

EcoleInt_IDC2018

Checking data

Correct per day

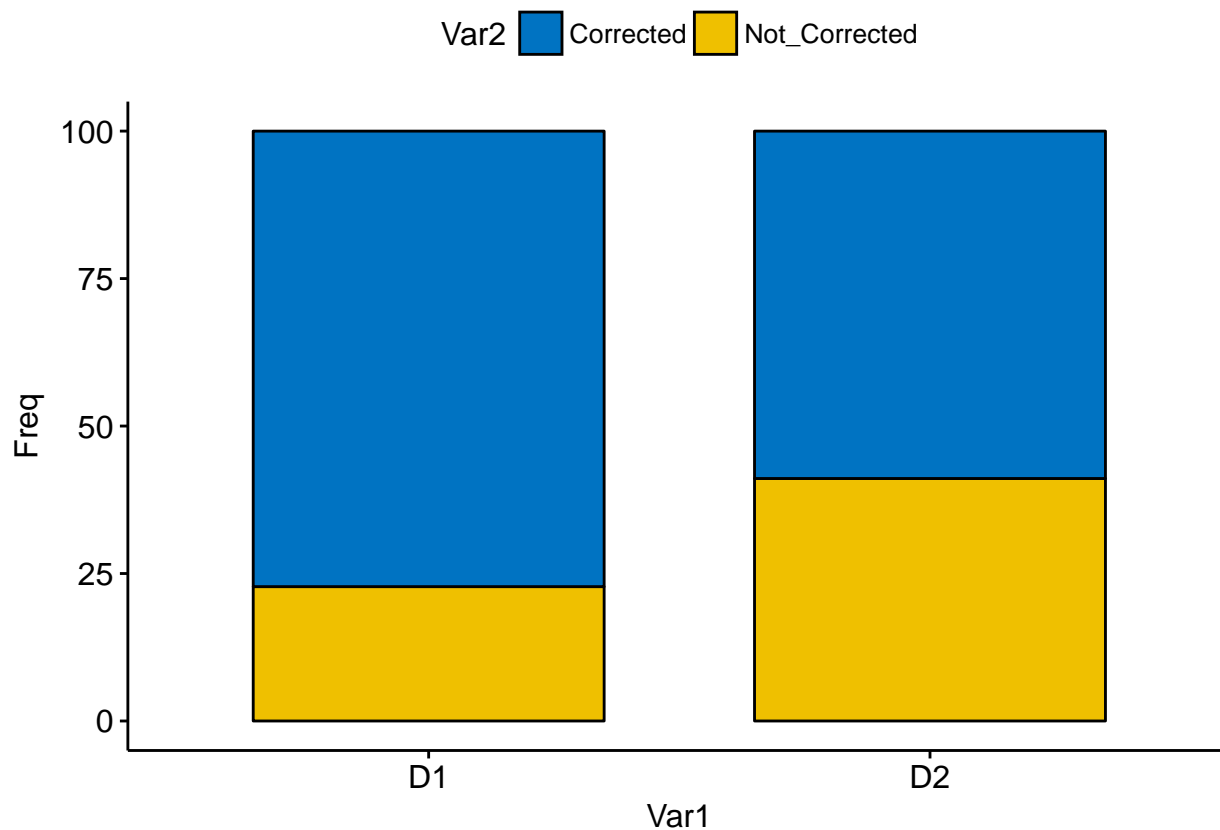
```
res = table(df$Exp_Day, df$Correction_Status)
res = prop.table(res,1)*100
res
```

```
##
##      Corrected Not_Corrected
##   D1  77.22222    22.77778
##   D2  58.88889    41.11111
```

```
chisq.test(res)
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 6.91, df = 1, p-value = 0.008572
```

```
res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



There is an effect of the day on the correction with higher number of corrections in D1! :(

Correct per type

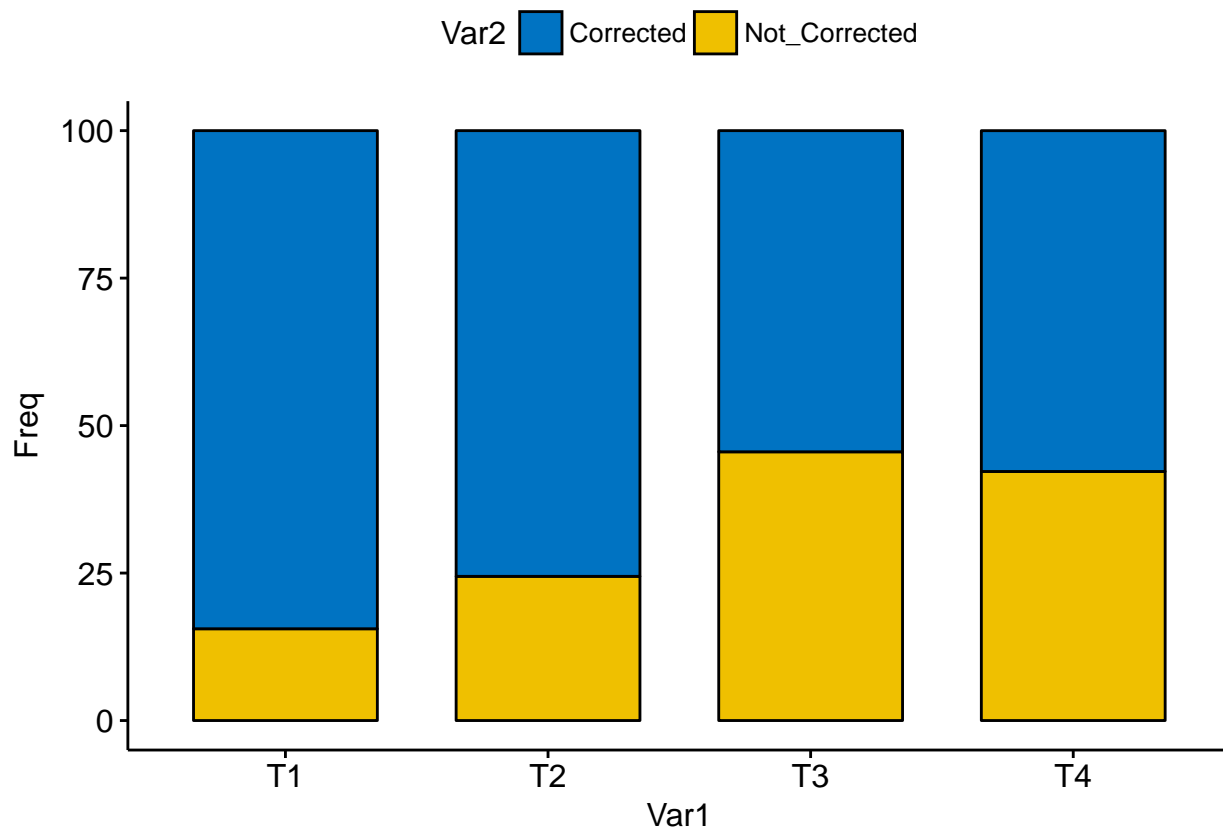
```
res = table(df$Mistake_Type, df$Correction_Status)
res = prop.table(res,1)*100
res
```

```
##
##      Corrected Not_Corrected
##   T1  84.44444    15.55556
##   T2  75.55556    24.44444
##   T3  54.44444    45.55556
##   T4  57.77778    42.22222
```

```
chisq.test(res)
```

```
##
##  Pearson's Chi-squared test
##
## data:  res
## X-squared = 28.323, df = 3, p-value = 3.107e-06
```

```
res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



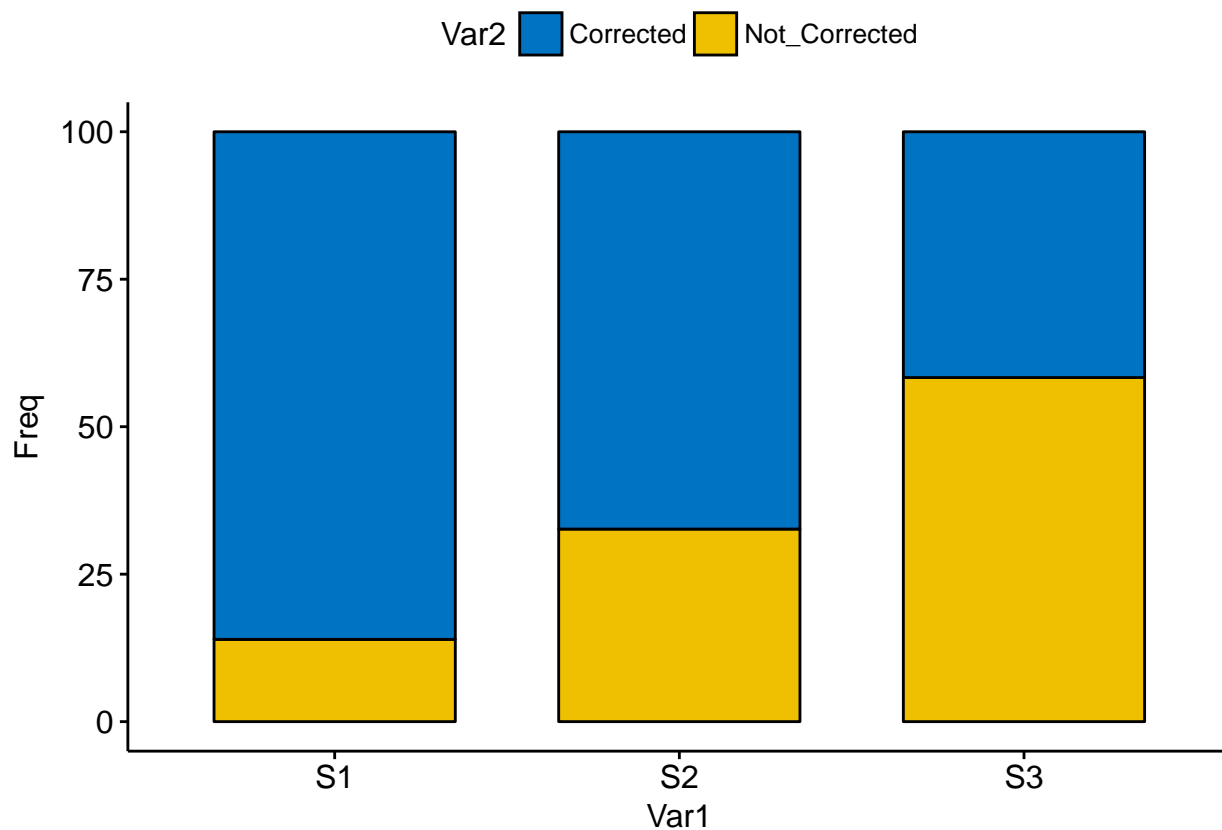
```
res = table(df$Mistake_Type_2, df$Correction_Status)
res = prop.table(res,1)*100
res
```

```
##
##      Corrected Not_Corrected
##   S1  86.04651      13.95349
##   S2  67.34694      32.65306
##   S3  41.66667      58.33333

chisq.test(res)

##
##  Pearson's Chi-squared test
##
## data:  res
## X-squared = 43.656, df = 2, p-value = 3.313e-10

res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



Correct per mistake order

```
res = table(df$Mistake_Order, df$Correction_Status)
res = prop.table(res, 1)*100
res
```

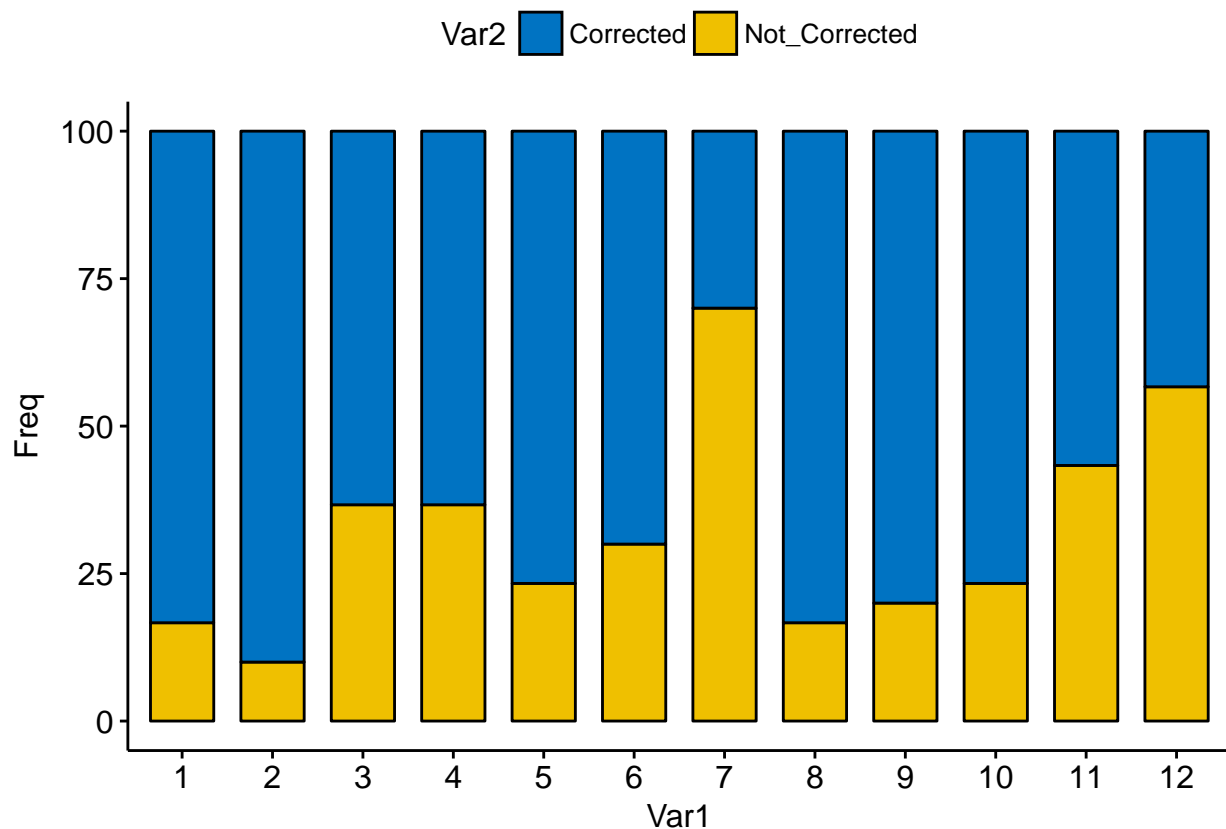
```
##
##      Corrected Not_Corrected
##   1  83.33333      16.66667
##   2  90.00000      10.00000
```

```
## 3 63.33333 36.66667
## 4 63.33333 36.66667
## 5 76.66667 23.33333
## 6 70.00000 30.00000
## 7 30.00000 70.00000
## 8 83.33333 16.66667
## 9 80.00000 20.00000
## 10 76.66667 23.33333
## 11 56.66667 43.33333
## 12 43.33333 56.66667
```

```
chisq.test(res)
```

```
##
## Pearson's Chi-squared test
##
## data: res
## X-squared = 159.93, df = 11, p-value < 2.2e-16
```

```
res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



Correct per book

```
res = table(df$Book_Level, df$Correction_Status)
res = prop.table(res,1)*100
```

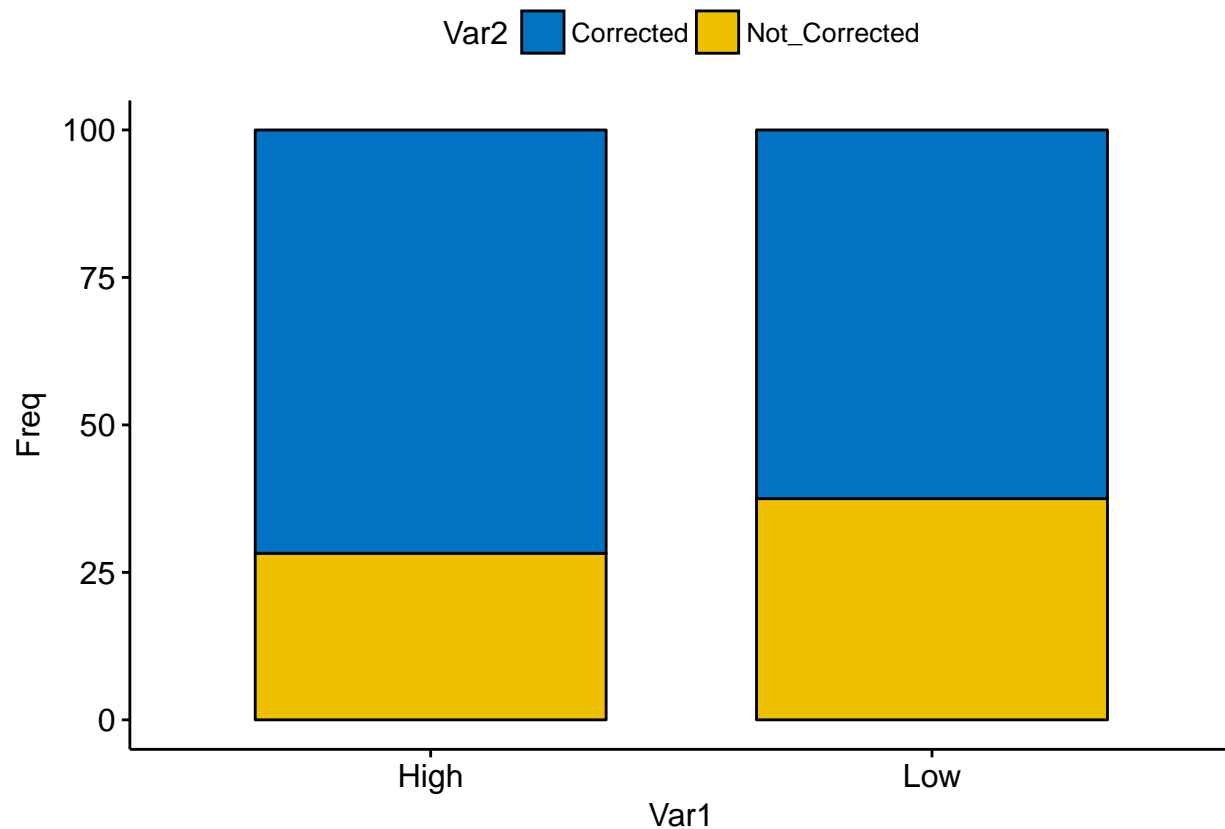
```
res
```

```
##  
##           Corrected Not_Corrected  
##   High  71.75926      28.24074  
##   Low   62.50000      37.50000
```

```
chisq.test(res)
```

```
##  
## Pearson's Chi-squared test with Yates' continuity correction  
##  
## data:  res  
## X-squared = 1.5457, df = 1, p-value = 0.2138
```

```
res = data.frame(res)  
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")  
p
```



STAT TEST

Test pointing effect on all children

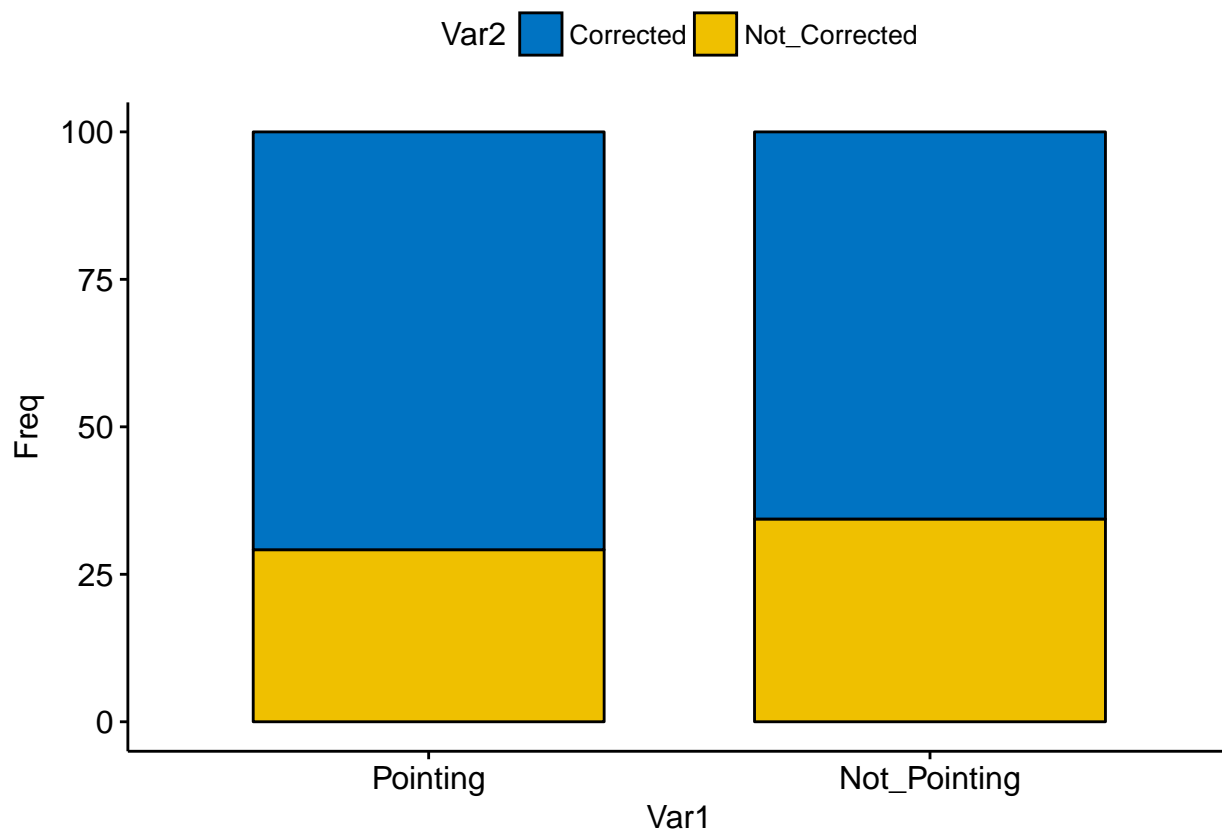
```
res = table(df$Robot_Hand_Condition, df$Correction_Status)  
res = prop.table(res,1)*100  
res
```

```
##
##           Corrected Not_Corrected
##   Pointing      70.83333      29.16667
##   Not_Pointing  65.62500      34.37500

chisq.test(res)

##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.4085, df = 1, p-value = 0.5227

res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```

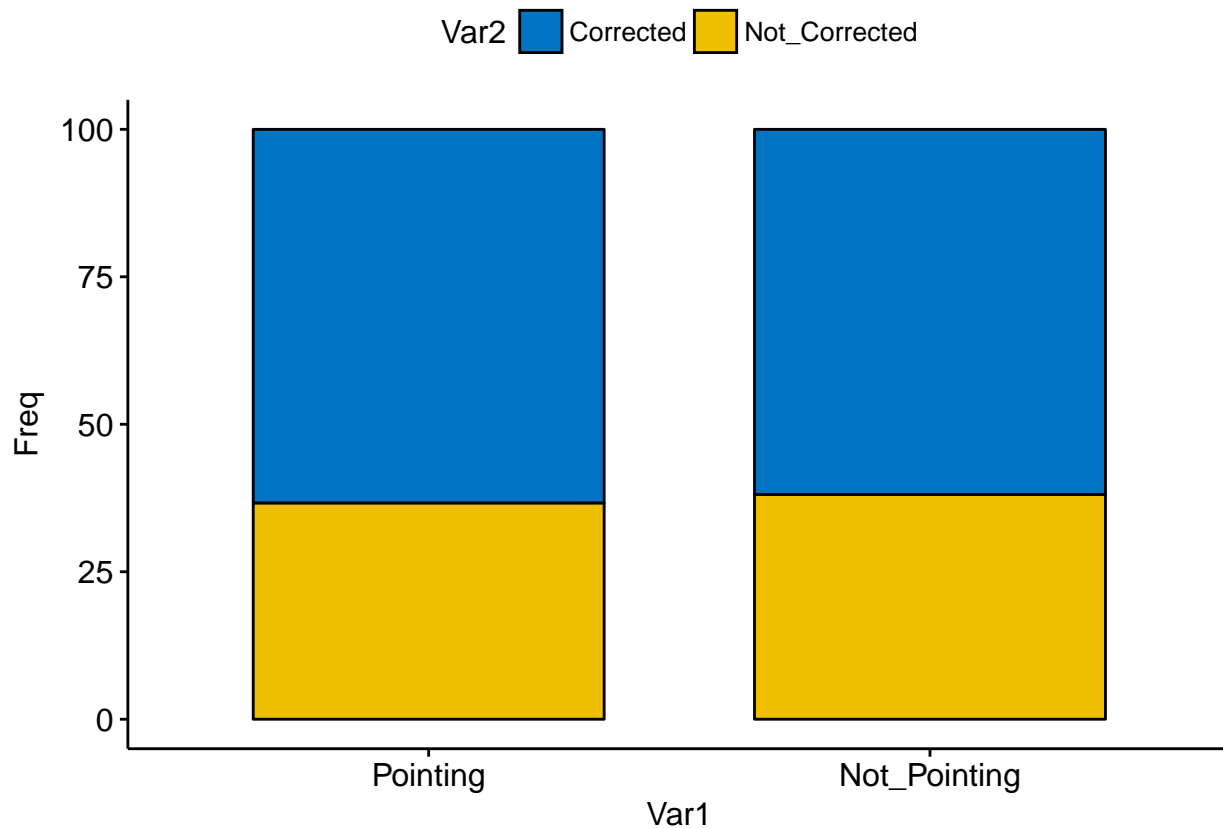


```
## Test pointing effect on low level kids
df_low = subset(df, df$Book_Level == "Low")
res = table(df_low$Robot_Hand_Condition, df_low$Correction_Status)
res = prop.table(res, 1) * 100
res
```

```
##
##           Corrected Not_Corrected
##   Pointing      63.33333      36.66667
##   Not_Pointing  61.90476      38.09524

chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.0039234, df = 1, p-value = 0.9501
res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



Test pointing effect on high level kids

```
df_high = subset(df, df$Book_Level == "High")
res = table(df_high$Robot_Hand_Condition, df_high$Correction_Status)
res = prop.table(res, 1) * 100
res
```

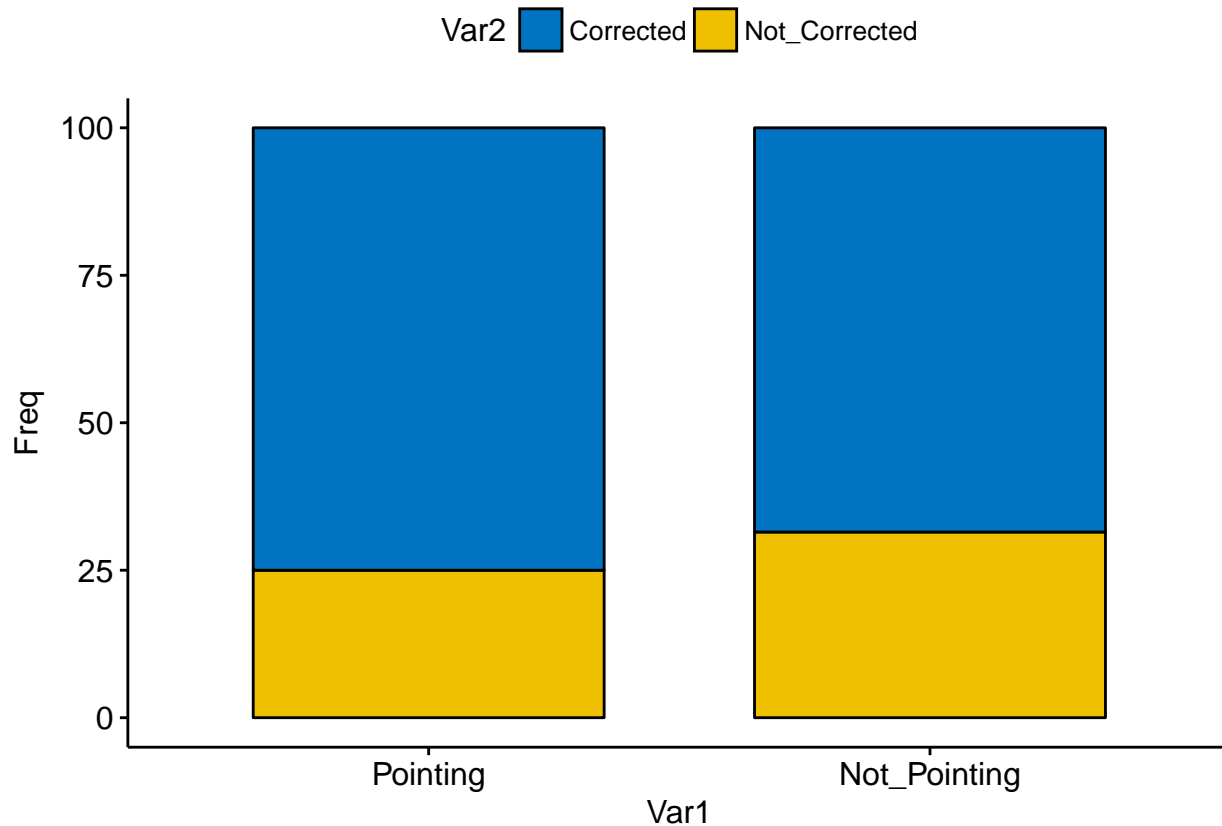
```
##
##           Corrected Not_Corrected
## Pointing      75.00000      25.00000
## Not_Pointing  68.51852      31.48148
```

```
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
```

```
## X-squared = 0.74133, df = 1, p-value = 0.3892
```

```
res = data.frame(res)
p = ggbarplot(res, x = "Var1", y = "Freq", fill = "Var2", palette = "jco")
p
```



```
##### Test pointing effect for each type of mistakes ##### T1
```

```
df_t1 = subset(df, df$Mistake_Type == "T1")
res = table(df_t1$Robot_Hand_Condition, df_t1$Correction_Status)
res
```

```
##
##           Corrected Not_Corrected
## Pointing           39             3
## Not_Pointing        37            11
```

```
T2
```

```
df_t2 = subset(df, df$Mistake_Type == "T2")
res = table(df_t2$Robot_Hand_Condition, df_t2$Correction_Status)
res
```

```
##
##           Corrected Not_Corrected
## Pointing           33             9
## Not_Pointing        35            13
```

```
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
```



```
##
## data:  res
## X-squared = 0.14208, df = 1, p-value = 0.7062

T3
df_t3 = subset(df,df$Mistake_Type == "T3")
res = table(df_t3$Robot_Hand_Condition, df_t3$Correction_Status)
res

##
##           Corrected Not_Corrected
##   Pointing           24           18
##   Not_Pointing       25           23

chisq.test(res)

##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.072197, df = 1, p-value = 0.7882

T4
df_t4 = subset(df,df$Mistake_Type == "T4")
res = table(df_t4$Robot_Hand_Condition, df_t4$Correction_Status)
res

##
##           Corrected Not_Corrected
##   Pointing           23           19
##   Not_Pointing       29           19

chisq.test(res)

##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.10756, df = 1, p-value = 0.7429
```

Test pointing effect according to Mistake_Type_2

```
S1
df_s1 = subset(df,df$Mistake_Type_2 == "S1")
res = table(df_s1$Robot_Hand_Condition, df_s1$Correction_Status)
res = prop.table(res,1)*100
res

##
##           Corrected Not_Corrected
##   Pointing      94.827586      5.172414
##   Not_Pointing  78.873239     21.126761

chisq.test(res)

##
## Pearson's Chi-squared test with Yates' continuity correction
```

```
##
## data:  res
## X-squared = 9.7909, df = 1, p-value = 0.001754
```

S2

```
df_s2 = subset(df,df$Mistake_Type_2 == "S2")
res = table(df_s2$Robot_Hand_Condition, df_s2$Correction_Status)
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.37641, df = 1, p-value = 0.5395
```

S3

```
df_s3 = subset(df,df$Mistake_Type_2 == "S3")
res = table(df_s3$Robot_Hand_Condition, df_s3$Correction_Status)
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.99626, df = 1, p-value = 0.3182
```

Test pointing effect according to Mistake_Type_2

Low

S1 and Low

```
df_s1 = subset(df,df$Mistake_Type_2 == "S1" & df$Book_Level == "Low")
res = table(df_s1$Robot_Hand_Condition, df_s1$Correction_Status)
res = prop.table(res,1)*100
res
```

```
##
##           Corrected Not_Corrected
##   Pointing      100.00000      0.00000
##   Not_Pointing   72.41379     27.58621
```

```
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 29.722, df = 1, p-value = 4.986e-08
```

S2 and Low

```
df_s2 = subset(df,df$Mistake_Type_2 == "S2" & df$Book_Level == "Low")
res = table(df_s2$Robot_Hand_Condition, df_s2$Correction_Status)
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 1.517, df = 1, p-value = 0.2181
```

S3 and Low

```
df_s3 = subset(df,df$Mistake_Type_2 == "S3" & df$Book_Level == "Low")
res = table(df_s3$Robot_Hand_Condition, df_s3$Correction_Status)
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 1.9211, df = 1, p-value = 0.1657
```

High

S1 and High

```
df_s1 = subset(df,df$Mistake_Type_2 == "S1" & df$Book_Level == "High")
res = table(df_s1$Robot_Hand_Condition, df_s1$Correction_Status)
res = prop.table(res,1)*100
res
```

```
##
##               Corrected Not_Corrected
##   Pointing      92.307692      7.692308
##   Not_Pointing  83.333333     16.666667
```

```
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 2.9726, df = 1, p-value = 0.08469
```

S2 and High

```
df_s2 = subset(df,df$Mistake_Type_2 == "S2" & df$Book_Level == "High")
res = table(df_s2$Robot_Hand_Condition, df_s2$Correction_Status)
```

```
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 4.5655, df = 1, p-value = 0.03262
```

S3 and High

```
df_s3 = subset(df,df$Mistake_Type_2 == "S3" & df$Book_Level == "High")
res = table(df_s3$Robot_Hand_Condition, df_s3$Correction_Status)
res = prop.table(res,1)*100
chisq.test(res)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  res
## X-squared = 0.83136, df = 1, p-value = 0.3619
```