Statistical Learning in Marketing

CONSUMER INTEREST IN SUSTAINABLE CLOTHING

Insights into consumers' willingness to both purchase and recommend sustainable clothing.

LIFESTYLE AND PERCEPTIONAL FACTORS

- Analysis of 156 respondents regarding their general shopping behavior and view on bio-cotton
- From the 13 consumer lifestyle questions 4 factors were derived
- From the 11 perception on sustainable clothing questions 3 factors were derived

(Appendix 1, Figures: 1.7, 1.17)

MOST RELEVANT FACTOR FOR EACH AGE GROUP

Lifestyle factors explained:

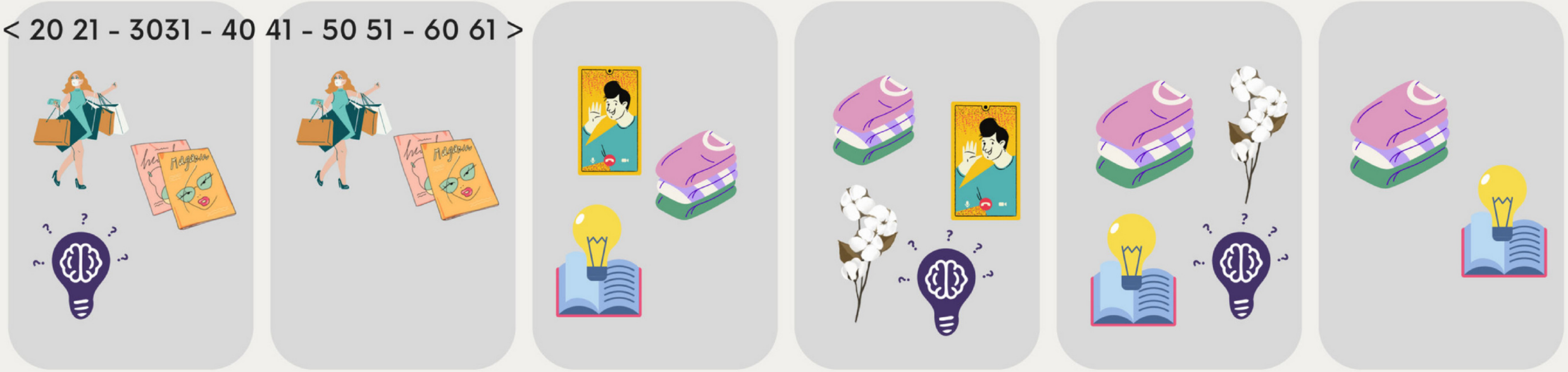
1. Trendy lifestyle: people who read fashion magazines and go to a lot of different stores because they like it.
2. Fashionista lifestyle: people who believe they have a good taste in matching and combining clothes.
3. Image lifestyle: people who buy expensive clothes or clothes from a brand with status.
4. Casual lifestyle: people who only buy clothing for its functionality.

Perceptional factors explained:

1. Sustainable knowledge: the knowledge people have about sustainable clothing, like organic cotton.
2. Sustainable awareness: people who don't know much about organic cotton and other sustainable clothes.
3. Sustainable interest: describes peoples interest and availability towards sustainable clothes.

Different lifestyles and perceptions on sustainable clothes among different age groups:

< 20 21 - 3031 - 40 41 - 50 51 - 60 61 >



(Appendix 1, Figures: 1.9, 1.19)

WILLINGNESS TO RECOMMEND

AMONG EDUCATIONAL LEVELS

There is no significant difference in the willingness to recommend among the 4 education levels.

VS

PURCHASE INTENTION

AMONG EDUCATIONAL LEVELS

There is no significant difference in the purchase intention among the 4 education levels.

OUR 4 EDUCATION LEVELS:

HIGH SCHOOL

MBO
VOCATIONAL EDUCATION

HBO
UNIVERSITY OF APPLIED SCIENCE

WO
UNIVERSITY

Further analysis has also been done by exploring if **purchase behavior** influences Purchase Intention and WTR among education levels.

(Appendix 1, Figures: 2.1, 2.2)

DOES PURCHASE FREQUENCY INFLUENCE PURCHASE INTENTION AND WILLINGNESS TO RECOMMEND AMONG EDUCATION LEVELS?

We expand on our previous analysis by exploring if **people that buy more frequently across education levels** will influence PI or WTR.

Our findings suggest that **there is no significant difference in purchase intention and willingness to recommend** across education levels in frequent buyers.

RECOMMENDATION

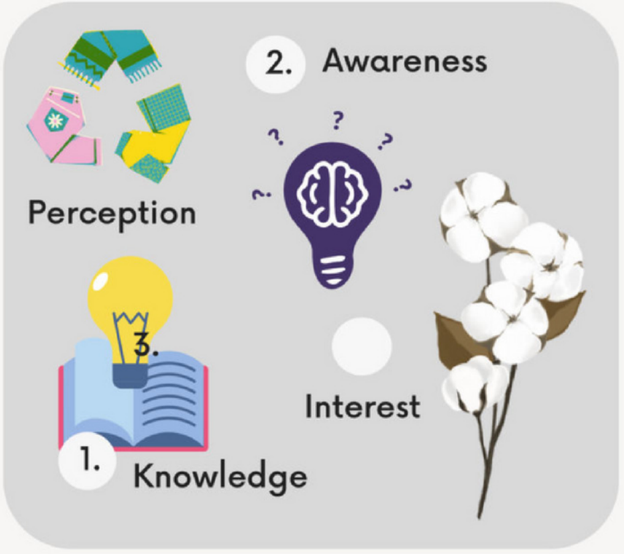
Managers should not overly focus on education of customers when aiming to influence PI or WTR.

(Appendix 1, Figures: 2.3, 2.4, 2.5, 2.6)

DRIVERS OF PURCHASE INTENTION AND WILLINGNESS TO RECOMMEND SUSTAINABLE CLOTHING

Procedure
Lifestyle factors and perceptional factors were used to test if this influence the purchase intention and willingness to recommend on females.

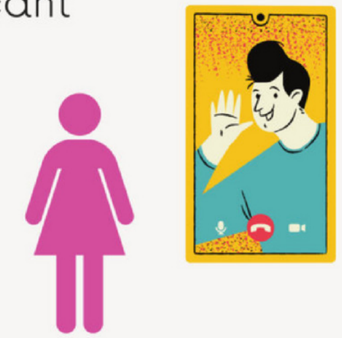
RECAP OF THE FACTORS USED



FINDINGS

WILINGNESS TO RECOMMEND

Lifestyle Image has a significant impact on willingness to recommend bio-cotton



PURCHASE INTENTION

Females consumers and lifestyle image have a significant impact on purchase intention

(Appendix 1, Table: 3.1.1, 3.2.1)

WHAT ARE THE MOST IMPORTANT DRIVERS?

Reliability of the results

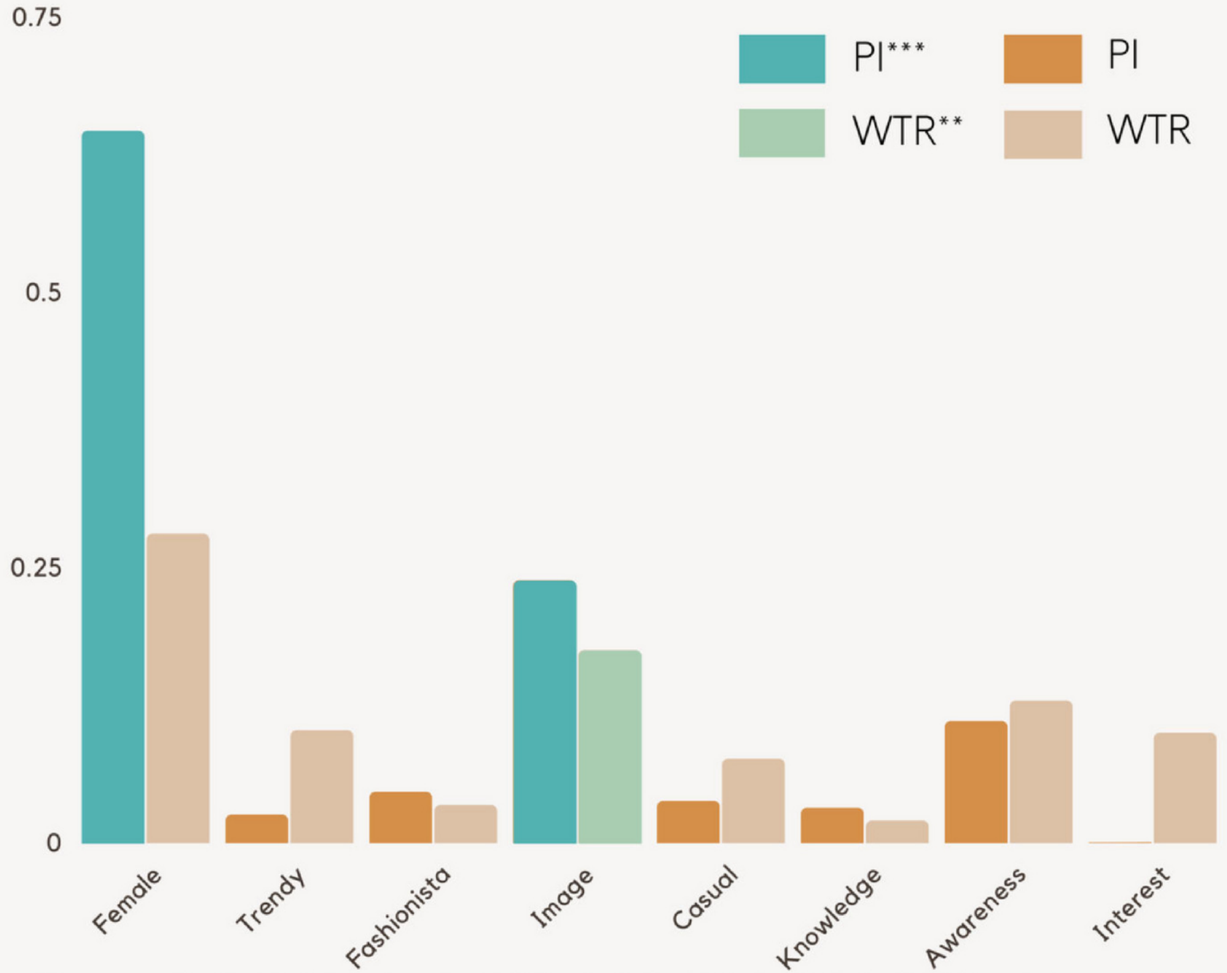
All 8 factors have a low correlation due to low level of multicollinearity, so the factors of both willingness to recommend and purchase intention are reliable enough to judge its impact.

Most important drivers

- Similarities: lifestyle image both play an important role for willingness to recommend and purchase intention.
- Differences: female consumers is the most important driver for purchase intention while in willingness to recommend this is not.

Recommendations

- To increase the sales from purchase intention, focus on female consumers and lifestyle image.
- When promoting the brand reputation, pay more attention to lifestyle image to increase the willingness to recommend.



(Appendix 1, Table: 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3 & Figure 3.2.4)

MOST IMPORTANT DRIVER FOR PEOPLE WHO SPENT MORE ON CLOTHING VS PEOPLE WHO SPENT LESS

PEOPLE WHO SPENT MORE

Findings (Appendix 1, Figure 4.2): when people start spending more on sustainable knowledge became the most important driver to purchase bio-cotton among females.

PEOPLE WHO SPENT LESS

Findings (Appendix 1, Figure 4.1): for people who spend less on clothing lifestyle image is the most important driver to purchase bio-cotton for females.

Recommendation:

Age 31-40 and 51+ buy bio-cotton due to it being sustainable.

Age 31-50 buy bio-cotton due to it being a trend.

Long-term it best to focus on people who are interested in bio-cotton due to sustainable knowledge being the most important driver as they spend more. In the short run it is best not to focus on lifestyle image as trends will die out quickly.

(Appendix 1, Figures: 4.1, 4.2)

MOST IMPORTANT DRIVERS FOR EACH EDUCATIONAL LEVEL

HIGHER EDUCATION/MBO/HBO

Higher education (Appendix 1, Figure 4.4):

- No significant drivers but trendy lifestyle seems to be the most important driver of willingness to recommend bio-cotton

MBO (Appendix 1, Figure 4.4):

People from MBO are less willing to recommend bio-cotton when lifestyle image is involved.

People from MBO are more willing to recommend bio-cotton when fashionista lifestyle is involved.

HBO (Appendix 1, Figure 4.4):

- No significant drivers but casual lifestyle seem to be the most important driver of willingness to recommend.

Recommendation:

Lifestyle factors motivates consumers more than perceptional factors. Best target group would be people aged between 31-50.

UNIVERSITY

Findings (Appendix 1, Figure 4.3): people with a university educational level are more willing to recommend bio-cotton when lifestyle image is involved.

Note: even after including educational levels in this analysis, female consumers were not significant. Thus they have no significant impact on willingness to recommend bio-cotton.

(Appendix 1, Figures: 4.3, 4.4)

User Description
Rayne is a dedicated and organized educator that aims to grow her teaching skills and subject knowledge.

Name: Rayne
Age: 32 years old
Occupation: Teacher
Location: Dew Drive
Degree: University

Thoughts on Bio-cotton
- Knowledgeable about sustainable clothing
- High willingness to recommend bio-cotton

User Description
- Organizing resources and materials
- Reading
- Researching

Shopping behaviour
- Often by expensive clothes because they are durable
- Using famous brands give them a feeling of acknowledgement

Motivations:
- Image
- Comfort
- Price

User Profile Target Segment interested in Bio-Cotton

Final recommendation

Bio-cotton is popular among females. Although, lifestyle image influences the purchase intention of bio-cotton this only account for people who spent less on clothing. For people who spent more on clothing sustainable knowledge is the most important driver and should be the target group. Taking education into consideration the best segment to focus on are:
- Females
- Aged: 31 - 40

Appendix 1 - Figures and Tables

CORRELATION BETWEEN LIFESTYLE VARIABLES

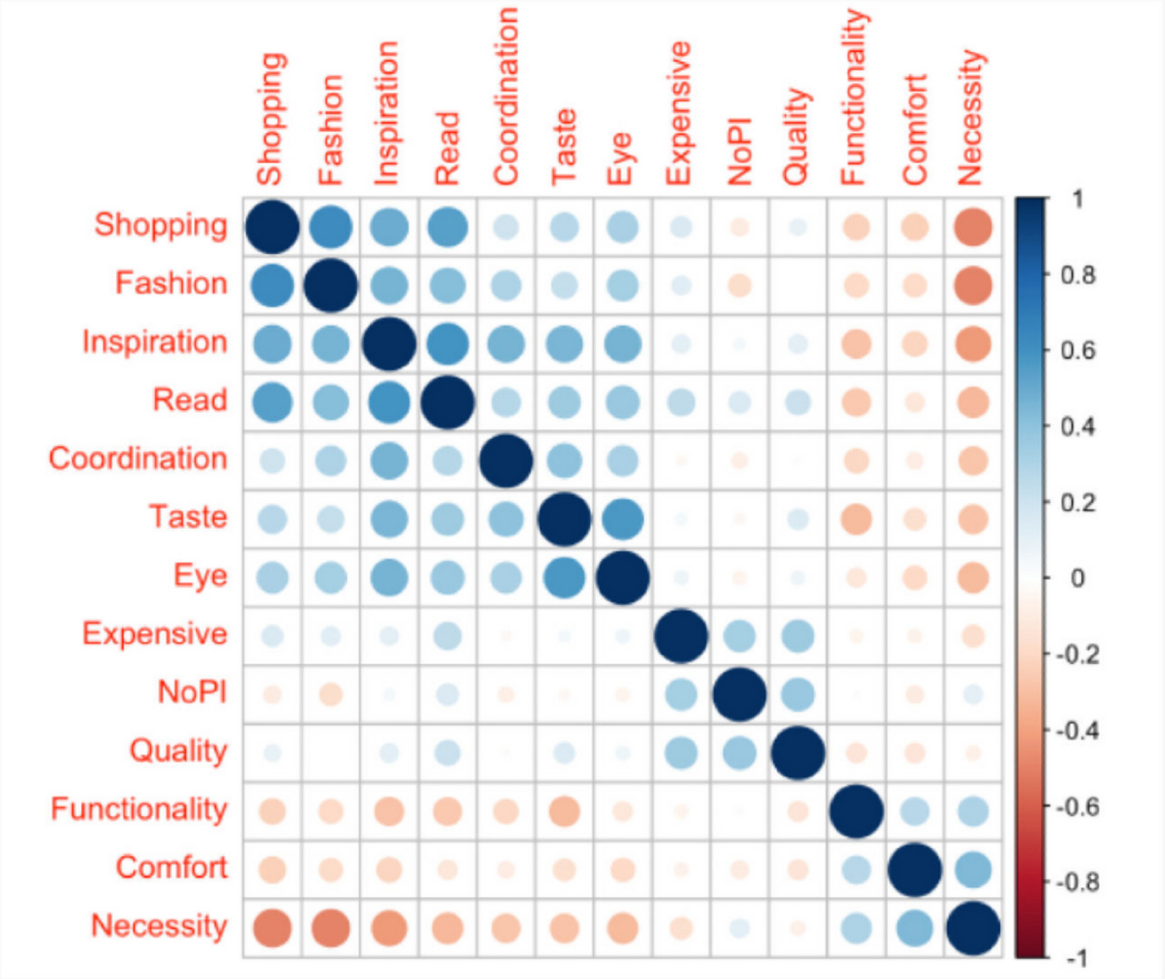


Figure 1.1: Correlations between the lifestyle variables, Line 83 in R script

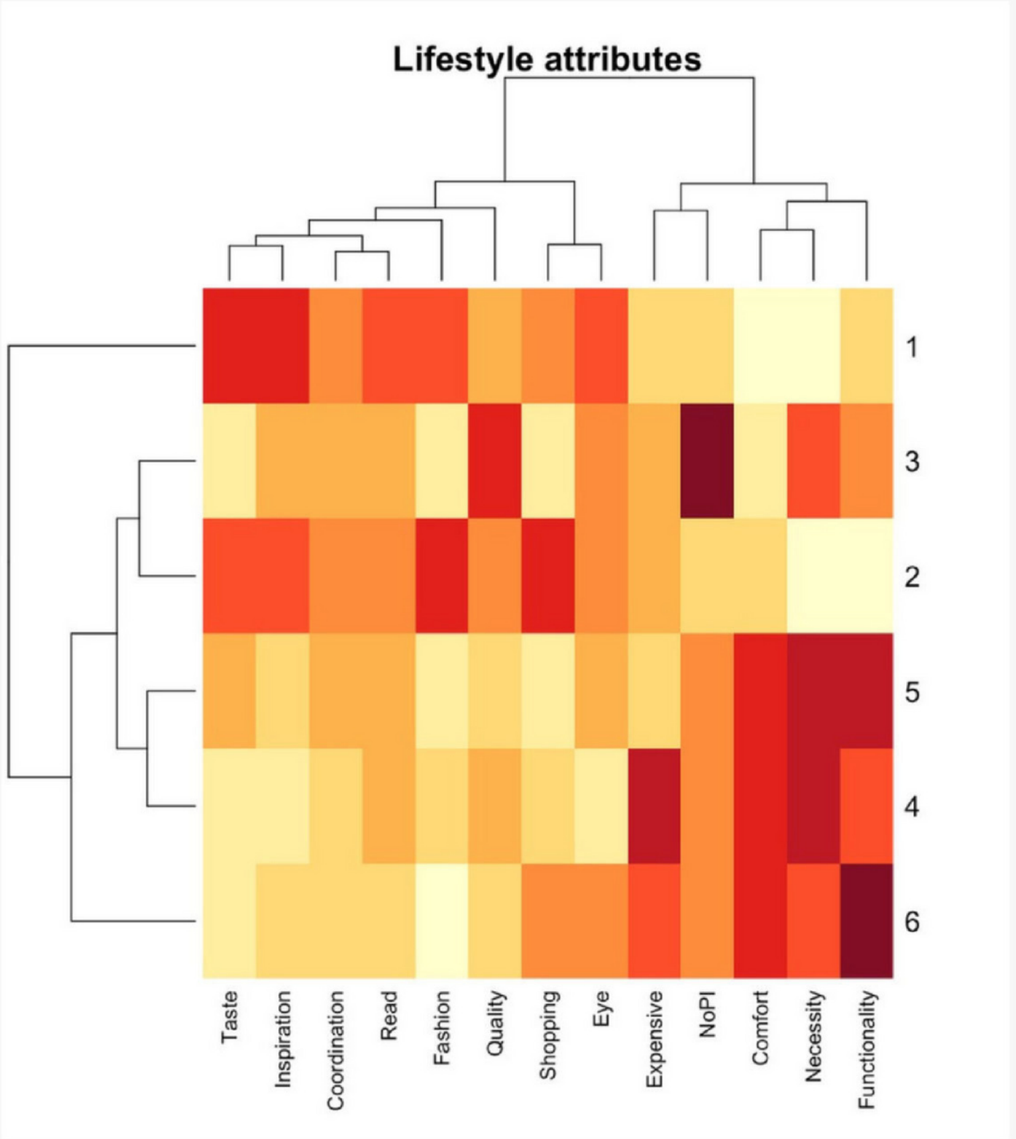


Figure 1.2: Heatmap of lifestyle attributes, Lines 94-96 in R script

DETERMENING IF EXPLANATORY FACTOR ANALYSIS CAN BE PERFORMED & THE AMOUNT OF FACTORS

```
$KMO
[1] 0.8050033

$MSA
      Q11       Q12       Q13       Q14       Q15       Q16       Q17       Q18       Q19       Q20
0.7802769 0.6850081 0.5632204 0.8780462 0.8061278 0.8046584 0.7224434 0.6908562 0.8319552 0.8272092
      Q21       Q22       Q23
0.8432255 0.8402104 0.8393228
```

Figure 1.3: Output of KMO test for lifestyle variables, Line 105 in R script

```
> ### Bartlett sphere of lifestyle
> bartlett.sphere(lifestyle.sc[,11:23])
chi.square value  612.1922  on  78  degrees of freedom.  p-value:  0
```

Figure 1.4: Output of Barlett sphere for lifestyle variables, Line 107 in R script

```
> nScree(data.frame(lifestyle.sc[, 11:23]))
  noc naf nparallel nkaiser
1   4   1         4       4
```

Figure 1.5: Output of nScree for the amount of factors, Line 113 in R script

```
eigen() decomposition
$values
 [1] 4.1703597 1.7921414 1.2212721 1.1057839 0.8241502 0.7369511 0.6801038 0.6049493 0.4336742
[10] 0.3937031 0.3789874 0.3509520 0.3069720
```

Figure 1.6: Output of eigen value for lifestyle variables, Line 114 in R script

LOADINGS ON THE LIFESTYLE FACTORS

```
Loadings:
             Factor1 Factor2 Factor3 Factor4
Taste                 0.796           -0.150
Expensive      0.172          0.500  -0.101
NoPI          -0.125          0.720
Inspiration    0.502   0.538  0.152  -0.131
Functionality -0.143  -0.281          0.302
Eye            0.220   0.634          -0.135
Quality                       0.553  -0.110
Comfort              -0.102  -0.144   0.614
Necessity     -0.431  -0.212          0.640
Shopping       0.733   0.207          -0.236
Fashion        0.696   0.199  -0.104  -0.236
Read           0.600   0.397   0.349
Coordination   0.209   0.497

               Factor1 Factor2 Factor3 Factor4
SS loadings      1.988   1.956   1.267   1.079
Proportion Var   0.153   0.150   0.097   0.083
Cumulative Var   0.153   0.303   0.401   0.484

Test of the hypothesis that 4 factors are sufficient.
The chi square statistic is 37.88 on 32 degrees of freedom.
The p-value is 0.219
```

Figure 1.7: Loadings with rotation,
Line 144 in R script

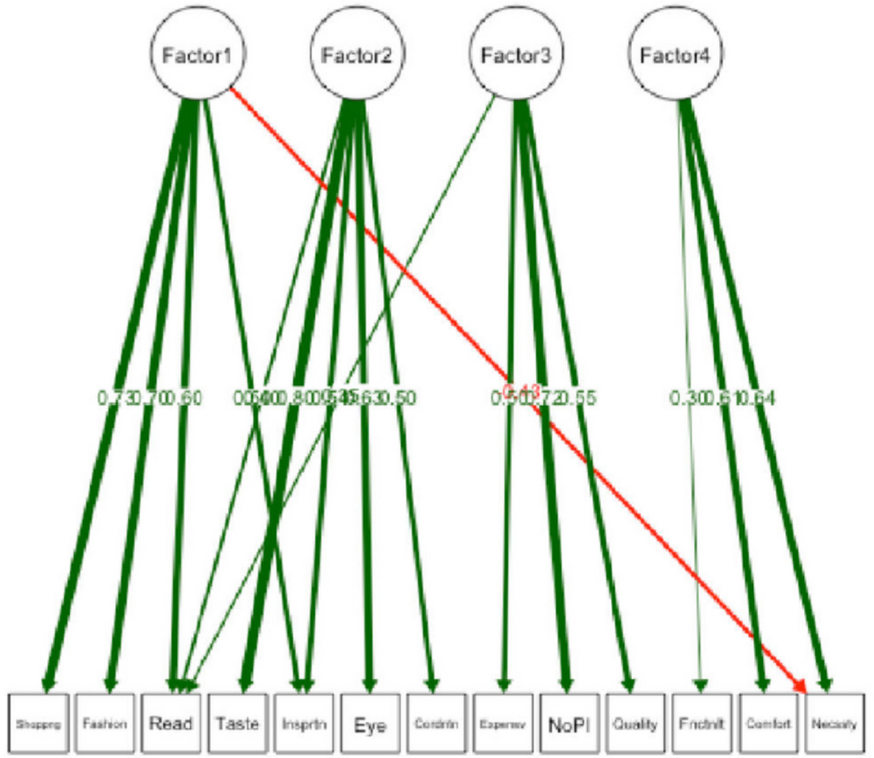


Figure 1.8: Structure of loadings with rotation,
Lines 154-156 in R script

MOST RELEVANT FACTOR FOR EACH AGE GROUP

	Trendy	Fashionista	Image	Casual
<20	0.46328162	0.972533163	-0.081252275	-0.68365754
21-30	0.10376119	0.005612826	-0.105253145	-0.27522099
31-40	-0.34136528	-0.093453811	0.902825183	0.09040604
41-50	-0.02448798	-0.499981735	0.231258382	0.57205792
51-60	-0.44895667	0.157055311	-0.003642473	1.20144886
>61	-0.48174228	-1.065675621	-0.211333724	0.31517915

Figure 1.9: Loadings on the factors for each age group, Lines 165-168 in R script

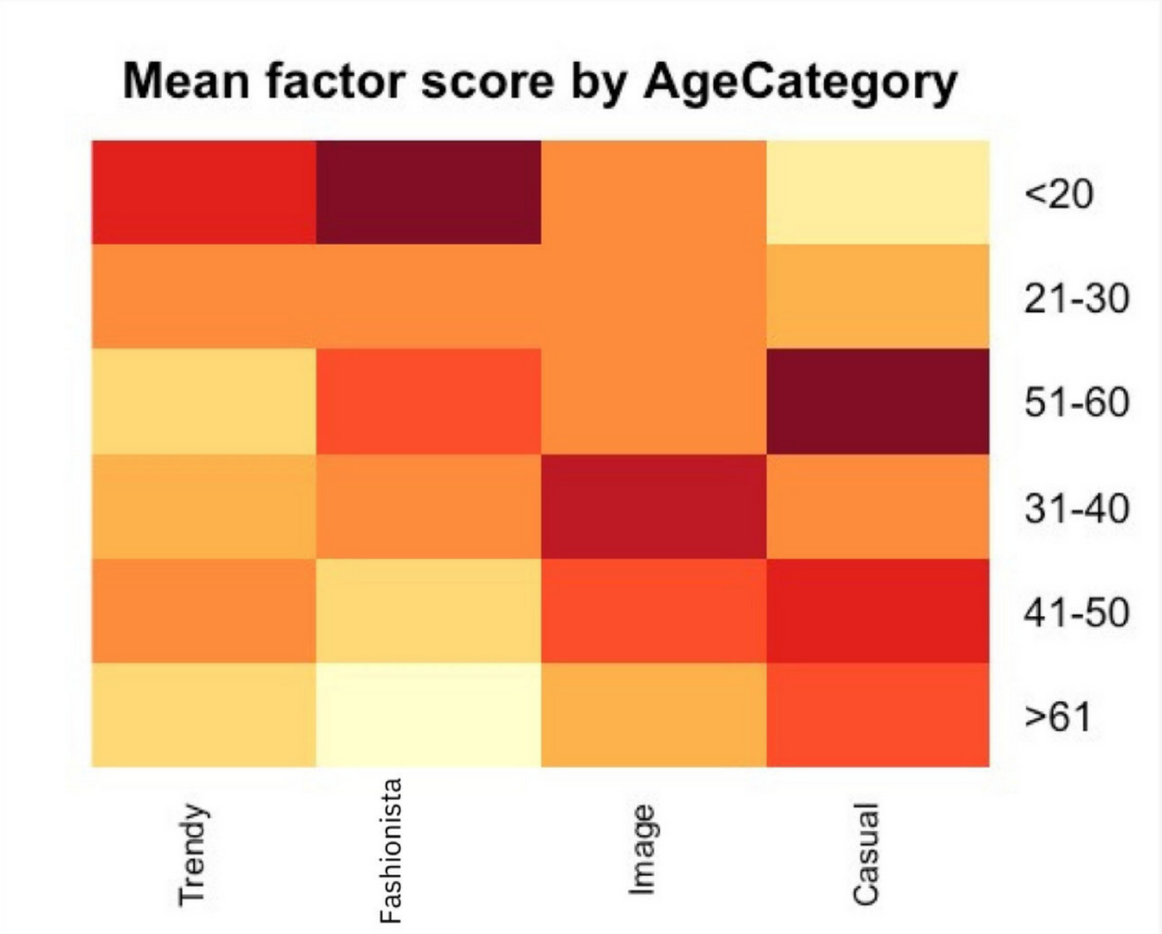


Figure 1.10: Heatmap of loadings per age group, Lines 173-175 in R script

CORRELATION BETWEEN SUSTAINABILITY VARIABLES

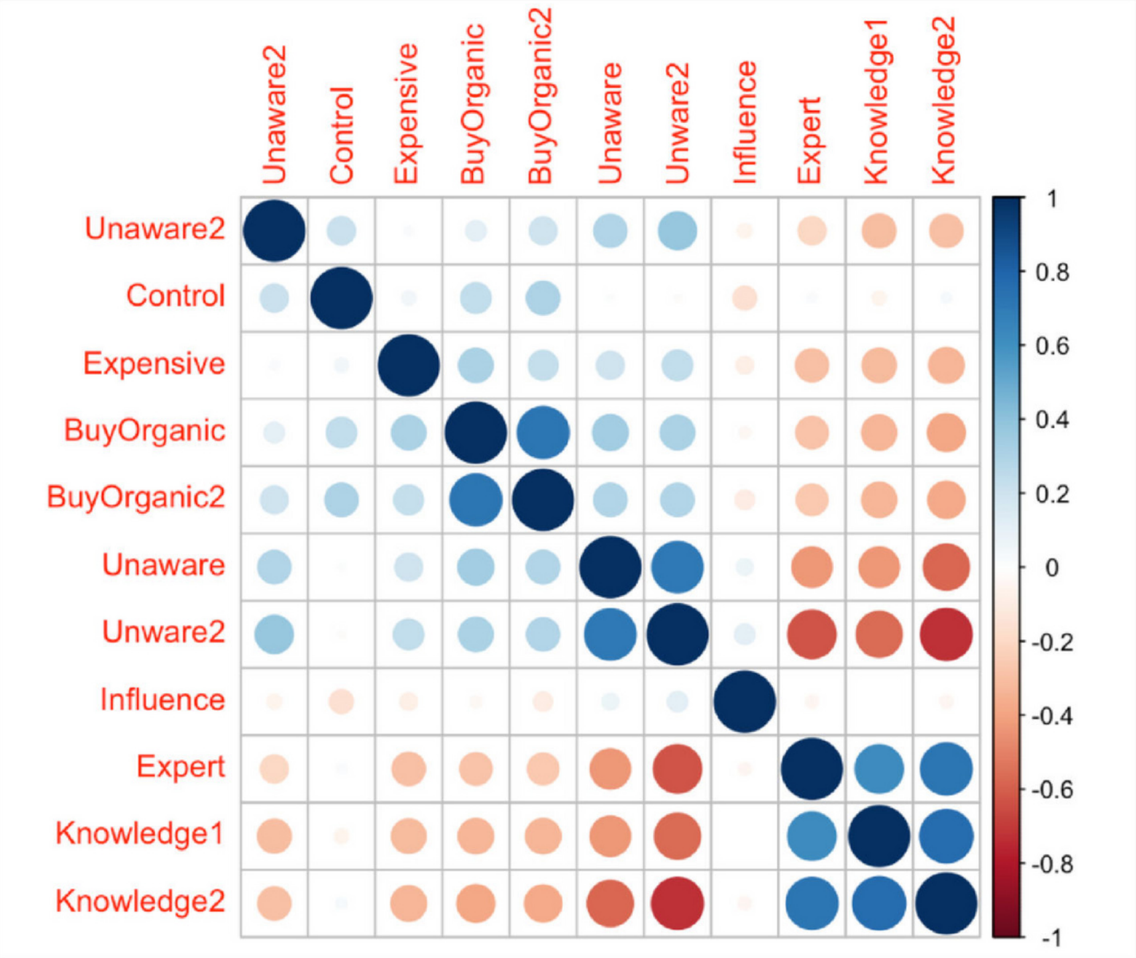


Figure 1.11: Correlations between the sustainability variables, Line 193 in R script

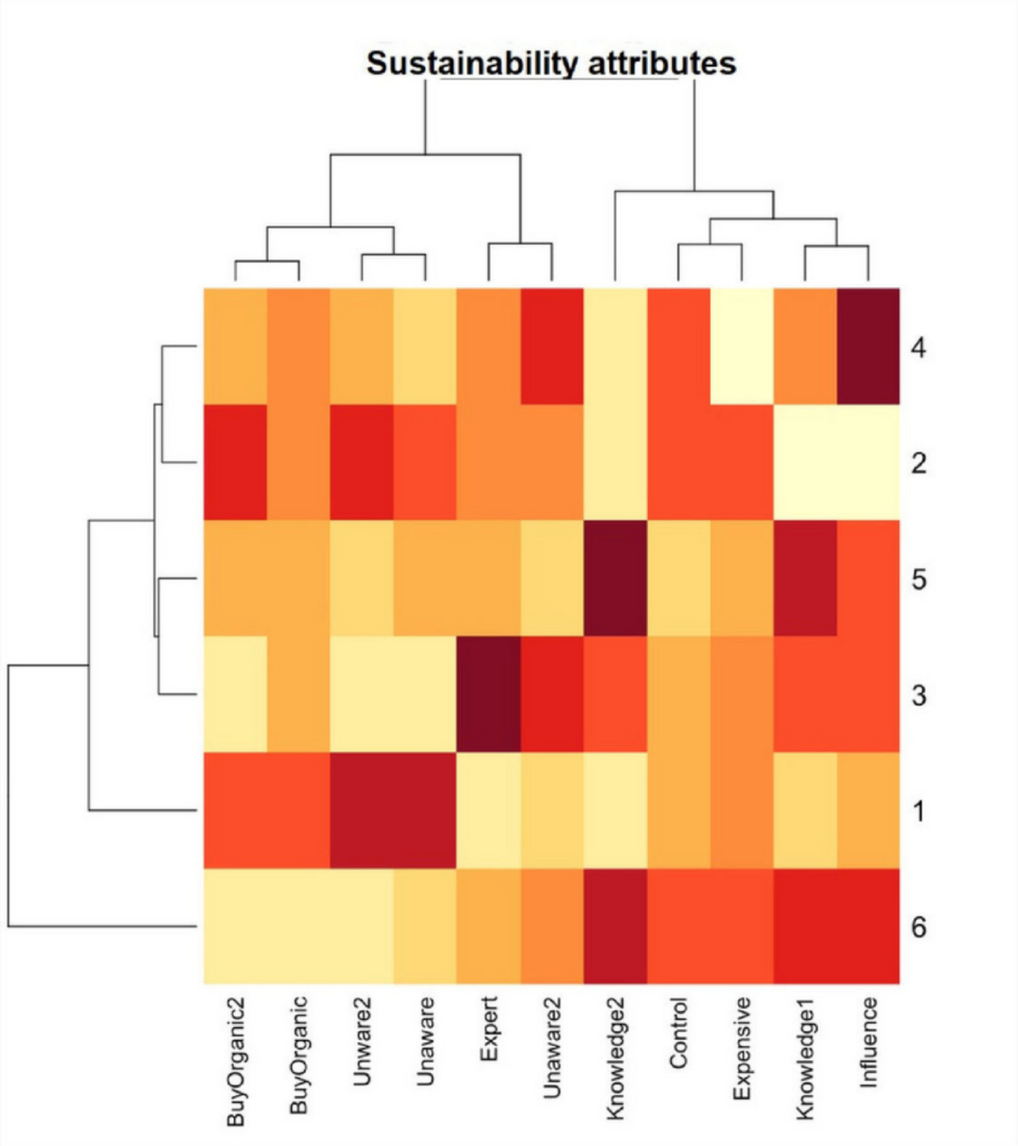


Figure 1.12: Heatmap of sustainability attributes, Line 204 in R script

DETERMINING IF EXPLANATORY FACTOR ANALYSIS CAN BE PERFORMED & THE AMOUNT OF FACTORS

```
$KMO
[1] 0.8193426

$MSA
      Q24       Q25       Q26       Q27       Q28       Q29       Q30       Q31       Q32
0.8659854 0.8360761 0.8486504 0.8950020 0.7779357 0.8280359 0.7236390 0.7266585 0.5833126
      Q33       Q34
0.9012470 0.6614527
```

Figure 1.13: Output of KMO test for sustainability variables, Line 216 in R script

```
> ### Bartlett sphere of sustainable
> bartlett.sphere(sustainable.sc[,24:34])
chi.square value  726.0119  on  55  degrees of freedom.  p-value:  0
```

Figure 1.14: Output of Barlett sphere for sustainability variables, Line 218 in R script

```
> nScree(data.frame(sustainable.sc[, 24:34]))
  noc naf nparallel nkaiser
1   2   1         3       3
```

Figure 1.15: Output of nScree for the amount of factors, Line 224 in R script

```
eigen() decomposition
$values
 [1] 4.2899710 1.6018060 1.1039779 0.9881809 0.7301897 0.6630481 0.5780934 0.3713133
 [9] 0.2613903 0.2351198 0.1769096
```

Figure 1.16: Output of eigen value for sustainability variables, Line 225 in R script

LOADINGS ON THE SUSTAINABILITY FACTORS

```
Loadings:
            Factor1 Factor2 Factor3
Knowledge    0.777  -0.236
Knowledge2   0.862  -0.369
Unaware     -0.383   0.596   0.131
Expert       0.695  -0.346
Unaware2    -0.196   0.330
Unaware3    -0.461   0.884
BuyOrganic  -0.299   0.179   0.742
BuyOrganic2 -0.285   0.161   0.817
Influence            0.128  -0.138
Expensive   -0.346           0.192
Control                      0.381

               Factor1 Factor2 Factor3
SS loadings      2.521   1.641   1.461
Proportion Var   0.229   0.149   0.133
Cumulative Var   0.229   0.378   0.511

Test of the hypothesis that 3 factors are sufficient.
The chi square statistic is 27.25 on 25 degrees of freedom.
The p-value is 0.343
```

Figure 1.17: Loadings with rotation, Line 255 in R script

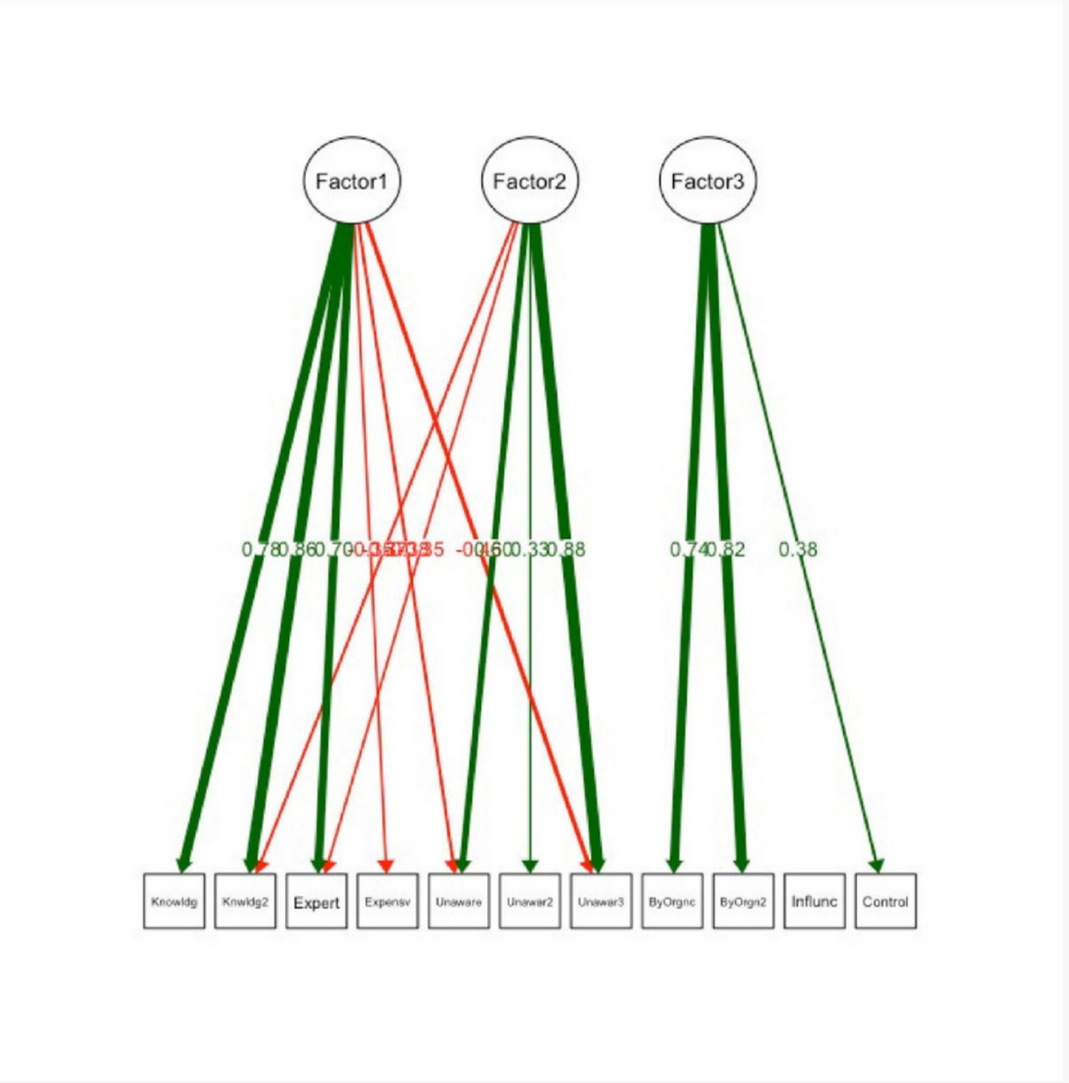


Figure 1.18: Structure of loadings with rotation, Lines 265-267 in R script

MOST RELEVANT FACTOR FOR EACH AGE GROUP

	Knowledge	Awareness	Interest
<20	-0.71063796	0.42106574	-0.02408863
21-30	-0.09934244	-0.03120811	-0.01038356
31-40	0.03858007	-0.35912175	-0.16597082
41-50	0.15020977	0.20149821	0.13807822
51-60	0.54251471	0.15449741	0.14992786
>61	0.75298113	-0.68387542	-0.94953005

Figure 1.19: Loadings on the factors for each age group, Lines 276-279 in R script

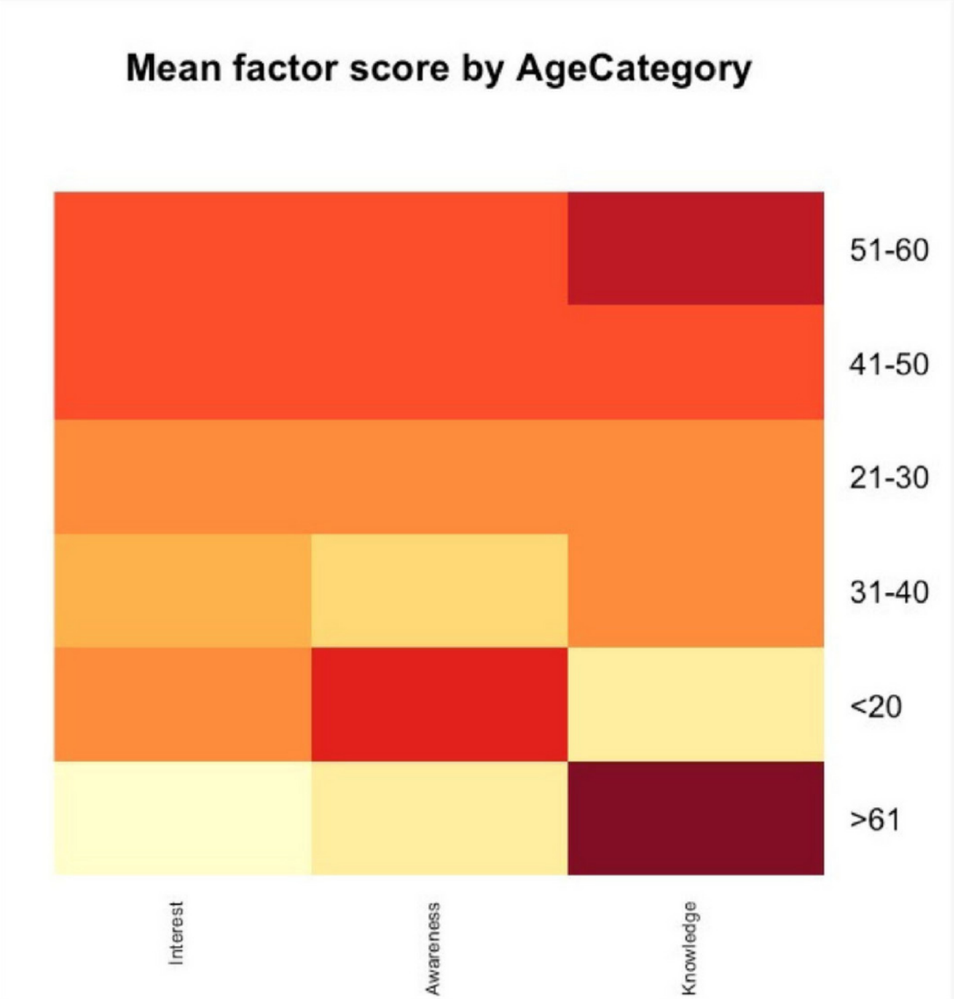


Figure 1.20: Heatmap of loadings per age group, Lines 283-285 in R script

DIFFERENCE IN PURCHASE INTENTION AMONG EDUCATION LEVELS

```r
#PI1 Full Model: PI1 = edu_hs + edu_mbo + edu_hbo (dv_PI1.iv_EduCat_FULL)
#We exclude edu_wo from the model to use it as a benchmark
dv_PI1.iv_EduCat_FULL <- lm(PI1~edu_hs + edu_mbo + edu_hbo, data=fashion.q2)
summary(dv_PI1.iv_EduCat_FULL)
#(Intercept)   estimate:  2.4118;  p-value: <2e-16 ***
#edu_hs        estimate:  0.3660;  p-value: 0.3391
#edu_mbo       estimate:  0.5327;  p-value: 0.0637 .
#edu_hbo       estimate:  0.4079;  p-value: 0.0332 *
#Multiple R-squared:  0.03994,  Adjusted R-squared:  0.02099
#F-statistic: 2.108 on 3 and 152 DF,  p-value: 0.1016
a_bic(dv_PI1.iv_EduCat_FULL)
#AIC:  471.5152  |  BIC:  486.7645

#PI1 Reduced Model: PI1 = 1 (dv_PI1.iv_EduCat_REDUCED)
dv_PI1.iv_EduCat_REDUCED <- lm(PI1~1, data=fashion.q2)
```

Figure 2.1.1: Full model of PI1 with output, including AIC & BIC, Line 407 in R script

```r
#PI1 Reduced Model: PI1 = 1 (dv_PI1.iv_EduCat_REDUCED)
dv_PI1.iv_EduCat_REDUCED <- lm(PI1~1, data=fashion.q2)
```

Figure 2.1.2: Reduced model of PI1 with output, Line 421 in R script

```r
> anova(dv_PI1.iv_EduCat_REDUCED,dv_PI1.iv_EduCat_FULL)
Analysis of Variance Table

Model 1: PI1 ~ 1
Model 2: PI1 ~ edu_hs + edu_mbo + edu_hbo
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1    155 183.31
2    152 175.99  3    7.3207 2.1076 0.1016
```

Figure 2.1.3: Full model vs. Reduced model of PI1, ANOVA output, Line 425 in R script

DIFFERENCE IN WILLINGNESS TO RECOMMEND AMONG EDUCATION LEVELS

```r
dv_WTR.iv_EduCat_FULL <- lm(WTR~edu_hs + edu_mbo + edu_hbo, data=fashion.q2)
summary(dv_WTR.iv_EduCat_FULL)
#(Intercept)  estimate:  2.67647;  p-value: <2e-16 ***
#edu_hs       estimate:  -0.12092;  p-value: 0.727
#edu_mbo      estimate:  -0.06536;  p-value: 0.801
#edu_hbo      estimate:  -0.10270;  p-value: 0.551
#Multiple R-squared:  0.002664, Adjusted R-squared:  -0.01702
#F-statistic: 0.1354 on 3 and 152 DF,  p-value: 0.9388
a_bic(dv_WTR.iv_EduCat_FULL)
#AIC:  440.5472  |  BIC:  455.7965
```

Figure 2.2.1: Full model of WTR with output, including AIC & BIC, Line 439 in R script

```r
#WTR Reduced Model: WTR = 1 (dv_WTR.iv_EduCat_REDUCED)
dv_WTR.iv_EduCat_REDUCED <- lm(WTR~1, data=fashion.q2)
```

Figure 2.2.2: Reduced model of PI1 with output, Line 453 in R script

```
Analysis of Variance Table

Model 1: WTR ~ 1
Model 2: WTR ~ edu_hs + edu_mbo + edu_hbo
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1    155 144.69
2    152 144.30  3   0.38551 0.1354 0.9388
```

Figure 2.2.3-WTR: Full model vs. Reduced model of PI1, ANOVA output, Line 458 in R script

DIFFERENCE IN PURCHASE INTENTION AMONG EDUCATION LEVELS, CONTROL FOR PURCHASE FREQUENCY

```r
dv_PI1.iv_PFreq_REDUCED <- lm(PI1 ~ PurchaseFreq, data=fashion.q2)
summary(dv_PI1.iv_PFreq_REDUCED)
#(Intercept)   estimate: 2.46752;  p-value: <2e-16 ***
#PurchaseFreq  estimate: 0.01959;  p-value: 0.0732 .
#Multiple R-squared:  0.0207,   Adjusted R-squared:  0.01434
#F-statistic: 3.255 on 1 and 154 DF,  p-value: 0.07318
a_bic(dv_PI1.iv_PFreq_REDUCED)
#AIC:  470.6107  |  BIC:  479.7603
```

Figure 2.3.1: Reduced model of PI1 with output, including AIC & BIC, Line 476 in R script

```r
dv_PI1.iv_PFreq_EduCat_RESTRICTED <- lm(PI1 ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo, data=fashion.q2)
summary(dv_PI1.iv_PFreq_EduCat_RESTRICTED)
#(Intercept)   estimate: 2.12023;  p-value: <2e-16 ***
#PurchaseFreq  estimate: 0.02605;   p-value: 0.0179 *
#edu_hs        estimate: 0.42599;   p-value: 0.2599
#edu_mbo       estimate: 0.65633;   p-value: 0.0229 *
#edu_hbo       estimate: 0.47438;   p-value: 0.0131 *
#Multiple R-squared:  0.07502,  Adjusted R-squared:  0.05052
#F-statistic: 3.062 on 4 and 151 DF,  p-value: 0.01848
a_bic(dv_PI1.iv_PFreq_EduCat_RESTRICTED)
#AIC:  467.7071  |  BIC:  486.0062
```

Figure 2.3.2: Restricted model of PI1 with output, Line 487 in R script

```
Analysis of Variance Table

Model 1: PI1 ~ PurchaseFreq
Model 2: PI1 ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo
  Res.Df    RSS Df Sum of Sq      F  Pr(>F)
1    154 179.51
2    151 169.56  3    9.9588 2.9563 0.03438 *
---
Signif. codes:
0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Figure 2.3.3: Restricted model vs. Reduced model of PI1, ANOVA output, Line 503 in R script

DIFFERENCE IN PURCHASE INTENTION AMONG EDUCATION LEVELS, CONTROL FOR PURCHASE FREQUENCY

```r
dv_PI1.iv_PFreq_EduCat_FULL <- lm(PI1 ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo +
                                  PurchaseFreq*(edu_hs + edu_mbo + edu_hbo), data=fashion.q2)
summary(dv_PI1.iv_PFreq_EduCat_FULL)
#(Intercept)           estimate: 2.073122;   p-value: <2e-16 ***
#PurchaseFreq          estimate: 0.030260;   p-value: 0.0173 *
#edu_hs                estimate: -0.593431;   p-value: 0.5406
#edu_mbo               estimate: 0.614006;   p-value: 0.3009
#edu_hbo               estimate: 0.716913;   p-value: 0.0219 *
#PurchaseFreq:edu_hs   estimate: 0.115775;   p-value: 0.2479
#PurchaseFreq:edu_mbo  estimate: 0.009669;   p-value: 0.9024
#PurchaseFreq:edu_hbo  estimate: -0.026829;   p-value: 0.3148
#Multiple R-squared:  0.09065,  Adjusted R-squared:  0.04764
#F-statistic: 2.108 on 7 and 148 DF,  p-value: 0.04611
a_bic(dv_PI1.iv_PFreq_EduCat_FULL)
#AIC:  471.0485  |  BIC:  498.4972
```

Figure 2.4.1: Full model of PI1 with output, including AIC & BIC, Line 512 in R script

```
Analysis of Variance Table

Model 1: PI1 ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo
Model 2: PI1 ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo +
 PurchaseFreq *
    (edu_hs + edu_mbo + edu_hbo)
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1    151 169.56
2    148 166.69  3    2.8651 0.8479 0.4698
```

Figure 2.4.2: Full model vs. Restricted model of PI1, ANOVA output, Line 532 in R script

DIFFERENCE IN WTR AMONG EDUCATION LEVELS, CONTROL FOR PURCHASE FREQUENCY

```r
dv_WTR.iv_PFreq_REDUCED <- lm(WTR ~ PurchaseFreq, data=fashion.q2)
summary(dv_WTR.iv_PFreq_REDUCED)
#(Intercept)   estimate: 2.479178;  p-value: <2e-16 ***
#PurchaseFreq  estimate: 0.014992;  p-value: 0.123
#Multiple R-squared:  0.01536,  Adjusted R-squared:  0.008968
#F-statistic: 2.403 on 1 and 154 DF,  p-value: 0.1232
a_bic(dv_WTR.iv_PFreq_REDUCED)
#AIC:  434.5484  |  BIC:  443.6979
```

Figure 2.5.1: Reduced model of WTR with output, including AIC & BIC, Line 547 in R script

```r
dv_WTR.iv_PFreq_EduCat_RESTRICTED <- lm(WTR ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo, data=fashion.q2)
summary(dv_WTR.iv_PFreq_EduCat_RESTRICTED)
#(Intercept)   estimate: 2.512940;  p-value: <2e-16 ***
#PurchaseFreq  estimate: 0.014612;  p-value: 0.145
#edu_hs        estimate: -0.087273;  p-value: 0.801
#edu_mbo       estimate: 0.004002;  p-value: 0.988
#edu_hbo       estimate: -0.065412;  p-value: 0.706
#Multiple R-squared:  0.01665,  Adjusted R-squared:  -0.009397
#F-statistic: 0.6392 on 4 and 151 DF,  p-value: 0.6353
a_bic(dv_WTR.iv_PFreq_EduCat_RESTRICTED)
#AIC:  440.3439  |  BIC:  458.643
```

Figure 2.5.2: Restricted model of WTR with output, Line 558 in R script

```
Analysis of Variance Table

Model 1: WTR ~ PurchaseFreq
Model 2: WTR ~ PurchaseFreq + edu_hs + edu_mbo
 + edu_hbo
  Res.Df    RSS Df Sum of Sq     F Pr(>F)
1    154 142.46
2    151 142.28  3    0.1866 0.066 0.9778
```

Figure 2.5.3: Restricted model vs. Reduced model of WTR, ANOVA output, Line 575 in R script

DIFFERENCE IN WTR AMONG EDUCATION LEVELS, CONTROL FOR PURCHASE FREQUENCY

```
dv_WTR.iv_PFreq_EduCat_FULL <- lm(WTR ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo +
  PurchaseFreq*(edu_hs + edu_mbo + edu_hbo), data=fashion.q2)
summary(dv_WTR.iv_PFreq_EduCat_FULL)
#(Intercept)           estimate: 2.495556   0.176006  14.179   <2e-16 ***
#PurchaseFreq          estimate: 0.016166   0.011604   1.393    0.166
#edu_hs                estimate: -0.292461   0.893084  -0.327    0.744
#edu_mbo               estimate: 0.180844   0.545949   0.331    0.741
#edu_hbo               estimate: -0.008694   0.285744  -0.030    0.976
#PurchaseFreq:edu_hs   estimate: 0.023486   0.092129   0.255    0.799
#PurchaseFreq:edu_mbo  estimate: -0.026297   0.072676  -0.362    0.718
#PurchaseFreq:edu_hbo  estimate: -0.006106   0.024552  -0.249    0.804
#Multiple R-squared:  0.01835,  Adjusted R-squared:  -0.02808
#F-statistic: 0.3952 on 7 and 148 DF,  p-value: 0.904
a_bic(dv_WTR.iv_PFreq_EduCat_FULL)
#AIC:  446.0741  |  BIC:  473.5228
```

Figure 2.6.1: Full model of WTR with output, including AIC & BIC, Line 583 in R script

```
Analysis of Variance Table

Model 1: WTR ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo
Model 2: WTR ~ PurchaseFreq + edu_hs + edu_mbo + edu_hbo +
 PurchaseFreq *
    (edu_hs + edu_mbo + edu_hbo)
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1    151 142.28
2    148 142.03  3   0.24587 0.0854 0.9679
```

Figure 2.6.2: Full model vs. Restricted model of WTR, ANOVA output, Line 604 in R script

WHAT IS THE MOST IMPORTANT DRIVER OF PURCHASE INTENTION AND WILLINGNESS TO RECOMMEND?

```
lm(formula = PI1 ~ Female + Trendy_Q20 + Fashionista_Q11 + Image_Q13 +
    Casual_Q19 + Awareness_Q29 + Interest_Q31 + Knowledge_Q25,
    data = fashion.q3)

Residuals:
     Min       1Q   Median       3Q      Max
-2.40288 -0.67348 -0.04292  0.66349  2.04874

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    -0.1572208  0.0858633  -1.831 0.069117
Female          0.6454328  0.1812983   3.560 0.000500 ***
Trendy_Q20     -0.0255960  0.0662997  -0.386 0.700007
Fashionista_Q11  0.0459259  0.0699449   0.657 0.512463
Image_Q13       0.2380257  0.0629582   3.781 0.000227 ***
Casual_Q19     -0.0379368  0.0615286  -0.617 0.538471
Awareness_Q29   0.1103011  0.0755255   1.460 0.146301
Interest_Q31    0.0008572  0.0673995   0.013 0.989870
Knowledge_Q25   0.0314371  0.0763503   0.412 0.681124
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9197 on 147 degrees of freedom
Multiple R-squared:  0.1978,    Adjusted R-squared:  0.1541
F-statistic: 4.531 on 8 and 147 DF,  p-value: 6.05e-05
```

Table 3.1.1: multiregression model for PI1,
Lines 633-635 in R script

```
Linear hypothesis test

Hypothesis:
Female - Image_Q13 = 0

Model 1: restricted model
Model 2: PI1 ~ Female + Trendy_Q20 + Fashionista_Q11 + Image_Q13 + Casual_Q19 +
    Awareness_Q29 + Interest_Q31 + Knowledge_Q25

  Res.Df    RSS Df Sum of Sq      F  Pr(>F)
1    148 127.81
2    147 124.34  1    3.4647 4.0961 0.04479 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Table 3.1.3: Linear hypothesis test for PI1,
Line 660 in R script

Table 3.1.2: Factors ranking for PI1,
Line 648 in R script

```
> sort(abs(dv_PI1.iv_factors_female$coefficients[2:9]),decreasing=TRUE)
       Female     Image_Q13 Awareness_Q29 Fashionista_Q11     Casual_Q19   Knowledge_Q25     Trendy_Q20    Interest_Q31
0.6454327628 0.2380257344  0.1103011432    0.0459259446  0.0379367943  0.0314370824  0.0255959588  0.0008572039
```

WHAT IS THE MOST IMPORTANT DRIVER OF PURCHASE INTENTION AND WILLINGNESS TO RECOMMEND?

```
lm(formula = WTR ~ Female + Trendy_Q20 + Fashionista_Q11 + Image_Q13 +
    Casual_Q19 + Awareness_Q29 + Interest_Q31 + Knowledge_Q25,
    data = fashion.q3)

Residuals:
     Min       1Q   Median       3Q      Max
-2.03161 -0.70705 -0.02183  0.59332  2.58061

Coefficients:
               Estimate Std. Error t value Pr(>|t|)
(Intercept)    -0.06834    0.09052  -0.755  0.45149
Female          0.28054    0.19113   1.468  0.14429
Trendy_Q20      0.10189    0.06989   1.458  0.14704
Fashionista_Q11 -0.03416    0.07374  -0.463  0.64387
Image_Q13       0.17474    0.06637   2.633  0.00938 **
Casual_Q19     -0.07593    0.06486  -1.171  0.24363
Awareness_Q29   0.12864    0.07962   1.616  0.10831
Interest_Q31   -0.09947    0.07105  -1.400  0.16364
Knowledge_Q25   0.01999    0.08049   0.248  0.80420
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9696 on 147 degrees of freedom
Multiple R-squared:  0.1085,    Adjusted R-squared:  0.05994
F-statistic: 2.235 on 8 and 147 DF,  p-value: 0.02794
```

Table 3.2.1: multiregression model for WTR,
Line 669-671 in R script

Table 3.2.2: Factors ranking for WTR,
Line 684 in R script

```
> sort(abs(dv_WTR.iv_factors_female$coefficients[2:9]),decreasing=TRUE)
        Female       Image_Q13   Awareness_Q29      Trendy_Q20    Interest_Q31     Casual_Q19 Fashionista_Q11   Knowledge_Q25
    0.28053798     0.17473808     0.12863850     0.10188895     0.09947043     0.07593313     0.03415879     0.01999080
```

WHAT IS THE MOST IMPORTANT DRIVER OF PURCHASE INTENTION AND WILLINGNESS TO RECOMMEND?

```
> vif_values <- vif(dv_PI1.iv_factors_female)
> tolerance <- 1/vif_values
> vif_values
        Female      Trendy_Q20 Fashionista_Q11       Image_Q13      Casual_Q19   Awareness_Q29    Interest_Q31   Knowledge_Q25
      1.116937        1.120084        1.224829        1.040054        1.158875        1.104453        1.022461        1.259227
> ## all values are below 4 thus there is no high collinearity
> tolerance
        Female      Trendy_Q20 Fashionista_Q11       Image_Q13      Casual_Q19   Awareness_Q29    Interest_Q31   Knowledge_Q25
     0.8953055       0.8927901       0.8164402       0.9614883       0.8629059       0.9054253       0.9780325       0.7941382
```

Table 3.2.3: multicollinearity test for all factors, Lines 701-705 in R script

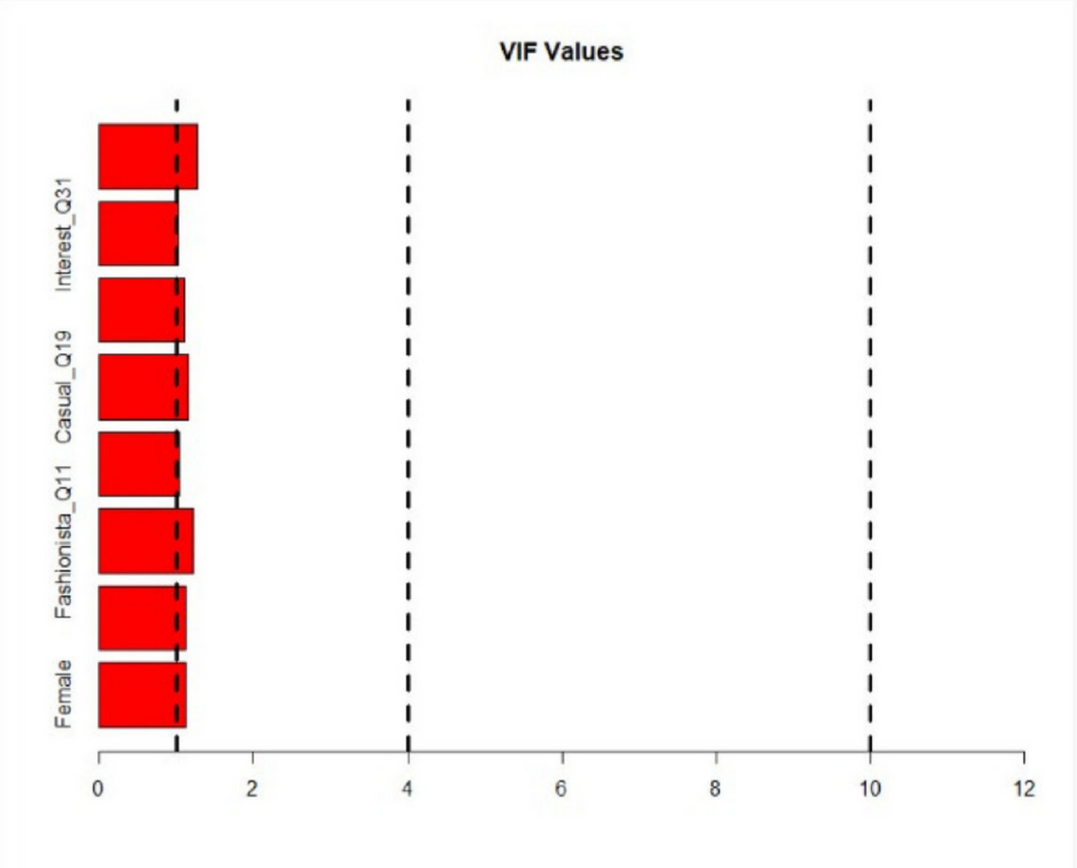


Figure 3.2.4: multicollinearity test for all factors, lines 710-714 in R script

MOST IMPORTANT DRIVER FOR PEOPLE WHO SPENT MORE ON CLOTHING VS PEOPLE WHO SPENT LESS

```
summary(dv_PI1.iv_factors_mc)
#(Intercept)       estimate: -4.106e-16;  p-value: 1.000
#Female            estimate: 6.454e-01;  p-value: 0.0005 ***
#Trendy_Q20        estimate: -2.560e-02;   p-value: 0.700
#Fashionista_Q11   estimate: 4.593e-02;   p-value: 0.512
#Image_Q13         estimate: 2.380e-01;  p-value: 0.000227 ***
#Casual_Q19        estimate: -3.794e-02;   p-value: 0.538
#Awareness_Q29     estimate: 1.103e-01;   p-value: 0.146
#Interest_Q31      estimate: 8.572e-04;   p-value: 0.989
#Knowledge_Q25     estimate: 3.144e-02;  p-value: 0.681
#Multiple R-squared:  0.1286,   Adjusted R-squared:  0.08742
#F-statistic: 4.531 on 8 and 147 DF,  p-value: 0.0000605
```

Figure 4.1: Summary of people who spent less on clothing
Line 744-746 in R script

```
summary(dv_PI1.iv_factors_MoneySpent_mc)
#(Intercept)                   estimate: 1.923e-02;   p-value: 0.81565
#Female                        estimate: 6.236e-01;   p-value: 0.00159 **
#Trendy_Q20                    estimate: -5.655e-02;   p-value: 0.42093
#Fashionista_Q11               estimate: 3.813e-03;   p-value: 0.95815
#Image_Q13                     estimate: 1.912e-01;   p-value: 0.00933 **
#Casual_Q19                    estimate: -5.893e-02;   p-value: 0.35391
#Awareness_Q29                 estimate:  1.105e-01;   p-value: 0.16979
#Interest_Q31                  estimate: 2.115e-02;   p-value: 0.76324
#Knowledge_Q25                 estimate: 9.124e-02;   p-value:  0.28027
#MoneySpent                    estimate: 2.435e-03;   p-value: 0.15217
#Trendy_Q20:MoneySpent         estimate: -7.252e-04;   p-value: 0.51140
#Fashionista_Q11:MoneySpent    estimate: -1.838e-05;   p-value: 0.98653
#Image_Q13:MoneySpent          estimate: -3.638e-04;   p-value: 0.79049
#Casual_Q19:MoneySpent         estimate: -8.614e-04;   p-value: 0.40343
#Awareness_Q29:MoneySpent      estimate: -3.571e-04;   p-value: 0.83747
#Interest_Q31:MoneySpent       estimate: 3.764e-04;   p-value: 0.79843
#Knowledge_Q25:MoneySpent      estimate: 2.948e-03;   p-value: 0.07893 .
#Multiple R-squared:  0.2376,   Adjusted R-squared:  0.1499
#F-statistic: 2.708 on 16 and 139 DF,  p-value: 0.0009044
```

Figure 4.2: Summary of people who spent more on clothing
Line 770-773 in R script

MOST IMPORTANT DRIVERS FOR EACH EDUCATIONAL LEVEL

```
summary(dv_WTR.iv_factors_EduCat_mc)
#(Intercept)      estimate: 7.045e-17;  p-value: 1.0000
#Female           estimate: 3.063e-01;  p-value: 0.1269
#Trendy_Q20       estimate: 1.068e-01;  p-value: 0.1360
#Fashionista_Q11  estimate: -3.876e-02; p-value: 0.6092
#Image_Q13        estimate: 1.732e-01;  p-value: 0.0112 *
#Casual_Q19       estimate: -7.024e-02; p-value: 0.2941
#Awareness_Q29    estimate: 1.271e-01;  p-value: 0.1166
#Interest_Q31     estimate: -9.589e-02; p-value: 0.1856
#Knowledge_Q25    estimate: 3.351e-02;  p-value: 0.6926
#edu_hs           estimate: 2.401e-02;  p-value: 0.9460
#edu_mbo          estimate: -1.103e-01; p-value: 0.6865
#edu_hbo          estimate: -9.487e-02; p-value: 0.6153
#Multiple R-squared:  0.1106,   Adjusted R-squared: 0.04268
#F-statistic: 1.628 on 11 and 144 DF,  p-value: 0.0966 (MARGINALLY SIGNIFICANT)
```

Figure 4.3: Summary university educational level
Line 828-830 in R script

Figure 4.4: Summary high school, mbo, hbo educational level
Line 862-867 in R script

```
summary(dv_WTR.iv_factors_EduCat_mc_synergy)
#(Intercept)              estimate: -0.01939; p-value: 0.84927
#Female                   estimate: 0.28442; p-value: 0.17797
#Trendy_Q20               estimate: 0.12290; p-value: 0.25470
#Fashionista_Q11          estimate: -0.07293; p-value: 0.38054
#Image_Q13                estimate: 0.22227; p-value: 0.00257 **
#Casual_Q19               estimate: -0.14029; p-value: 0.13419
#Awareness_Q29            estimate: 0.14129; p-value: 0.23848
#Interest_Q31             estimate: -0.07485; p-value: 0.54207
#Knowledge_Q25            estimate: 0.06119; p-value: 0.67904
#edu_hs                   estimate: 0.41089; p-value: 0.68092
#edu_mbo                  estimate: 0.20494; p-value: 0.54449
#edu_hbo                  estimate: -0.01877; p-value: 0.92169
#Trendy_Q20:edu_hs        estimate: 0.86310; p-value: 0.52763
#Fashionista_Q11:edu_hs   estimate: 0.10921; p-value: 0.77598
#Image_Q13:edu_hs         estimate: 0.52143; p-value: 0.36036
#Casual_Q19:edu_hs        estimate: 0.06049; p-value: 0.95529
#Awareness_Q29:edu_hs     estimate: 0.35093; p-value: 0.80544
#Interest_Q31:edu_hs      estimate: 0.78161; p-value: 0.64718
#Knowledge_Q25:edu_hs     estimate: 0.12935; p-value: 0.94929
#Trendy_Q20:edu_mbo       estimate: -0.24553; p-value: 0.31954
#Fashionista_Q11:edu_mbo  estimate: 0.52867; p-value: 0.09179 .
#Image_Q13:edu_mbo        estimate: -0.43509; p-value: 0.05679 .
#Casual_Q19:edu_mbo       estimate: 0.28669; p-value: 0.28799
#Awareness_Q29:edu_mbo    estimate: 0.13980; p-value: 0.62337
#Interest_Q31:edu_mbo     estimate: -0.33506; p-value: 0.29624
#Knowledge_Q25:edu_mbo    estimate: -0.01007; p-value: 0.97349
#Trendy_Q20:edu_hbo       estimate: -0.02216; p-value: 0.89107
#Fashionista_Q11:edu_hbo  estimate: -0.03692; p-value: 0.83689
#Image_Q13:edu_hbo        estimate: -0.08055; p-value: 0.57613
#Casual_Q19:edu_hbo       estimate: 0.24696; p-value: 0.10821
#Awareness_Q29:edu_hbo    estimate: -0.05345; p-value: 0.78731
#Interest_Q31:edu_hbo     estimate: -0.06199; p-value: 0.69341
#Knowledge_Q25:edu_hbo    estimate: 0.20671; p-value: 0.31834
#Multiple R-squared:  0.262,    Adjusted R-squared:  0.06996
#F-statistic: 1.364 on 32 and 123 DF,  p-value: 0.1169 (INSIGNIFICANT)
```