Diagnostic Descriptive Analysis
AN EFFICIENT METHOD TO GUIDE PRODUCT DEVELOPMENT

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BACKGROUND

Many client companies are searching for a method that will quickly guide product development for prototype revision or for choosing products to move to the next research step.

Diagnostic Descriptive Analysis is a method created by the authors of Curion Quantitative Descriptive Analysis (QDA)®. DDA uses a condensed consumer based language allowing rapid and reliable decisions for the next stage of product development.

OBJECTIVES

Validate DDA as a method to screen products in an efficient and reliable process to guide R&D in product revisions and/or moving products to the next level of research.

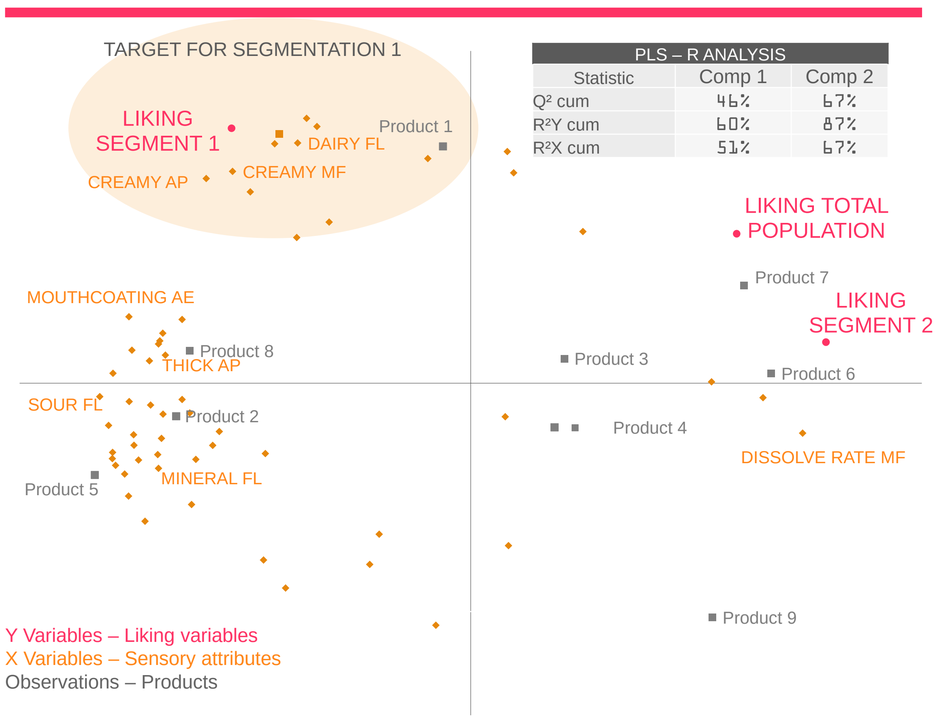
To achieve this objective a case study on dairy products was selected. Client A ran a category appraisal on dairy products to determine preference segments, drivers of liking, and opportunities for innovation within the category. Following this research, Client A wishes to develop and launch a product for a target segment. DDA was used to screen down prototypes for

ATTRIBUTE SELECTION

Curion Quantitative Descriptive Analysis (QDA)® › 11 SUBJECTS › 57 TERMS › 3 REPS ›

Key Findings: Two preference segments were identified, driven by different product characteristics. Client A is seeking to identify product opportunities in target segment 1.

BI-PLOT DETERMINED MOST DEFINITIVE ATTRIBUTES TO INCLUDE IN CONDENSED LANGUAGE FOR DDA



PLS – R ANALYSIS		
Statistic	Comp 1	Comp 2
Q^2 cum	46%	67%
R^2Y cum	60%	87%
R^2X cum	51%	67%

Y Variables – Liking variables
X Variables – Sensory attributes
Observations – Products

GUIDELINES FOR SELECTNG DDA ATTRIBUTES

- Main descriptors of product set
- Impact consumer liking
- Relevant to Product Development
- Measure unique characteristics
- Strong panel agreement & discrimination: significant, reliable, well-defined
- Demonstrate a good range

8 ATTRIBUTES WERE SELECTED

1.Creamy Appearance	(0.92)
2.Thick Appearance	(0.58)
3.Dairy Flavor	(0.83)
4.Sour Flavor	(0.52)
5.Mineral Flavor	(0.37)
6.Creamy Mouthfeel	(0.89)
7.Dissolve Rate Mouthfeel	(-0.69)
8.Mouthcoating Aftereffect	(0.75)

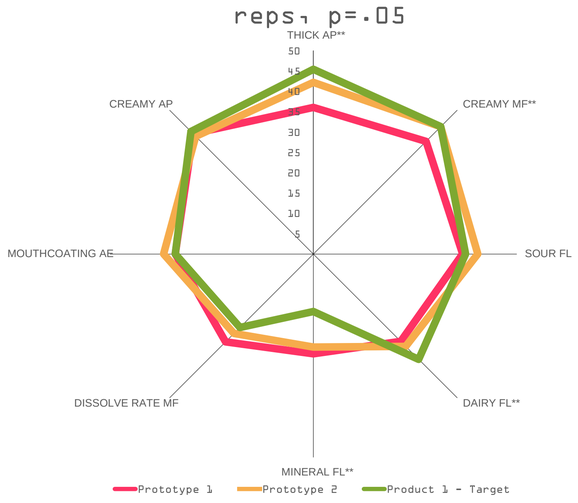
(Attribute correlations to overall liking for target segment)

DDA APPROACH & VALIDATION

DDA VALIDATION PANEL CREATED TO MEASURE PRODUCTS OF INTEREST IN VALIDATION CASE STUDY › 12 SUBJECTS › 1 WARM UP SESSION › 2 DATA COLLECTION SESSIONS › 4 REPS ›

Key Findings: Prototype 2 was the closest to the optimum profile for the 8 key attributes and is recommended to move forward into consumer testing.

Chart showing results for 12 panelists, 4 reps, p=.05



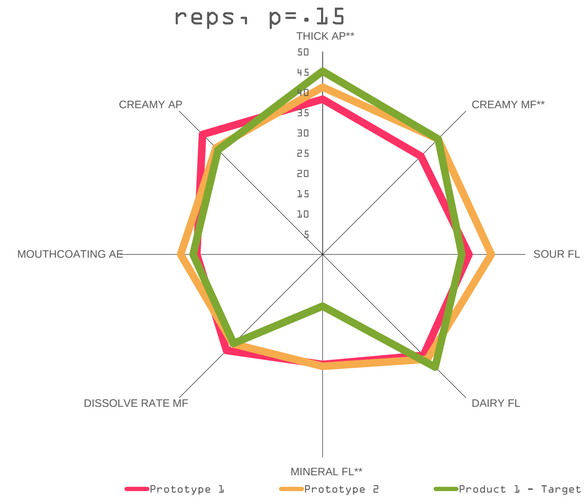
Full Panel with 4 reps concluded prototype 2 is most similar to target profile.

ANALYSIS:

- Determine the optimal number of repetition and panelists for conducting DDA.
- ANOVA was used on full data set (12 respondents/4 replications); Significance was measured at p=.05; p=.10; p=.15 and p=.20 for each of 8 attributes; Significance at each level was considered to be a "Hit"; Frequency of "Hits" was compared; n=12 respondents; n=8 respondents; n=6 respondents and n=4 respondents; 4 reps, 3 reps and 2 reps. N changes were calculated by randomly removing and replacing respondents n=50 trials; average of "Hits" was calculated on each significance level.

	4 REPS				3 REPS				2 REPS			
	p=.05	p=.10	p=.15	p=.20	p=.05	p=.10	p=.15	p=.20	p=.05	p=.10	p=.15	p=.20
N=12	4	5	5	7	4	4	4	5	4	4	4	4
N=8	4.0	5.1	5.4	6.2	3.4	4.2	4.2	4.6	3.3	3.6	4.2	4.5
N=6	3.5	4.4	4.8	5.6	3.2	3.9	4.0	4.6	3.0	3.5	3.9	4.3
N=4	2.8	3.2	3.7	4.8	2.8	3.1	3.6	4.4	2.6	3.1	3.4	3.9

Chart showing results for 6 panelists, 2 reps, p=.15



DDA panel of 6 with 2 reps proves consistent conclusion with full panel

CONCLUSION

CRITERIA FOR VALIDATION:

Based on these results, using 6 RESPONDENTS with 2 REPLICATIONS considering significance at p=0.15 will yield similar differences as the full 12 respondents/4 replication QDA. Although we are losing some significance with the fewer number of respondents and reps, we are still drawing similar conclusions minimizing risk to help guide product development in a more rapid fashion.

IMPLICATIONS

Diagnostic Descriptive Analysis is a technique that can quickly and effectively guide marketing and product development to make decisions to move products forward into further testing or be resubmitted for revision. Profiles from DDA will not only tell which products to choose but also HOW to revise products to meet requirements.

Although DDA is not as robust as full QDA or other descriptive techniques, it has enough validity to guide product development.