Supplementary Material C
Detailed statistical results

```
> cramers_results
                            Practice CramerV     p_value
Cramer V               Q11.1_Field_Trip 0.08948 0.488407811
Cramer V1                 Q11.2_Museums 0.27080 0.001408230
Cramer V2          Q11.3_Science_Centres 0.26720 0.001675972
Cramer V3         Q11.4_Research_Centres 0.11350 0.315817560
Cramer V4               Q11.5_Workshops 0.12570 0.243395302
Cramer V5             Q11.6_Exhibitions 0.17500 0.064559446
Cramer V6                Q11.7_Lectures 0.05438 0.767462619
Cramer V7                 Q11.8_Debates 0.13680 0.187154379
Cramer V8           Q11.9_Science_Fairs 0.21430 0.016404224
Cramer V9                  Q11.10_Books 0.11740 0.290996046
Cramer V10      Q11.11_Scientific_Papers 0.05994 0.725010722
Cramer V11 Q11.12_Dissemination_Articles 0.13770 0.183078313
Cramer V12       Q11.13_Opinion_Articles 0.08247 0.544070222
```

Image 1 - Cramér's V results

```
> kw_results
                                      Practice KW_statistic df     p_value
Kruskal-Wallis chi-squared       Q11.1_Field_Trip 10.8386291  2 0.004430182
Kruskal-Wallis chi-squared1         Q11.2_Museums 10.6342825  2 0.004906761
Kruskal-Wallis chi-squared2  Q11.3_Science_Centres  1.0557729  2 0.589850340
Kruskal-Wallis chi-squared3 Q11.4_Research_Centres  5.1176188  2 0.077396834
Kruskal-Wallis chi-squared4       Q11.5_Workshops 13.0235184  2 0.001485863
Kruskal-Wallis chi-squared5     Q11.6_Exhibitions  8.5109814  2 0.014186128
Kruskal-Wallis chi-squared6        Q11.7_Lectures 11.8949124  2 0.002612478
Kruskal-Wallis chi-squared7         Q11.8_Debates  9.1423327  2 0.010345886
Kruskal-Wallis chi-squared8   Q11.9_Science_Fairs  6.1108364  2 0.047103018
Kruskal-Wallis chi-squared9          Q11.10_Books  5.1089851  2 0.077731665
Kruskal-Wallis chi-squared10 Q11.11_Scientific_Papers  9.0074597  2 0.011067639
Kruskal-Wallis chi-squared11 Q11.12_Dissemination_Articles  8.6910882  2 0.012964452
Kruskal-Wallis chi-squared12    Q11.13_Opinion_Articles  0.6451296  2 0.724288997
```

Image 2 - Kruskal-Wallis results

Silhouette plot - PAM k=2

n = 179

2 clusters C_j
$j: n_j \mid \text{ave}_{i \in C_j}\ s_i$

1 : 88 | 0.24

2 : 91 | 0.12
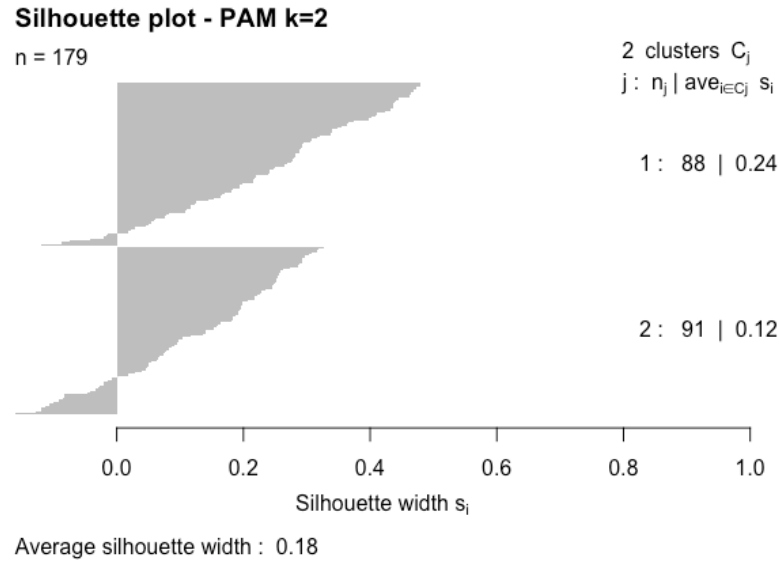
Silhouette width s_i

Average silhouette width : 0.18

Image 3 – Silhouette plot

A silhouette plot provides a visual measure of how well each data point aligns with its assigned cluster. For k=2, our silhouette plot shows two distinct "blocks," each corresponding to one of the two clusters. We obtained an **average silhouette width of ~0.18**, indicating **moderate-to-weak** separation overall. Nevertheless, almost all points in Clusters 1 and 2 have positive silhouettes, suggesting that most observations are reasonably placed in their respective clusters. The **mean silhouette** is higher for Cluster 1 (~0.24) than for Cluster 2 (~0.12), implying that **Cluster 1** is more cohesive (its members are more similar to each other), whereas **Cluster 2** exhibits greater internal variation. In practical terms, this indicates that geoscientists in Cluster 1 share more commonalities in their communication practices or training/self-efficacy levels, while those in Cluster 2 show more diversity. Despite the moderate overall silhouette, we adopted k=2 based on both interpretability and the silhouette method's indication that no other k provides a substantially better separation.
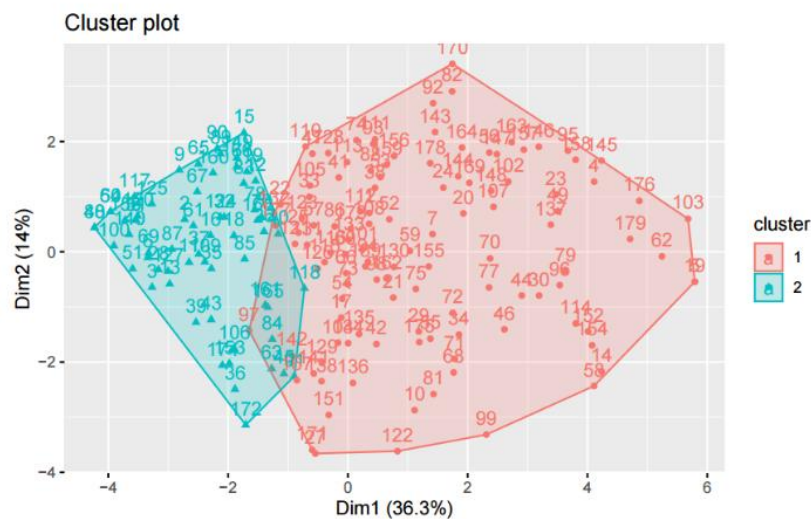

Image 4 - Visualization of the two identified clusters among geoscientists with PAM algorithm

```
> chi_results
$Families

        Pearson's Chi-squared test

data:  table(dados_paper_3$Q10_Training, dados_paper_3$Q13.11_Families)
X-squared = 6.7535, df = 2, p-value = 0.03416


$Local_Communities

        Pearson's Chi-squared test

data:  table(dados_paper_3$Q10_Training, dados_paper_3$Q13.14_Local_Communities)
X-squared = 5.1719, df = 2, p-value = 0.07532


$Museums

        Pearson's Chi-squared test

data:  table(dados_paper_3$Q10_Training, dados_paper_3$Q11.2_Museums)
X-squared = 13.131, df = 2, p-value = 0.001408


$Science_Centres

        Pearson's Chi-squared test

data:  table(dados_paper_3$Q10_Training, dados_paper_3$Q11.3_Science_Centres)
X-squared = 12.783, df = 2, p-value = 0.001676


$Science_Fairs

        Pearson's Chi-squared test

data:  table(dados_paper_3$Q10_Training, dados_paper_3$Q11.9_Science_Fairs)
X-squared = 8.2204, df = 2, p-value = 0.0164
```

Image 5 - Chi-square results