

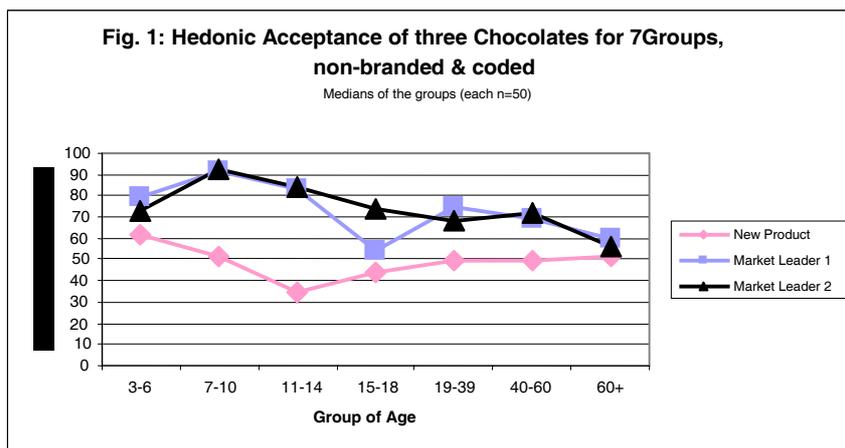
Title: Sensory Evaluation of Milk Chocolates as an Instrument of New Product Development

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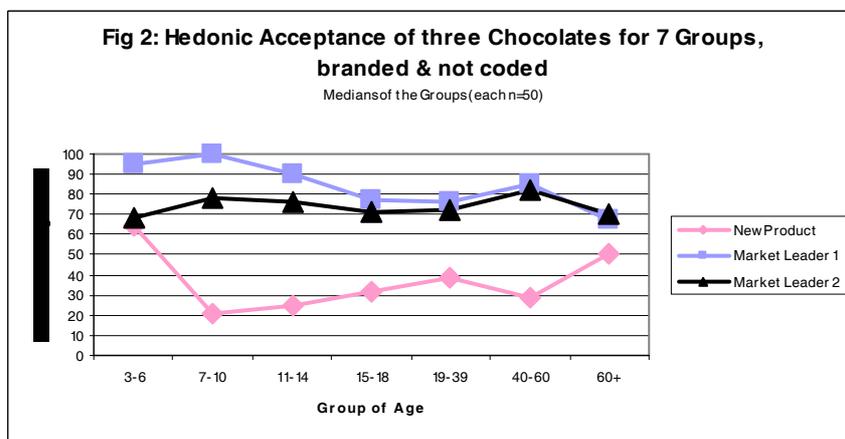
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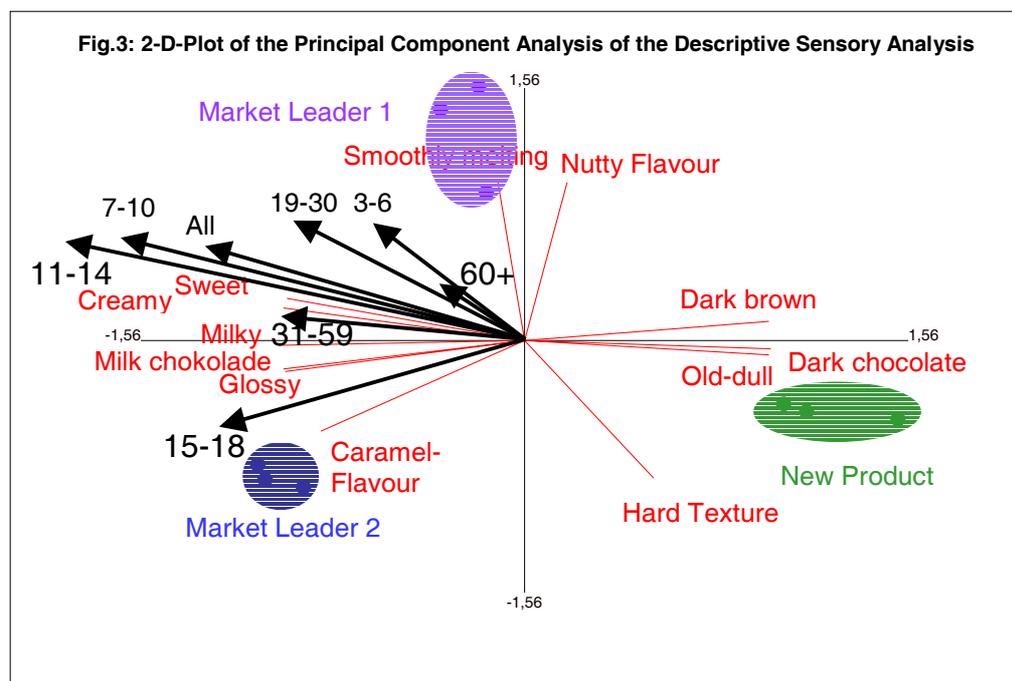
The sensory and physical properties of three milk chocolates from different companies were to be analysed to find out how the new chocolate product of an Austrian manufacturer needs to be modified to get at least similar hedonic evaluation results as its two established competing products. The results of the acceptance tests as depicted in fig. 1 show a clear preference of the consumers for the two competitor-products within all 7 test groups of 50 persons each (3-6, 7-10, 11-14, 15-18, 19-30, 31-60 and older than 60 years). Especially the children ranging in age from 7 to 14 show a remarkable preference for the competitors' products.



Branding improved the hedonic judgements of the competitors and worsened the results of the new product (fig. 2). This effect was biggest within the two children groups 7-14 years and smallest within the groups of kindergarten children (3-6 years) and the elderly group (>60 years).



The quantitative descriptive analysis done by 10 screened and trained panelists resulted in a sensory profile of only twelve sensory attributes. The sample repetitions within one descriptive analysis were judged in almost the same way. Four repetitions of the descriptive analysis on four days were also repeatable and consistent. The differences between the competitors' products and the new product were obvious and can easily be seen in fig. 3, the 2-D-plot of the principal component analysis of the descriptive analysis. The new product was the darkest, had the hardest texture and did not taste very creamy, milky or sweet. However the most problematic sensory difference appeared to be a distinct tone of an old/dull off-flavour. The physical measurements of colour and texture verified the results of the sensory analysis. The integration of the acceptance test data into the analytical data (PCA and regression methods) made clear which products were favoured and which sensory attributes correlated with the hedonic judgements.



The conclusions for the manufacturer of the new product were obvious. Firstly the old/dull-flavour had to be eliminated. The chocolate should have a quicker and smoother melt, the texture had to be softer and the creaminess higher. The new product had to be sweeter, the colour lighter and the red colour tone should be reduced too. A modification of the recipe, using a different kind of cacao butter, led to prototypes of the new chocolate product that seem to meet most of these requirements.