

**IS71069B Assignment 2:
ESS European Social Survey
Irene Volpe**

Introduction

This report relates to a Multiple Correspondence Analysis (MCA) performed on the 2012 ESS European Social Survey dataset already preprocessed by our GDA professor Fionn Murtagh from the ESS website, selecting 53 factors and 52177 respondent.

These 53 factors consisted in 4 demographic information, such as country (27 in total), gender, age and level of education, plus 21 factors from the Human values scale module (related to the level of importance the responded gave to certain life values) and 28 from the Personal and Social wellbeing module (mainly about the feelings experienced in a period of one week before the interview had been taken).

It is hoped that MCA will help identify if any correlation exists between happiness, age, manners, ambition and seek for pleasure. This information could be used to better understanding if some prejudices about the above potentially do exist:

- 1) Does the old loneliness or lack of enthusiasm for life?
- 2) Does a great career lead to have less time to seek pleasure?
- 3) Does the young has a tendency to be less mannered? .

Method

14 questions were treated as active variables:

-age and education;

-from the Human values scale: importance to be rich, show abilities, follow the rules, have a good time, be free, be successful, behave properly and seek for pleasure;

-from Personal and Social well-being: How often during the week before the interview the respondent had been feeling: depressed, happy, lonely, anxious.

The remaining were treated as supplementary variables.

No variables were treated as quantitative supplementary, nor were there any supplementary individuals.

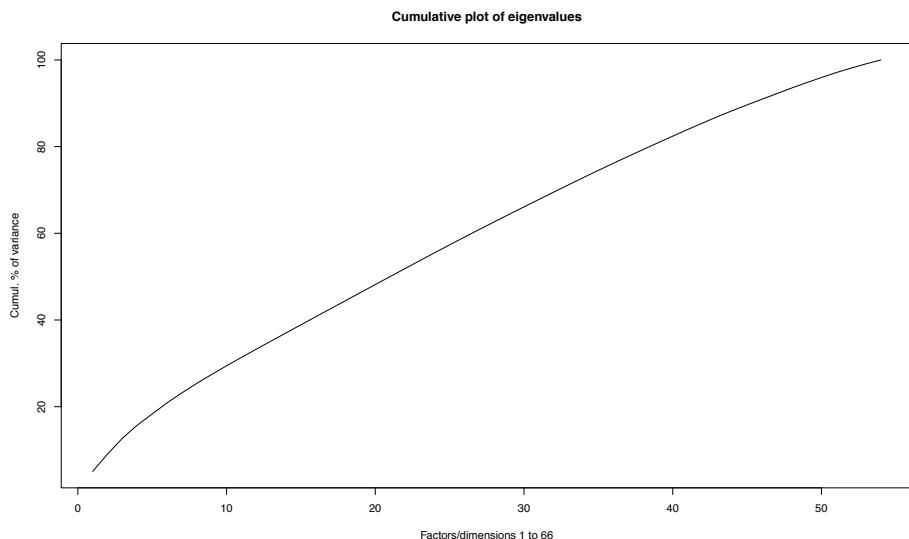
The raw data comprised numeric, likert-scale, responses. These responses were converted into factors, with the textual descriptions for each category replacing the numeric values.

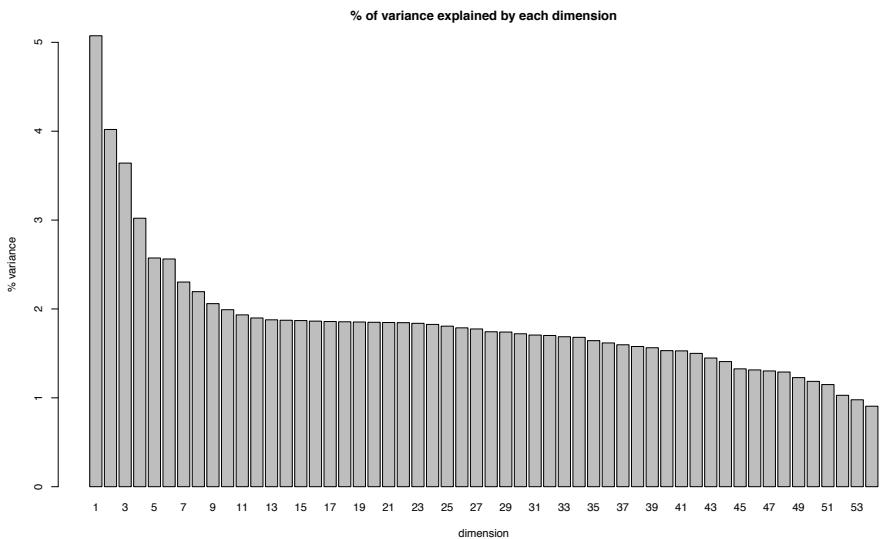
Categories had very low frequencies of response were collapsed into fewer categories.

Results/Discussion

MCA discovered 54 dimensions, with percentage of variance explained by each shown in Figure 1 and 2 below. Based on this distribution, it was decided to study only the first three dimensions – which accounted for a combined 12.73% of total inertia between them.

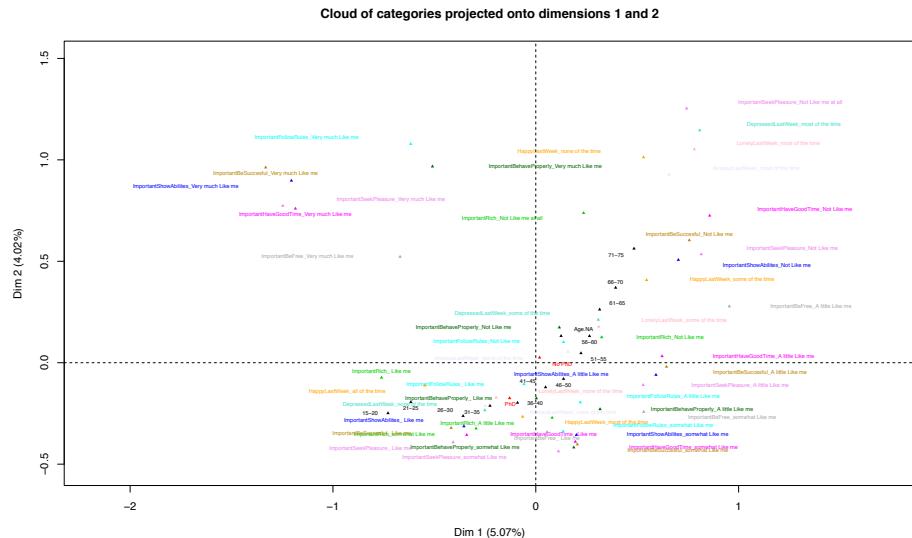
	eigenvalue	percentage of variance	cumulative percentage of variance
dim 1	0.19571270	5.0740328	5.074033
dim 2	0.15503517	4.0194303	9.093463
dim 3	0.14045117	3.6413266	12.734790





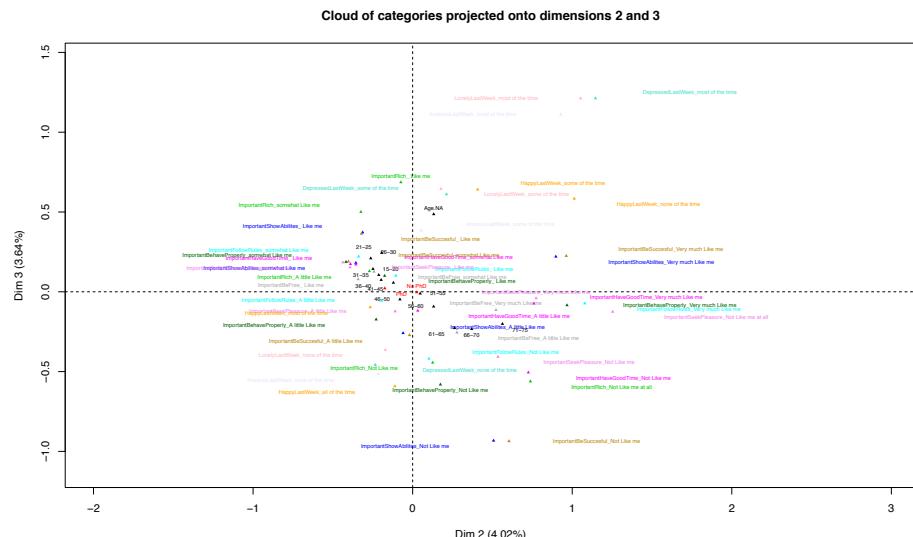
Clouds of categories

The figure below shows the cloud of categories projected onto dimensions 1 and 2.



Clouds of categories

The figure below shows the cloud of categories projected onto dimensions 2 and 3.

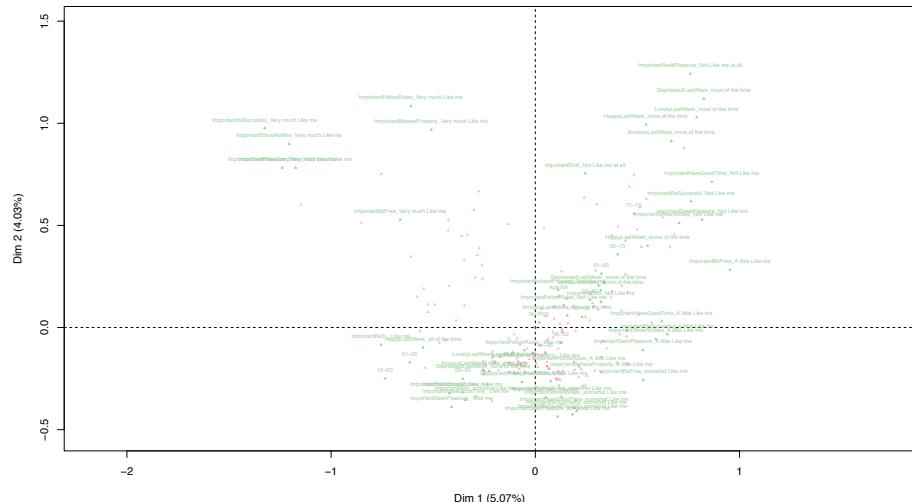


Clouds of categories with supplementaries

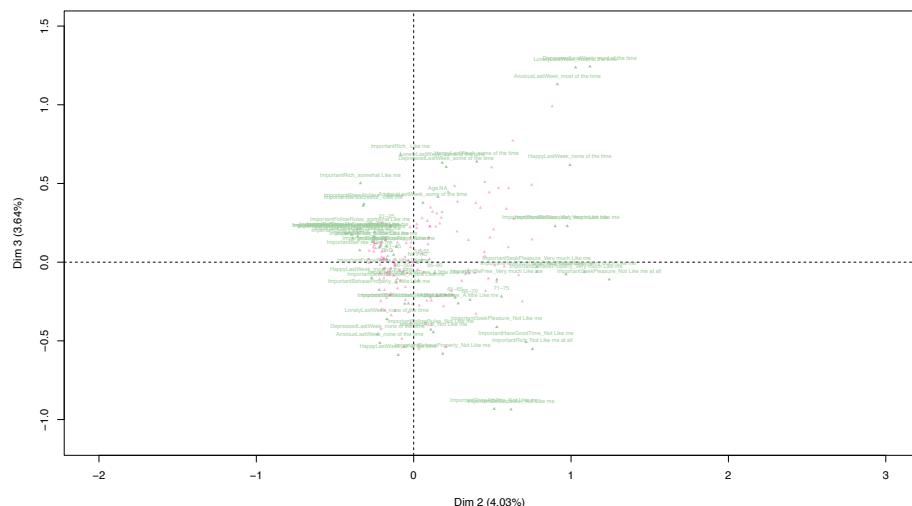
Figure below show an attempt to plot with “FeelIAmFailure” as supplementary variable, in pink. But I got this error:

Error in sup.coords[sup.names, dim1:dim2] : subscript out of bounds

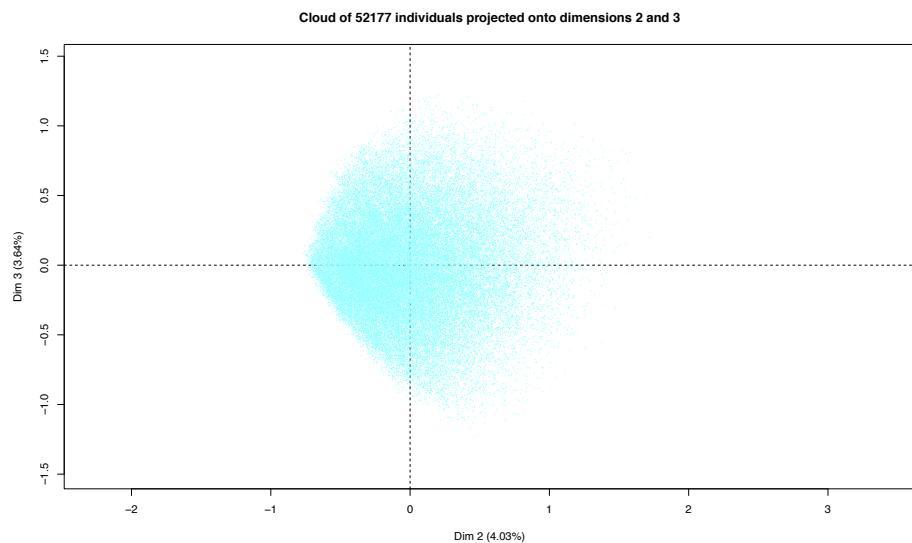
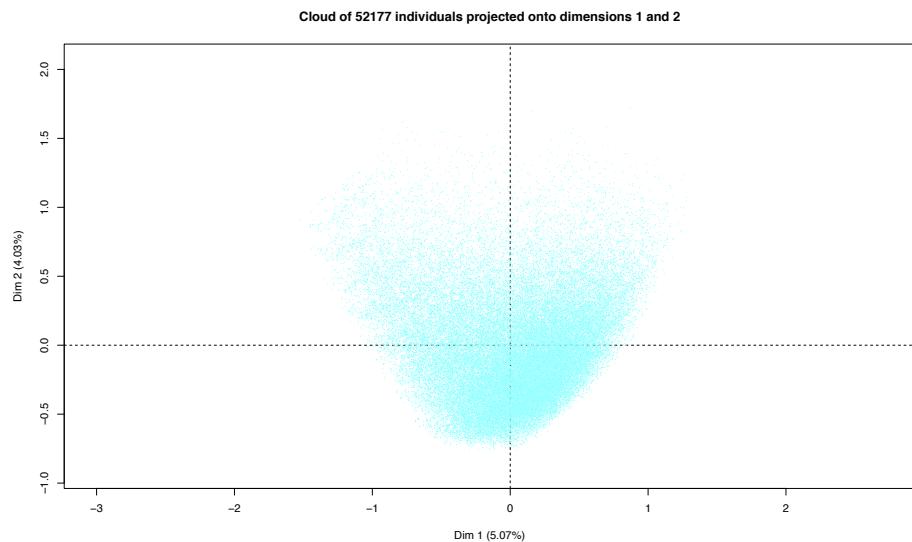
Categories projected onto dimensions 1 & 2, with FeelIAmFailure as supplementary



Categories projected onto dimensions 2 & 3, with FeelIAmFailure as supplementary

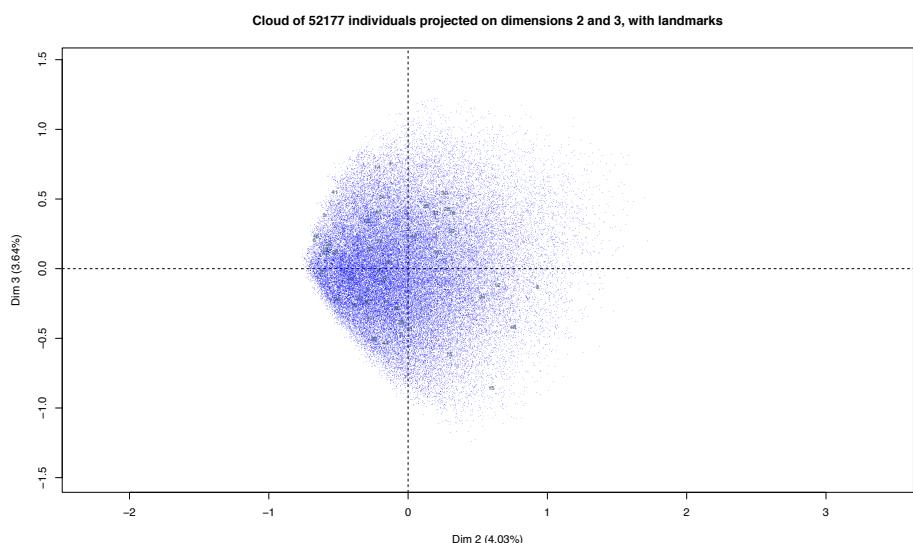
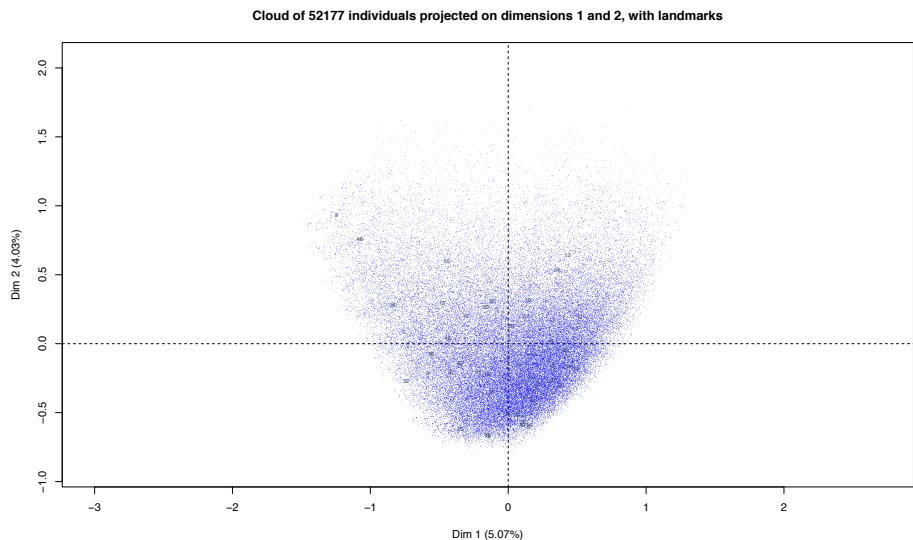


Cloud of individuals



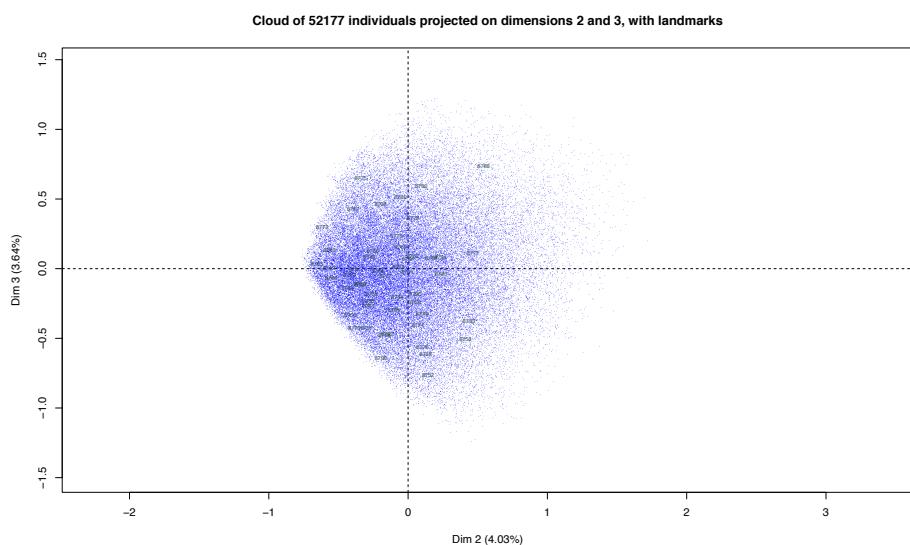
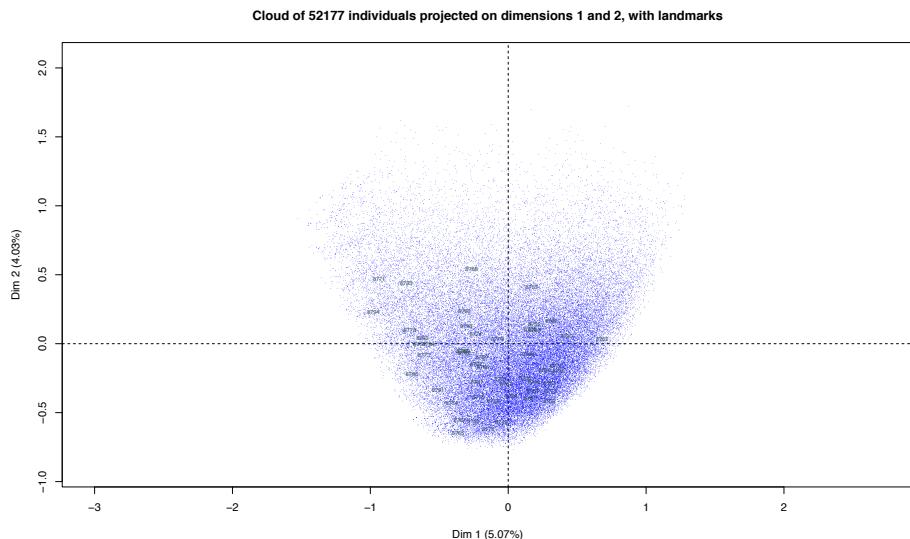
Cloud of individuals with LandMarks

Figures below show the cloud of individuals plus the first 50 respondents from Belgium as LandMarks, in Dimensions 1&2 and 2&3.



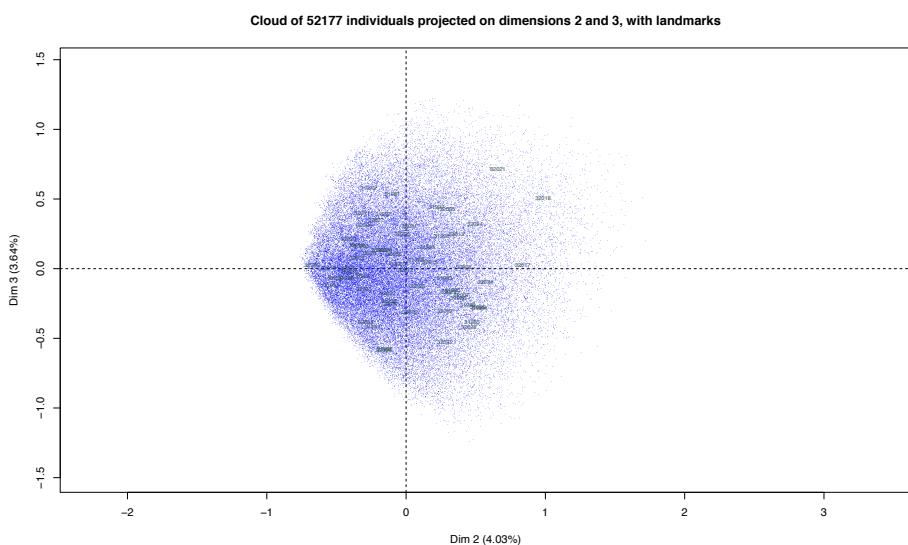
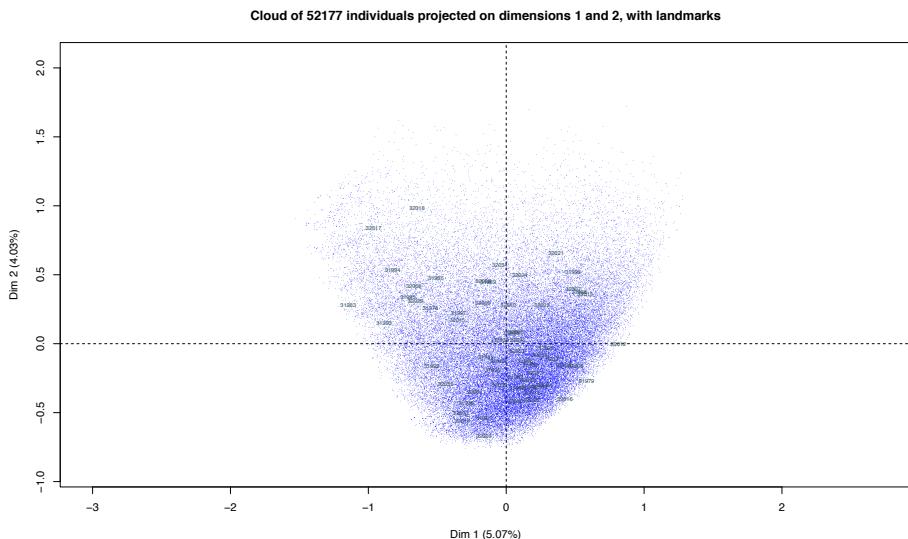
Cloud of individuals with LandMarks

Figures below show the cloud of individuals plus the first 50 respondents from Germany as LandMarks, in Dimensions 1&2 and 2&3.



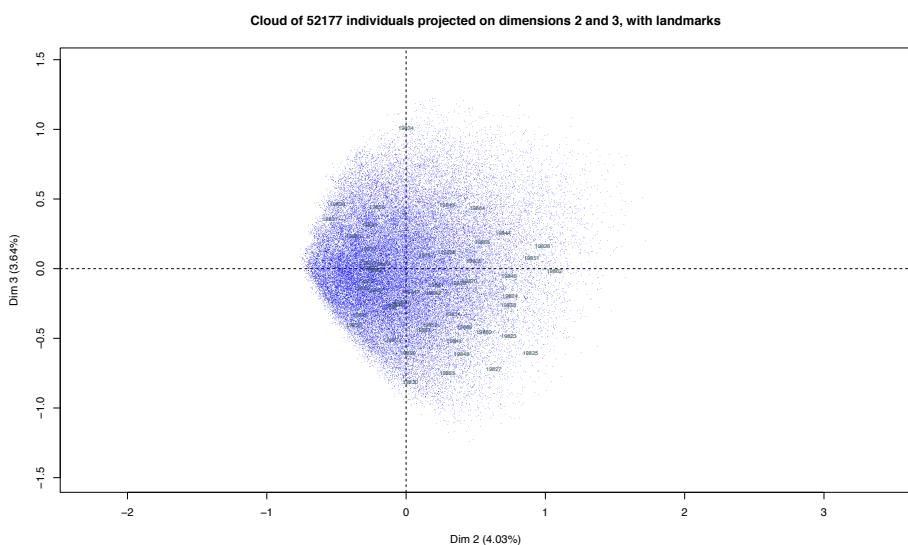
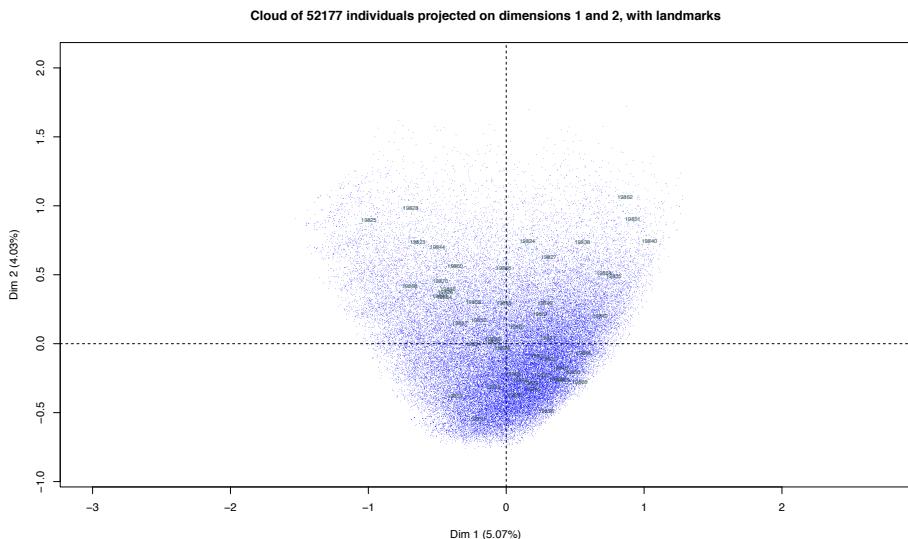
Cloud of individuals with LandMarks

Figures below show the cloud of individuals plus the first 50 respondents from Italy as LandMarks, in Dimensions 1&2 and 2&3.



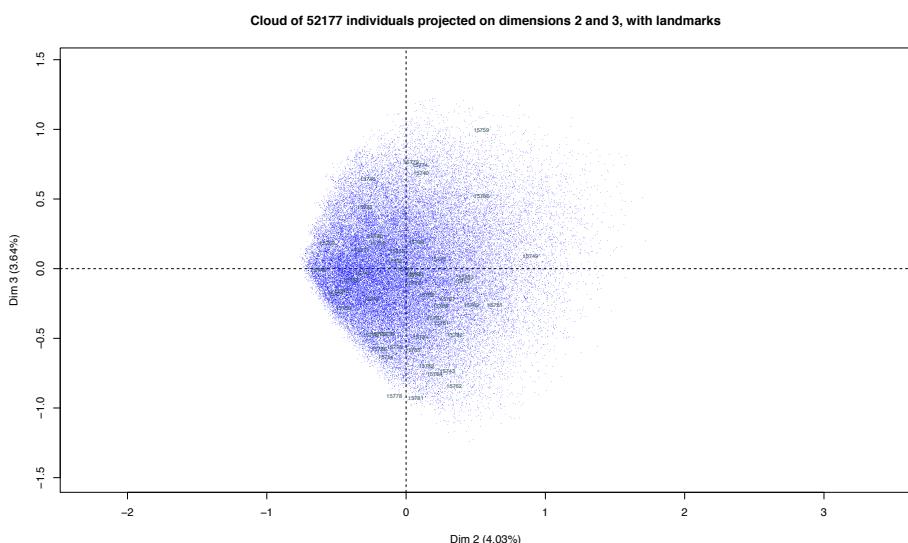
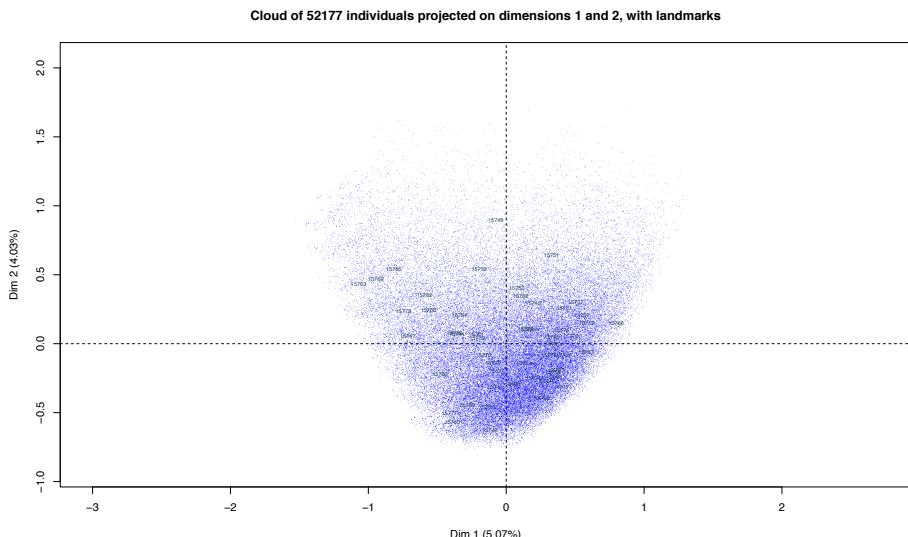
Cloud of individuals with LandMarks

Figures below show the cloud of individuals plus the first 50 respondents from France as LandMarks, in Dimensions 1&2 and 2&3.



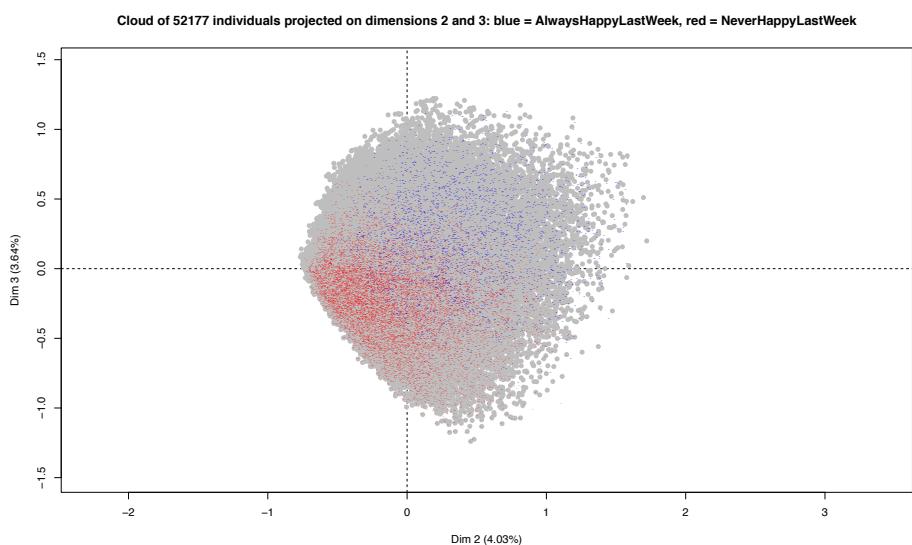
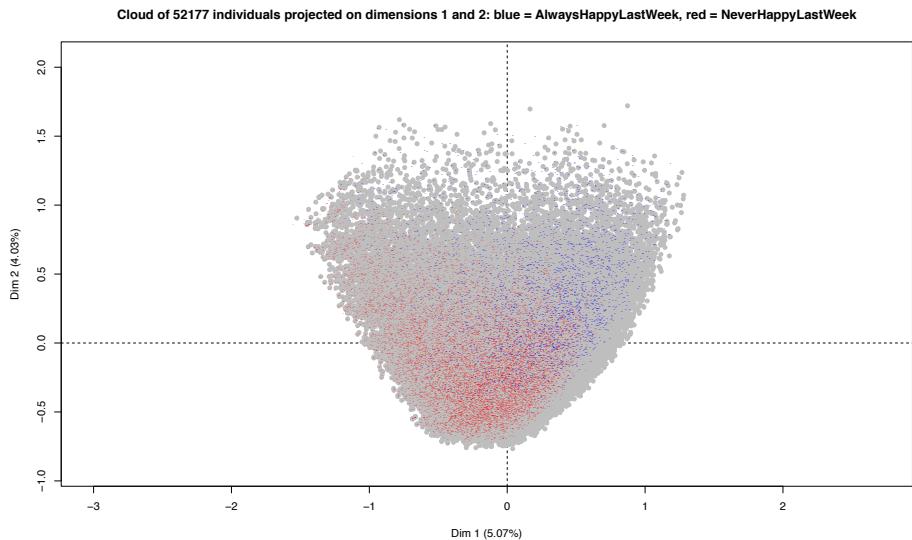
Cloud of individuals with LandMarks

Figures below show the cloud of individuals plus the first 50 respondents from Spain as LandMarks, in Dimensions 1&2 and 2&3.



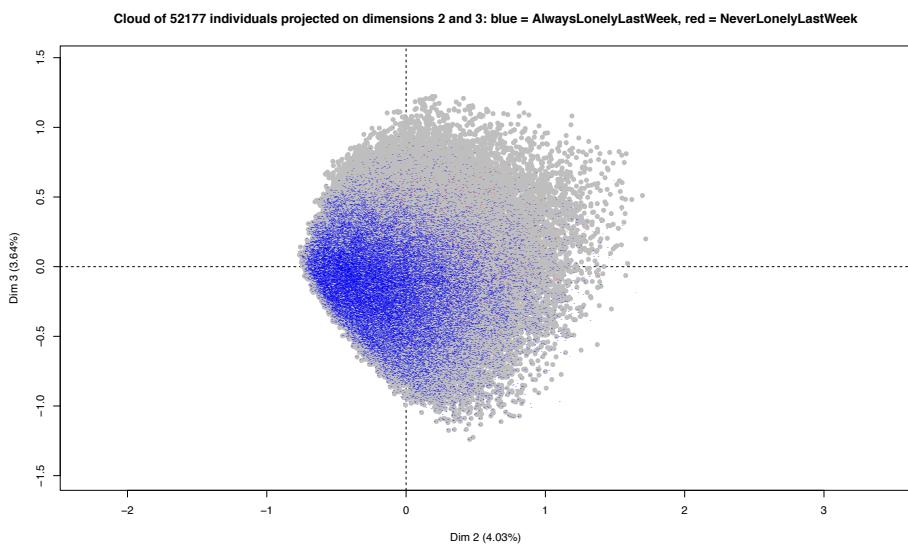
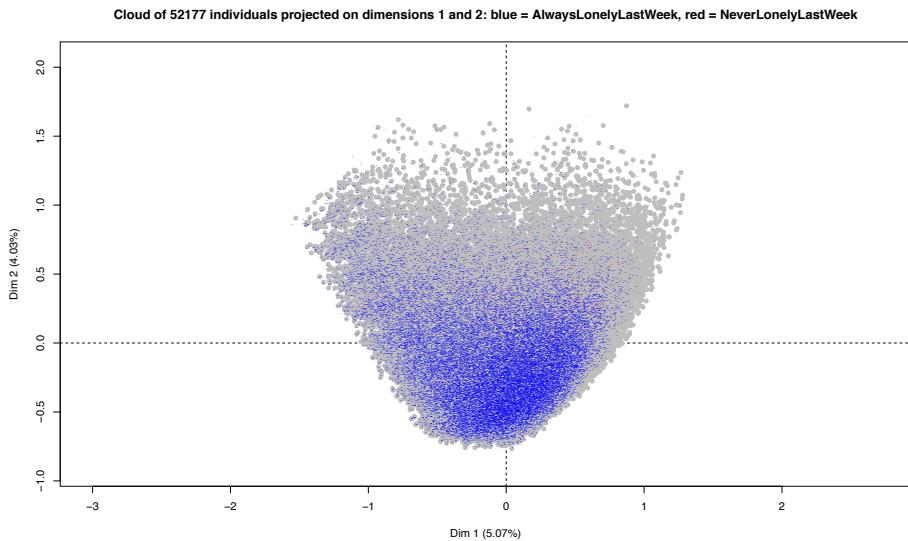
Subclouds - Happy last week

Here we can see the cloud of the all 52177 individuals, with the selection of those 12278 people who where happy all of the time the week before the interview, in blue, and in red those 2611 people who where unhappy all of the week.



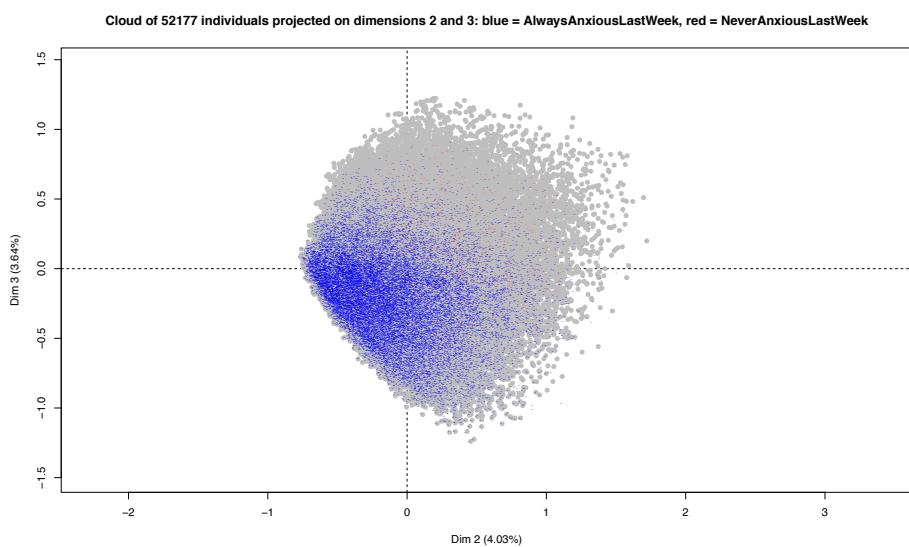
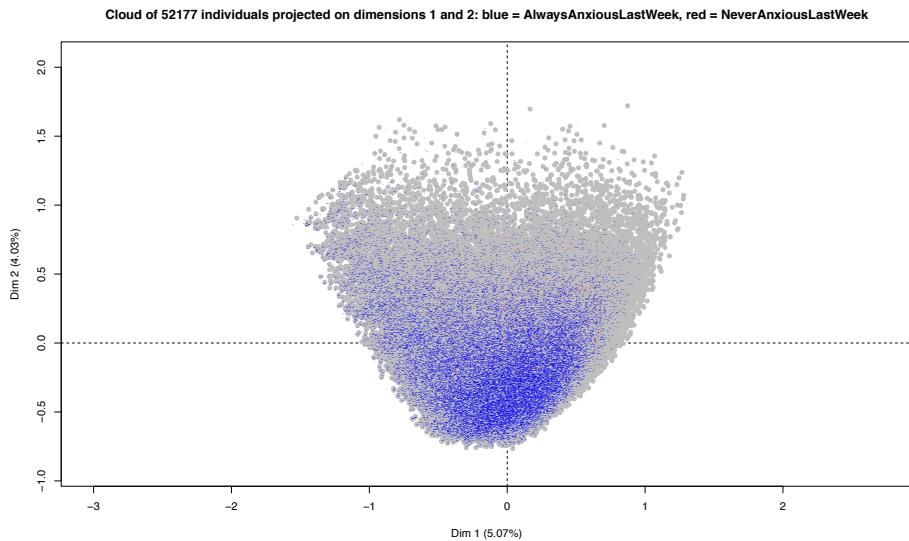
Subclouds - Lonely last week

Here we can see the cloud of the all 52177 individuals, with the selection of those 1511 people who where lonely all of the time the week before the interview, in blue, and in red those 2611 people who where not feeling lonely for the all week.



Subclouds - Anxious last week

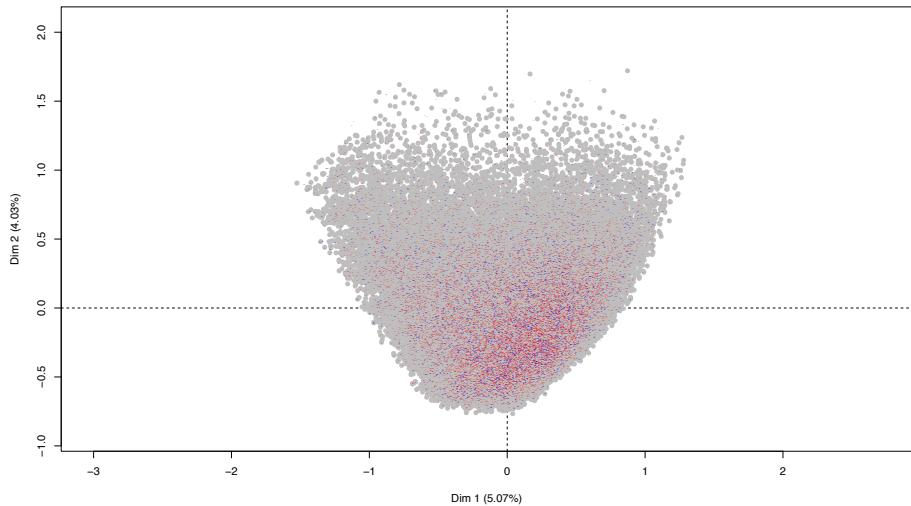
Here we can see the cloud of the all 52177 individuals, with the selection of those 1511 people who where anxious all of the time the week before the interview, in blue, and in red those 2611 people who where not feeling anxious for the all week.



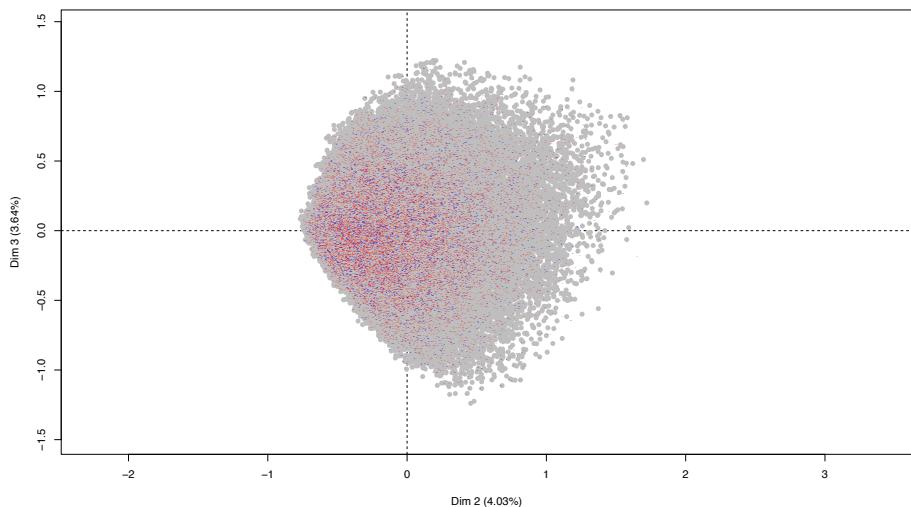
Subclouds - Happy last week - France

Here we can see the cloud of the all 52177 individuals, with the selection of those 501 french people who where happy all of the time the week before the interview, in blue, and in red those 93 french people who where unhappy all of the week.

Cloud of 52177 individuals projected on dimensions 1 and 2: blue = AlwaysHappyLastWeek, red = NeverHappyLastWeek



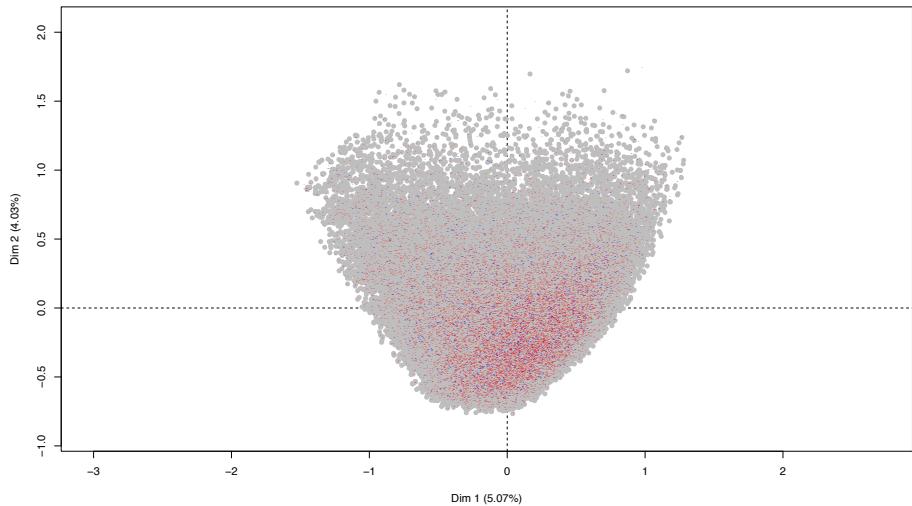
Cloud of 52177 individuals projected on dimensions 2 and 3: blue = AlwaysHappyLastWeek, red = NeverHappyLastWeek



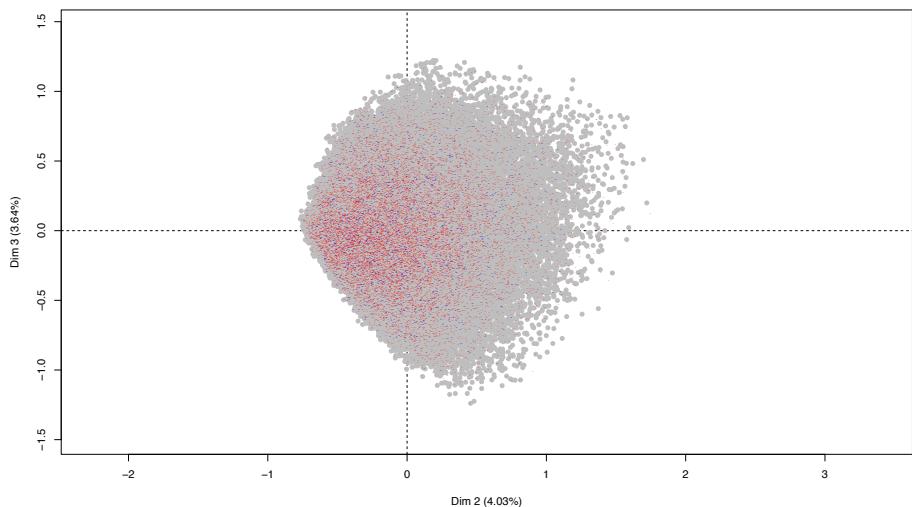
Subclouds - Happy last week - UK

Here we can see the cloud of the all 52177 individuals, with the selection of those 592 english people who where happy all of the time the week before the interview, in blue, and in red those 58 english people who where unhappy all of the week.

Cloud of 52177 individuals projected on dimensions 1 and 2: blue = AlwaysHappyLastWeek, red = NeverHappyLastWeek

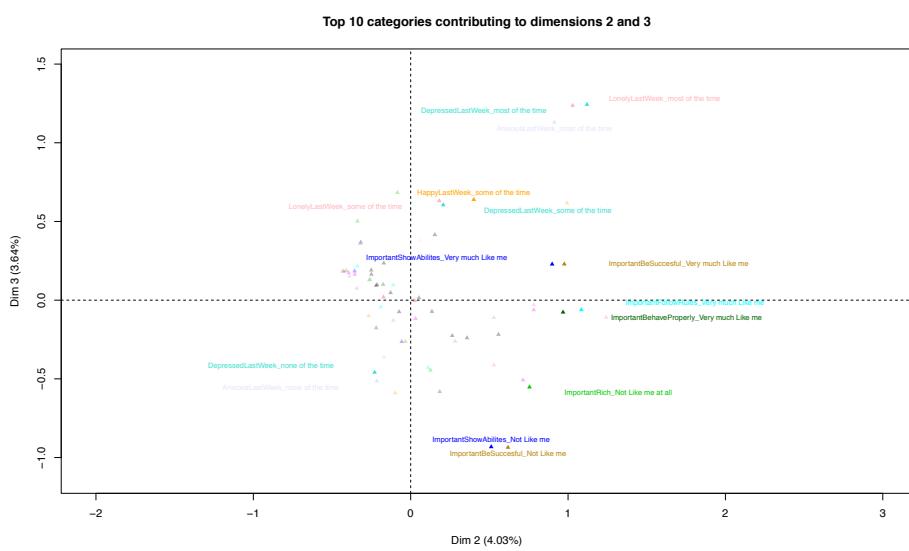
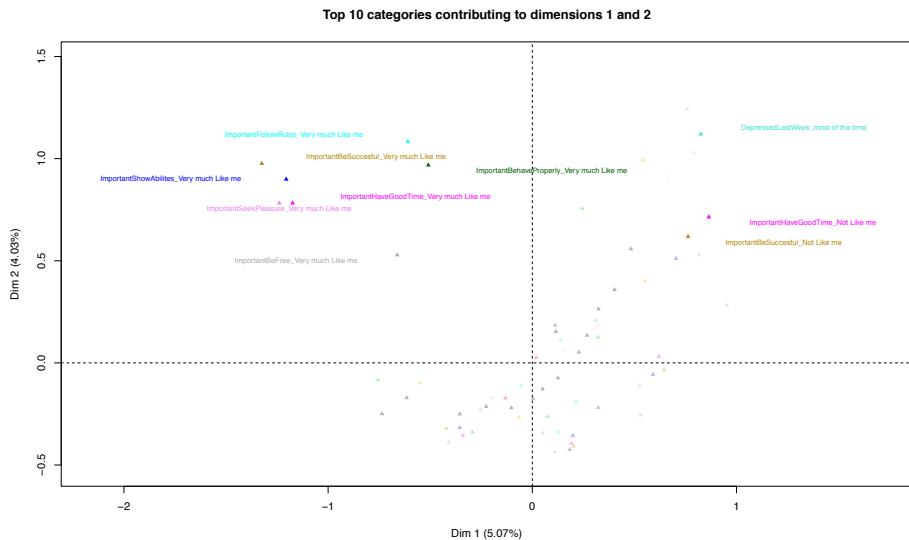


Cloud of 52177 individuals projected on dimensions 2 and 3: blue = AlwaysHappyLastWeek, red = NeverHappyLastWeek



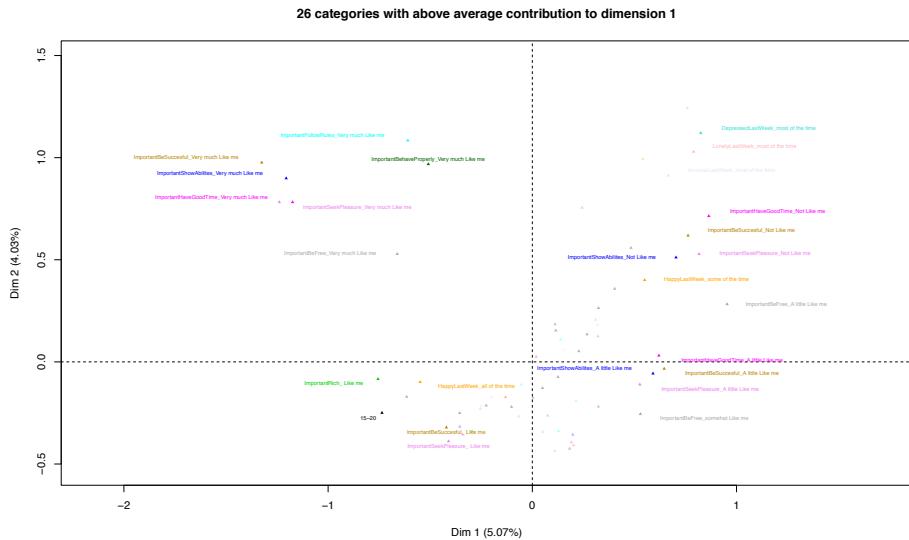
Category Contributions

Figures below show the top 15 categories contributing to dimensions 1 & 2, and 2 & 3, respectively.



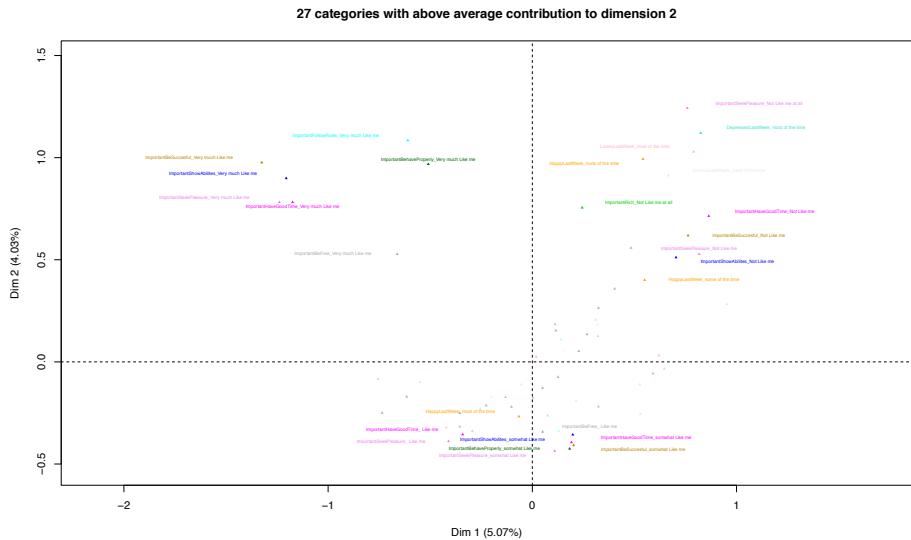
Most influent Categories for dimension 1

The 26 Categories which make the highest contributions to each of dimensions 1, with total 81,38% contribution.



Most influent Categories for dimension 2

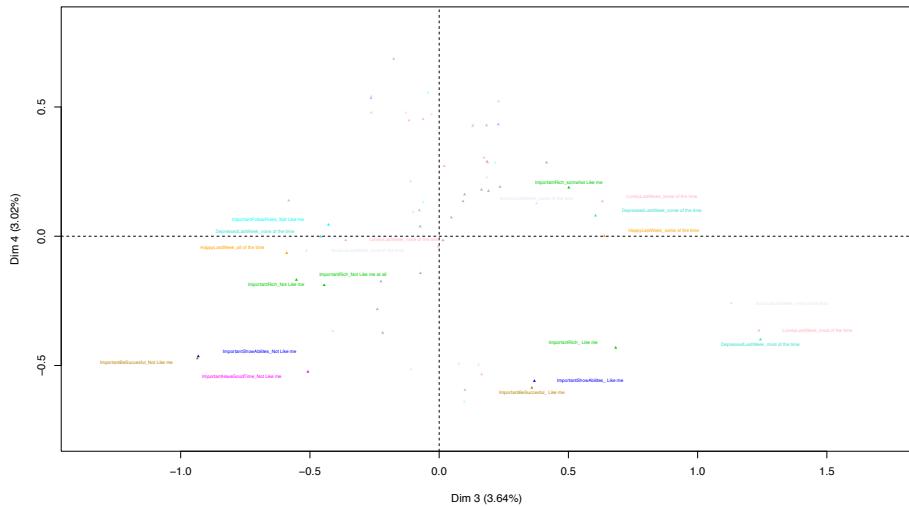
The 27 Categories which make the highest contributions to each of dimensions 2, with total 83,86% contribution.



Most influent Categories for dimension 3

The 21 Categories which make the highest contributions to each of dimensions 3, with total 87,80% contribution.

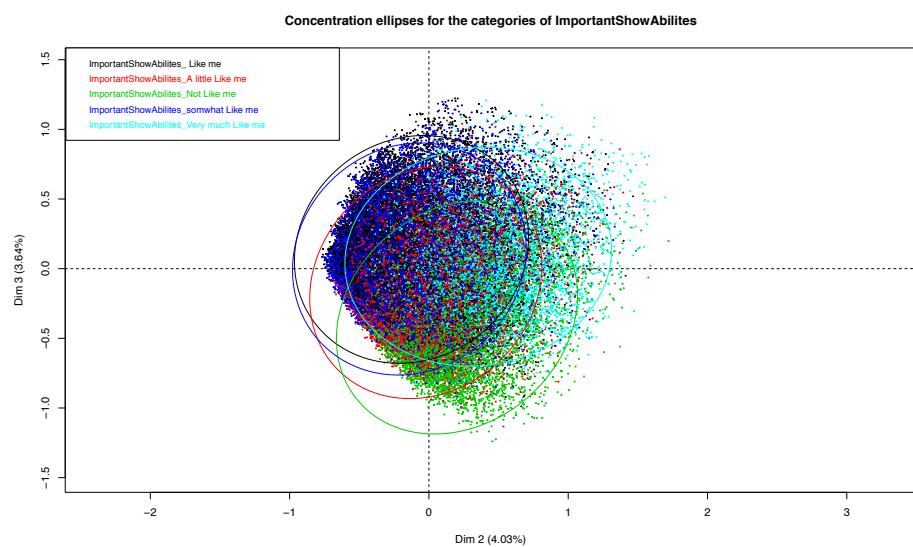
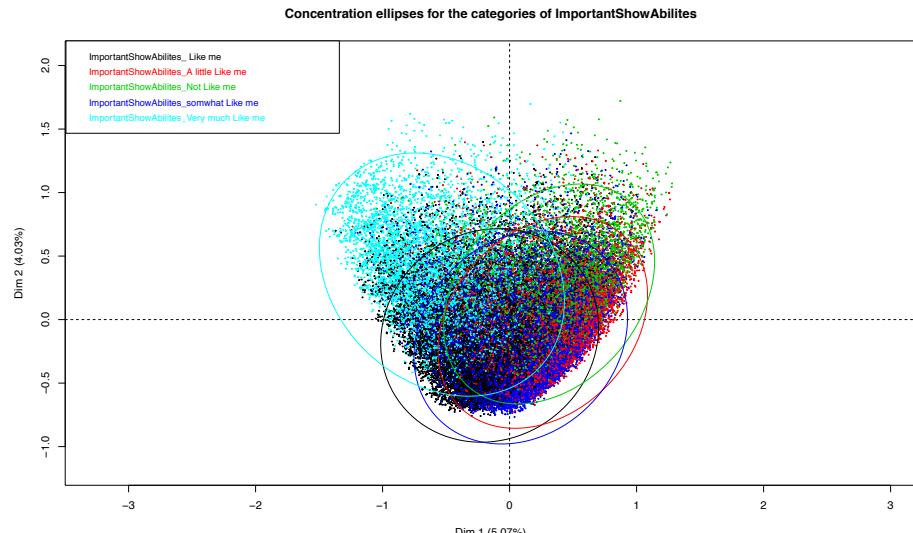
21 categories with above average contribution to dimension 3



Confidence Ellipses - Important to show abilities

Figures show confidence ellipses for the variables.

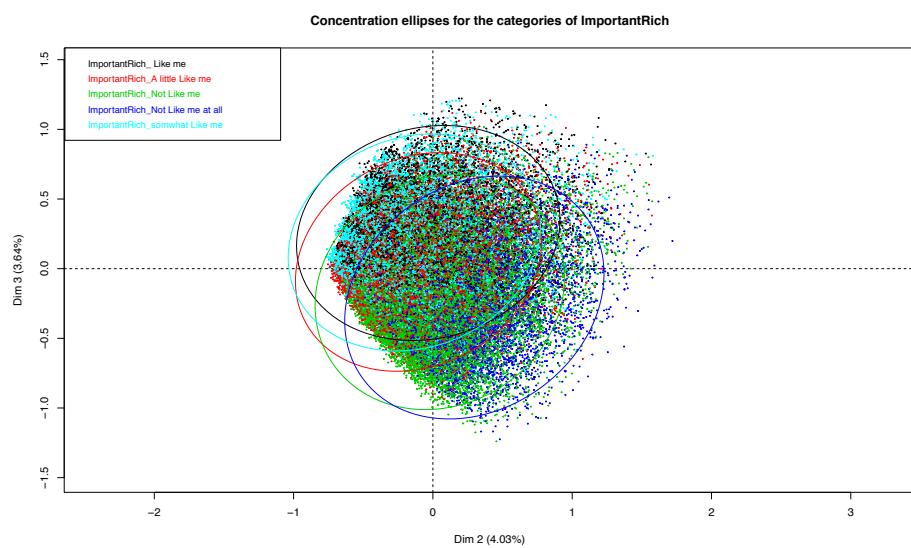
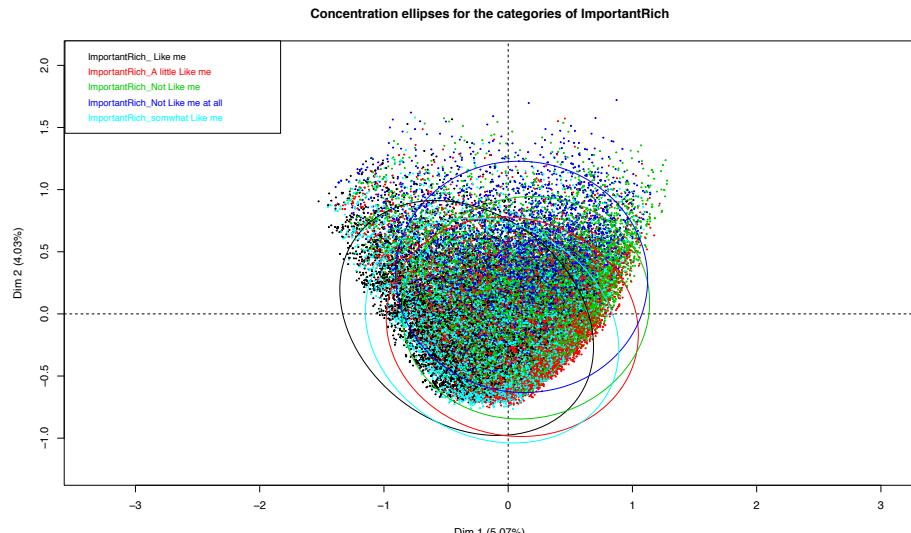
There is considerable overlap for the category, only the very much category seems to distinguish.



Confidence Ellipses - important to be rich

Figures show confidence ellipses for the variables.

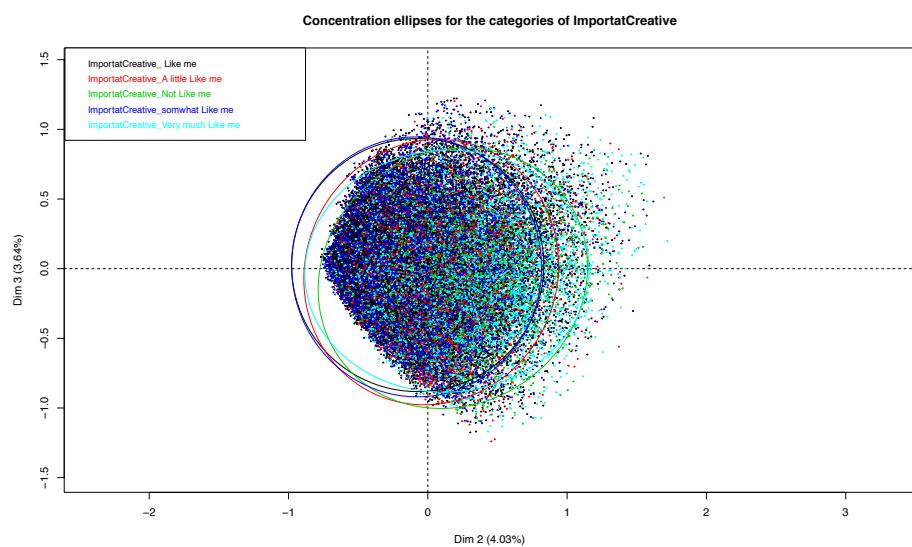
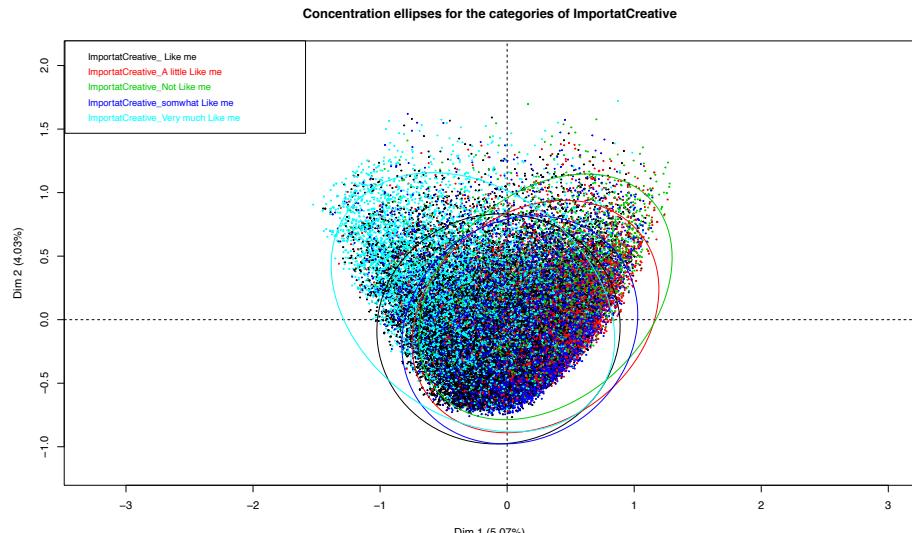
There is considerable overlap for the category, making it hard to support a significant distinction between these groups.



Confidence Ellipses - important to be creative

Figures show confidence ellipses for the variables.

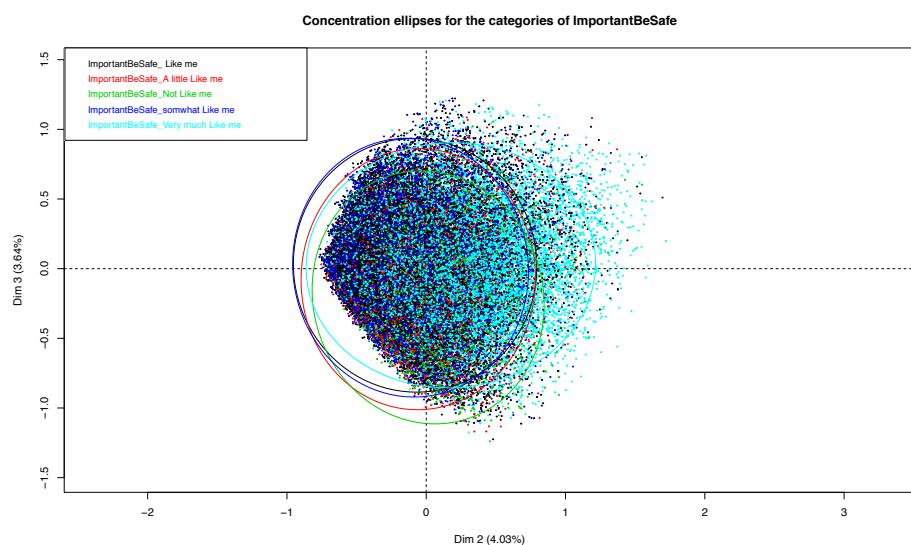
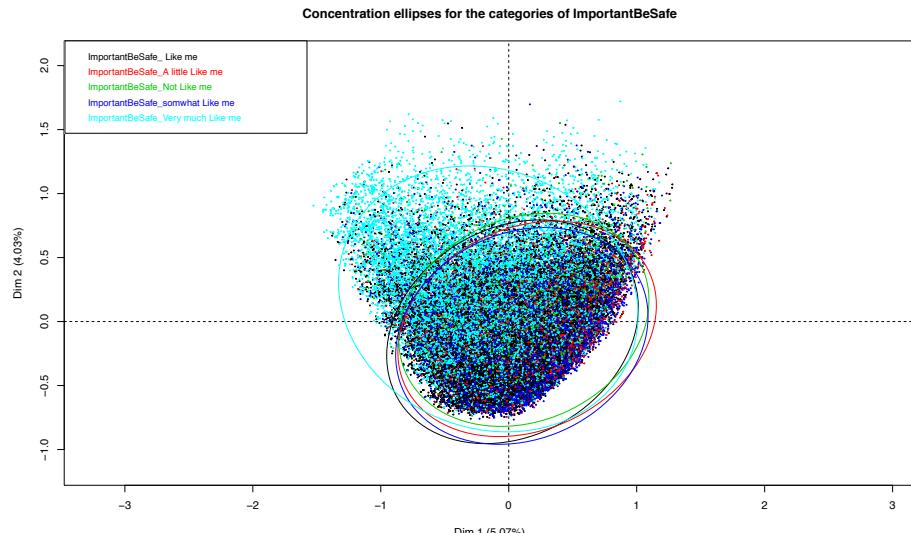
There is considerable overlap for the category, making it hard to support a significant distinction between these groups.



Confidence Ellipses - important to be safe

Figures show confidence ellipses for the variables.

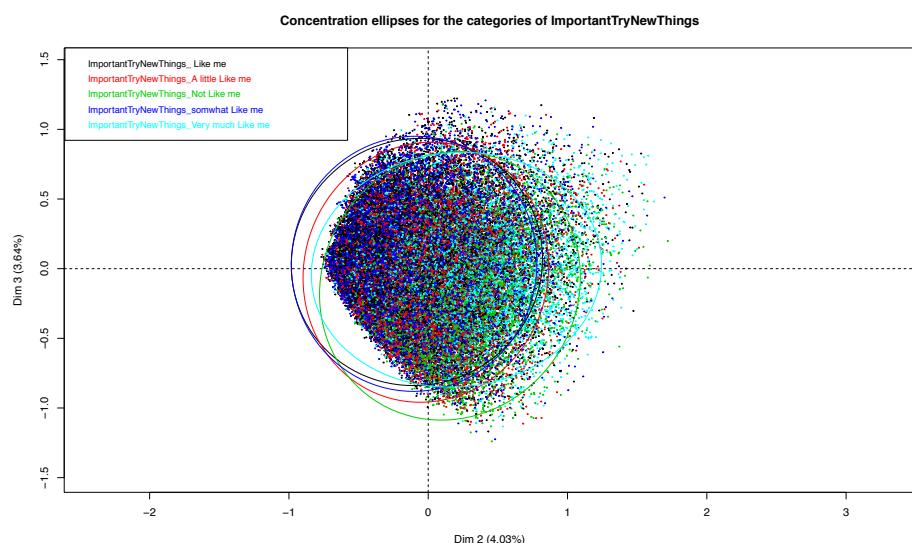
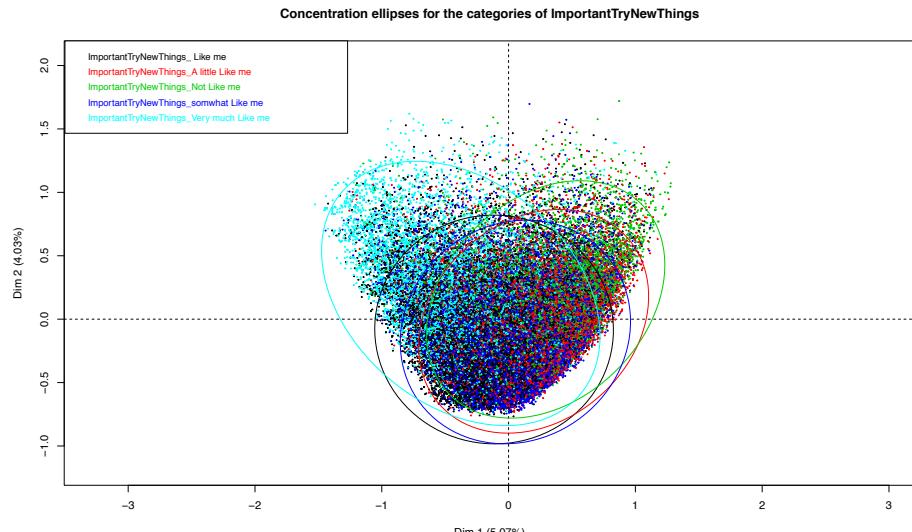
There is considerable overlap for the category, only the category of people giving great importance to be safe is slightly distinguished.



Confidence Ellipses - important to try new things

Figures show confidence ellipses for the variables.

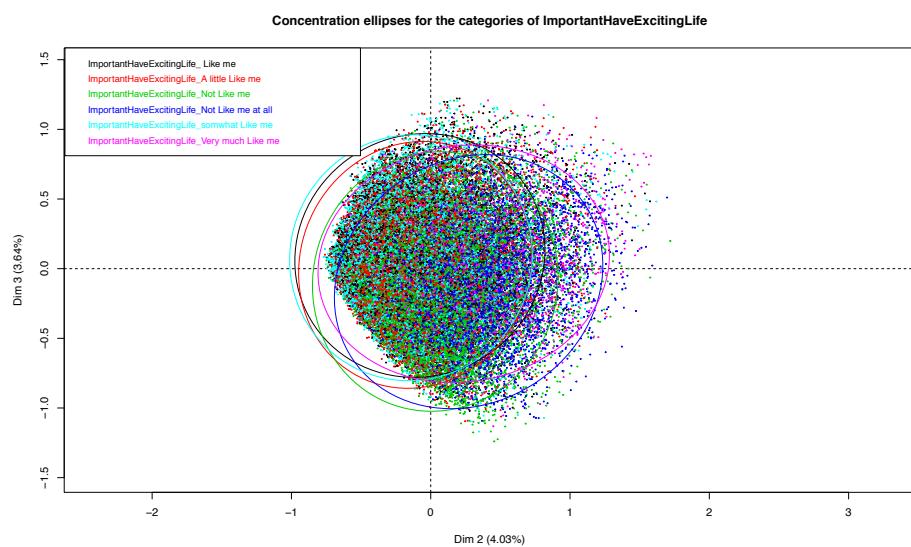
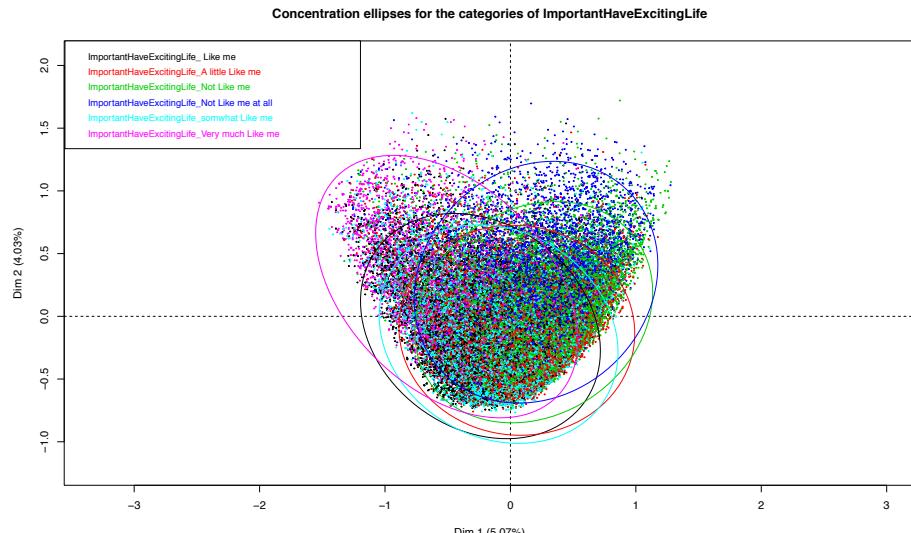
There is considerable overlap for the category, only the cloud containing people who really need to try new things seems to overlap less.



Confidence Ellipses - important to have an exciting life

Figures show confidence ellipses for the variables.

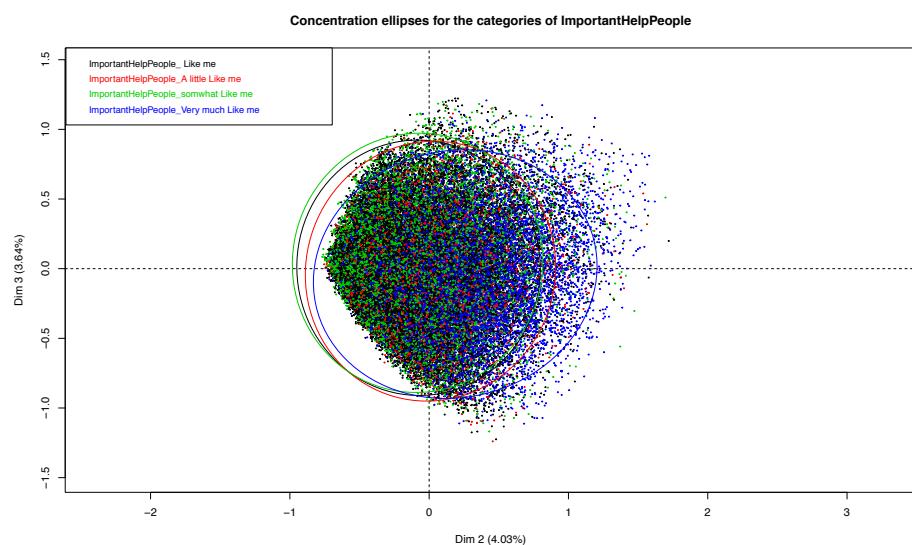
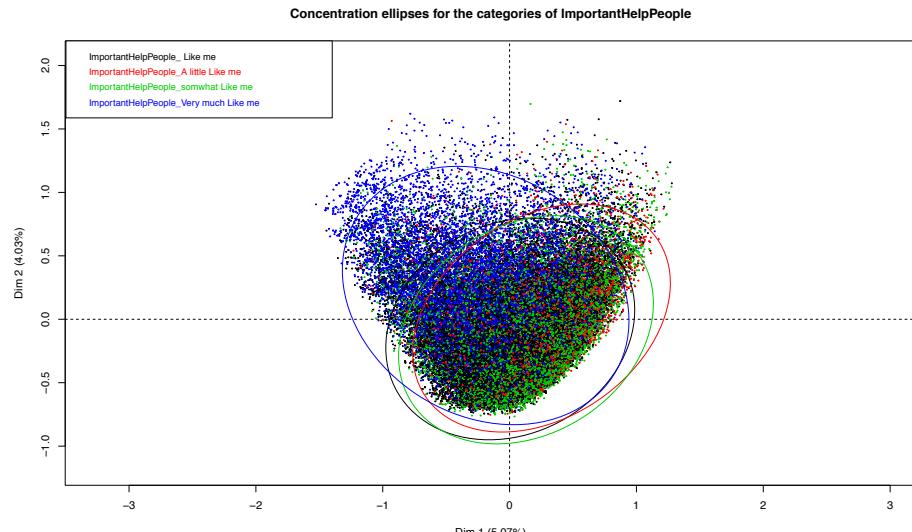
There is considerable overlap for the category, making it hard to support a significant distinction between these groups.



Confidence Ellipses - important to help people

Figures show confidence ellipses for the variables.

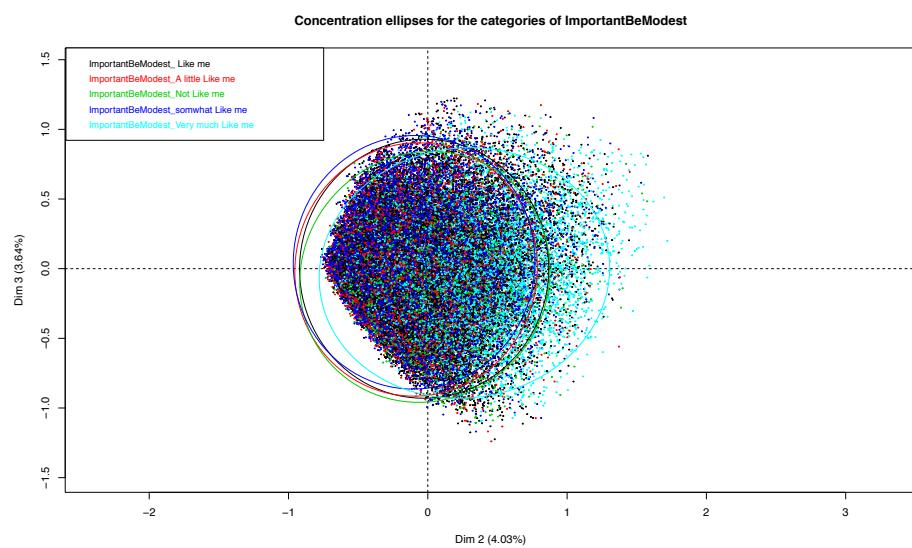
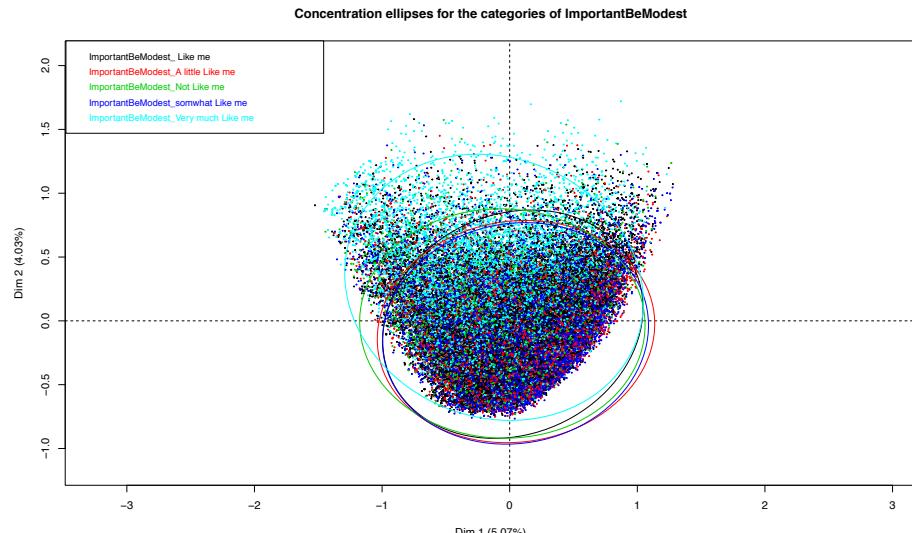
There is considerable overlap for the category, making it hard to support a significant distinction between these groups.



Confidence Ellipses - important to be modest

Figures show confidence ellipses for the variables.

There is considerable overlap for the category, making it hard to support a significant distinction between these groups.



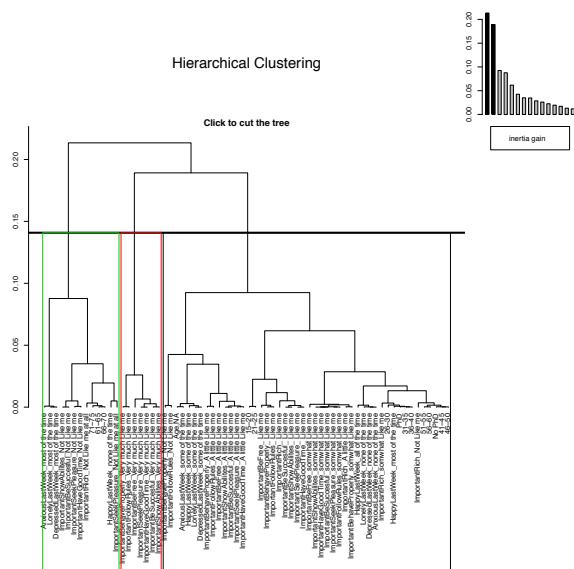
Clustering - 3 clusters

Labelling these factors:

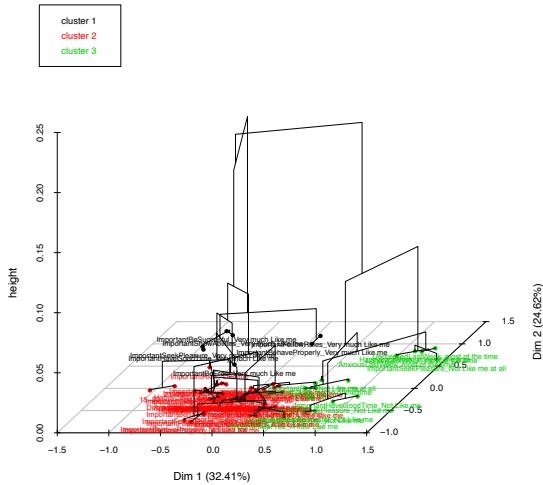
Cluster 1: Old and Depressed people

Cluster 2: Very mannered, ambitious and edonistic (seeking for success, good time and pleasure) people, all ages.

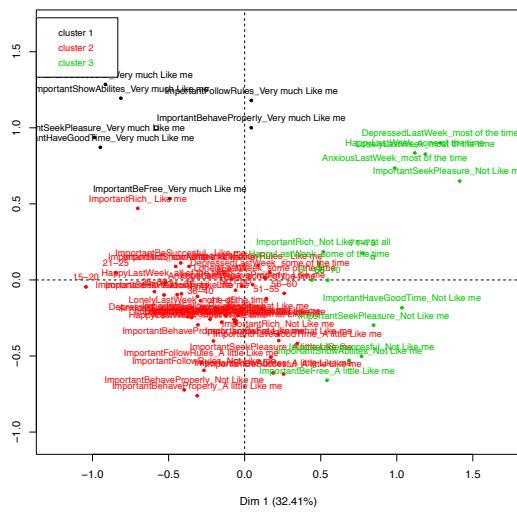
Cluster 3: Young and middle aged people quite mannered, ambitious and edonistic.



Hierarchical clustering on the factor map



Factor map



Clustering - 6 clusters

Labelling these factors:

Cluster 1: very depressed and anxious people among all ages

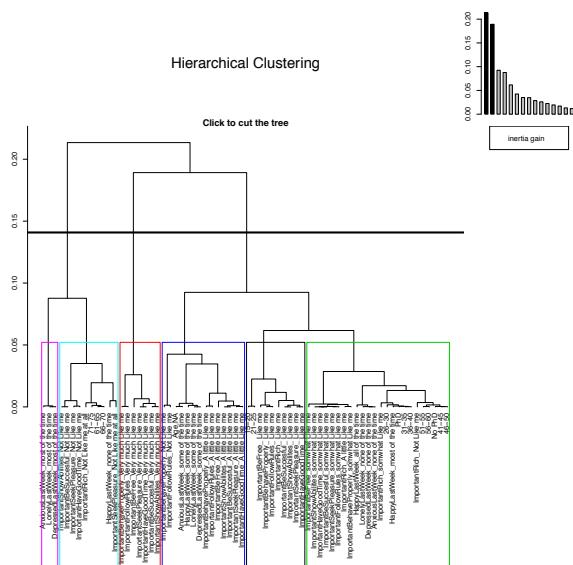
Cluster 2: people not necessarily depressed, but unhappy and passive (not searching for pleasure or success), mostly aged.

Cluster 3: very ambitious, positive (giving importance to rules and good behaviour, but also seeking for success and pleasure) and happy people.

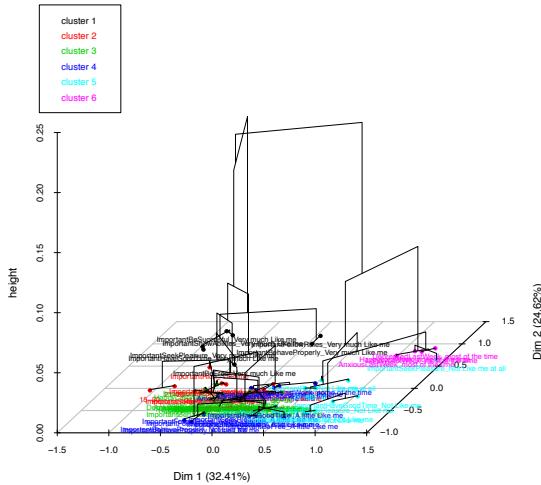
Cluster 4: quite positive (seeking for success and pleasure) and happy, yet less mannered people.

Cluster 5: young people, pretty mannered and ambitious.

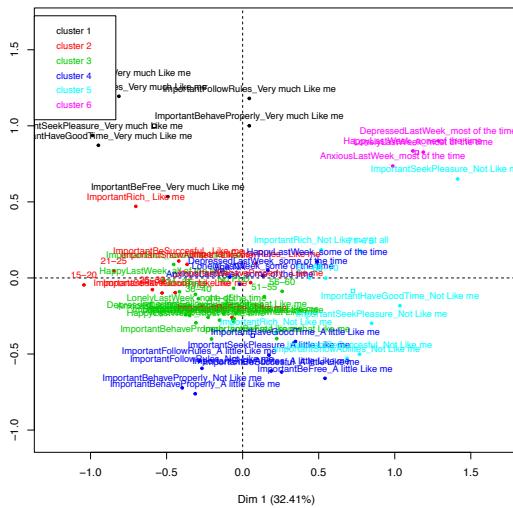
Cluster 6: middle aged people very happy.



Hierarchical clustering on the factor map



Factor map



Clustering - 9 clusters

Labelling these factors:

Cluster 1: people with very negative feelings most of the time.

Cluster 2: Unambitious people

Cluster 3: Old, Unambitious people

Cluster 4: Very Positive people: mannered, ambitious and edonistic.

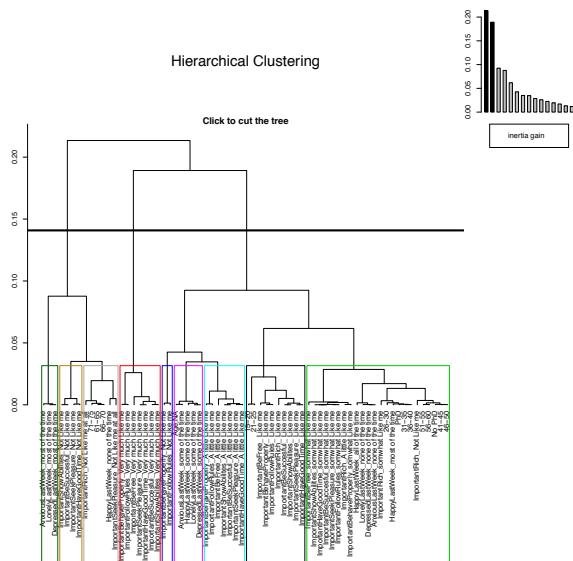
Cluster 5: Unmannered people

Cluster 6: people with negative feelings most of the time.

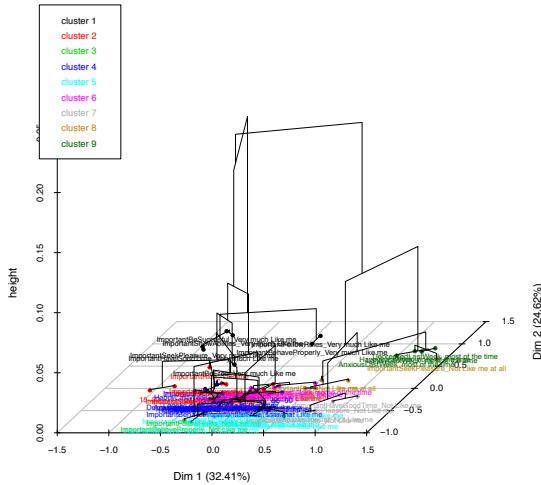
Cluster 7: Quite Positive people: mannered, ambitious and edonistic.

Cluster 8: Young, Mannered and Ambitious people.

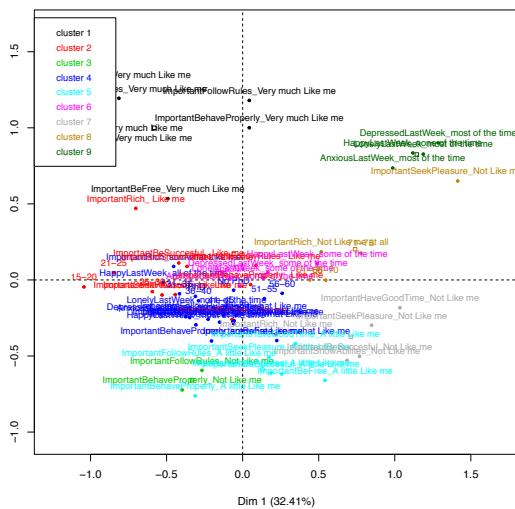
Cluster 9: Middle-aged people, quite mannered and ambitious, very happy.



Hierarchical clustering on the factor map



Factor map



Conclusion

It seems to exist a correlation between happiness, age, ambition and pleasure among the individuals selected for the 2011-2012 ESS Quality of Life survey:

	happyness	age	ambition	pleasure	manners
happyness		negative correlation	strong positive correlation	strong positive correlation	positive correlation
age (increasing)	negative correlation		strong negative correlation	strong negative correlation	no correlation
ambition	strong positive correlation	strong negative correlation		positive correlation	positive correlation
pleasure	strong positive correlation	strong negative correlation	positive correlation		positive correlation
manners	positive correlation	no correlation	positive correlation	positive correlation	

Young People tend to be more ambitious and edonistic;
Happy people tend to be less ambitious and edonistic;
Ambitious people tend to be edonistic as well;
Mannered people are those more happy, ambitious and edonistic.
Since the strong correlation between age and happiness, ambition and edonistic view of life, it can't be said with huge certainty that the younger are more mannered.