



# MAX DIFF SCALING

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## What is MaxDiff Scaling?

Maximum Difference (aka MaxDiff) scaling is an efficient questioning method that elicits a forced preference, thus differentiating the items being tested. MaxDiff has also been referred to as “Best-Worst” because the methodology is just that—respondents are asked to determine the “best” and “worst” options within a set of items. Using this methodology provides a fuller insight into preference of the sample population.

MaxDiff can be useful when trying to **gain insight into multiple statements, messages or concepts**. Rather than respondents rating features individually (which often leads to high importance on multiple items), MaxDiff forces the respondents to make a trade-off (Lipovetsky, 2018). Making a respondent sacrifice features creates a ranked prioritization from most to least important, therefore avoiding any scale bias where multiple or all statements could be valued as important.

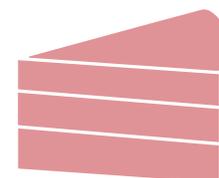
The questions exercised in MaxDiff research create individualized preference estimates. To gain a better understanding, let’s look at exactly how MaxDiff works.

## How is MaxDiff scaling administered?

MaxDiff are composed of questions within a survey. Each attribute item being tested is shared an equal amount of times. The attributes are randomized and are not contingent on what a respondent selects since that would create bias. Features being used in a set often range from fifteen to thirty. Below is an example of what would appear in a typical MaxDiff set:

Please indicate which of the following is your MOST/LEAST favorite dessert.

| Most                             |            | Least                            |
|----------------------------------|------------|----------------------------------|
| <input type="radio"/>            | Pies       | <input type="radio"/>            |
| <input type="radio"/>            | Pastries   | <input type="radio"/>            |
| <input checked="" type="radio"/> | Chocolates | <input type="radio"/>            |
| <input type="radio"/>            | Frozen     | <input checked="" type="radio"/> |



The first question asks the respondent to select his/her favorite dessert among pies, pastries, chocolates, and frozen. With this information, the next question can provide more insight into the respondent's preferences. It can look something like this:

Please indicate which of the following is your MOST/LEAST favorite dessert.

| Most                             |            | Least                            |
|----------------------------------|------------|----------------------------------|
| <input type="radio"/>            | Deep-Fried | <input type="radio"/>            |
| <input type="radio"/>            | Frozen     | <input type="radio"/>            |
| <input checked="" type="radio"/> | Pastries   | <input type="radio"/>            |
| <input type="radio"/>            | Jellied    | <input checked="" type="radio"/> |




This set shares that Pastries > Deep-Fried/Frozen > Jellied. As we continue to gain information about the respondent's preferences, we gain a fuller picture into how this person ranks various types of desserts. MaxDiff helps to show us the choices the respondent makes to ultimately decide how they rank various dessert options.

The wording of the prompt can also cater to the research question. For example, the phrasing can be altered to most likely vs. least likely to purchase rather than most or least important item if the research objective focuses on purchasing intent. By altering the wording slightly, the prompt aligns more strongly with the research question, while the results of MaxDiff are unaffected.

MaxDiff is an easy task for respondents, has no cultural variance and is a strong predictor of what will influence respondents (Orme, 2009). MaxDiff also yields actionable information that can be paired with traditional research to ensure a comprehensive understanding of the responses. Pretty sweet!

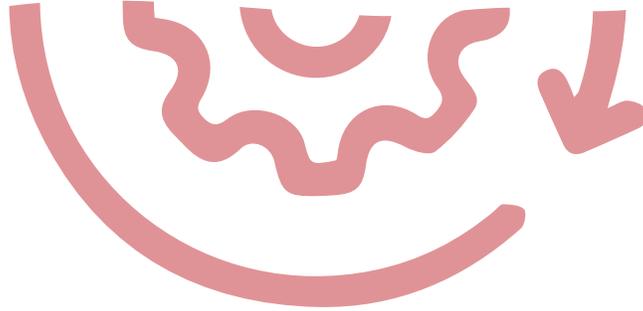
## How do these filled in circles give better insight into respondents?

Once all the data is collected, analyzing MaxDiff can be done in several ways. It can be as simple as adding up all the "most" and "least" important features in each sample; however, this gives a very basic overview of the information. Percentages or the differences can be calculated through this measure. Other analysis techniques work to discover how much of an influence a feature contributes to a decision (aka a feature's utility). The Logit model works to uncover utilities for each feature, while the Hierarchical Bayes (HB) determines utilities of respondents (Bacon, Lenk, Seryakova, & Vecchia, 2007). Latent class analysis also categorizes types based on answering patterns of answers on a set of categorical variables. While this is a much more complex method to interpreting the data, it gives stronger insight into what MaxDiff can provide. Since respondents are forced to trade-off alternatives throughout the entirety of the MaxDiff, the more attractive alternative is easier to estimate. Meaningful results can be derived from these

advanced techniques, and thus help to expand on meaningful research findings.

## When to use MaxDiff?

Knowing the level of importance and preference for a large group of items is extremely useful. MaxDiff is a very versatile tool when developing ways to answer your research questions regarding various products, components or messages. **The example above could be categorized as a MaxDiff for product features; however, this type of methodology can be applied in many areas of business such as brand preferences, advertising claims, or product images/fatigue.** Other ways that MaxDiff has been utilized include innovation exploration when adding new varieties to a line or analyzing consumer interest in slogans or logos. HCD Research works hard to use the right methods, create strong data, and ultimately help you share your research story.



IF YOU ARE INTERESTED IN LEARNING MORE ABOUT HOW THE USE OF IMPLICIT ASSOCIATION OR OTHER METHODOLOGIES CAN HELP YOU ANSWER YOUR RESEARCH QUESTIONS, **PLEASE FEEL FREE TO CONTACT HCD RESEARCH VIA EMAIL [INFO@HCDI.NET](mailto:INFO@HCDI.NET) OR CALL 908.788.9393.**

# CITATIONS

Bacon, L., Lenk, P., Seryakova, K., & Veccia, E. (2007). Making MaxDiff more informative: statistical data fusion by way of latent variable modeling. In SAWTOOTH SOFTWARE CONFERENCE (p. 327).

Lipovetsky, S. (2018). MaxDiff Choice Probability Estimations on Aggregate and Individual Level. *International Journal of Business Analytics (IJBAN)*, 5(1), 55-69.

Orme, B. (2009). Maxdiff analysis: Simple counting, individual-level logit, and hb. Sawtooth Software.