

Conjoint Analysis

It's Not Just for Products Anymore

AN IN-DEPTH UNDERSTANDING OF CONJOINT ANALYSIS AND ITS APPLICATIONS

Overview

This eBook will provide a detailed explanation of different conjoint methods and how you can best apply them to lead to strong, data-driven decisions.

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FOREWORD

Who We Are

The Martec Group is a global market research firm headquartered in Detroit, Michigan. With more than 35 years of experience, Martec is well-equipped to provide actionable intelligence to leading companies worldwide.

The Martec team shares an important trait: We are motivated to work hard, diligently, and efficiently. We are unshakeable believers in excellence and do not rest until our clients have the insights they need to move forward with confidence.

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INTRODUCTION

Although it may be cliché to start with a statement like “throughout the history of commerce,” in this case such an all-encompassing statement may be justified. Essentially since the invention of the wheel, product manufacturers have asked, “what makes my product valuable and sets it apart from the competition?” and “how can I maximize the value, price, and profit for my product?”

The right features – or combination of features – can make the difference between a huge success or total failure. However, determining what buyers want and effectively marketing those differentiating features can be challenging.

Conjoint analysis is a powerful tool and can be used to quantify several metrics, including product and feature value, trade-offs customers are willing to make, and (in some cases) price elasticity for a product, feature, or brand.

Gone are the days of guessing what customers want. Organizations can now understand, early in the product development cycle, what customers value and what they are willing to pay for specific features...before investing millions.

This eBook will explore the differences in various conjoint methodologies, present case studies, and offer some best practices to help you determine which conjoint is the best methodology for your project.



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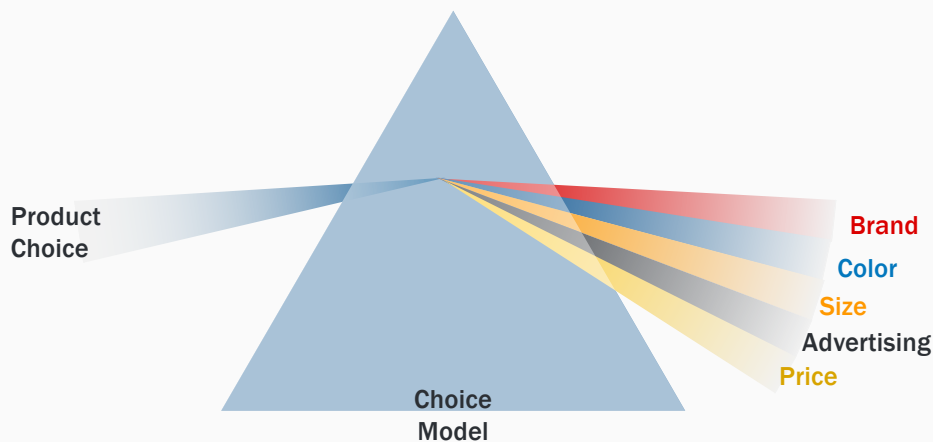
5 Key Success Factors

Conjoint Introduction

What is conjoint analysis?

“In the beginning,” conjoint was used almost exclusively for product research; few other applications or objectives were appropriate for conjoint.

Essentially, a product was broken down into attributes and customers were asked to trade-off between those parts. This allowed researchers to understand which attributes drove customer preference for a select product.



Today, conjoint can be used for much more than just product research. It is a tool that researchers use to understand pricing and price elasticity. It is used for product development by allowing researchers to understand how a new product may disrupt a market. It is used to prioritize various product features, brands, or services to help companies better understand what “moves the needle” and which marketing messages will resonate with customers.

A Brief History Lesson

Conjoint has evolved significantly since its introduction in the 1970s.

1970

Card Sort

When conjoint was first developed, it was based on a “card sort” platform that required in-person interviews with the respondent base. The researcher would ask respondents to literally sort cards, with various product configurations, from best to worst. The card sort was then tabulated and used to understand customer preferences and which attributes impacted customer preferences.

1985

Adaptive Conjoint Analysis (ACA)

In the 1985, Adaptive Conjoint Analysis (ACA) was developed as a computer-based program that adapted to respondent answers. Until the early 2000s, ACA was executed through a cumbersome phone-mail-phone methodology. Respondents were recruited via phone, mailed a floppy disk with the ACA program, and then phoned again...either to talk the respondent through the exercise or to remind them to complete it.

1990

Choice-Based Conjoint (CBC)

In the 1990s, Choice-Based Conjoint (CBC) was introduced. CBC is a simplified, non-adaptive trade-off analysis. This methodology eliminates the rating and ranking of attributes and shows respondents full profiles of configured products. Respondents are asked to choose their preferred option over a series of questions. It is best used for pricing studies, for products or services with less than five attributes, and to predict product or service choices and preferences.

A Brief History Lesson

2000

Menu-Based Conjoint (MBC)

In the 2000s, Menu-Based Conjoint (MBC) was introduced. MBC is an advanced discrete choice modeling system that allows users to choose from multiple menu options. It can be designed to show a bundled product or allow respondents to choose a-la-carte.

MBC is not used very often but it provides greater design flexibility by providing the option of having a basket of products from which respondents can make their choices.

2010

Adaptive Choice-Based Conjoint Analysis (ACBC)

The most recent addition to the conjoint family is Adaptive Choice-Based Conjoint (ACBC). This was introduced in 2010 and was designed to mimic the purchase decision process for complex products and services. ACBC combines many of the best features of Adaptive Conjoint and Choice-Based Conjoint.

ACBC works in a series of steps designed to identify respondent preferences and simplify the choices throughout the exercise. ACBC takes respondents through three exercises:

1. Build your own: Create a product with all your preferred attributes
2. Screening: Create a consideration set and establish rules
3. Choice tasks: Choose which option is best from the consideration set

Conjoint Applications

What is conjoint used for?



Product Design

When designing a new product, conjoint can be used to determine whether (or how much) new product features will impact customer preference.

It also can help companies understand how various product configurations might impact that preference. Conjoint can measure the potential acceptance of a holistic new product and how that product might disrupt the market.



Price Elasticity

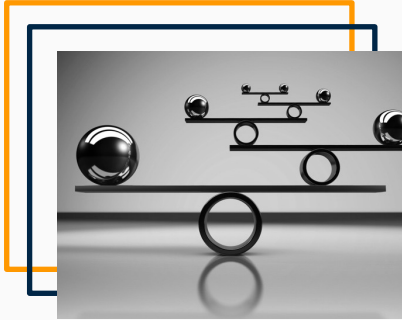
Need to better understand price elasticity and the impact of price on customer preference? Conjoint can help.

Not only can conjoint help companies determine the impact a price increase may have on preference, it also can help reveal the impact individual product features can have on both preference and willingness to pay.

When launching a new product or new product feature, it can help companies understand, “will this new feature allow us to charge a higher price and capture a better margin?”

Conjoint Applications

What is conjoint used for?



Brand Value

Understanding the value of a brand can be a challenge for companies and researchers. However, a version of conjoint that includes dynamic pricing has removed some of the challenge.

Adaptive Choice-Based Conjoint can be used to isolate brand in the purchase process and provide insights into both the intrinsic value of the brand and its impact on customer preference and price elasticity.



Attribute Value

Finally, conjoint is a great tool for measuring the importance of – and customer preference for – various product features and attributes.

Conjoint provides a better understanding of attribute importance by determining both the “value” of each attribute and the value of each level within an attribute. Returning to the brand example, we may learn that “brand” as an attribute is not very important, but Brand X, a level within the brand attribute, is vastly preferred over Brand Y or Brand Z.

Understanding Different Methods

A high-level overview of each conjoint product

► Adaptive Conjoint Analysis (ACA)

It is most frequently used for modeling highly involved purchases and new product development research.

ACA consists of a three-step process in which respondents:

- Rank the attributes by preference
- Assign importance to the attributes
- Determine preference by evaluating which of two presented options is most preferred

Advantages	Disadvantages
Minimizes “information overload”	Must be administered online
Up to 30 attributes	Process is more abstract and challenging for respondents
Adaptive using artificial intelligence (AI)	Not ideal for price sensitivity
Generates realistic trade-offs	

Understanding Different Methods

A high-level overview of each conjoint product

▶ Choice-Based Conjoint (CBC)

CBC is much less abstract than ACA because it presents more like real-life product decisions that customers may be making. It can be completed in-person or via phone, depending on the number of attributes and levels.

There are multiple varieties of CBC, including:

- “Choose one” approach – “Which of these computers would you buy if these are the only options available?”
- Chip allocation – “In your next 10 purchases, how many of each product would you purchase?”

Advantages	Disadvantages
Less abstract – similar to real-life decisions	Static questions – does not adapt to respondent choices
Can be administered via multiple channels (online, in-person, phone)	Not appropriate for complex products and services

Understanding Different Methods

A high-level overview of each conjoint product

▶ Menu-Based Conjoint (MBC)

MBC lets respondents package their own product or service. It works like advanced discrete choice modeling, allowing respondents to select multiple options from a menu. With this method, respondents can choose what they want in their ideal product while keeping price as a factor in their decision.

Advantages	Disadvantages
Allows greater customization of products and attributes	More complicated to program and execute than other conjoint methodologies
Provides more realistic product configurations	Not appropriate for simple products and services
Enables more precise understanding of price sensitivity	

Understanding Different Methods

A high-level overview of each conjoint product

▶ Adaptive Choice-Based Conjoint (ACBC)

ACBC combines elements of CBC, artificial intelligence, and (optionally) dynamic list-building. ACBC requires more up-front time for survey design, particularly for dynamic pricing/list-building. However, the data provided, both on an overall and per attribute basis, is more in-depth than either ACA or CBC. It allows for greater customization and more accurate analysis.

Advantages	Disadvantages
More realistic and engaging for respondents	Takes longer to administer
Captures more information for each attribute or level, allowing for more customized and accurate analysis	Not ideal for simple products and services with few attributes
	Must be administered online



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Choice-Based Conjoint

What is CBC?

Choice-Based Conjoint (CBC) is the most popular conjoint module and offers a more simplistic way to gauge respondent interest in product attributes, brands, and more. It simulates real-life product decisions.

Respondents are shown screens with set product configurations (does not adapt based on responses):

If you were considering buying golf balls for your next outing and these were the only alternatives, which would you choose?
(1 of 14)

Brand:	High-Flyer Pro, by Smith and Forester	High-Flyer Pro, by Smith and Forester	Long Shot, by Performance Plus	
Performance:	Drives 10 yards farther than the average ball	Drives 15 yards farther than the average ball	Drives 15 yards farther than the average ball	None: I Wouldn't Purchase Any of These
Price:	\$6.99 for package of 3 balls	\$6.99 for package of 3 balls	\$10.99 for package of 3 balls	
	Select	Select	Select	Select

This methodology:

- ▶ Is less abstract than ACA and simulates real-world buying decisions
- Can be conducted online, in-person, or via phone
 - Success of in-person or phone surveys will depend on the number of attributes
- Often takes less time than either ACA or ACBC
 - Allows for more robust ancillary questioning

Choice-Based Conjoint Case Study



Case Study

Ultra-thin TV pricing

Methodology

200 online consumer interviews with choice-based conjoint

Business Challenge

A global consumer products manufacturer required consumer insights regarding TV thickness and bezel width. Further, it wanted to determine if consumers will pay more for an ultra-thin TV to determine a go/no-go decision regarding future product development.

Outcome

- ▶ Through CBC, we determined TV thickness, frame width, and bezel width all have a significant impact on consumer preference
- ▶ Consumers preferred a thinner TV with a thinner bezel until its price premium was 33% higher than a thicker TV
- ▶ Pairing the thin TV with the most preferred brand yielded even higher price premiums
- ▶ Based on the research, the decision was made to move forward with development of the ultra-thin TV



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Adaptive Choice-Based Conjoint

What is ACBC?

- Adaptive Choice-Based Conjoint (ACBC) is designed to address complex products and services
- It leverages the best aspects of both discrete choice modeling and ACA
- It is highly interactive and adaptive to the preferences and opinions of each respondent

ACBC interviews progress like this:

1. Build your own

The ACBC approach begins with a “build-your-own” exercise, which allows respondents to configure products and services to their specific needs and wants while considering the price premium or discount associated with the pre-defined attributes and levels.

Please select the grand piano you'd be most likely to purchase. For each feature, select your preferred level.

(The base price for a 6-foot instrument is \$7,000.)

Select Feature	Cost for Feature
<input type="radio"/> Kawai (+ \$8,000)	\$ 0
<input type="radio"/> Yamaha (+ \$8,000)	
<input type="radio"/> Baldwin (+ \$6,000)	
<input type="radio"/> Kimball (+ \$4,000)	
<input type="radio"/> Young-Chang	
<input type="radio"/> 6-foot Length	\$ 0
<input type="radio"/> 6.5-foot Length (+ \$5,000)	
<input type="radio"/> 7.0-foot Length (+ \$11,000)	
<input type="radio"/> 7.5-foot Length (+ \$18,000)	

2. Screening

Upon designing their “ideal” product or service, respondents are asked to evaluate several configurations with similar features to determine “must have” and “never have” features.

Kimball	Yamaha
6.5-foot Length	6-foot Length
High Gloss Black Finish	High Gloss Black Finish
Concert Bench	Standard Bench
Square Legs	Rounded Legs
\$14,750	\$12,250
<input type="radio"/> A possibility	<input type="radio"/> A possibility
<input type="radio"/> Won't work for me	<input type="radio"/> Won't work for me

3. Choice tasks

With the consideration set finalized, respondents complete a choice-based exercise, very similar to traditional CBC, in which they are asked to identify the “best option.”

Among these three, which is the best option? (I've grayed out any features that are the same, so you can just focus on the differences.)

(1 of 7)

Kimball	Yamaha	Kawai
6.5-foot Length	7.0-foot Length	7.0-foot Length
Flat Black Finish	White Finish	High Gloss Black Finish
Standard Bench	Standard Bench	Standard Bench
Square Legs	Square Legs	Square Legs
\$13,750	\$26,250	\$30,000
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Adaptive Choice-Based Conjoint

How can ACBC help?

Adaptive Choice-Based Conjoint has several inherent advantages over other conjoint methodologies:

- It keeps respondents more engaged and connected to the research process
- It allows for a better understanding of the specific value of individual features
 - Versus traditional trade-off research, which typically focuses on the overall value of the entire product
- It can include a greater number of attributes
- It works well with common B2B research sample sizes
- It provides insight into both solid behavioral theory (consideration first, then choice) and statistical theory (experiment and choice data)



Adaptive Choice-Based Conjoint Case Study



Case Study

Foodservice equipment product concept development and brand value

Methodology

500 online interviews with foodservice professionals using ACBC and scaled response questions

Business Challenge

A global foodservice equipment manufacturer required insights regarding both its next generation products and its brand value. An ACBC exercise with 12 attributes and a total of 42 levels was used to prioritize respondent preferences and determine product concept development sequencing.

Outcome

- ▶ ACBC showed that while foodservice professionals preferred the “best features” in the build-your-own exercise, preference declined significantly when the anticipated price premium was associated with those features
- ▶ Features with the greatest ROI (specific to energy consumption) required further user education to allow the manufacturer to capture the full value of these features
- ▶ The manufacturer’s brand generated a significant premium and preference, especially when associated with premium features



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MaxDiff

What is MaxDiff?

MaxDiff (AKA “best-worst scaling”) is an easy-to-use approach to obtain importance and preference metrics for a list of attributes, features, brands, and more.

How does it work?

Respondents are asked the same questions for a list of attributes, features, and brands.

- Which of the following is most important / your first choice / most preferred?
- Which of the following is least important?

What is it best used for?

- Message testing
- Prioritizing a long list of attributes or features
- Brand preference

This technique eliminates many of the challenges inherent in scaled response questions; i.e.,

- “Everything is important”
- “I’m not satisfied with anything”
- “I like all of the messages”

MaxDiff

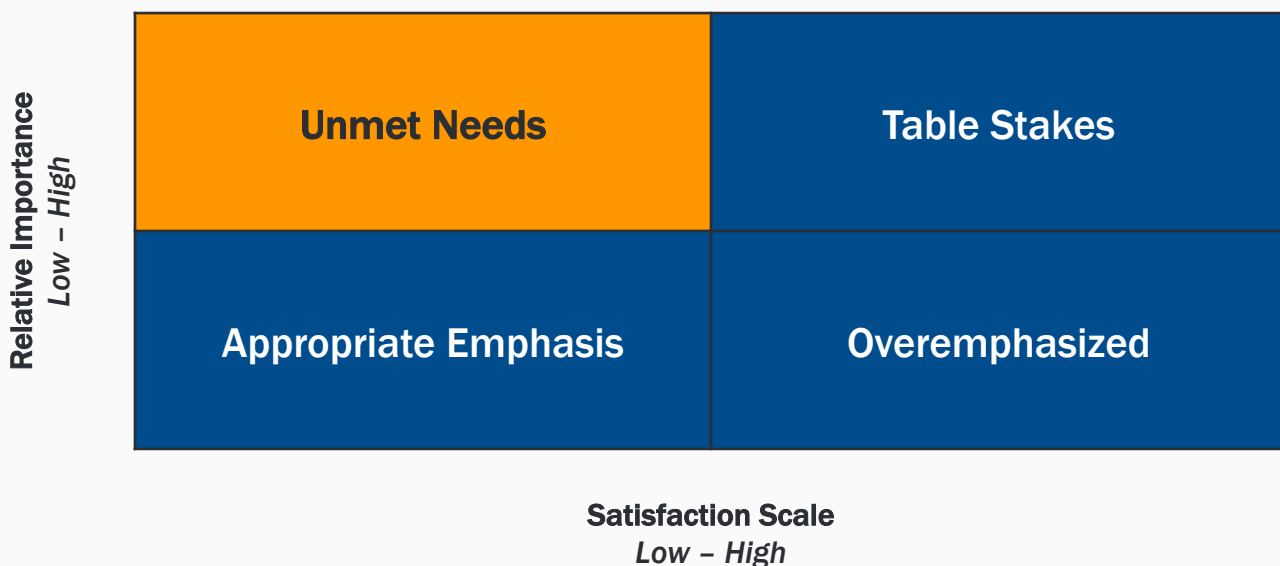
The MaxDiff Needs Assessment Matrix

A key deliverable of MaxDiff analysis is a Needs Assessment Matrix. Pairing two MaxDiff exercises (with the same attributes), specific to importance and satisfaction, identifies unmet needs (high importance, low satisfaction).

The following questions are asked of respondents (questions are asked several times with different benefits):

- **Attribute importance**
 - Which of the following is **most** important?
 - Which of the following is **least** important?
- **Current satisfaction with attributes**
 - Which of the following attributes is **most** “well met”?
 - Which of the following attributes is **least** “well met”?

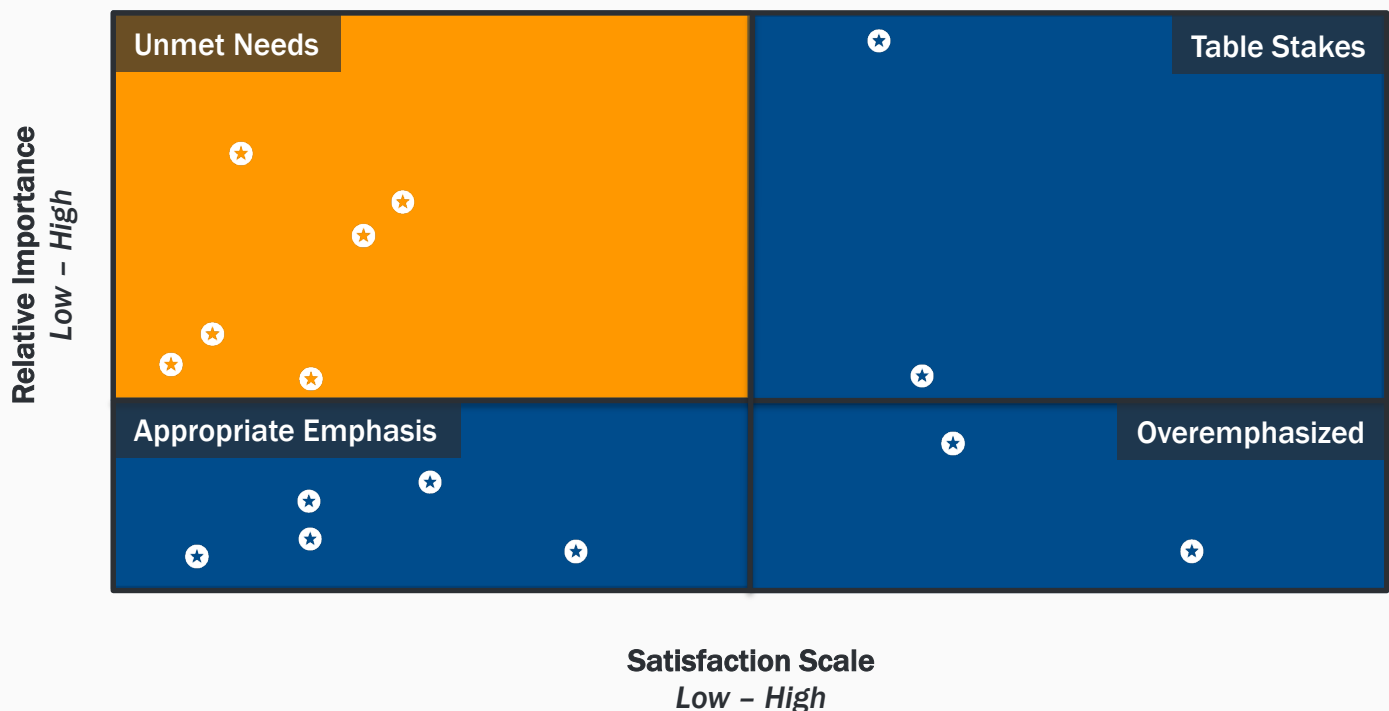
This Needs Assessment Matrix compares the relative **importance** of the attributes to the relative **satisfaction** of the attributes.



MaxDiff

The MaxDiff Needs Assessment Matrix

In a product development example, six unmet needs were identified. These attributes had higher than average importance and lower than average satisfaction.



These unmet needs were used to identify potential product enhancements that would differentiate the manufacturer and add value to its product.

MaxDiff

How can MaxDiff help?

This methodology:

- Keeps respondents more engaged and connected to the research process
- Reduces inherent biases among respondents
 - Increases discrimination/favoritism between attributes, features, brands, etc.
 - Eliminates scaling biases
- Is simple to execute
- Is easy for respondents
- Can include a large number of attributes

MaxDiff analysis is a powerful segmentation tool that helps identify key preferences among different segments of the population.



MaxDiff Case Study



Case Study

*Hospital
service
offerings*

Methodology

300 online
interviews
with acute care
hospital
decision
makers using
two MaxDiff
exercises

Business Challenge

A global service company required prioritization of several potential new service offerings, specifically designed for the hospital segment. A MaxDiff exercise with 13 benefit statements was used to prioritize respondent needs and determine product concept development sequencing.

Outcome

- ▶ Prioritized eight potential service offerings into three timeframes
 - Immediate opportunities
 - Short-term opportunities
 - Further exploration required
- ▶ Determined that without addressing the immediate opportunities, the short-term opportunities had a lower likelihood of success due to perceived value proposition issues
- ▶ Completed additional research to determine key success factors for addressing immediate needs



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Deciding Between Methodologies



Which conjoint should you choose?

Conjoint selection depends on multiple factors, including:

- Target respondent
- Respondent universe
- Subject matter
- Product or service complexity
- Number of attributes
- Preferred channel (online, in-person, phone)



Ask yourself...

- What is my respondent base and how big should the sample size be?
- What is the subject matter (brand, existing product, new product, pricing, key purchasing criteria)?
- How complex is the product or service?
- How many attributes will be included?
- What channel does my respondent base prefer (online, in-person, phone)?

Deciding Between Methodologies

Still not sure which conjoint to choose? Ask yourself each of the questions on the previous page and map your answers to the grid below. This should eliminate at least three of the potential options.

	ACA	CBC	MBC	ACBC	MaxDiff
Product Research	●	●	●	●	●
Pricing Research	●	●	●	●	●
Brand Value	●	●	●	●	●
Simple Product/Service (few attributes/levels)	●	●	●	●	●
Complex Product/Service (many attributes/levels)	●	●	●	●	●
Bundled product/service	●	●	●	●	●
Online	●	●	●	●	●
In-Person/Phone	●	●	●	●	●
Prioritization	●	●	●	●	●

It is important to remember that not all situations require a conjoint exercise. Your research team can help you determine if conjoint is appropriate for your objective and which methodology will work best.

Key Success Factors



Do...

- Know your research objectives and what you want the conjoint to accomplish
- Have specific, measurable attributes
 - Brand
 - Price
 - Lead time
 - Cycle time
 - Size
- Allow adequate time for attribute definition and survey development
- Fully define the attributes and levels through pre-survey qualitative interviews
- Expect multiple iterations of analysis



Don't...

- Leave attributes open for interpretation
 - e.g., Quality (low, medium, high)
 - Always explore what “quality” means to respondents and apply measurable attributes to measure quality needs
- Try to include too many other questions before or after the conjoint
 - Conjoint can take several minutes to complete...often resulting in respondent fatigue during other questions
- Assume too much
 - Conjoint provides share of preference, not market share
- Apply conjoint for all applications
 - Even when you think you have a “conjoint question” (i.e., price elasticity) there may be a better solution



SO WHAT? NOW WHAT?

Conjoint is a powerful and versatile tool that can be used for myriad research needs – from determining the product design to maximizing share to understanding the value of your brand and its impact on your pricing model.

However, determining the best conjoint methodology for a given objective may require in-depth discussions between your project and research teams. The Martec Group has a team of experts ready to answer your questions and steer you toward the best methodology for your needs.

Want to learn more?



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