

WHAT IS CONJOINT ANALYSIS?

Conjoint Analysis is concerned with understanding how people make choices between products or services or a combination of product and service, so that businesses can design new products or services that better meet customers' underlying needs.

Although it has only been a mainstream research technique for the last 10 years or so, conjoint analysis has been found to be an extremely powerful way of capturing what really drives customers to buy one product over another and what customers really value.

A key benefit of conjoint analysis is the ability to produce dynamic market models that enable companies to test out what steps they would need to take to improve their market share, or how competitors' behaviour will affect their customers.

This is just a brief introduction to the key concepts behind conjoint analysis. For a fuller description of how it is, and can be used to solve real business problems, please contact dobney.com (www.dobney.com). Alternatively see the [specialist conjoint analysis](#) section of our website for further explanation of more advanced issues in designing and applying conjoint analysis to business problems.

1 BACKGROUND

In the 1960s and 70s, academics were looking to understand how people made decisions. If you just asked people, they tended to say what was top-of-mind, or what they thought the interviewers wanted to hear and so what people said didn't necessarily reflect what they actually did.

However, the academics noticed that almost all choices involve compromises and trade-offs as the ideal is rarely attainable (we might want a Rolex watch, but we typically have to compromise to something a little less expensive for example).

In their studies, the academics found that by looking at how people made selections between a limited number of products involving different trade-offs, they were able to accurately predict which choices would be made between previously untested products.

1.1 Describing products in attributes and levels

To understand how conjoint analysis works, we need to be able to describe the products or services consistently in terms of **attributes** and **levels** in order to see what is being traded off.

- An **attribute** is a general feature of a product or service – say size, colour, speed, delivery time. Each attribute is then made up of specific **levels**. So for the attribute colour, levels might be red, green, blue and so on.

For example, we might describe a mobile telephone in general terms using the attributes, weight, battery life and price. A specific mobile phone would be described just by levels say as 80 grams, 8 hour battery costing £150.

1.2 Making choices

Conjoint analysis takes these attribute and level descriptions of product/services and uses them in interviews by asking people to make a number of choices between different products.

For instance would you choose phone A or phone B?

	Phone A	Phone B
Weight	200g	120g
Battery life	21 hours	10 hours
Price	£70	£90

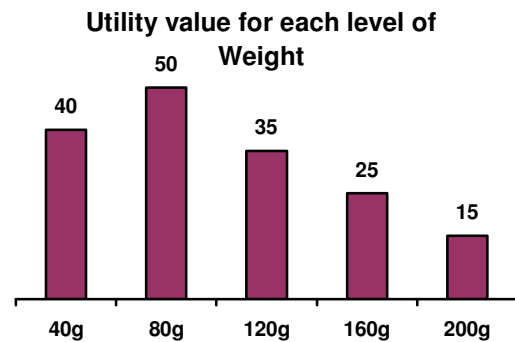
In practice you can see how difficult some of the choices can be. The thought process might be:

“Phone A is bulkier, but has the battery life and lower cost, but Phone B is smaller and neater yet more expensive and with lower battery life. Lighter weight is worth more than the loss of battery life, and it’s probably worth the extra £20, so I’d choose B in this instance.”

By asking for enough choices (and with good design to minimise the number of choices you need to ask), the researcher can work out numerically how valuable each of the levels is relative to the others around it – this value is known as the **utility** of the level.

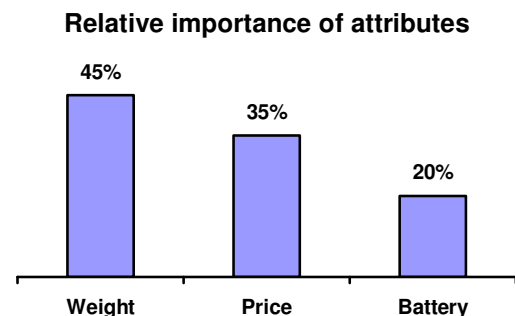
1.3 Outcome

At the end of the conjoint exercise we can plot the utility for each of the levels on a graph.



In this instance we can see that for this customer, the optimum weight is 80g. 40g is too light and more than 80g is too heavy. In designing a mobile phone for this customer therefore, we can see that there is no benefit in spending development money to bring the weight of the phone below 80g.

However, we can also compare across attributes to see which attributes make have the greatest impact in making a choice. We can therefore say which is the most important attribute and measure **importance** by taking the relative impact of one attribute compared to the others. For example:



In this dummy example, getting the weight right is more than twice as important as looking at the battery life.

1.4 Using the results

Knowing the values of the utility values of each of the levels, but what we really want to know is how our product/service compares to our competitors and how we can best optimise the value we give to the customer.

To do this we can total up the utility value our product is giving the customer and compare it to the value for the competition (in practice we do this via modelling as we typically look at the choices of 100s of customers at a time).

In the example below, utility values are in brackets. Notice that a lower price has a higher utility (we typically prefer cheaper goods)

	Ours	Theirs
Weight	200g (15)	120g (35)
Battery life	21 hrs (15)	10 hrs (10)
Price	£70 (25)	£90 (15)
Total utility	<u>55</u>	<u>60</u>

In this example we are 5 utility points behind the competition. If we reduced the weight of the phone to 160g we would gain 10 utility points which would mean we would expect to be chosen over the competition. Alternatively, we could to reduce the price a little to have the same impact.

For a business making the choice of what to change or improve thus comes down to understanding the cost impact of making the change balanced against the extra value to the customer. Would you get a better return

spending more on development to bring the weight of the phone down, or would it be worth bringing the price down despite the lost profit margin (usually the former!)?

1.5 Further information

Although this broadly describes conjoint analysis, fully understanding the impact only comes from seeing and using conjoint analysis in practice. For instance seeing dynamic market modelling in action or seeing how a conjoint analysis interview works. The dobney.com website includes an [interactive conjoint demonstration](#) showing how customers' value can be captured and more information about how conjoint analysis is used and applied.

Conjoint analysis is a sophisticated technique and there are technical issues that need to be considered. In particular, the design of attributes is a crucial step in a conjoint project as choices between poorly defined levels can render the exercise meaningless. You should also be aware that there are different flavours of conjoint analysis depending on the application. Adaptive Conjoint Analysis (ACA) is the most common, but there is also Choice-based and Full-profile Conjoint Analysis.

If you are new to conjoint analysis ask potential suppliers to talk you through some of the issues to test their expertise. In addition to designing conjoint surveys, dobney.com can also provide advice and training to support internal or external conjoint analysis project. If you want to read up further try www.sawtooth.com. Sawtooth provide most of the conjoint interviewing software around the world and hold an annual conference on advances in the use of conjoint analysis.