

MULTI-FACTORIAL ORTHOGONAL CONJOINT TEST: FAST FOOD



Conjoint analysis in market research evaluates which product attributes customers like, so design, packaging, pricing etc. are optimized.

By preparing graphics of each attribute and combining on storyboards (according to a multi-factorial test design), a random sample of customers (past, present, and potential) rank the storyboards so we can analyze all attributes (and interactions) objectively:

We call this: *orthogonal conjoint*, with the following advantages:

- Customers react both deliberately and “subliminally” (as in the real-world).
- Allows rigorous testing when real-world testing isn’t possible.
- Focus group bias eliminated.
- Subjects sample only a dozen or two, with statistical power and precision calculated sequentially. So, test keeps running until the sample reveals itself as large enough.

The following case increased fast food revenues, by revealing 6 helpful changes , and 5 that hurt . Reasons for surprising findings (e.g. H) were researched by phoning test subjects. The reader can try this at home, being typically as well informed about fast food as our test subjects.

Technical notes:

We used a 16-run multi-factorial test with fold-over in 32 storyboards, with 24 subjects coming to our test “lab”. Randomization was: (i) in subject selection, (ii) in the order the 24 subjects came in to rank, and, (iii) in the order of the 32 storyboards. In this way, all variables outside the test (known or unknown, large or small) were neutralized.



STORYBOARD

e.g. N°8 (OF 32)

A



Customer
Service

C



Rapidity of
delivery

E



Rewards

F



Easy App
Interface

G



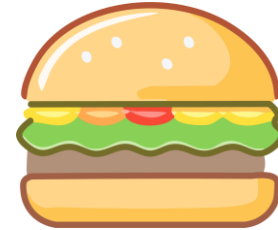
Price of
the Food

H



Extra pick-up
window

L



Picture menu

O



New menu



MULTI-FACTORIAL ORTHOGONAL CONJOINT TEST RESULTS:

	Rank shift*		
✓	-2.44	μ	Discount offered to seniors
		A	Order taker works the queue in rush hours
✓	-1.81	B	Third-party delivery available
✗		C	Food serving time faster
		D	Sign spinner
✗		E	Rewards offered
✗		F	Easy app. Interface
✓	-0.84	G	Price rounded down to nearest 5¢
✗		H	Separate pickup windows for online orders
		I	Co-brand with major vendors
✓	-1.37	J	Payment security note on app.
		K	Purchase history on app.
✗		L	Picture menu
		M	Customize meal
✓	-1.75	N	Kid's app.
✓	-0.82	O	New menu
* <0 reduces rank toward #1 (best)			

"...[I]t's really hard to design products by focusing groups. A lot of times, people don't know what they want until you show it to them." Steve Jobs
In K. Dey. *Competitive Innovation and Improvement: Statistical Design and Control*. CRC Press, 2014. New York. p.37.