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Article

Studying Shelf Framing With Multiple Consumer Insights

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Studying Shelf Framing With Multiple Consumer Insights

Sustaining competitive advantage requires continuous innovations. In times of saturated markets, successful new product launches are increasingly challenging. This is evidenced by high failure rates. For example, GfK (2015) reports less than a third of new products survived beyond two years in FMCG. Diminishing such staggering failure rates has become a chief concern for many marketers. Two critical product launch decisions involve advertising positioning and distribution placement.

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Advertising intends to catch interest, build brand image and differentiate products from competition by developing meaningful consumption expectations. Distribution decisions such as shelf placement drive visibility and improve the likelihood of entering consideration sets. Importantly, shelf placement decisions also determine the immediate competitive context, which in turn drives consumption and price expectations. Consequently, advertising and shelf placement may send mixed messages which can have negative consequences making careful alignment based on consumer insights across domains critical.

Standard market research techniques address either advertising positioning or shelf placement decisions. While the former is often tested based on monadic survey research and attitudinal benchmarks, shelf placement decisions reflect on actual or virtual shelf tests. Usually, separated approaches based on separate studies and samples are used, which can mask important interrelationships. For example, a new breakfast cereal innovation can be placed in shelves amongst sugar-heavy alternatives or in whole grain categories requiring very different advertising. Advertising pretests which do not take differential consumer shelf response into account can therefore result in erroneous conclusions.

Related Evidence from Consumer Psychology

According to research in consumer psychology consumers create mental schemes to evaluate any type of object. New products in particular can belong to more than one mental category (Viswanathan/Childers 1999). A tablet computer, for example, may be classified as an entertainment as well as a work device. Since consumers form expectations based on category membership, ambivalent categories can undermine confidence. Indeed, Meyers-Levy/Tybout (1989) find that consumers positively respond to innovations when new associations fit well with typical associations in consumers' minds. Similarly, research on cognitive fluency suggests that efficient processing of new products is essential to succeed in the market (e.g., Reber et al. 2004). Simply put, the easier and faster the mental process judging a new product, the more favorable the product evaluation. According to this research, minor challenges in processing resulting from slight prototype deviations can further improve evaluations (Reber et al. 2004).

Shelf positioning suggests membership to the surrounding category. Consider the tablet computer example once more. Placed next to laptop computers it is less likely to be classified as an entertainment device than an identical product placed in a home entertainment context.

Both categorization and cognitive processing theories strongly suggest that advertising positioning should be well aligned to such distributional choices. An unfavorable consumer response must be expected whenever categories suggested by advertising do not match distributional categories sufficiently well.

Marketers interested in profitability will pay close attention to maximizing willingness to pay. This managerial objective is related to additional cognitive processes associated with price fairness judgements (e.g., Kahneman/Knetsch/Thaler 1986). Different shelves can suggest different levels of quality. For example, screen resolution or enhanced audio capability of tablets are more likely to be costly high value attributes in a high end home entertainment context than in a laptop context. Consequently, willingness to pay can differ as a function of shelf placement. In particular, identical product characteristics can result in very different willingness to pay as a function of shelf placement.

While aligning shelf placement and advertising positioning may appear straightforward in the tablet example, consumer categorization in most practical settings is less clear and requires valid consumer insights. Traditional separated

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market research projects on advertising positioning and shelf placement cannot provide this kind of information.

Consumer Insight Methods for Advertising and Shelf Placement Decisions

Thorough tests of advertising and shelf placement requires randomized between group monadic (experimental) designs comparing consumer response to advertising concepts as well as shelf contexts across groups. Brand associations as well as shelf categorization are often subconscious psychological processes requiring appropriate means of data collection. These market research modules can address this:

1. Implicit association tests study the strength of subconscious brand associations like pleasure, autonomy, or excitement. Measuring the latency in response, consumers are asked to indicate as quickly and spontaneously as possible whether various associations fit a specific product brand after being exposed to different types of positioning. Since stronger subconscious associations come to mind more quickly, response times provide rich information on brand image strength. Note, implicit associations can be collected quickly in online surveys requiring simple yes/no responses.
2. Virtual shelf tests are cost-effective means of testing shelf layouts by closely matching real world shopping environments. To accomplish this, standardized product images representing the competitive context are positioned in virtual shelves matching typical retailing conditions. Compared to in store tests, virtual shelves require little set up effort for testing any conceivable layout. They can quickly reach

large groups of respondents while ensuring structural equivalence across experimental groups, which is often not possible in a physical context. Virtual shelf tests of high internal validity as part of any online study require very little respondent input while collecting rich information (e.g., response times, order of consideration, product choices).

3. While the aforementioned tests are useful, they do not reveal consumer response to a larger variety of scenarios. Such information is important since prices and typical assortments often vary across retailers. Insights relating to a broader set of contexts are available from Hierarchical Bayes Choice Based Conjoint. Since respondents simply make repeated choices among sets of product concepts varying along brand, attribute and price dimensions, data collection follows natural choices and involves little consumer effort. Bayesian estimation allows estimating individual level product utility and purchase probability, which can be quantitatively linked to the preceding modules at the individual respondent level.
4. Individual level information on subjectively fair prices is not available from virtual shelf tests or choice based conjoint. For this purpose, direct measures of willingness to pay, such as the well-established price sensitivity meter (PSM), provide additional evidence (van Westendorp 1976). Note, in contrast to the other modules, price fairness judgments involve more elaborate cognitive processing. Therefore, open ended questions are more appropriate. Implications from such insights can differ from the previous ones because attainable margins and market shares must not align. Specifically, highly differentiated products often involve higher margins at the expense of a lower market share (Stahl et al. 2012).



Management Summary

Shelf framing results from the differential consumer response to shelf placement choices of marketers. When introducing new products marketers choose an advertising positioning which can interact with shelf framing effects requiring integrated research on shelf and advertising response. State of the art measures of advertising (e.g., implicit response) combined with customer decision making (e.g., virtual shelf, choice-based conjoint) do not only offer a holistic perspective on the consumer but do also closely reflect actual supermarket choices.

An Application of Agile Consumer Insights in the FMCG industry

When Ferrero launched its ValParaiso confectionery innovation, questions regarding advertising positioning and shelf placement aroused. Two options of shelf placement and advertising positioning appeared feasible: a typical praline assortment involving higher value products with diverse fillings (e.g., nuts, alcohol, marzipan) or cheaper priced small bites involving other well-established chocolate beads (e.g., M&Ms, Smarties). Concerning advertising, two alternative concepts were under consideration: (1) ValParaiso advertised as chocolate pearls with fruit flavors with background colors reinforcing chocolate associations (subsequently called chocolate) and (2) ValParaiso positioned as an exotic fruit pearl containing chocolate using vibrant colors (fruit, see Figure 1).

To investigate these options of advertising and shelf placement, an online consumer study was conducted combining all mentioned market research modules within a single survey. Data collection, response time analysis, efficient conjoint design and hierarchical bayesian parameter estimation is based on the quantilope service for agile insights with the Decode implicit module for the response time analysis.

A sample of the German target group was recruited from a representative consumer panel consisting of 3,000 female respondents (age 35 – 54) with general interest in chocolate. Participants were randomly assigned to one of four experimental conditions, ensuring structural equivalence across groups. Note, this study serves as an illustrative application on how consumers responded to the alternative advertising material under consideration at Ferrero. Specific results may not generalize to other settings. Since the comparison of interest relates to the advertising material used in the experimental set up no pre-test results are reported here. However, we do caution that such pretesting would be mandatory for drawing generic conclusions regarding underlying psychological concepts. The experimental design consists of a 2 (chocolate vs. fruit advertising material) x 2 (praline vs. small bite shelf) full factorial with 750 observations per group (see Figure 1).

The survey started with a concealed advertising display. The cover story instructed participants to evaluate a new online magazine containing typical magazine content which also involved a full page advertisement for ValParaiso. After this, respondents proceeded to a virtual shelf display (see Figure 1) and were asked to inspect each product of interest and to select their most preferred alternative for purchase when ready to do so.

Subsequent to these experimental manipulations and a set of filler questions on socio-demographics, additional dependent

Fig. 1: 2 x 2 Advertising Positioning and Shelf Placement Experimental Design



Source: Ferrero, quantilope.com.

measures were collected. Specifically, implicit brand image was collected first. Following initial training, respondents evaluated whether or not a randomly ordered set of potential product associations matches with the ValParaiso brand. Associations were presented one at a time in random intervals to collect meaningful measures of response time. Subsequently, 12 tasks of choice based conjoint with two alternative concepts and the option not to choose were presented (d optimal design, see Street et al. 2005). This was followed by a set of open ended questions on fair price levels for ValParaiso according to PSM. Since the whole survey used very few traditional scales, average completion time was only 16.5 minutes.

Relevant Drivers of Product Consideration and Demand

Appropriate tests of statistical significance on the impact of advertising and shelf positioning within the virtual shelf test can be obtained by logistic regression models with the experimental factors including all available covariates (e.g., socio-demographics) as independent variables and product consideration and choice as dependent variables. For ease of interpretation, Figure 2 summarizes descriptive results. Note, that both advertising positioning and shelf placement have a significant impact on both ValParaiso consideration and choice, suggesting that the experimental manipulations were effective ($p < .05$). Importantly, ValParaiso appears to

better match the small bites assortment than pralines, as evidenced by consistently higher levels of consideration and demand in the small bites shelf. In addition, the fruit advertising material interests more consumers in terms of consideration and actual choices both in the small bites and pralines shelf. Since this pattern replicates for individual level choice probabilities of choice based conjoint (not shown), these results appear not driven by potential differences in attractiveness of the selected shelf competitors.

The analysis above does not reveal a statistically significant interaction effect between shelf placement and advertising positioning ($p > .10$). However, the strong effects of shelf placement point to the importance of considering distributional decisions at the early stages of new product planning. Since typical pretests do not take shelf response into account, achieving target scores in such tests can be a function of shelf expectations of respondents, which must not match actual distribution risking erroneous conclusions.

The findings reported here are consistent with schema congruity and processing fluency. In particular, consumers appear to perceive ValParaiso as more typical to small bites. Furthermore, advertising less established features such as fruit filling may be capable of highlighting uniqueness and novelty, allowing for additional stimulation further driving demand.

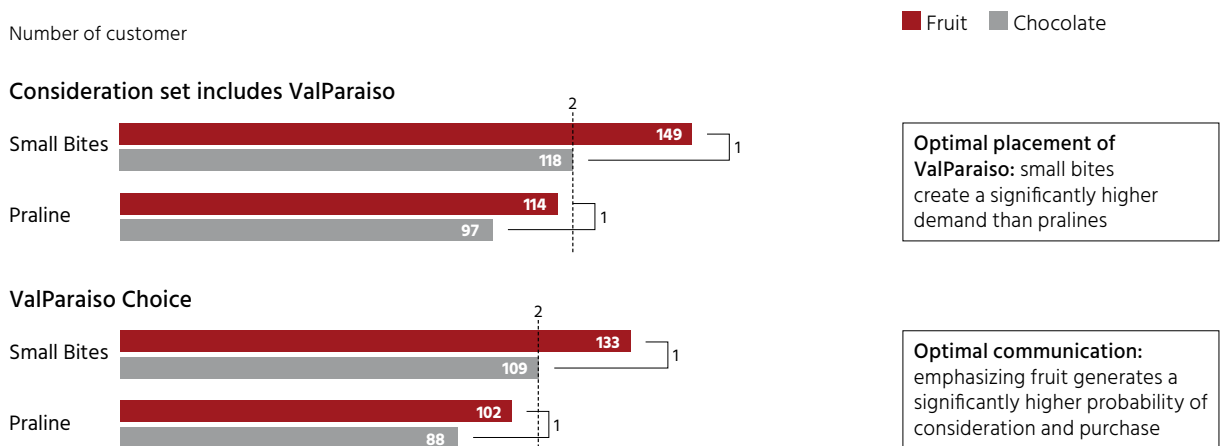
A large scale field experiment across eight large supermarket stores in Germany was conducted to investigate ex-

ternal validity. Two supermarkets with comparable target groups and store layouts resembled each experimental group of this study. In particular, either (1) fruit or (2) chocolate wobblers featuring the motives of Figure 1 were advertising ValParaiso at a dedicated shelf similar to Figure 1. An analysis of over 600,000 store receipts collected between December (excl. Christmas) and February (2016–17), suggests a 25 percent average sales uplift moving from chocolate to fruit advertising motives. This closely resembles the 22 percent uplift observed for the small bites choices of the online survey.

The Impact of Shelf Placement and Advertising Positioning on Attainable Margins

A different pattern emerges when studying attainable margins and price fairness based on open-ended responses. Based on the price fairness analysis, attainable margins are higher for pralines than for small bites, resulting in higher maximum prices. This appears intuitive given the higher average price levels for pralines. However, this is opposite to the findings on demand and consideration, which suggested higher demand in the more frequented small bites category. Interestingly, the price fairness results show a stronger effect for the fruit material as evidenced by a significant two-way interaction between advertising and shelf place-

Fig. 2: Impact of Shelf and Advertising Decisions on Consideration and Choice



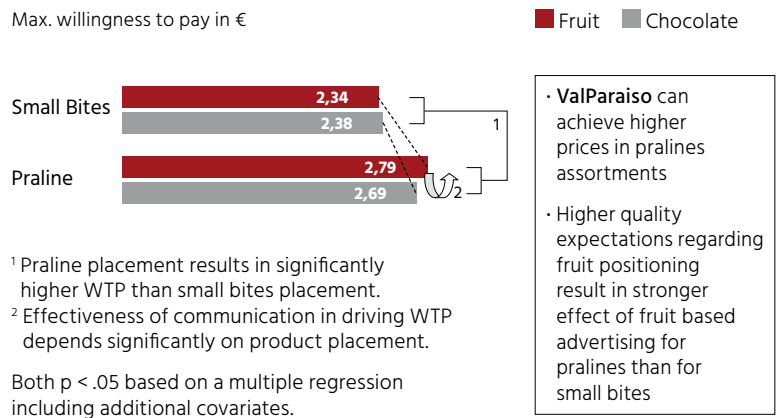
Both fruit vs. chocolate communication¹ and small bites vs. praline placement² result in significant differences in a logit regression including additional covariates ($p < .05$).

Source: quantilope.com.

Lessons Learned

When planning new products marketers are well-advised to consider both advertising positioning and shelf placement response at early phases. Field experiments are often too expensive and conducted too late in the new product planning process. Automated multi-method consumer insights can adequately approximate actual consumer shopping behavior. They allow cheaply studying a multitude of positioning choices in terms of advertisement but also distribution while providing a detailed understanding of consumer motivations. Achieving competitive advantage will likely depend on the proficiency of marketers in mastering new agile insights technologies.

Fig. 3: Effects of Advertising Positioning and Placement on WTP



Source: quantilope.com.

ment, such that the fruit advertising results in higher attainable margins for pralines but not for small bites (see Figure 3). This may be related to fruit ingredients being of higher expected value within a praline assortment than within small-bites.

The virtual shelf and conjoint analysis held prices constant and suggested higher predicted market share for small bites than pralines shelf placement. However, both approaches do not consider potential price fairness differences. Conversely, open-ended measures of willingness to pay study differences in price fairness, implicitly assuming similar market potential. Both perspectives are important and should be interpreted jointly. Taken together, the results suggest lower market potential but higher attainable margins in pralines than in small bites when implementing the fruit positioning.

How to Improve Positioning by Studying Implicit Brand Image

Evaluating and improving new product positioning involves understanding brand image associations in consumers' minds. This can be based on the implicit measures of brand image by linking these to individual level product utility. Figure 4 illustrates average brand association scores of ValParaiso across all relevant image dimensions as well as the relative impact on purchase probability in an impact-performance-matrix.

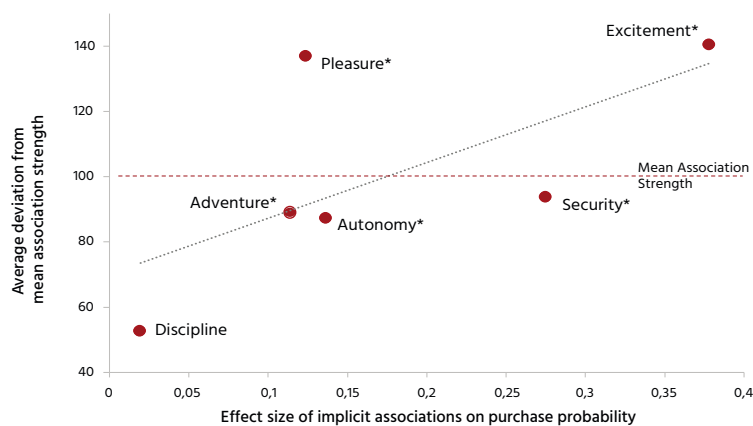
Brand image performance is computed weighting the latency and choice shares of consumers, indicating whether or not individual associations match the advertised brand concept. These dimensions represent factors of a set of 40 associations. For ease of interpretation, index scores are presented in Figure 4 centered on 100 indicating deviations from average performance. The integration of different market research modules within a single survey makes it possible to determine the performance impact of implicit brand image. This can be done by adding implicit measures to the choice based conjoint or shelf test analysis. Since results are similar, the conjoint analysis is shown in Figure 4. According to this all brand association dimensions except for discipline (e.g., restraint, rational) had a statistically significant impact on demand ($p < .05$), confirming the overall relevance of studying implicit brand image performance.

In terms of performance, ValParaiso performs well on associations of pleasure (e.g., carefree, joy) and excitement (e.g., delight, fun). However, security (e.g., familiar, sincere) is also a strong lever on demand on which ValParaiso can still improve performance. Since five out of six image dimensions have positive impact on demand, ValParaiso benefits from addressing all of these dimensions in their advertising. However, individual advertising activities can require making trade-offs in terms of emphasis. If trade-offs are necessary, ValParaiso demand will be least reduced when compromising in terms of pleasure.

Conclusions

Consumer insights are often collected addressing marketing decisions individually across separate market research projects. This reflects typical stepwise stage gate processes in marketing. This paper has pointed towards findings from consumer psychology suggesting shelf placement decisions and advertising positioning jointly drive category representativeness of new products, ease of cognitive processing and price

Fig. 4: Improving New Product Positioning Based on Implicit Brand Associations and Their Sales Impact



*Significant effects on purchase probability ($p < .05$). Source: quantilope.com.

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expectations. This can lead to optimal advertising choices depending on shelf placement decisions and vice versa. It strongly suggests that areas such as advertising and distribution, often handled in relative isolation, should be closely coordinated based on integrated consumer insights. This requires combining information from advanced market research modules. Agile market research automation allows configuring such combinations with a few mouseclicks making the research reported here a low cost and quickly executable approach in virtually any FMCG related product launch process.

The results on Ferrero ValParaiso illustrate the benefits of these holistic consumer insights. In particular, maximizing margins vs. market share can result in different conclusions in terms of product placement and advertising positioning. Marketers should be aware of such potential decision conflicts to make deliberate choices. The case of ValParaiso shows that advertising positioning has different demand potential depending on product placement. In particular, potential gains in market share achieved by optimizing advertising positioning can be easily offset by suboptimal shelf placements. Most importantly, the results of a cost-effective and quick online study closely resembled actual field evidence in terms of differential effect size. However, simple performance assessments often do not suffice in today's fast paced world of marketing. Clear indications on how to improve positioning can be obtained by linking implicit measures of brand image to virtual shelf tests and conjoint analysis. These allow for an optimal prioritization of which brand image dimensions to emphasize when improving brand positioning. +

Main Propositions

In new product planning advertising positioning is well advised to consider subsequent shelf placement choices. Consequently, market research on advertising must move beyond simple attitudinal benchmarks. Combinations of more stable implicit measures with simulations of shopping environments can accomplish this. However, such approaches can be complex, expensive and time consuming to implement. Modern agile market research automation allows freely combining research modules at a fraction of the costs of individual research projects.