

Conjoint (Choice-Based)

Conjoint is a market research question used to determine how customers value the various features that make up an individual product or service. Use the Conjoint question to determine what combination of features is most influential on customer decision making.

1. In this question, we will show you four combinations of TV models. For each combination, indicate which TV model you would be most likely to purchase.

Brand	Yanso	Edge	TVC	
Screen Size	55"	40"	36"	
Refresh Rate	120hz	240hz	120hz	None: I wouldn't choose any of these
Price	\$899	\$799	\$1099	
HDMI Ports	4 2.0 HDMI Ports	1 2.0 HDMI Port	2 2.0 HDMI Ports	
Wi-Fi	No Wi-Fi	No Wi-Fi	No Wi-Fi	

Check it out in an [example survey!](#)

The Alchemer Conjoint question uses choice-based conjoint analysis (CBC) (also known as discrete choice conjoint analysis). CBC is the most common form of conjoint analysis. The respondent is asked to indicate the option or package they are most likely to purchase. The importance of attribute features and levels can be mathematically deduced from the trade-offs made when selecting one (or none) of the available choices.

As an example, say we're researching what attributes are most influential when purchasing a TV. We have the below attributes and attribute levels:

- **Brand:** Edge, TVC, Yanso
- **Screen Size:** 36", 40", 48", 56", 60", 75"
- **Refresh Rate:** 60hz, 120hz, 240hz
- **Price:** \$499, \$529, \$799, \$899, \$1099, \$1499
- **HDMI Ports:** 1, 2, 3, or 4 ports
- **Wi-Fi:** Wi-Fi Enabled, No Wi-Fi

Using the choice-based conjoint question we can show combinations (aka cards) of potential attribute levels to respondents to analyze how they make choices between these products.

Setup

1. Click **Question** on the page where you wish to add your conjoint question.

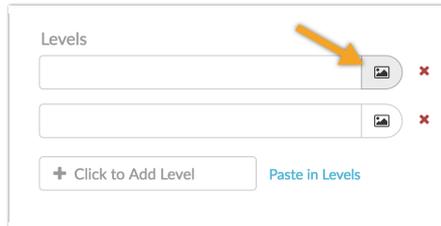
Your conjoint question should be on a page by itself.

2. Select **Conjoint (Choice Based)** from the **Question Type** dropdown and add your question text. Your question text will depend on the Choice Type as you are going to need to provide instructions for the respondent as to how to respond in the question text or the [question instructions field](#).
3. Next, skip down to the **Attribute Setup** and begin adding your **Attributes** and their **Levels**.
 - **Attributes** are the characteristics of a product (e.g. color, price, etc.). An Attribute is made up of various Levels (e.g. silver, black red). In our example, they are Brand, Screen Size, Refresh Rate, Price, HDMI Ports, and Wi-Fi. We recommend displaying *no more than 6 attributes* in your Conjoint question; any more and respondents will have difficulty weighing options and might resort to simplification strategies, such as ignoring one

attribute altogether.

- **Levels** are the various values of an attribute. So for example, for Price we'll add the following values: \$499, \$529, \$799, \$899, \$1099, and \$1499. The Conjoint question requires, at a minimum, 2 Levels.

If you have an image you wish to display, click the image icon to the far right and select an image from your [File Library](#) or upload an image.



Best Practice Tip: Recommended Image Size

For the Conjoint question, we recommend image files of no larger than 200px x 200px.

When uploading images to the file library you have the option to scale your image using pixel width or a percent. There are also various tools online to resize images e.g. <http://www.picsize.com/>. It is important to note that resizing images may negatively affect the quality of the image.



4. Once you have all your Attributes and Levels set up, scroll back up to the **Format** options. For **Choice Type**, you have four options.

- **Single Choice With None**

Single Choice With None provides a radio button for each combination, as well as a none option. Respondents can select a single radio button for each set.

1. In this question, we will show you four combinations of TV models. For each combination, indicate which TV model you would be most likely to purchase.

Brand	Yanso	Edge	TVC	
Screen Size	56"	40"	36"	
Refresh Rate	120hz	240hz	120hz	
Price	\$899	\$799	\$1099	None: I wouldn't choose any of these
HDMI Ports	4 2.0 HDMI Ports	1 2.0 HDMI Port	2 2.0 HDMI Ports	
Wi-Fi	No Wi-Fi	No Wi-Fi	No Wi-Fi	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Single Choice with None

- **Single Choice**

Single Choice provides a radio button for each combination from which respondents can select a single preferred combination.

1. In this question, we will show you four combinations of TV models. For each combination, indicate which TV model you would be most likely to purchase.

Brand	Yanso	Edge	Yanso
Screen Size	75"	36"	60"
Refresh Rate	240hz	120hz	60hz
Price	\$1099	\$529	\$899
HDMI Ports	3 2.0 HDMI Ports	4 2.0 HDMI Ports	2 2.0 HDMI Ports
Wi-Fi	Wi-Fi Enabled	Wi-Fi Enabled	Wi-Fi Enabled
Appearance	Level 1	Level 2	Level 2
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Single Choice

o **Best vs. Worst**

Best vs. Worst provides a Best and Worst radio button for each combination. Respondents can select a best and worst combination for each set.

1. In this question, we will show you four combinations of TV models. For each combination, indicate which TV model you would be most likely to purchase.

Brand	TVC	Yanso	Edge
Screen Size	60"	36"	48"
Refresh Rate	120hz	60hz	240hz
Price	\$1099	\$499	\$799
HDMI Ports	4 2.0 HDMI Ports	1 2.0 HDMI Port	2 2.0 HDMI Ports
Wi-Fi	No Wi-Fi	Wi-Fi Enabled	Wi-Fi Enabled
Appearance	Level 2	Level 1	Level 1
Best	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worst	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Best vs. Worst

o **Continuous Sum**

Continuous Sum provides text fields in which respondents can enter a numeric value for each that adds up to a total that you specify. This method is often referred to as chip allocation; the idea being that you can ask respondents to indicate, of the combinations in each set, how many of their next ten purchases would be of each combination.

This doesn't make sense for our TV example, because, how many TVs does one really need? Instead, the Continuous Sum Choice type makes the most sense for something like packaged products, say, for example, breakfast cereals.

If you are using the Continuous Sum Choice Type, it is best to provide instructions for the respondent as to how to respond in the question text or the [question instructions field](#).

1. In this question, we will show you four combinations of TV models. For each combination, indicate which TV model you would be most likely to purchase.

Brand	TVC	Yanso	TVC
Screen Size	75"	36"	56"
Refresh Rate	240hz	120hz	240hz
Price	\$1099	\$529	\$899
HDMI Ports	4 2.0 HDMI Ports	2 2.0 HDMI Ports	1 2.0 HDMI Port
Wi-Fi	Wi-Fi Enabled	Wi-Fi Enabled	No Wi-Fi
Appearance	Level 1	Level 2	Level 2
100 remaining	0 - 1	0 - 1	0 - 1

Continuous Sum

5. (Optional) If you are using the **Best vs. Worst Choice Type** you can customize the **Best** and **Worst** labels.

Choice Type: Best vs. Worst

Number of Cards per Set: 3

Number of Sets Shown to Each Respondent: 4

"Best" Label: Best

"Worst" Label: Worst

6. (Optional) If you are using the **Continuous Sum Choice Type**, you can customize the **Total Maximum**, which is the total that respondents' entries must add up to for each set. If you wish to ensure each respondent's total equals the maximum select this option.

Choice Type: Continuous Sum

Number of Cards per Set: 3

Number of Sets Shown to Each Respondent: 4

Total Maximum: 100

Respondent's Total must equal Maximum

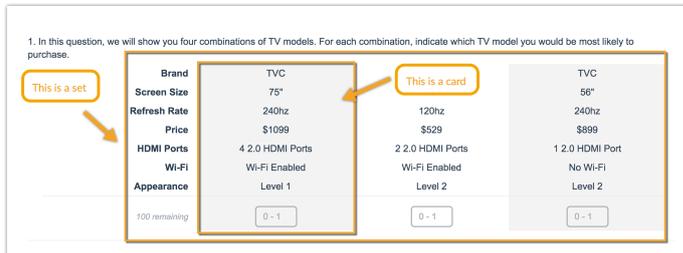
7. Next, select the **Number of Cards per Set** to display to each respondent, as well as, the **Number of Sets Shown to Each Respondent**.

Important! Please note that you can only show all possible cards once. This is calculated by multiplying the number of levels for each attribute by each other. For example, if you have 2 attributes, each with 4 levels, then you possible cards are:

$$4 \text{ (number of levels for attribute 1)} \times 4 \text{ (number of levels for attribute 2)} = 16 \text{ (total possible cards)}$$

As such, **Number of Cards per Set** multiplied by **Number of Sets Shown to Each Respondent**

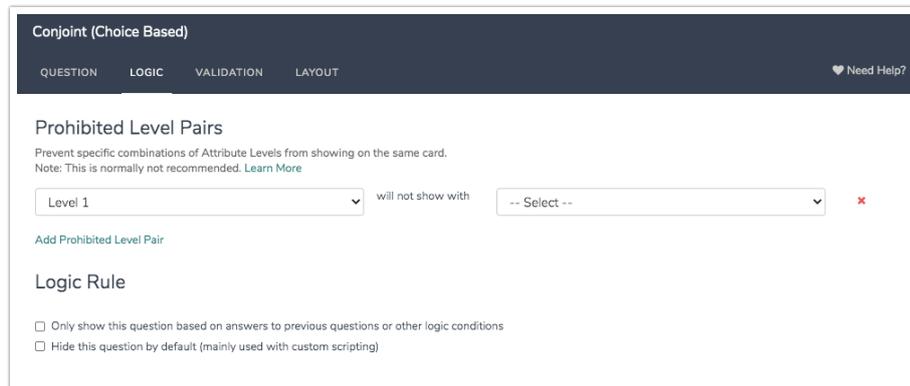
should not exceed the total possible cards. If *Number of Cards per Set multiplied by Number of Sets Shown to Each Respondent* is greater than the total possible cards, the question will stop displaying cards once it shows all possible cards.



Prohibited Level Pairs

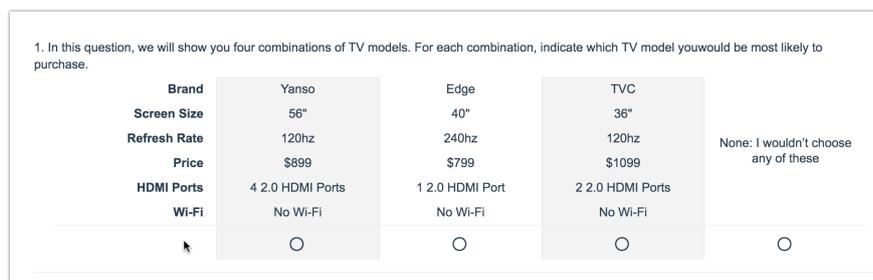
By default, all Attribute Levels have an equal likelihood of displaying together. What this means is that some product combinations that will display in your conjoint question are not realistic. For example, sometimes a product will be shown with all the best features and at the lowest price.

The inclination to prohibit such combination is a common one. You can do so on the **Logic** tab, however, we discourage the use of prohibited pairs and if you do use them use them sparingly. [Learn more.](#)



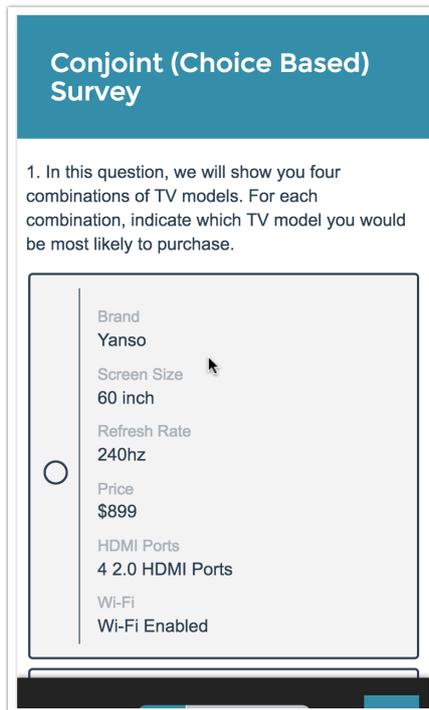
Survey Taking

On a desktop and most laptops, the Conjoint question type looks like so.



When optimized for mobile devices the Conjoint cards will display vertically to prevent the need for horizontal scrolling on smaller screens. If you do not care for this display, you may want to

consider [preventing respondents from responding via a mobile device](#) .

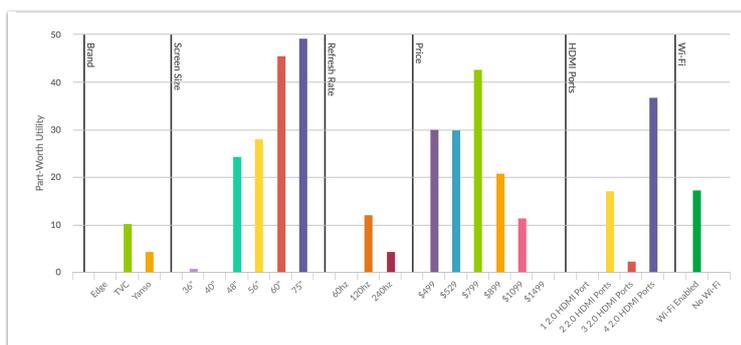


Think about the Conjoint question like a set of index cards containing all possible combinations. The index cards are randomized. From this randomized list of cards, a number of cards are selected creating a unique set. For the next set, a number of cards are selected from the same randomized list making sure that the same combination is never displayed a second time to a respondent.

Reporting

There are two elements included in the [Standard Report](#) for the Conjoint question.

The Part-Worth Utilities bar chart shows the importance of individual attribute levels based on their part-worth utilities. A utility is a measure of relative desirability or worth. The higher the utility, the more desirable the attribute level. Levels that have high utilities have a large positive impact on influencing respondents to choose products.



Below the Part-Worth Utilities bar chart is an Attribute Stats table for all Attributes and their Levels. Each Level will have a Utility. Each Attribute will have a Relative Importance percentage. All Relative Importance percentages will add up to 100%. Think of Relative Importance as the influence the attribute has on product decision making.

Relative Importance can be different upon reports refreshing even without new data. Conjoint uses a random sample of the data collected and uses a slightly different sample each time the report refreshes.

Attribute	Relative Importance	Level	Utility
Brand	6.0%	Edge	0.0
		TVC	10.2
		Yanseo	4.3
Screen Size	29.3%	36"	0.8
		40"	0.0
		48"	24.4
		56"	28.1
		60"	45.6
Refresh Rate	7.2%	60hz	0.0
		120hz	12.1
		240hz	4.3
Price	25.3%	\$499	30.1
		\$529	30.0
		\$799	42.7
		\$899	20.8
		\$1099	11.5
		\$1499	0.0

Best Practice Tip: Interpreting Utilities

Utilities are interval data, meaning the actual values are unimportant, rather the *differences* between values are what should be interpreted. 20 is not twice as desirable as 10, but 20 is equally "more desirable" to 10 as 30 is to 20.

The overall attribute influence can be quantified by looking at the difference between the smallest attribute level's utility (which is always zero) and the largest attribute level's utility.

So for example, in the above Part-Worth Utilities bar chart, we can conclude that Screen Size has the biggest influence on purchasing decision making for TVs as the difference between the largest utility (75") and the smallest (40") is the largest ($49.3 - 0 = 49.3$)

The next biggest influencer is Price as the difference between the largest utility and the smallest is the next largest ($42.7 - 0 = 42.7$).

As far as comparing utilities across attributes, you cannot compare the utility values only the differences between them.

Note: Utilities values can be different upon reports refreshing, even without new data. For more information on how these values are calculated, refer to the documentation [here](#) on Choice Models.

+ See what other report types are compatible

Exporting

Raw data exports for the Conjoint question are found under **Results > Exports**.



The export will include a row per card displayed to each respondent. As you can see below, Response ID 1 takes up rows 2 through 13. The first row is Set 1 Card 1 that was displayed to this respondent. For each card, the levels of each attribute that were displayed to the respondent are included in columns D through G. The final column displays the score this card was assigned.

[Learn more about how cards are scored.](#)

If you wish to run your own analysis to compute your own part-worth utilities and importances, this is the file you will need to do so.

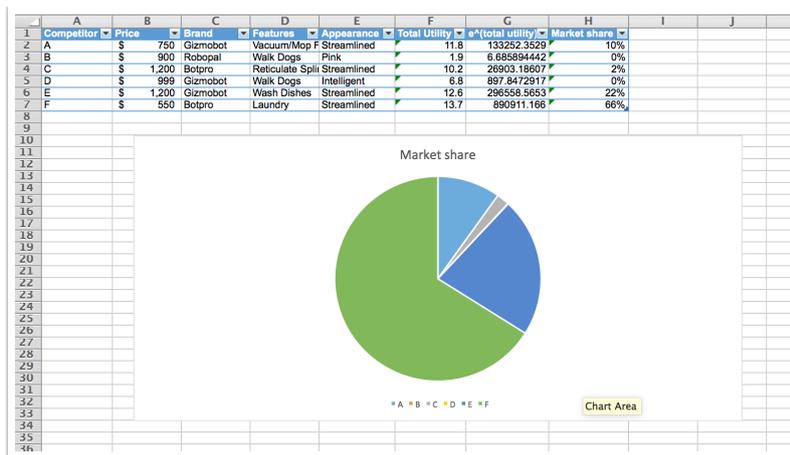
Response ID	Set Number	Card Number	Brand	In this	Screen Size	Refresh Rate	Price	In this	HDMI Ports	Wi-Fi	In this	Score	In this
2	1	1	1	TVC	60 inch	240hz	\$899	3 2.0	HDMI	F	Wi-Fi	Enable	100
3	1	1	2	Edge	40 inch	120hz	\$799	2 2.0	HDMI	F	No	Wi-Fi	0
4	1	1	3	Yanso	56 inch	60hz	\$1,099	4 2.0	HDMI	F	No	Wi-Fi	0
5	1	1	4	none	none	none	none	none	none	none	none	none	0
6	1	2	1	Edge	36 inch	240hz	\$499	1 2.0	HDMI	F	Wi-Fi	Enable	0
7	1	2	2	Yanso	75 inch	120hz	\$899	4 2.0	HDMI	F	No	Wi-Fi	100
8	1	2	3	TVC	48 inch	240hz	\$799	2 2.0	HDMI	F	No	Wi-Fi	0
9	1	2	4	none	none	none	none	none	none	none	none	none	0
10	1	3	1	Yanso	75 inch	120hz	\$1,499	3 2.0	HDMI	F	Wi-Fi	Enable	0
11	1	3	2	TVC	48 inch	240hz	\$529	2 2.0	HDMI	F	No	Wi-Fi	100
12	1	3	3	Yanso	56 inch	60hz	\$499	3 2.0	HDMI	F	Wi-Fi	Enable	0
13	1	3	4	none	none	none	none	none	none	none	none	none	0
14	1	4	1	Edge	40 inch	60hz	\$1,099	1 2.0	HDMI	F	Wi-Fi	Enable	0
15	1	4	2	Edge	36 inch	60hz	\$1,499	1 2.0	HDMI	F	No	Wi-Fi	0
16	1	4	3	TVC	60 inch	240hz	\$529	4 2.0	HDMI	F	No	Wi-Fi	100
17	1	4	4	none	none	none	none	none	none	none	none	none	0
18	2	1	1	Yanso	56 inch	240hz	\$1,499	3 2.0	HDMI	F	No	Wi-Fi	0
19	2	1	2	Edge	40 inch	120hz	\$529	4 2.0	HDMI	F	No	Wi-Fi	0
20	2	1	3	TVC	75 inch	60hz	\$899	1 2.0	HDMI	F	Wi-Fi	Enable	100
21	2	1	4	none	none	none	none	none	none	none	none	none	0
22	2	2	1	Yanso	36 inch	240hz	\$499	4 2.0	HDMI	F	Wi-Fi	Enable	0
23	2	2	2	TVC	75 inch	60hz	\$1,099	2 2.0	HDMI	F	Wi-Fi	Enable	100
24	2	2	3	Edge	60 inch	240hz	\$499	1 2.0	HDMI	F	No	Wi-Fi	0
25	2	2	4	none	none	none	none	none	none	none	none	none	0

Creating a Market Simulator

One of the most useful ways to present conjoint data is with a market simulator. Market simulator turns the difficult-to-interpret part-worth utilities into an easy-to-understand, decision-making tool. Using a market simulator you can determine if a new combination of product attributes would do well compared to current products on the market.

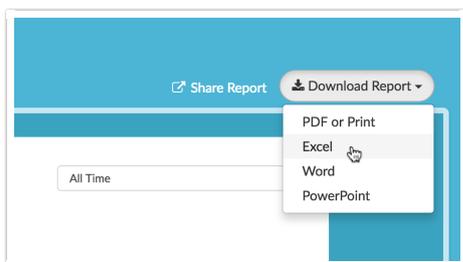
Below is the market simulator we created for a Conjoint question about robots. From the below market simulation, we can conclude a number of things.

Let's imagine Gizmobot and Robopal are the existing robot brands. Botpro is a new brand who ran this Conjoint survey to understand what robot attributes will do well in the market. In the below market simulation, we're simulating the 2 Botpro models (C and F) against the market leaders. By toggling the various attribute levels we determined that a Streamlined Botpro robot that does Laundry offered at \$550 will have a 66% share of the market!



Steps To Create a Market Simulator

1. Export your Conjoint Standard Report Data to Excel. To do so, create or edit your Standard Report. Click the **Download Report** option in the upper-right corner and select **Excel**.



2. Download our example market simulator below.

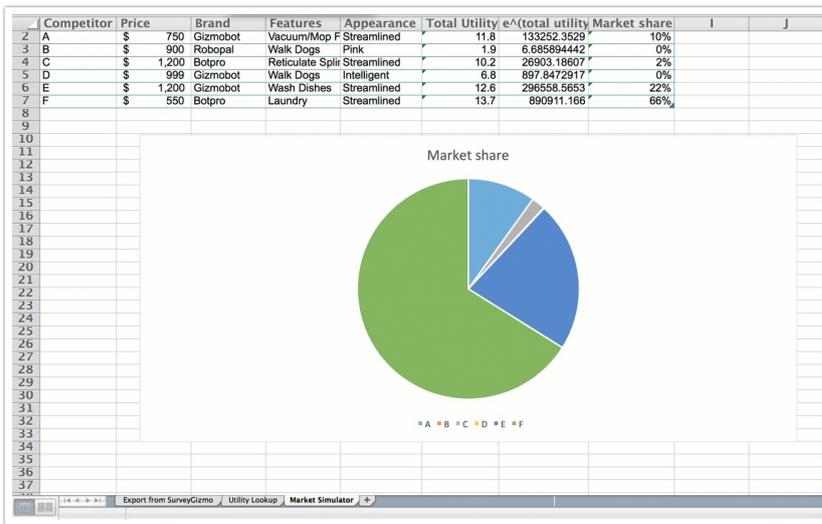
[Download Example Market Simulator Spreadsheet](#)

3. Paste your exported data on the **Export from Alchemer** tab.
4. Copy and paste your Attribute Stats from the exported data to the **Utility Lookup** tab.
5. Now you're ready to start simulating! On the **Market Simulator** tab, you'll notice the last three columns show as not available. This is because these columns are using the **Excel VLOOKUP** function and the data on your Utility Lookup tab does not yet correspond. As such, you'll need to adjust the data on the Market Simulator tab to correspond with your data.

Start by editing the column headers to reflect your attributes. If you have more than 4 attributes you'll need to add a column for each.

Now, you're ready to start building out the combinations of attribute levels that you are interested in understanding. We recommend copying and pasting the attribute values from the Utility Lookup tab to the Market Simulator tab as the VLOOKUP requires an exact match to work. You can add rows and delete rows to simulate additional or fewer combinations.

Learn more about the [market simulator](#) and the [formulas](#) behind it.



How Many Responses do I need?

Use our below calculator to enter the Number of Sets and Cards per Sets you plan to show. The Largest Number of Attribute Levels is the number of attribute levels for the attribute with the most levels. You can experiment with the Number of Sets and Cards per Set to see how this affects the number of responses you need.

Number of Sets

Cards per Set

Largest Number of Attribute Levels

Recalculate

You need at least **334** responses per segment* that you are targeting.

**This refers to segments in data analysis. If you plan to segment your conjoint data, say by males and females, you will need the above number of responses for each segment.*

FAQ

- + Is there a limit (minimum or maximum) to the number of attributes or levels I can use in a Conjoint question?
- + Can I prohibit certain attribute-levels from being paired together?
- + How does Conjoint function in survey taking?
- + Will each respondent see each card?
- + Will cards be shown equally?
- + How are cards scored?
- + How Do I Translate the Conjoint Question
- + Why Does My Report Say I Don't Have Enough Data?

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