A comparison of rapid profiling techniques with more traditional methods

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Introduction

Traditional sensory profiling techniques provide detailed information about a particular product set, but often require long periods of training and can be very costly. In some cases, budget and time constraints can mean that these techniques are not viable and, at times, the objective of the study may not require such detailed descriptions of products.

Napping, Flash Profiling and Free Choice Profiling (FCP) are all rapid methods that, whilst not without their limitations, have all gained considerable interest in recent years (Perrin et al, 2008; Narain et al 2004). These rapid methods allow the panellist to operate individually as they do not require group consensus. Consumer panels maybe capable of carrying out these techniques, thus reducing the cost further.

This study directly compares data from a traditional QDA style study with that collected from Napping, Flash Profiling and Free Choice Profiling using a trained sensory panel and a naive panel. The study was carried out on 10 orange juice samples.

Methods and Materials



10 Naive Assessors
10 Trained Assessors
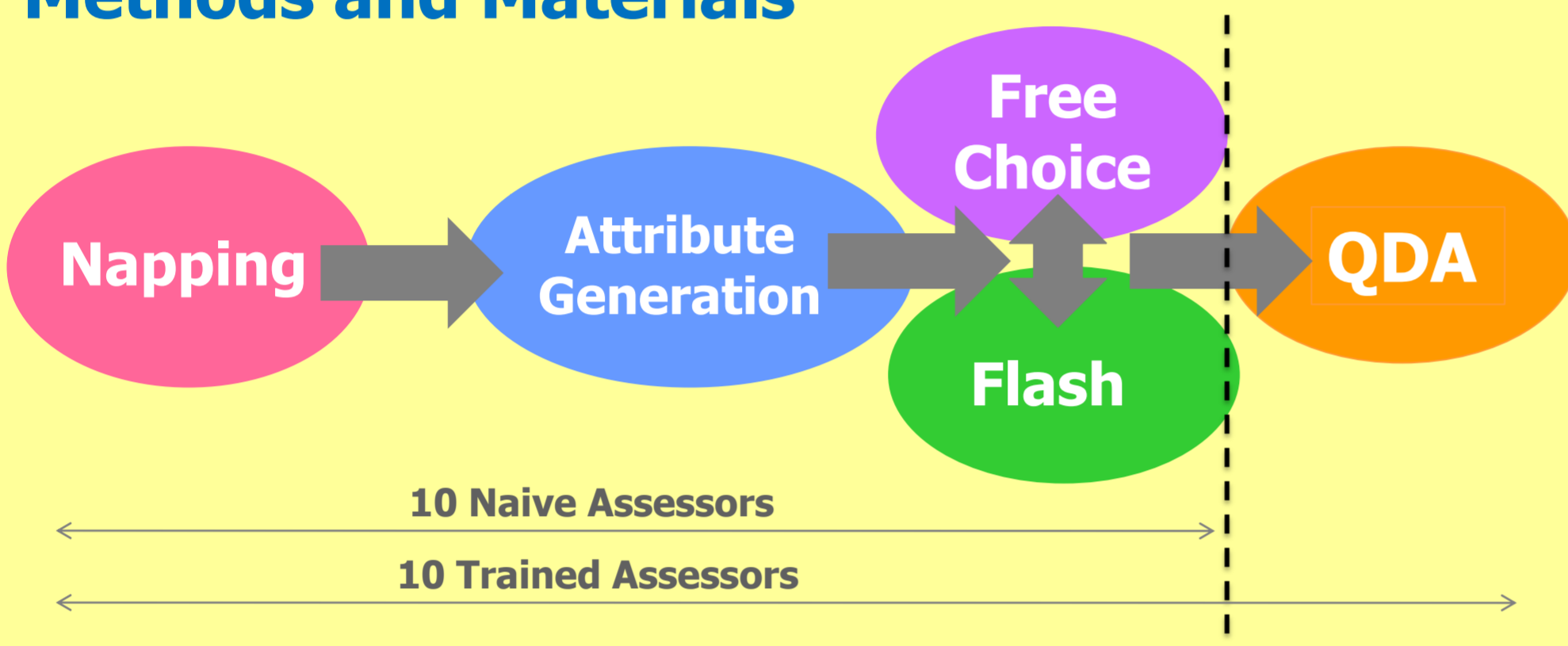
- Samples were evaluated using panellist's own personal criteria, which were not defined for other panellists or panel leader.
- After the attribute generation session, the terms generated by each panel were pooled and panellists had the opportunity to add further terms to their lexicon. Half of each panel carried out the Free Choice Profiling followed by the Flash Profiling and vice versa for the other half.
- Napping was carried out by modality and two repetitions were carried out for Flash, FCP and QDA.

Results
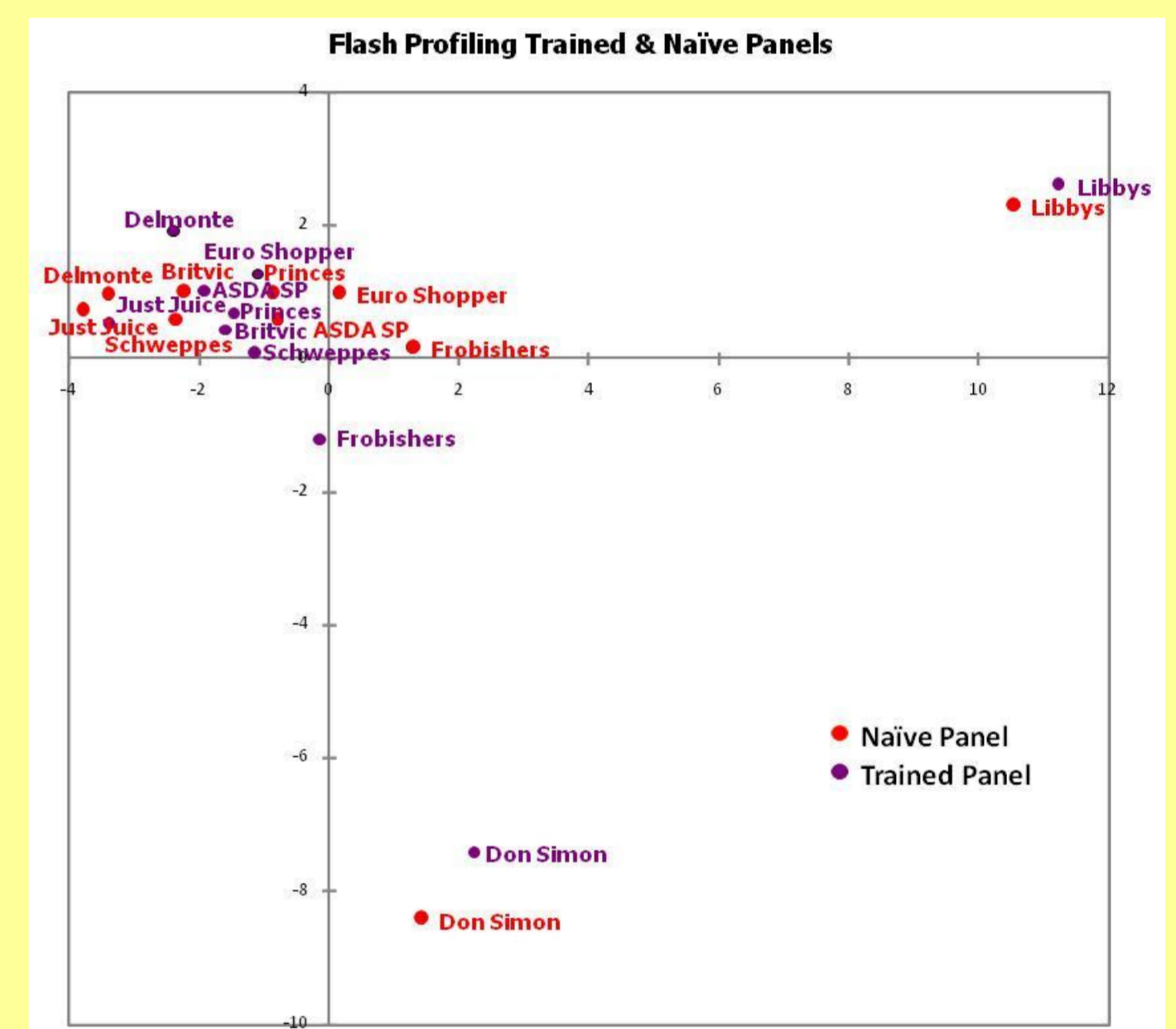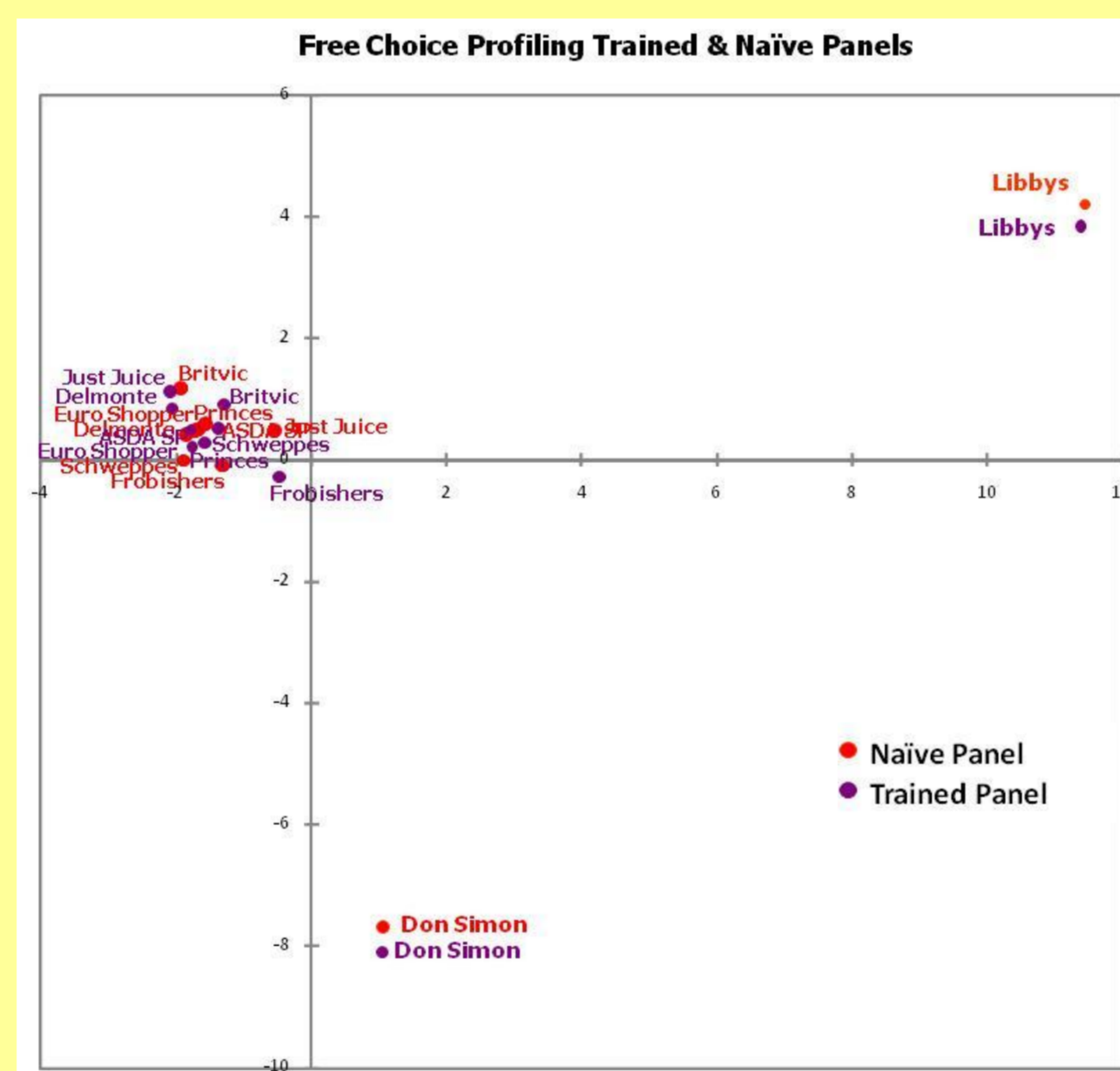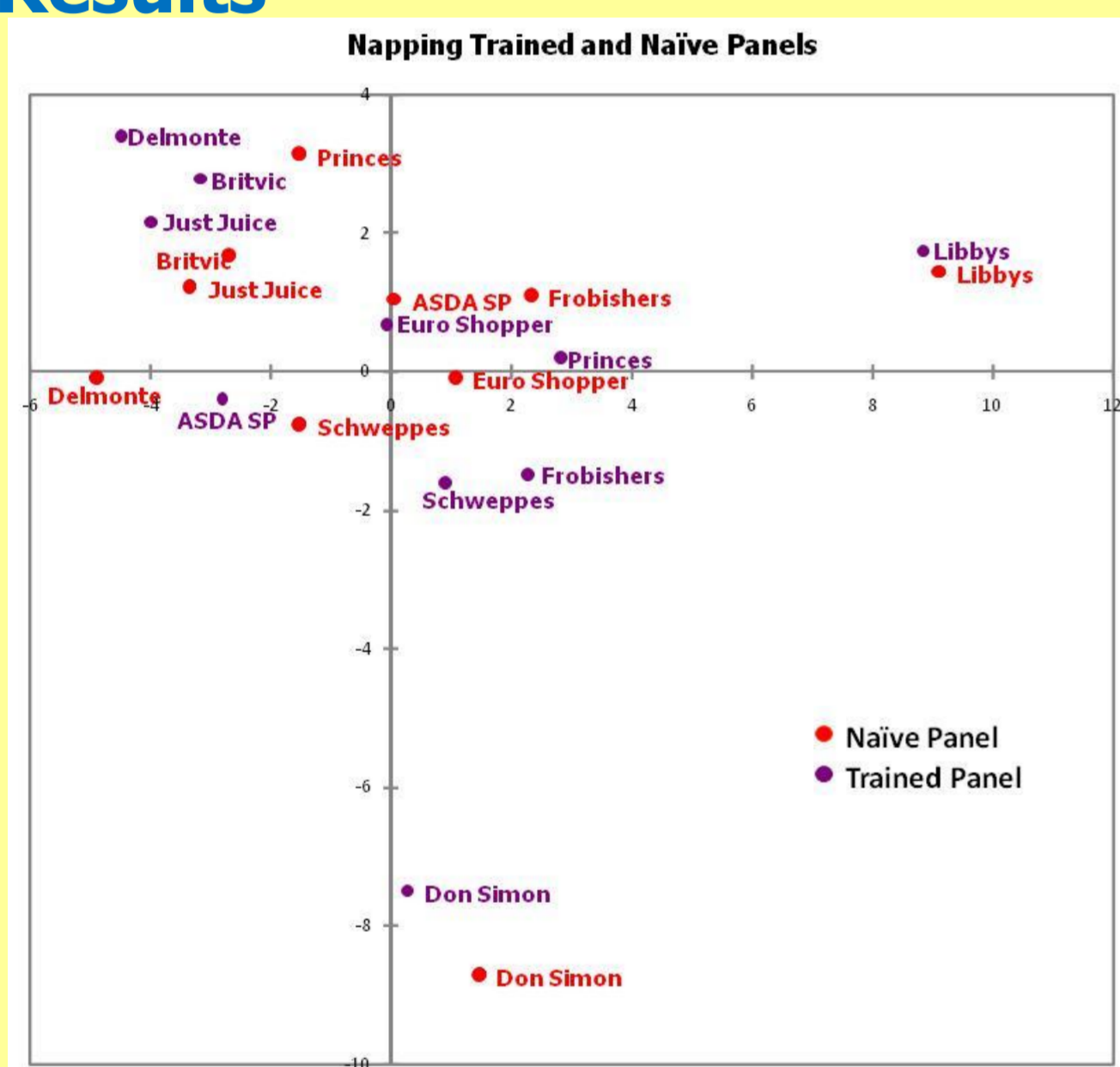
Method	RV Coefficient with QDA configuration
Trained Flash (Av)	0.92
Trained Flash (R2)	0.92
Trained FCP (Av)	0.89
Trained FCP(R2)	0.89
Trained Flash (R1)	0.89
Trained FCP (R1)	0.88
Naive FCP (R1)	0.87
Naive FCP (Av)	0.86
Naive Flash (Av)	0.85
Naive FCP (R2)	0.84
Naive Flash (R2)	0.84
Naive Flash (R1)	0.80
Naive Napping	0.73
Trained Napping	0.69
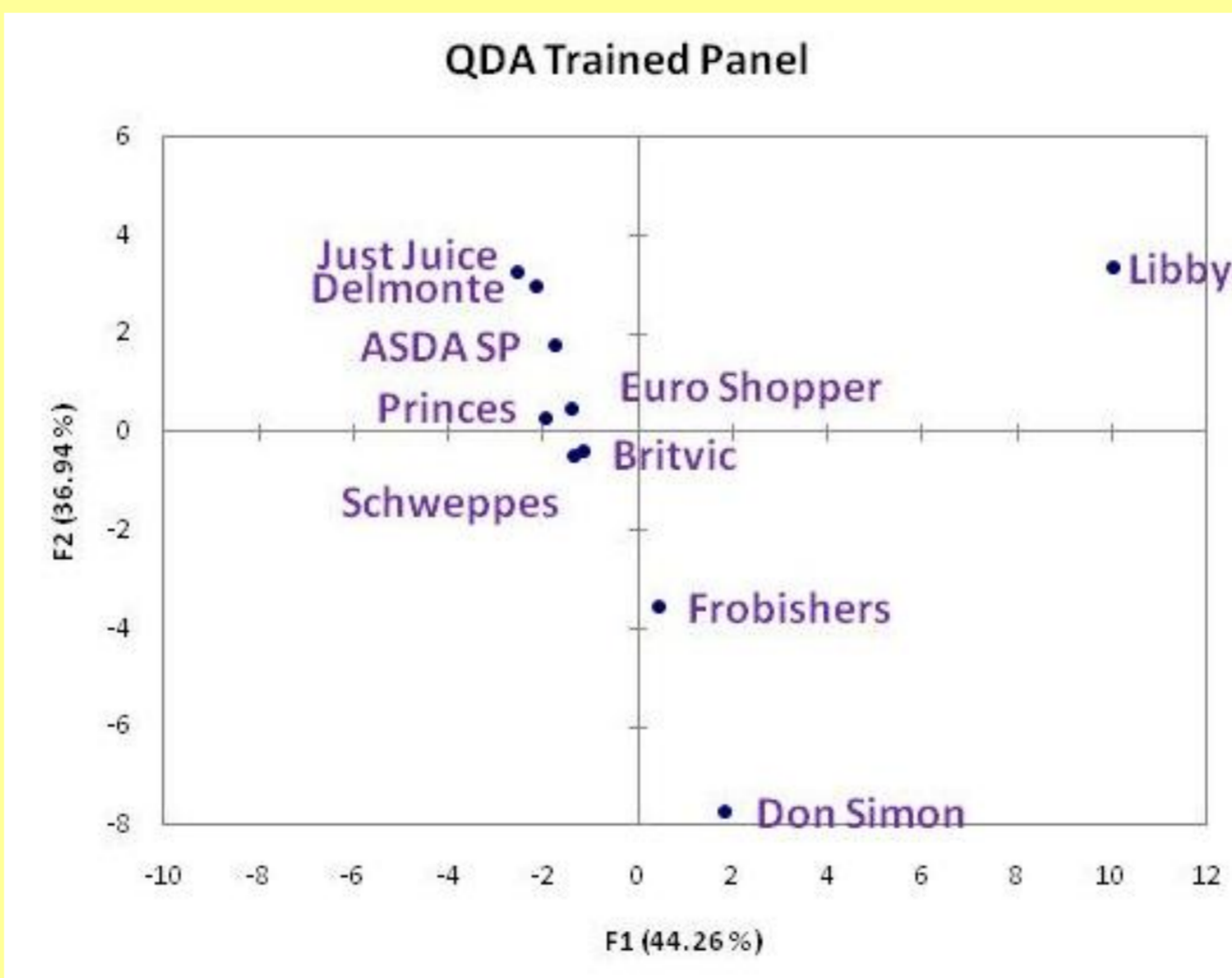
Discussion

- **All methodologies discriminated well between the most different samples (Libby's & Don Simon).**
- **Flash and FCP are, on the whole, more comparable to QDA data.**
- **For Flash and FCP the trained panel was closer to the QDA result.**
- **The naive panel was better than the trained panel for Napping.**
- **For the trained panel Flash was superior to FCP.**
- **For the naive panel FCP was superior to Flash.**
- **Replicate results were consistent for all methodologies and panel types.**
- **Both the trained and naive panels preferred the FCP methodology.**

Conclusion

Both the Flash and FCP are viable alternatives to QDA. Flash does have limitations with regard to sample number and complexity. Napping offers a suitable pre-screening tool and is particularly good for highlighting more obvious differences. In this instance, naive panels can be substituted for trained panels.

Further work

· To validate these rapid methods against more complex products.
· To investigate the value of replication for rapid methods.
· To investigate panel behaviour around attribute generation.

References
1. Narain, C.; Paterson, A.; Reid, E. Free choice and conventional profiling of commercial black filter coffees to explore consumer perceptions of character. Food Quality and Preference. 2004. Volume 15 (Issue 1), p31-41.
2. Perrin, L.; Symoneaux, R.; Maitre, I.; Asselin, C.; Jourjon, F.; Pages, J. Comparison of three sensory methods for use with the Napping ® procedure: Case of ten wines from Loire valley. Food Quality and Preference. 2008. volume 19 (Issue 1), p1-11.