Maximum Difference Scaling – An Overview

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Background

Maximum Difference Scaling (MaxDiff), originally developed by Jordan Louviere and his colleagues (Louvier 1991; Louviere, Swait and Anderson, 1995), is a method used to obtain preference or importance scores for multiple items, such as brand images, product features, or advertising claims. Commonly used approaches to measuring preference or importance include rating, ranking or allocation tasks. However, each of these approaches has inherent weaknesses, including complexity for respondents, susceptibility to scale bias effects, and lack of discrimination among the items.

Response Format

MaxDiff scaling uses a unique response format that requires respondents to identify their *most* and *least* preferred choices from an experimentally designed list of objects. In contrast to traditional measurement approaches, the MaxDiff method has several advantages:

- It is easy for respondents from a variety of educational or cultural backgrounds
- There is strong discrimination among the items
- Scale use bias is reduced or eliminated

Max/Diff is essentially an extension of paired comparisons, a classical technique for eliciting tradeoffs among items. As an illustration, assume that there is a list of 25 product features. In the MaxDiff approach respondents are shown a series of sets of five features, for example, and asked to pick the one they like most and the one they like least in each set of five. This is accomplished via an experimental design that balances frequency and position, as well as achieving orthogonality and connectivity.

Below is an illustration of the MaxDiff task:

How important are the different features when purchasing or recommending a Web hosting service? *Of these five, which are the most and least important?*		
Most Important		Least Important
	Ease of using web site statistics	X
X	Delivery of prospective customers to my site	
	Ability to handle payment transactions	
	Quality of telephone customer service support	
	Blogging tools	

Analyzing The Data

The responses from a MaxDiff task are treated as choice data and produce an interval-level scale of benefit preference. As such, the resulting scale is analyzed using the statistical techniques commonly employed for choice data, including latent class analysis, multinomial logit analysis or hierarchical Bayesian modeling. Regardless of the analysis approach, the result is a quantitative measure of preference or value for each of the 25 features.

In Summary

The MaxDiff method is easy to administer (respondents only select two choices per set), provides greater discrimination between items than traditional methods and avoids the scale usage biases (and especially those encountered in multi-national response comparisons) since MaxDiff is scale-free.

Other types of applications of MaxDiff have begun to appear in the research literature. For example, Chrzan and Griffiths (2005) reported combining maximum difference scaling with brand-anchored measurements to elicit statements such as "McDonalds has fast service" and "Subway has valuable deals and coupons" – during the MaxDiff task, respondents are asked to indicate which statement is *most true* and which one is *least true.*

The maximum difference method has gained in popularity in recent years. However, experimentation and evaluation of the applications and limitations of MaxDiff continue to be reported among both academic and practicing researchers.

References

Chrzan, Keith and Jeremy Griffiths, Ph.D. "An Empirical Test of Brand-Anchored Maximum Difference Scaling;" Presented at the Design and Innovations Conference Berlin, May 2005.

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