
```

Table 3: Welch Two Sample t-test: `life_science$SelfConfidence_in_Academics` and `physical_science$SelfConfidence_in_Academics`

Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
0.7507	46.14	0.4566	two.sided	2.122	2.028

```
table3 <- tidy(t_test3)
pander(t_test3)
```

Table 4: Welch Two Sample t-test: `life_science$Sense_of_Belonging` and `physical_science$Sense_of_Belonging`

Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
-0.4162	44.58	0.6792	two.sided	6.513	6.694

```
mean(physical_science$TermGPA, na.rm = TRUE)
```

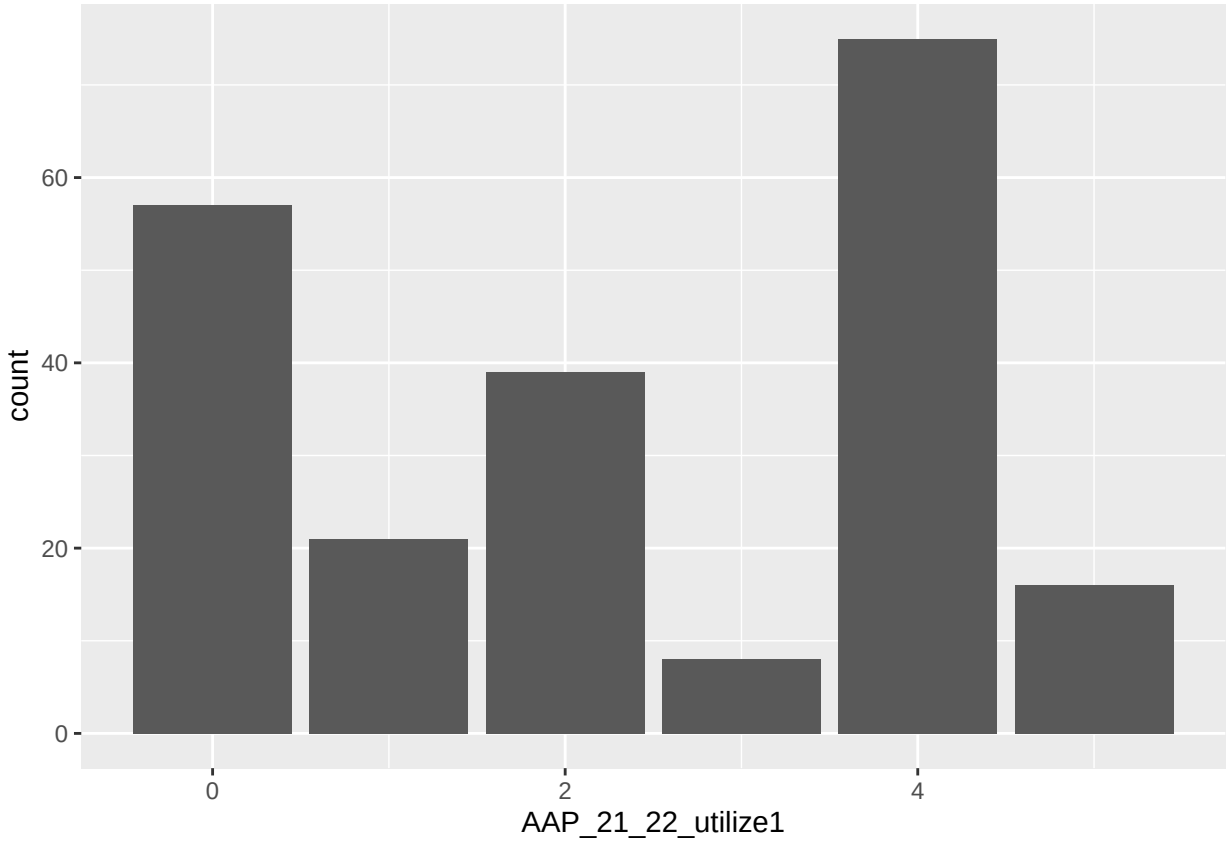
```
## [1] 3.2993
```

```
mean(life_science$TermGPA, na.rm = TRUE)
```

```
## [1] 3.527969
```

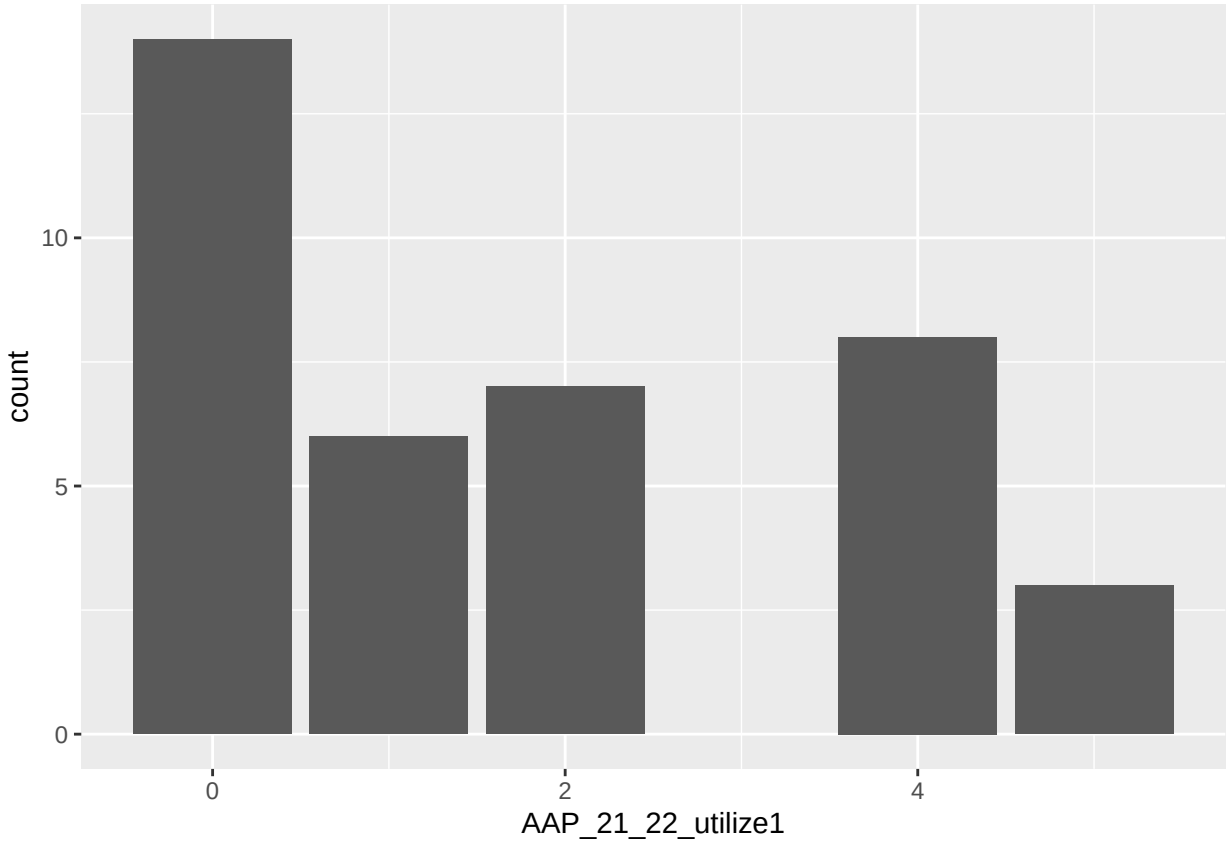
```
ggplot(life_science, aes(x = AAP_21_22_utilize1)) +
geom_bar()
```

```
## Warning: Removed 9 rows containing non-finite values (‘stat_count()‘).
```

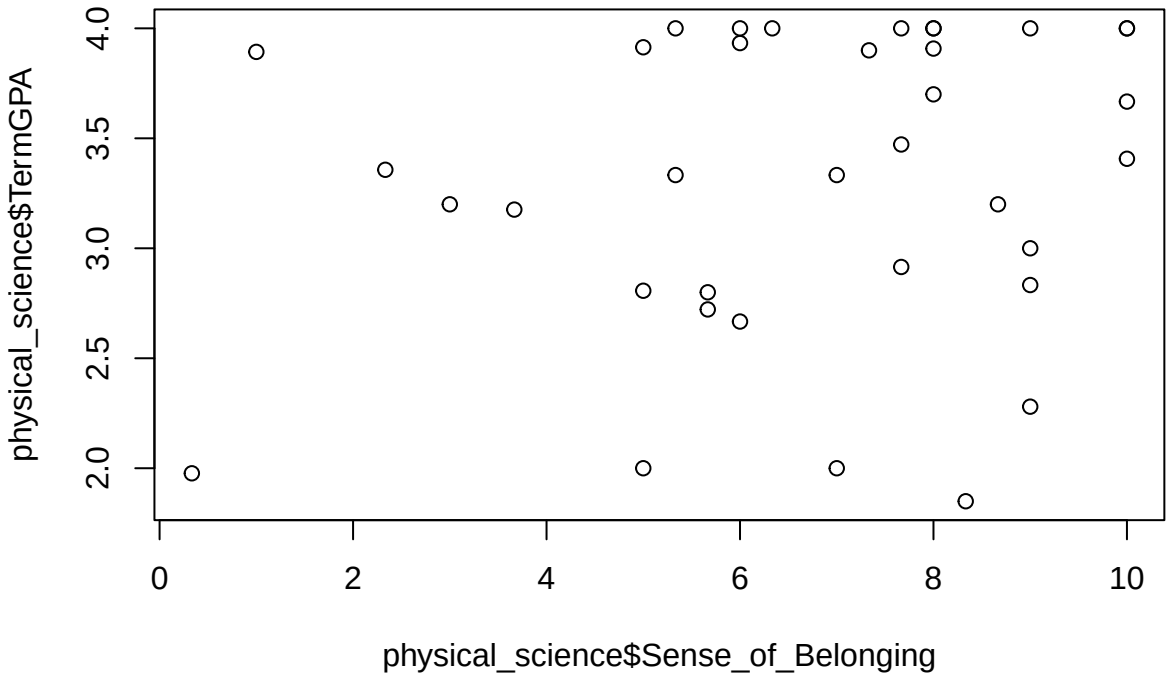



```
ggplot(physical_science, aes(x = AAP_21_22_utilize1)) +
geom_bar()
```

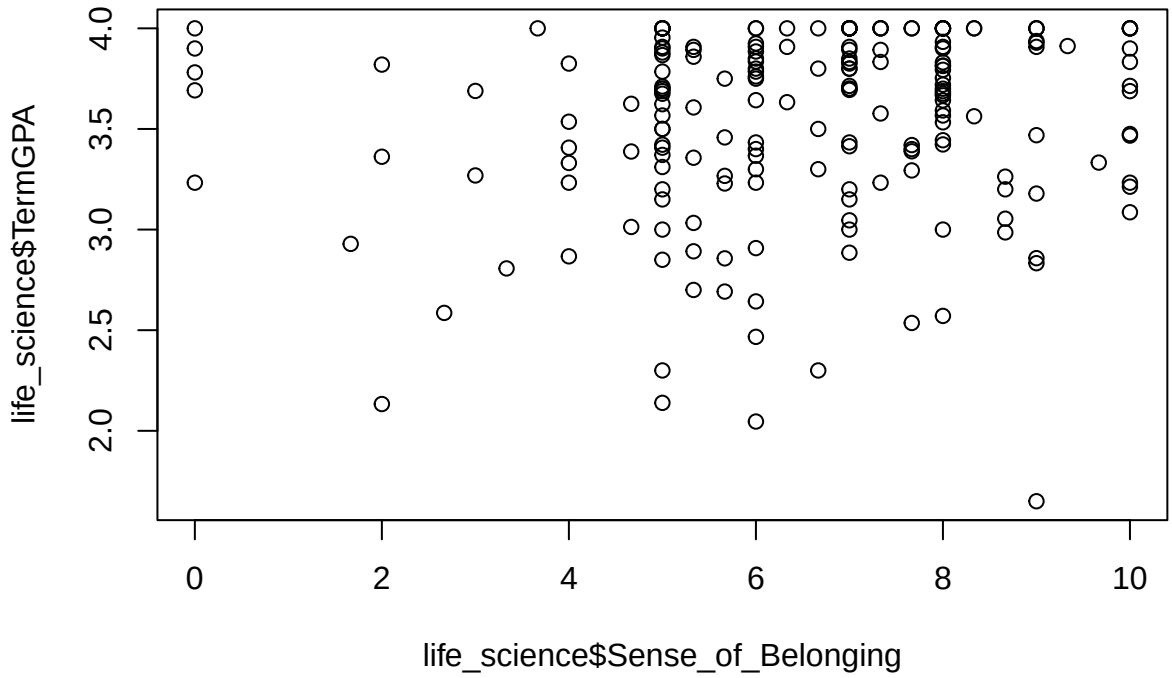
```
## Warning: Removed 2 rows containing non-finite values (‘stat_count()‘).
```



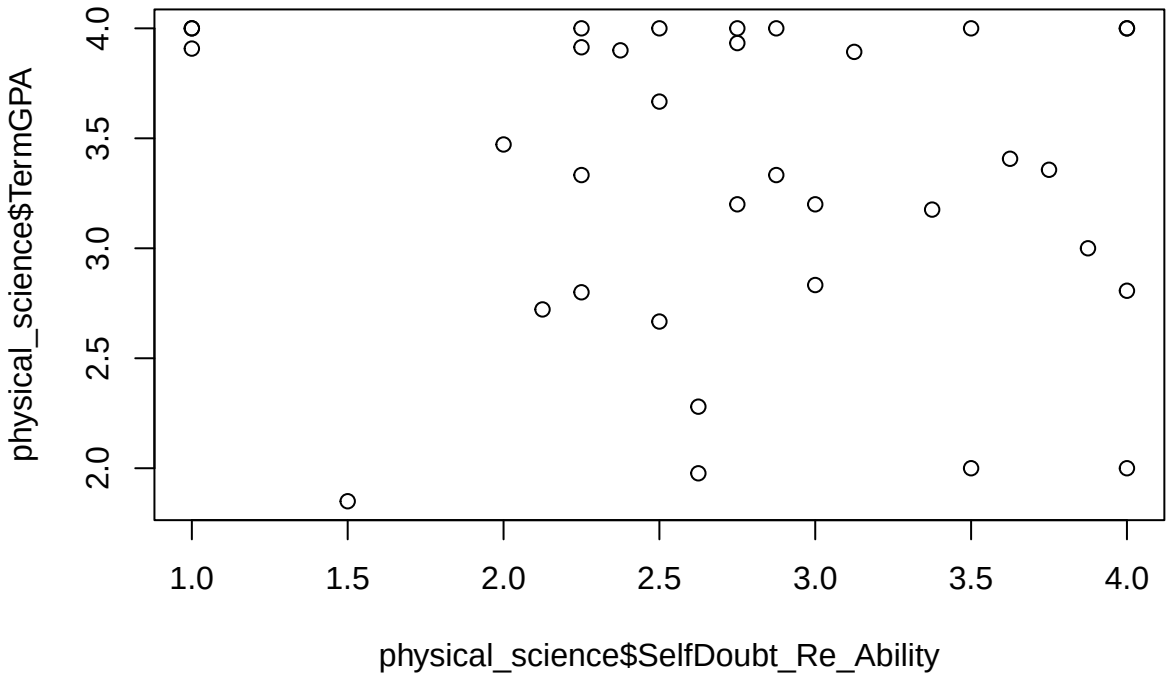

```
plot(physical_science$Sense_of_Belonging, physical_science$TermGPA)
```



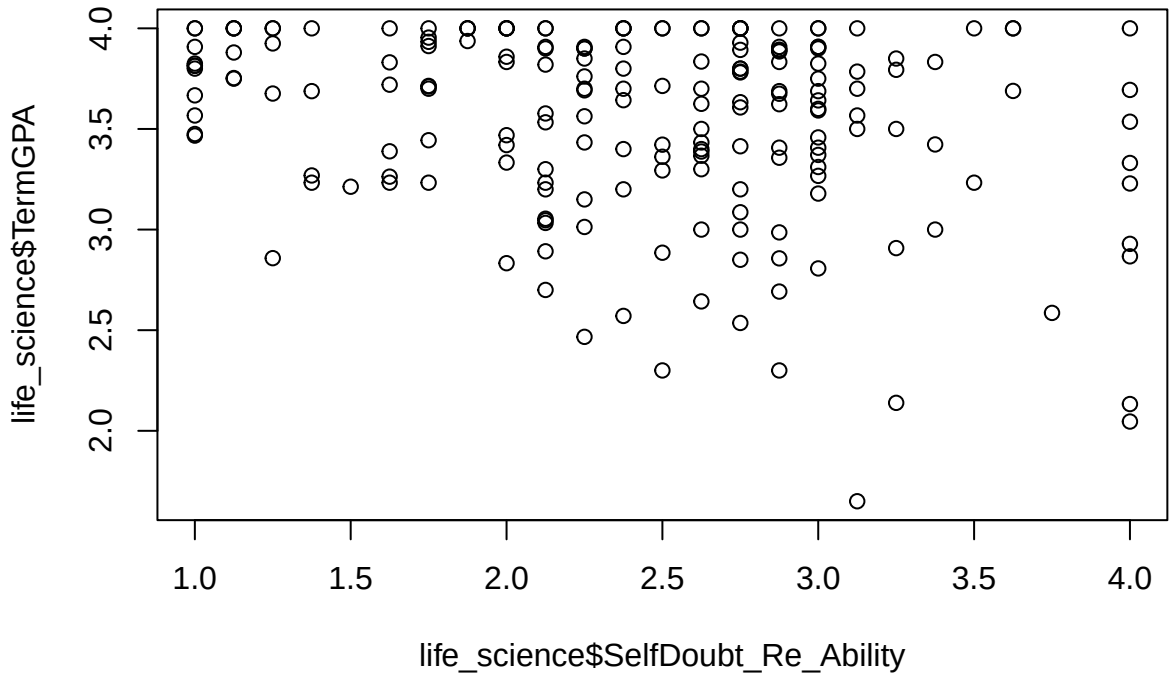

```
plot(life_science$Sense_of_Belonging, life_science$TermGPA)
```



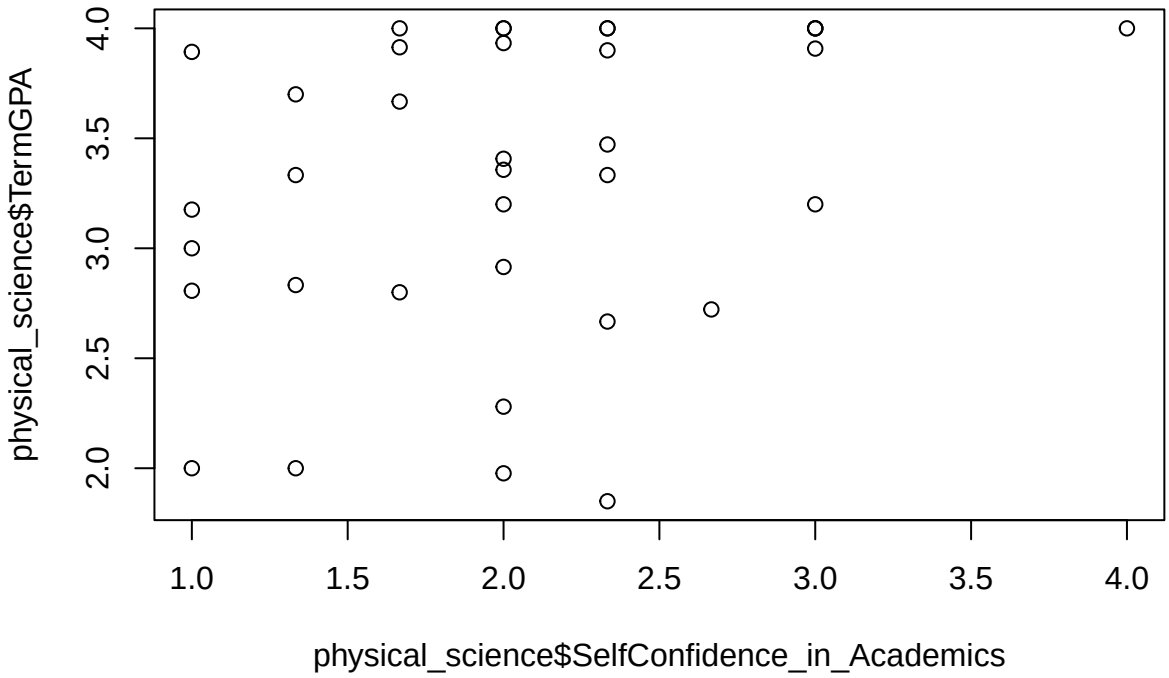

```
plot(physical_science$SelfDoubt_Re_Ability, physical_science$TermGPA)
```



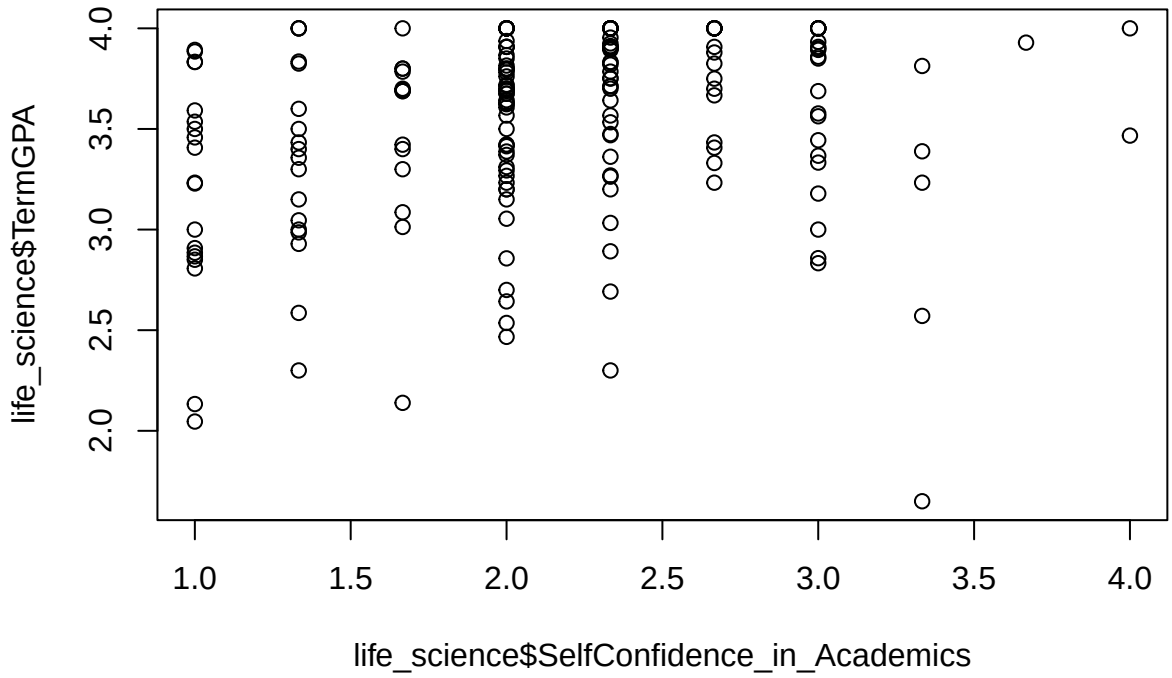

```
plot(life_science$SelfDoubt_Re_Ability, life_science$TermGPA)
```




```
plot(physical_science$SelfConfidence_in_Academics, physical_science$TermGPA)
```




```
plot(life_science$SelfConfidence_in_Academics, life_science$TermGPA)
```




```
library(car)
```

```
## Warning: package 'car' was built under R version 4.2.3
```

```
## Loading required package: carData
```

```
##
## Attaching package: 'car'
```

```
## The following object is masked from 'package:dplyr':
##
##     recode
```

```
## The following object is masked from 'package:purrr':
##
##     some
```

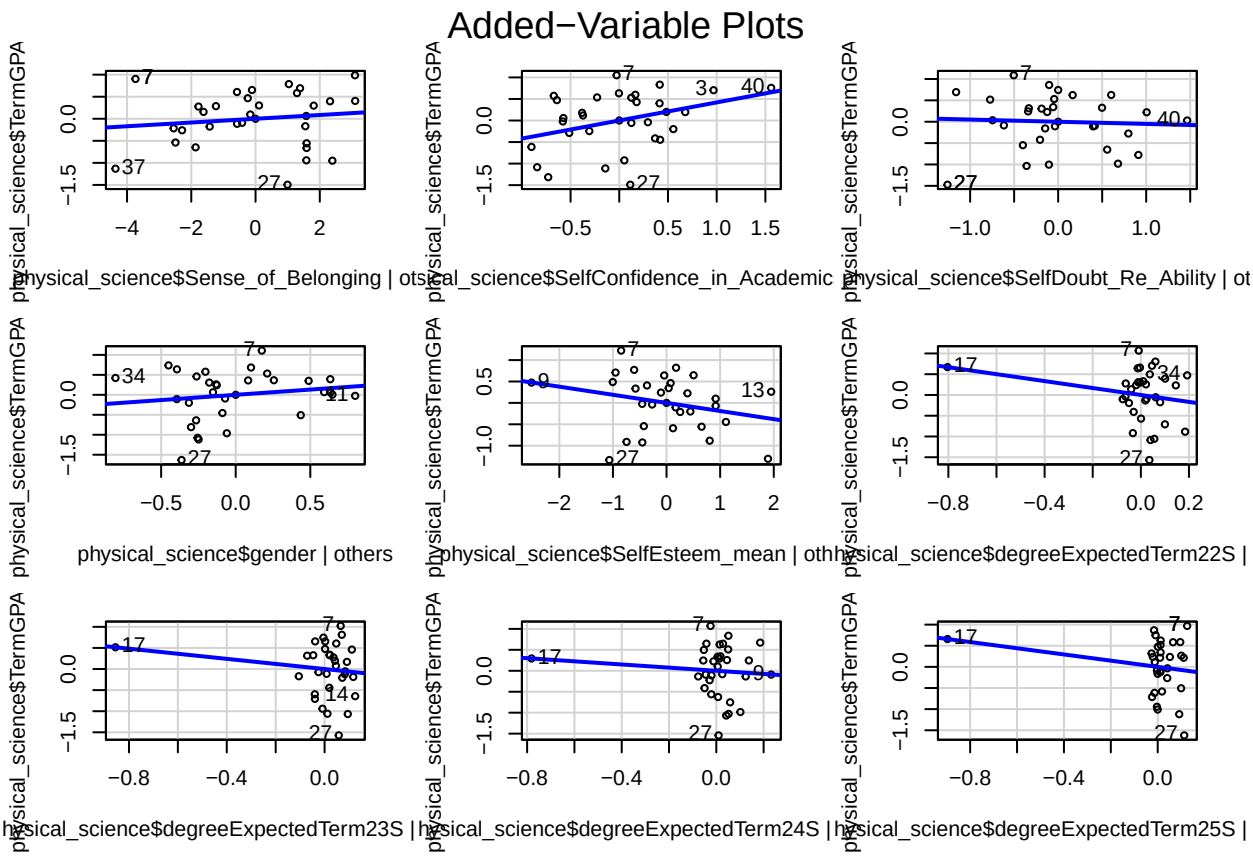
```
reg <- lm(physical_science$TermGPA ~ physical_science$Sense_of_Belonging + physical_science$SelfConfide

#summary(reg)
pander(reg)
```

Table 5: Fitting linear model: physical_science$TermGPA$ $physical_science$Sense_of_Belonging + physical_science$SelfConfidence_in_Academics$ + $physical_science$SelfDoubt_Re_Ability + physical_science$gender$ + $physical_science$SelfEsteem_mean + physical_science$degreeExpectedTerm (continued below)

	Estimate	Std. Error
(Intercept)	3.437	1.33
physical_science$Sense_of_Belonging	0.04253	0.06758
physical_science$SelfConfidence_in_Academics	0.4196	0.2363
physical_science$SelfDoubt_Re_Ability	-0.0511	0.2127
physical_science$gender	0.2625	0.336
physical_science$SelfEsteem_mean	-0.1897	0.1478
physical_science$degreeExpectedTerm22S	-0.8352	0.8131
physical_science$degreeExpectedTerm23S	-0.6029	0.7882
physical_science$degreeExpectedTerm24S	-0.3761	0.8245
physical_science$degreeExpectedTerm25S	-0.7345	0.7697

	t value	Pr(>|t|)
(Intercept)	2.585	0.01688
physical_science$Sense_of_Belonging	0.6294	0.5356
physical_science$SelfConfidence_in_Academics	1.776	0.08963
physical_science$SelfDoubt_Re_Ability	-0.2402	0.8124
physical_science$gender	0.7811	0.4431
physical_science$SelfEsteem_mean	-1.283	0.2128
physical_science$degreeExpectedTerm22S	-1.027	0.3155
physical_science$degreeExpectedTerm23S	-0.7649	0.4524
physical_science$degreeExpectedTerm24S	-0.4562	0.6527
physical_science$degreeExpectedTerm25S	-0.9543	0.3503

```
avPlots(reg)
```



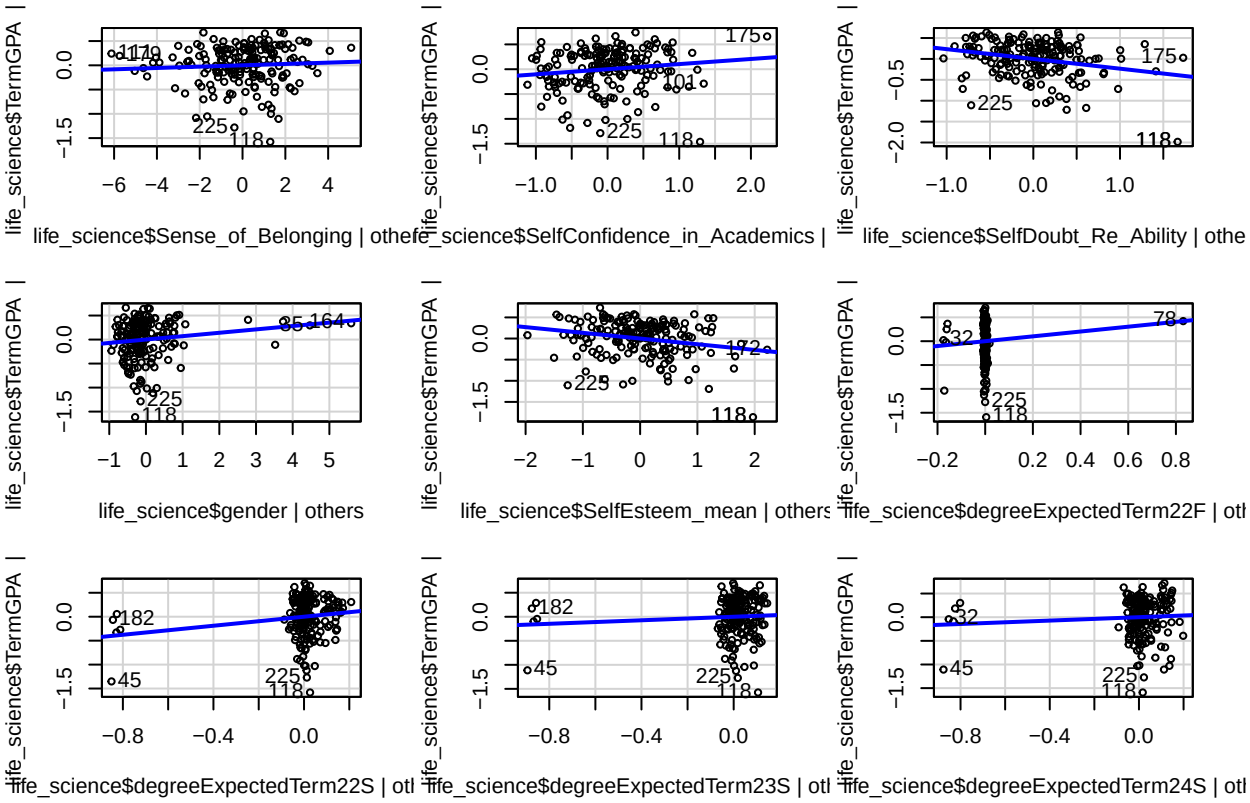

```
reg2 <- lm(life_science$TermGPA ~ life_science$Sense_of_Belonging + life_science$SelfConfidence_in_Acad

#summary(reg2)
pander(reg2)
```

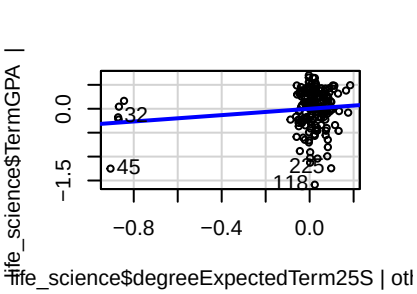
Table 7: Fitting linear model: life_science$TermGPA$ ~ life_science$Sense_of_Belonging + life_science$SelfConfidence_in_Academics + life_science$SelfDoubt_Re_Ability + life_science$gender + life_science$SelfEsteem_mean + life_science$degreeExpectedTerm (continued below)

	Estimate	Std. Error	t value
(Intercept)	4.09	0.439	9.317
life_science$Sense_of_Belonging	0.01379	0.01731	0.797
life_science$SelfConfidence_in_Academics	0.103	0.05673	1.816
life_science$SelfDoubt_Re_Ability	-0.2336	0.06664	-3.505
life_science$gender	0.07053	0.03879	1.818
life_science$SelfEsteem_mean	-0.135	0.04417	-3.055
life_science$degreeExpectedTerm22F	0.5069	0.4623	1.097
life_science$degreeExpectedTerm22S	0.4717	0.2065	2.284
life_science$degreeExpectedTerm23S	0.1835	0.202	0.9082
life_science$degreeExpectedTerm24S	0.1794	0.2059	0.8712
life_science$degreeExpectedTerm25S	0.3322	0.2018	1.646

	Pr(>|t|)
(Intercept)	6.367e-17
life_science$Sense_of_Belonging	0.4266
life_science$SelfConfidence_in_Academics	0.0712
life_science$SelfDoubt_Re_Ability	0.0005843
life_science$gender	0.07078
life_science$SelfEsteem_mean	0.002614
life_science$degreeExpectedTerm22F	0.2744
life_science$degreeExpectedTerm22S	0.02362
life_science$degreeExpectedTerm23S	0.3651
life_science$degreeExpectedTerm24S	0.3849
life_science$degreeExpectedTerm25S	0.1016

```
avPlots(reg2)
```





Females and Males

```
fem_life_sci <- life_science[life_science$gender == 1,]
male_life_sci <- life_science[life_science$gender == 2,]

fem_phy_sci <- physical_science[physical_science$gender == 1,]
male_phy_sci <- physical_science[physical_science$gender == 2,]
```

t-test

```
t_test4 <- t.test(fem_life_sci$SelfDoubt_Re_Ability, male_life_sci$SelfDoubt_Re_Ability)
t_test5 <- t.test(fem_life_sci$SelfConfidence_in_Academics, male_life_sci$SelfConfidence_in_Academics)
t_test6 <- t.test(fem_life_sci$Sense_of_Belonging, male_life_sci$Sense_of_Belonging)

table4 <- tidy(t_test4)
pander(table4)
```

Table 9: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
0.3535	2.493	2.139	2.502	0.01572	49.04	0.06963

conf.high	method	alternative
0.6374	Welch Two Sample t-test	two.sided

```
table5 <- tidy(t_test5)
pander(table5)
```

Table 11: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-0.233	2.08	2.313	-1.956	0.05631	47.65	-0.4724

conf.high	method	alternative
0.006518	Welch Two Sample t-test	two.sided

```
table6 <- tidy(t_test6)
pander(table6)
```

Table 13: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
0.2644	6.626	6.362	0.6389	0.5261	45.55	-0.5689

conf.high	method	alternative
1.098	Welch Two Sample t-test	two.sided

```
t_test7 <- t.test(fem_phy_sci$SelfDoubt_Re_Ability, male_phy_sci$SelfDoubt_Re_Ability)
t_test8 <- t.test(fem_phy_sci$SelfConfidence_in_Academics, male_phy_sci$SelfConfidence_in_Academics)
t_test9 <- t.test(fem_phy_sci$Sense_of_Belonging, male_phy_sci$Sense_of_Belonging)

table7 <- tidy(t_test7)
pander(table7)
```

Table 15: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
0.6989	2.935	2.236	2.319	0.03451	15.39	0.058

conf.high	method	alternative
1.34	Welch Two Sample t-test	two.sided

```
table8 <- tidy(t_test8)
pander(table8)
```

Table 17: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-0.4074	1.926	2.333	-1.674	0.1132	16.29	-0.9225

conf.high	method	alternative
0.1077	Welch Two Sample t-test	two.sided

```
table9 <- tidy(t_test9)
pander(table9)
```

Table 19: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-1.148	6.407	7.556	-1.359	0.192	16.92	-2.931

conf.high	method	alternative
0.6351	Welch Two Sample t-test	two.sided

```
t_test10 <- t.test(fem_life_sci$SelfDoubt_Re_Ability, fem_phy_sci$SelfDoubt_Re_Ability)
t_test11 <- t.test(fem_life_sci$SelfConfidence_in_Academics, fem_phy_sci$SelfConfidence_in_Academics)
t_test12 <- t.test(fem_life_sci$Sense_of_Belonging, fem_phy_sci$Sense_of_Belonging)

table10 <- tidy(t_test10)
pander(table10)
```

Table 21: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-0.4422	2.493	2.935	-2.525	0.01701	30.32	-0.7997

conf.high	method	alternative
-0.08475	Welch Two Sample t-test	two.sided

```
table11 <- tidy(t_test11)
pander(table11)
```

Table 23: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
0.1542	2.08	1.926	1.047	0.3028	33.52	-0.1454

conf.high	method	alternative
0.4539	Welch Two Sample t-test	two.sided

```
table12 <- tidy(t_test12)
pander(table12)
```

Table 25: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
0.2189	6.626	6.407	0.425	0.6738	31.3	-0.8313

conf.high	method	alternative
1.269	Welch Two Sample t-test	two.sided

```
t_test13 <- t.test(male_life_sci$SelfDoubt_Re_Ability, male_phy_sci$SelfDoubt_Re_Ability)
t_test14 <- t.test(male_life_sci$SelfConfidence_in_Academics, male_phy_sci$SelfConfidence_in_Academics)
t_test15 <- t.test(male_life_sci$Sense_of_Belonging, male_phy_sci$Sense_of_Belonging)

table13 <- tidy(t_test13)
pander(table13)
```

Table 27: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-0.09683	2.139	2.236	-0.3421	0.7379	12.51	-0.7107

conf.high	method	alternative
0.5171	Welch Two Sample t-test	two.sided

```
table14 <- tidy(t_test14)
pander(table14)
```

Table 29: Table continues below

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low
-0.0202	2.313	2.333	-0.08886	0.9305	13	-0.5113

conf.high	method	alternative
0.4709	Welch Two Sample t-test	two.sided

```
table15 <- tidy(t_test15)
pander(t_test15)
```

Table 31: Welch Two Sample t-test: `male_life_sci$Sense_of_Belonging` and `male_phy_sci$Sense_of_Belonging`

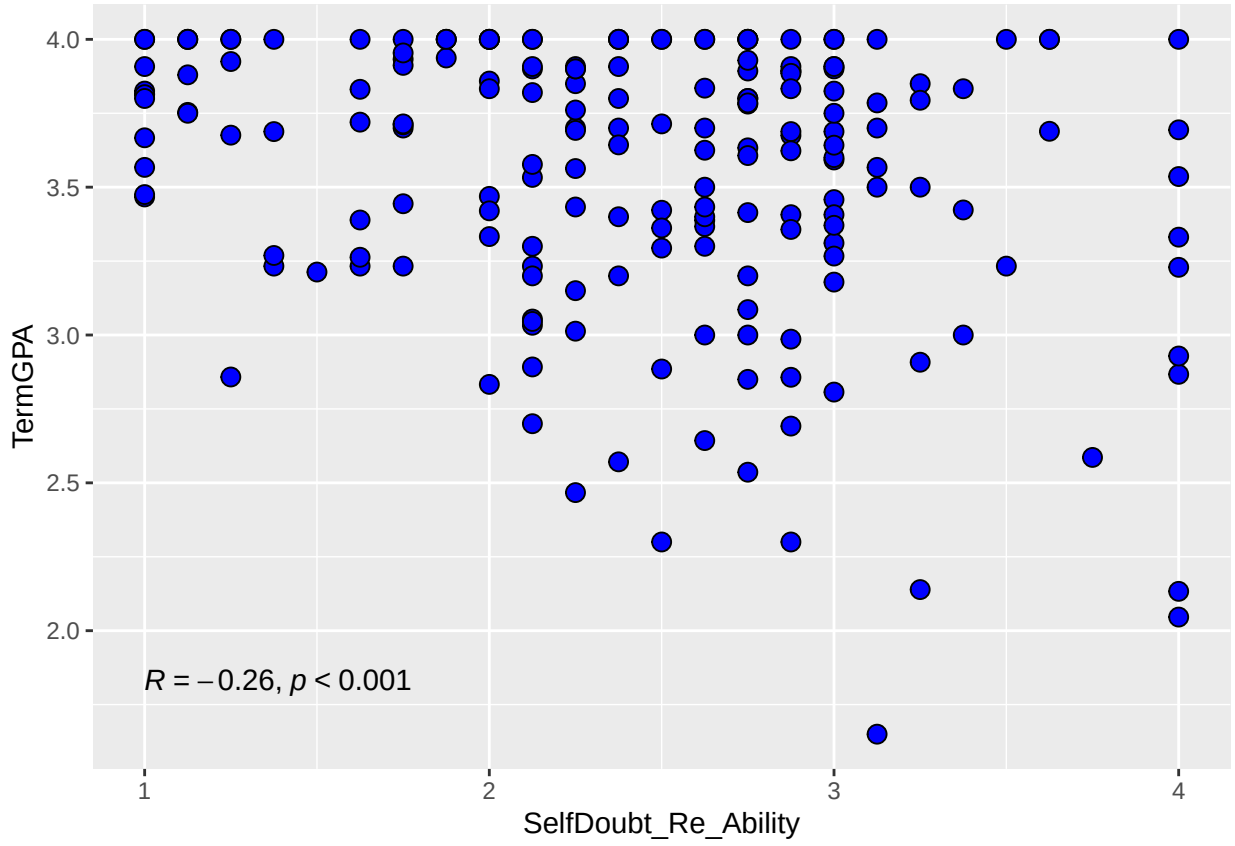
Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
-1.516	13.47	0.1526	two.sided	6.362	7.556

```
library(ggpubr)
```

```
## Warning: package 'ggpubr' was built under R version 4.2.3
```

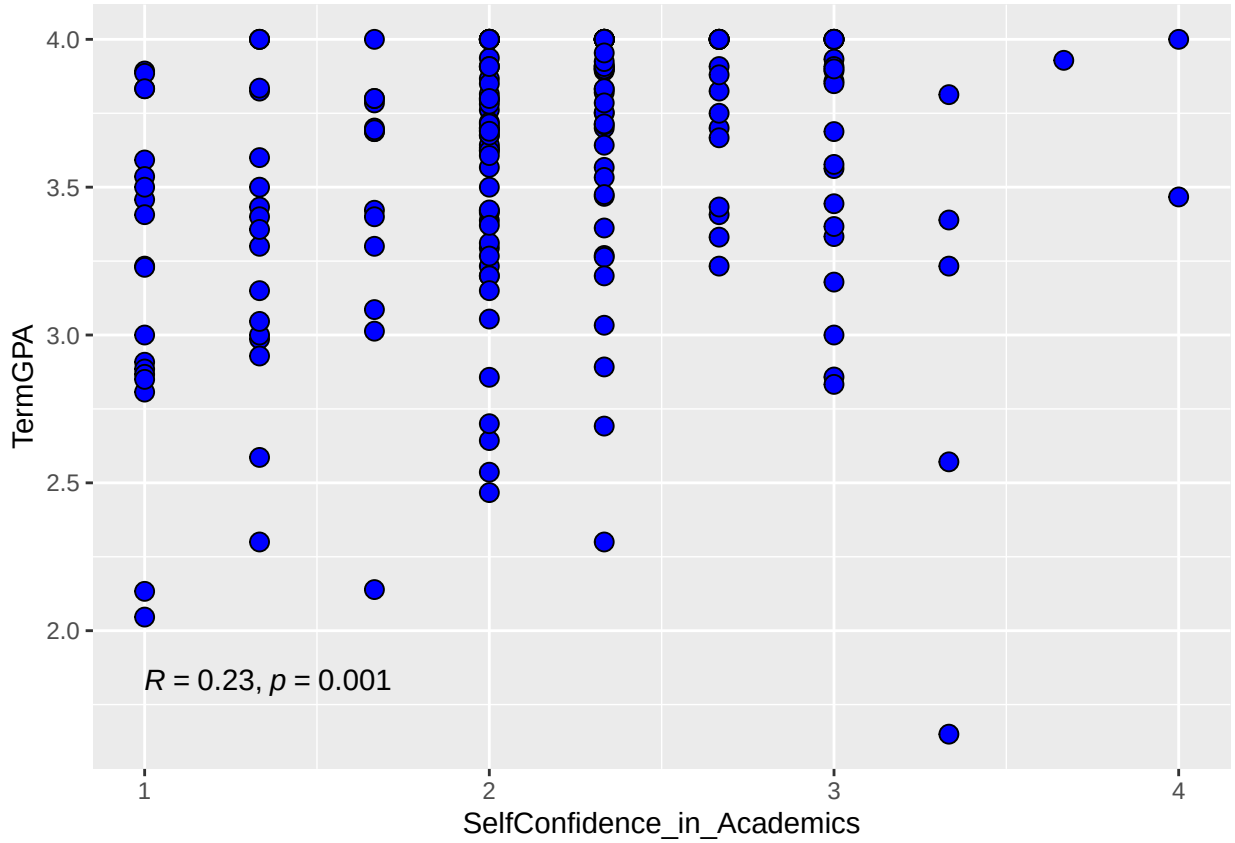
```
ggplot(life_science, aes(x = SelfDoubt_Re_Ability, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01, label.x.npc = "left",
  label.y.npc = "bottom")
```

```
## Warning: Removed 31 rows containing non-finite values (`stat_cor()`).

## Warning: Removed 31 rows containing missing values (`geom_point()`).
```




```
ggplot(life_science, aes(x = SelfConfidence_in_Academics, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01,label.x.npc = "left",
  label.y.npc = "bottom")
```

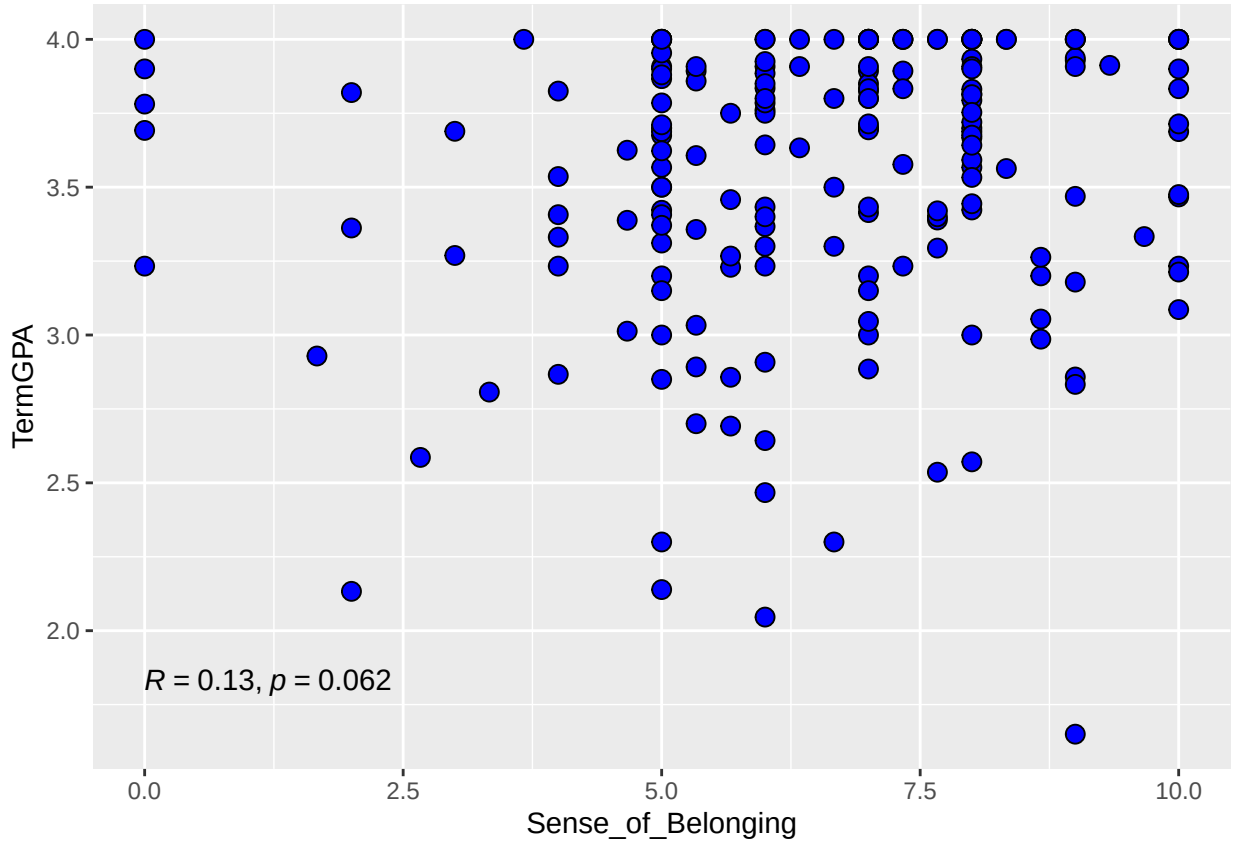
```
## Warning: Removed 31 rows containing non-finite values (`stat_cor()`).
## Removed 31 rows containing missing values (`geom_point()`).
```




```
ggplot(life_science, aes(x = Sense_of_Belonging, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01, label.x.npc = "left",
  label.y.npc = "bottom")
```

```
## Warning: Removed 30 rows containing non-finite values (`stat_cor()`).
```

```
## Warning: Removed 30 rows containing missing values (`geom_point()`).
```

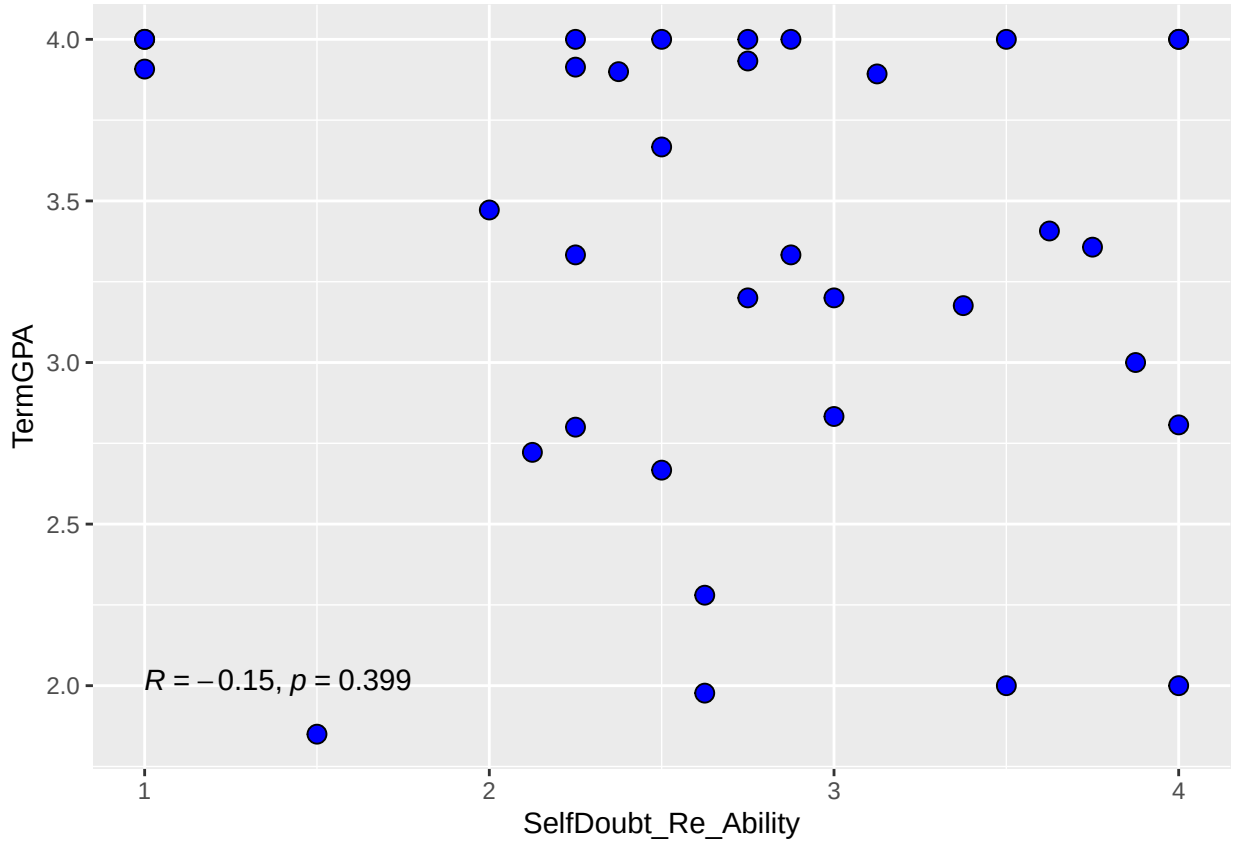


Samples are very small for the physical science students, so it makes sense that the correlations are non significant.

```
ggplot(physical_science, aes(x = SelfDoubt_Re_Ability, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01, label.x.npc = "left",
  label.y.npc = "bottom")
```

```
## Warning: Removed 6 rows containing non-finite values (`stat_cor()`).
```

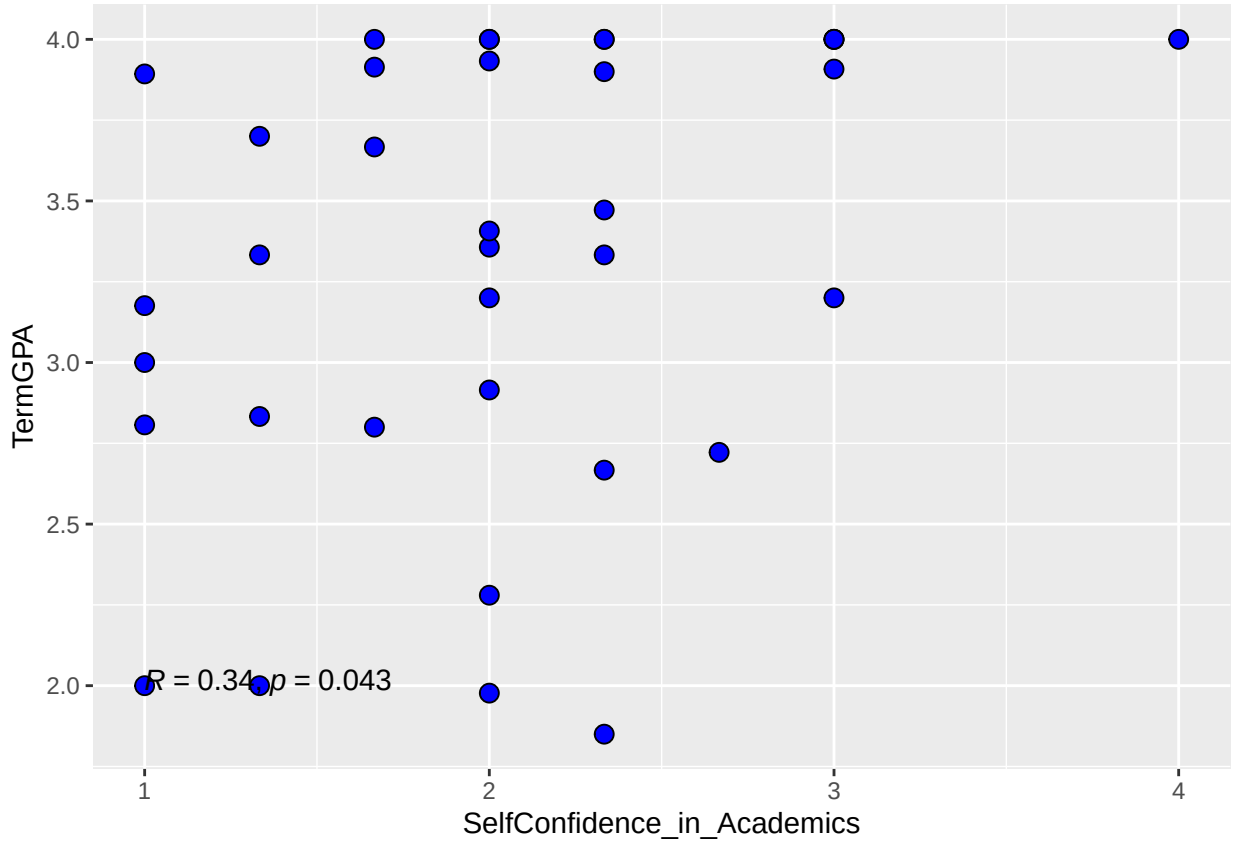
```
## Warning: Removed 6 rows containing missing values (`geom_point()`).
```




```
ggplot(physical_science, aes(x = SelfConfidence_in_Academics, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01,label.x.npc = "left",
  label.y.npc = "bottom")
```

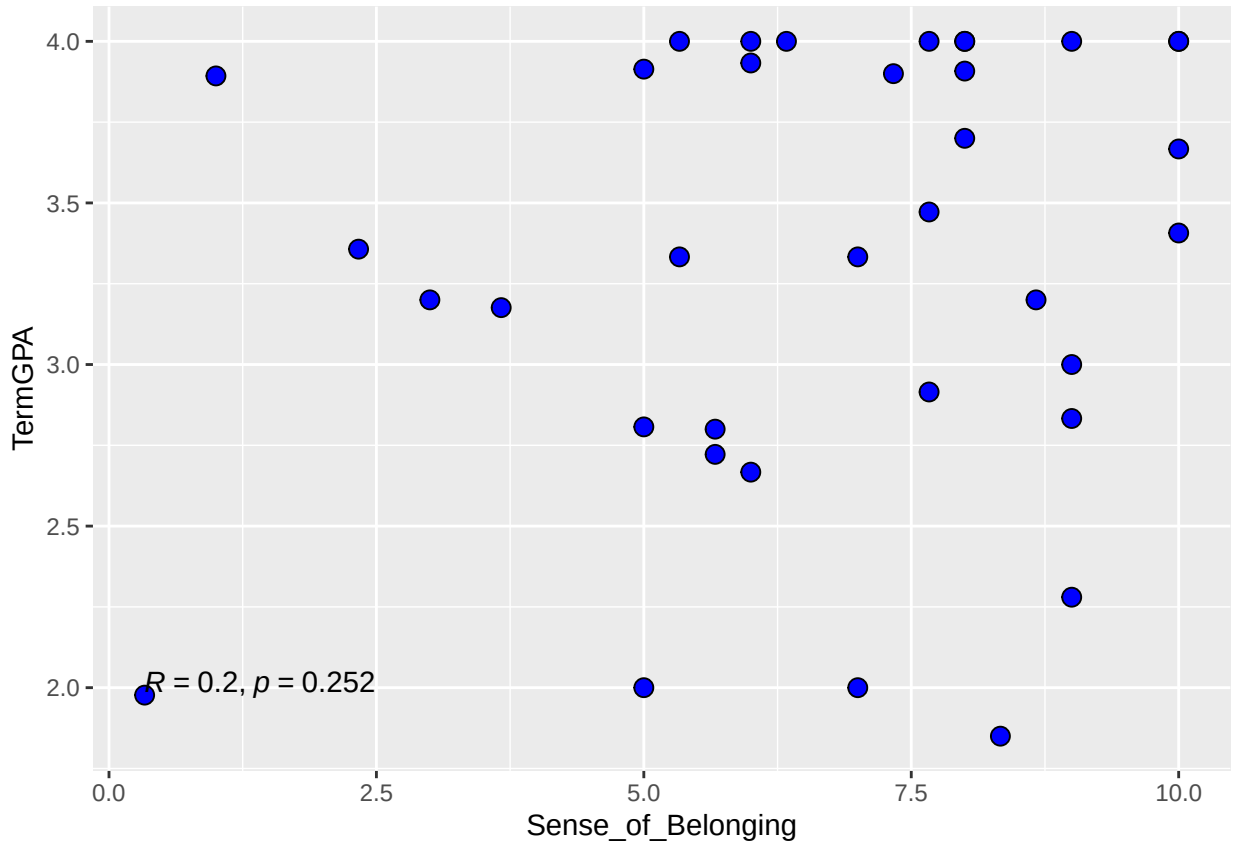
```
## Warning: Removed 4 rows containing non-finite values (`stat_cor()`).
```

```
## Warning: Removed 4 rows containing missing values (`geom_point()`).
```




```
ggplot(physical_science, aes(x = Sense_of_Belonging, y = TermGPA)) +
  geom_point(size = 3, shape = 21, color = "black", fill = "blue") +
  stat_cor(p.accuracy = 0.001, r.accuracy = 0.01, label.x.npc = "left",
  label.y.npc = "bottom")
```

```
## Warning: Removed 4 rows containing non-finite values (`stat_cor()`).
## Removed 4 rows containing missing values (`geom_point()`).
```


4.0
3.5
3.0
2.5
2.0
TermGPA
R = 0.2, p = 0.252
0.0
2.5
5.0
7.5
10.0
Sense_of_Belonging