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A study on the quality perception of bundle components.

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The role of complementarity and partner brand price level in new product introduction strategy using bundle offers: A study on the quality perception of bundle components.

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Abstract

New products are often bundled with strong brands as an introduction strategy. This study helps to understand the scenarios which will be most beneficial to both the products in the bundle. The enhancement effect and categorisation theory is used to explain that the new product's quality perception is higher when it is bundled with a strong brand of a higher price and this effect is moderated by the complementarity of the bundled components. Also, the quality perception of the strong brand is rated higher when it is bundled with a new product of assured quality.

Keywords: Complementarity, enhancement effect, categorisation, elaboration likelihood model

1. Introduction

Stremersch and Tellis (2002) described bundling as a sale of two or more separate products together in the market place. Bundles are created in order to extract the maximum amount of consumer surplus. Bundles were employed when the consumer's reservation price for the bundle components were asymmetric and variable.

Bundles are also used to introduce a new product. A strong or a well established brand can sell a new product or a brand along its products in order to promote the new product (Simonin and Ruth, 1995). A new product will be able to gain extra attention if it is associated with a brand that the consumers trust and are familiar with. This helps the new brand in establishing themselves. Therefore new products are often bundled with strong brands in order to induce their trial. The association of a new brand with a product of a high brand image also helps the new brand in getting a positive evaluation (Sheng and Pan, 2009).

Researchers have tried to understand the consumer's process of evaluating the bundle components and the bundle as a whole. Yadav (1994) came up with the weighted average model with anchoring and adjustment process as its core theme. Further, Yadav (1995) included the framing effect and discount assignment to the individual components and their effect on the bundle evaluation. Sheng et. al. (2007) explored the bundle evaluation using the functional relationship between bundle components as the moderating variable and found out that the complementary bundle components lead to a comprehensive mental accounting. However, the non-complementary components lead to a topical mental accounting process.

The research on the quality perception of the various bundle components was done by Sheng and Pan (2009), using complementarity levels as the moderating variable in their study. The brand image of the bundle partner influenced the quality perception of the new product in the bundle due to mere association. Also, the categorisation theory was tested under different levels of complementarity between bundle components.

This purpose of the study is to extend the research by understanding the changes in quality perception of the new product in the bundle under different price levels of the strong brand and the functional relatedness of the components. I test the impact of enhancement effect and the categorisation theory on the anchoring and adjustment process of bundle evaluation, suggested by Yadav (1994). Also, the effect of bundling on the strong brand is tested in a separate study. The perception of quality of the strong brand is tested under the conditions of complementarity and the quality assurance of the new brand.

2. Bundle Evaluation

Adams and Yellen (1976) theorised that the overall utility of the bundle is the sum of the individual utilities of the components which come together to form the bundle. However, Gaeth et al. (1990) theorised that the monetary worth might not be the best indicator of the bundle evaluation and there are parameters which are given greater weight in the evaluation of the overall bundle. These factors can be the attributes of the bundle items, the consumer perception of these items or brands etc.

Yadav (1994) proposed a theory for the evaluation of the bundles called anchoring and adjustment. He argued that the process of bundle evaluation is a complex problem for the concerned consumers therefore there are some heuristics involved to simplify the task. Due to the complexity of the task the consumers break down the process of evaluation in smaller sub-tasks which are specific and easy to process. This heuristic processing is referred to as anchoring and adjustment which helps them to simplify the entire process in order to decide on the degree of attractiveness of the bundle offer (Tversky and Kahneman, 1974).

The anchoring and adjustment process (Lopes, 1982) consists of three stages which occur sequentially with respect to the bundle evaluation (Yadav, 1994). The first step is the scanning process in which the consumers examine the individual components of the bundle. This process does not involve the evaluation of the components but results only in the scanning of the bundle ingredients. The second stage consists of the anchoring process in which the consumers select the most important product in the bundle. The product which gives them the most perceived benefit is taken to be the anchor of the bundle. Finally, the consumers take the anchor as a reference point and evaluate the other bundle components with respect to the attractiveness of the anchor. The remaining bundle components are evaluated in the decreasing order of importance and the overall bundle evaluation is adjusted upwards or downwards depending on the evaluation of the individual component and its attributes.

Einhorn and Hogarth (1985) proposed that the anchoring and adjustment process can be synonymous with the weighted-average model. The overall evaluation of the bundle is done by assigning weights to individual bundle components such that the anchor gets the maximum weight as it is the most important component in the bundle. Therefore the overall bundle evaluation is done by a weighted average method (Yadav, 1994).

Anchoring and adjustment can lead to biased bundle evaluation due to insufficient adjustments (Yadav, 1994). Consumers often do not evaluate every item in the bundle due to the tedious task of information processing. After evaluating the anchor, the consumers evaluate the remaining components by adjusting the overall evaluation as per the evaluation of the current item. However, due to insufficient adjustments the

overall bundle evaluation is bound to be biased in the direction of the anchor evaluation, which is the item that is evaluated first.

The insufficient adjustment problem leads to important outcomes in the overall bundle evaluation process. In case a consumer finds an excellent anchor then the presence of subsequent moderate bundle items leads to the downward adjustment in bundle evaluation. But the tendency to adjust the evaluation upwards, in case of a poor anchor, was less (Yadav, 1994). The adverse effect of a moderate add-on item on the excellent anchor is more than their enhancing effect on poor anchors.

Evidently, the positive evaluation of the anchor is of utmost importance for a positive evaluation of the overall bundle. Therefore it is important to have anchors which are excellent and of highest quality. The insufficient adjustment and evaluation heuristics will lead to a better evaluation of the entire bundle if the consumers highly value the anchor in the bundle. Therefore the marketing managers should ensure that the bundle anchor's quality be emphasised so that the overall bundle evaluation is higher. A higher brand name or a high price can serve as an efficient signal to indicate the quality of the anchor.

3. Categorization Theory

Consumers tend to process the new and existing information in way so that they can categorise aspects and products into groups which are similar in characteristics. This helps consumers to process information and judge products by placing them into groups of products which they have formed into their memory through experience with them. If a new information or object is perceived to be similar to an existing object in the memory then that new object is grouped together with the existing memory object. This helps individuals to classify objects so as to determine their credibility. This serves as a heuristic method for individuals to judge certain new information or an object by comparing it with a reference which is formed by past experience (Cohen and Basu, 1987)

People perceive the environment to be complex and they suffer from excess information which they are not able to process meaningfully. Sujan (1985) proposes that

information about new objects can also be processed by evaluating individual attributes and adding them up in order to judge the entire object. But this process is burdensome and requires cognitive resources to process the information systematically. Since individuals tend to not expend cognitive resources for every task, they have to rely on heuristics to judge the attractiveness of the new object. Therefore the categorization of objects into groups depending on their attributes serves as an easy way to judge their degree of attractiveness in order to make an inference about their performance (Cohen, 1982).

Categorization also leads to the transference of the characteristics of the older category members to the new object as it is considered to be a part of that group. This categorization also leads to the inclusion of the new object in the evoked consideration set when the need of a certain product type arises. This helps certain new products to be considered for purchase and their quality perception might be overestimated as they are grouped together with other products whose quality has been checked by the consumers (Loken and Ward, 1990).

4. Elaboration likelihood model

The bundle components are capable of dictating the type of processing involved in the bundle evaluation and the evaluation of its individual components. The individuals with lower motivation and ability perceive the importance of a choice of a product as less risky and unimportant therefore they do not need greater product information and devote less attention to the advertisements (Zaichkowsky, 1985). Therefore persons with less motivation and ability rely on peripheral cues for the processing of the ad information. They do not want to process the information presented in the ads centrally as they do not find the need to expend their cognitive capacity.

However, the individuals with high motivation and ability are able to process the structures and themes cognitively as their cognitive capacity is higher than individuals with lower motivation and ability. Therefore the information produced in the environment will be processed and understood by using their cognitive resources in order to make the best decision as per the given information. This theory is based on the ELM (Elaboration Likelihood Model) (Petty and Cacioppo, 1986) which says that the

cognitive capacity of individuals is limited so the capability of processing the information centrally of that individual depends on the individual's capacity and motivation at that time.

5. Enhancement effect

Cohen (1982) has emphasised that the individuals resort to classifying the new objects with respect to the objects in the memory which have similar attributes. This categorisation leads to the transferring of the product attributes among the members in a particular category (Gilovich, 1981). As per ELM, the individuals who are unable to invest cognitive resources in order to process information systematically will look for peripheral routes to process the new information coming their way (Petty and Cacioppo, 1986).

Consumers take the bundling offer itself, as a peripheral cue and they tend to engage in low elaboration when faced with a bundling offer (Sheng and Pan, 2009). Therefore individuals exposed to a bundling offer will resort to categorisation process in order to judge the attractiveness of the new product which is bundled with the old product. Hence, the consumers will not expend their cognitive resources in processing the product information and rely on categorisation heuristic to judge the new product. They will perceive the new product to be in the same category as the old product in the bundle (Bodenhausen and Wyer, 1985).

Brand names are valuable as it takes a lot of time, effort and resources in order to create a positive perception of the brand in the consumer memory. Brand equity is an intangible asset of an organization which is built over a period of time due to the various types of associations, their strength, favourability and uniqueness (Keller, 1993). Therefore brands are capable of influencing consumers to act in way that they would not have had they been exposed to the similar marketing mix by an unnamed brand. Thus brand equity leads to positive attitude towards brands which leads to its success in the market.

The categorization process leads to the use of heuristic processing by the consumers as they categorise the new product with the same category as the old product in the

bundle. Therefore bundling a new product with a brand with a high brand image will lead to the categorisation of the new brand with the strong brand which will lead to the transfer of product attributes of the other stronger brands in that category to the new product. This will help in the positive evaluation of the new brand and lead to a better attitude towards the new brand. Similarly, the bundling of a new product with a brand with negative brand image will categorise the new brand in the group of brands which are weak and this will lead to a negative perception towards the new brand (Bodenhausen and Wyer, 1985). Therefore, in this research I use a brand which has a positive image to bundle with the new products. This will help in the positive evaluation of the new product in the bundle.

6. Bundle Complementarity

The complementarity of products in a particular bundle leads to various interesting results. Sheng et. al. (2007) focused on the functional complementarity of the bundled products which means that the bundled items are used together to perform a certain activity. They show that the discount offered to a particular product in the complementary bundle offer is distributed to the entire bundle instead of applying it to the individual product. This is due to the type of mental accounting which the consumers resort to while evaluating the complementary bundles. Therefore the perceived quality of the discounted products does not go down when they are in a complementary bundle when compared to in a non-complementary bundle. This shows that the consumers look at the complementary bundles as a unit to perform an activity rather than looking at them as separate products.

7. Complementarity and Categorisation

The complementarity of the bundle components affects the degree of categorisation. The level of complementarity between the bundled products will lead to the amount of affect transfer between products. If the brands are highly complementary then the new brand will be grouped in the category of the old brand and the affect transfer from the old products in the category to the new product will be high. Therefore the level of

congruity between the products in a bundle leads to a higher affect transfer (Meyers-Levy and Tybout, 1989).

However, the non-complementary products are not functionally related to one another and therefore are not expected to be used together to perform an activity. Therefore they are perceived to have a weak association between them. This leads to an incongruity between the bundles components due to the unexpected nature of the bundle component's compatibility. This incongruity leads to a higher level of information processing in order to resolve the incongruity (Meyers-Levy et al., 1994). In this condition the consumers are processing the information centrally with high levels of elaboration therefore they are less likely to resort to heuristic information processing to evaluate the new brand (Petty and Cacioppo, 1986). This will lead to systematic information processing without the categorisation heuristic and this will result in the consumers making a detailed and thorough evaluation of the specific attributes of the bundled new brand (Sujan, 1985). Therefore in this situation the affect transfer from the old product to the new brand will not be conducive.

Evidently, the enhancement effect is lower in the case of the non-complementary bundle offer. However, in the case of high bundle complementarity the peripheral route of information processing will lead to a higher association between the bundled products which will lead to the categorisation heuristic thus increasing the enhancement effect. The use of a strong brand to form the older product will lead to a positive evaluation of the new bundle component due to the enhancement effect (Sheng and Pan, 2009).

8. Bundle form

The mixed bundling form can be divided into two forms. The first form is the mixed leader bundle where "the price of one product in the bundle is discounted while the other product is listed at a regular price" (Sheng and Pan, 2009). The bundle offer is to buy the old product and get the new one at a discount. In this form the new product's discounted price is compared to its original price therefore the evaluation is done with respect to the new product alone. Due to the separation in the product evaluation the new product is considered to be in a separate category than that of the old product.

Thus the old brand will not have a significant impact on the evaluation of the new product leading to an attenuation of the enhancement effect.

The second form of bundling is called the mixed-joint. In the mixed-joint bundle offer a single price is set for the entire bundle. This form leads to the consumer evaluating the entire bundle together. Therefore the consumers tend to group the products in the same category which is dictated by the old brand which might be strong or weak. This increases the enhancement effect (Sheng and Pan, 2009). This study uses mixed-joint form as this is proven to have a greater enhancement effect than mixed-leader form. Thus we can explore the effects of other variables to see how one can increase the enhancement effects further.

9. Research Hypothesis

Moderating effect of bundle complementarity

The bundling of the products is considered as a peripheral cue by the consumers who are exposed to a bundle offer. This leads to heuristic information processing by the consumers who are evaluating the bundle components. The bundling of two products leads to the enhancement effect which leads to the transference of the product transfers the attributes of the strong brand to the new brand in the bundle. This enhancement effect leads to a higher degree of categorisation of the new brand (Sheng and Pan, 2009).

The new brand is more likely to be categorised with the strong product group due to the perception of similar product beliefs. The presence of a brand with a positive brand image will lead to a positive evaluation of the new product in the bundle as the strong brand is perceived to be reliable and of a higher quality. Therefore the quality perception of the new brand will be greater when bundled with a brand with a higher brand image than with a lower brand image.

The presence of complementary products in the bundle further adds to the impact of enhancement effects. The complementarity of the bundle components leads to a congruity perception which leads to the reservation of the cognitive processing. Such a combination leads to a lower amount of elaboration which leads to a greater heuristic

information processing, as per ELM (Petty and Cacioppo, 1986). Therefore there will be a greater affect transfer from the strong brand to the new brand in the bundle.

However, the non-complementary bundle components are likely to have a weak association with one another which reduces the likelihood of an affect transfer. The lack of functional relatedness increases the incongruity between the bundle components which increases the deviation from the expectation. This deviation leads to elaborate information processing with the use of cognitive resources in order to resolve the incongruity. This leads to a lesser incidence of categorisation heuristics and a lesser enhancement effect (Sujan, 1985).

Evidently, the presence of complementary bundle components increases the heuristics information processing which leads to a greater transference of product attributes from the strong brand to the new brand. Therefore the complementarity of the bundle components will lead to a greater transfer of the quality perception from the strong brand to the new brand in the bundle. Whereas, the non-complementary bundle offerings will lead to a smaller degree of transfer of quality perception from the strong to the new brand in the bundle. Therefore greater complementarity leads to a greater enhancement effect which leads to the categorisation of the new product in the "good quality products" category. This leads us to the first and the second hypotheses:

H1: Perceived quality of the new product will be higher (lower) when it is bundled with a higher (lower) level of complementary strong brand.

H2: The new brand will be grouped closer to a "high-quality brands" category when it is bundled with a strong brand which has a higher level of complementarity than the one with a lower level of complementarity.

Moderating effect of strong brand's price

The bundle evaluation explained by Yadav (1994) emphasises on the use of anchoring and adjustment theory. This theory proposes that the consumers evaluate the bundle components with insufficient adjustments and the evaluation of the overall bundle is skewed towards the evaluation of the bundle anchor. The consumers attach the greatest weight to the bundle anchor and therefore the positive evaluation of the anchor is important for the positive evaluation of the entire bundle. The consumers also tend to

evaluate the anchor first and then adjust the evaluation of the entire bundle as per the evaluation of the subsequent components.

The presence of a strong brand therefore helps in the evaluation of the entire bundle. Using brands with a strong brand image leads to their higher evaluation due to the positive attitude towards them. This leads to a better evaluation of the entire bundle. Sheng and Pan (2009) use strong brands to test the quality perception of a new brand which is bundled with it. They found that the presence of a strong brand helps in obtaining a higher quality perception of the new brand in the bundle. But the products used by them in this study are of the same price level.

As per the weighted average model, the higher evaluation of the anchor will lead to a higher evaluation of the entire bundle as the anchor is the product which is most important to the consumers. Therefore it is important to have the anchor which is positively evaluated and with a positive quality perception. The higher price of the strong bundle component will lead to a greater weight assigned to it in the bundle evaluation process. This will increase its chances of being considered as an anchor. Since the evaluation of the anchor dictates the evaluation of the entire bundle, it is important that the anchor is represented by the strong brand and not the new brand in the bundle.

Further, the higher price of the strong brand in the bundle will increase its likelihood of being the anchor and the subsequent new product being the less important product in the bundle. The positive evaluation of the strong brand is bound to take place due to its strong brand image. Additionally, the high price of the strong brand will lead to the assignment of a greater weight to it. This will lead to a further positive evaluation of the entire bundle as compared to bundles with similar brands but with the strong brand in the similar price range as the new product. The higher price difference (with strong brand price higher than new brand price) between the strong brand and the new brand will lead to a higher evaluation of the entire bundle due to the difference in the weight assigned to the strong brand in the bundle. Also, the price quality heuristics (Rao and Monroe, 1989) will increase the quality perception of the strong brand which will lead to a greater transfer quality attributes from the strong to the new brand in the case of the complementary products. This leads us to the third and the fourth hypotheses:

H3: Perceived quality of the new product will be higher (lower) when it is bundled with a strong brand of a higher (equal) price.

H4: The new brand will be grouped closer to a "high-quality brands" category when it is bundled with a strong brand of a higher price level than when it is bundled with a strong product of equal price.

The two-way interaction

Hypotheses 1 and 2 argue that the association between the two products in the bundle will be greater when they are complementary to each other when compared to products which are non-complementary each other. Therefore the complementary bundle products are more likely to be grouped together during the categorisation process which leads to the enhancement effect. This leads to a greater transfer of product attributes like quality perception from the stronger brand to the new brand. Further, the presence of a high priced strong brand increases the evaluation of the entire bundle due to the anchoring and adjustment phenomenon. Therefore the effect of complementarity on the quality perception of the new brand is influenced by the price of the strong brand. The high price of the strong brand increases its quality perception and the weight assigned to it in the bundle evaluation process. This improves the evaluation of the entire bundle due to the insufficient adjustments while evaluating the other components.

The transfer of affect from the strong to the new product is moderated by the high price of the strong brand as that brand is highly evaluated as compared to a strong brand with a lower price. Therefore the quality perception of the high priced strong brand is higher which gets transferred to the new brand in the case of high complementarity. This leads us to the fifth hypothesis:

H5: The high price of the strong brand in the bundle offer moderates the effect of complementarity on the quality perception of the new brand in the bundle. High price of the strong brand has a stronger (weaker) effect on the quality perception of the new product under higher (lower) levels of complementarity.

H6: The high price of the strong brand in the bundle offer moderates the effect of complementarity on categorisation of the new brand in the bundle. High price of the

strong brand has a stronger (weaker) effect on the categorisation of the new product under higher (lower) levels of complementarity.

10. Study 1

Method

Design

This study employed a 2 (complementarity: high vs. low) x 2 (Strong brand price: high vs. equal) between subjects factorial design. In every condition, the bundle consisted of a brand with a strong brand image and another fictitious brand. The bundle consisted of two products only. The evaluation of the strong brand and the complementarity of the products were confirmed with the help of pre-tests.

Materials and stimuli

A brand with a strong image was required to feature in every condition therefore "Sony" was chosen as the strong brand. The aim of the study was to check the quality perception of the new product in the bundle therefore it was important to use a fictitious product so that the subjects do not have any preconceived impression about it. A new brand of speakers called "Phobos" was used as the new bundle product.

The regular prices were obtained from the real market prices of the products used. The mixed-joint form of bundle discount was adopted as it is seen to have more affect transfer than the mixed-leader form (Sheng and Pan, 2009). A 10% discount was offered in all the conditions to eliminate any discount effects. The discount was framed in the following way "Buy a Sony VAIO Laptop and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!" The equal priced bundle offers were priced at Rs. 9,000 and the one with the high priced Sony products were priced at Rs. 31,500. The discount was not assigned to a particular product to eliminate the price-quality heuristics, in the case of the new product (Rao and Monroe, 1989). The details of the stimuli and the design of the experiment are presented in Appendix A.

Participants and procedure

Ninety seven students of a state university participated in this study and they were randomly assigned to one of the four experimental conditions. Table 1 shows the details of the subject assignment and the different conditions in this study. Further, 30 more subjects were assigned to the pre-test conditions to assess the complementarity of the products and the brand image of the products used in the experiment.

Table 1: Study 1-Subject distribution

Between-Subjects Factors			
		Value Label	N
Complementarity	1.00	complements	45
	2.00	non-complements	49
sony_price	1.00	high price	51
	2.00	equal price	43

The subjects were told that the exercise was a part of a lecture in order to prevent them from guessing the purpose of the study. They were asked to imagine that they were in an electronics store where they came across an ad which informed them about the current bundle offer. Further, they were asked to answer the question about the quality perception of the Phobos speaker system.

Results

Pretest

The pretest was conducted via an online questionnaire and thirty responses were obtained. Various combinations of products were suggested and the subjects were asked to rate the level of complementarity using the scales developed by Sheng et. al. (2007). The combinations which obtained significant complementarity ratings were selected for the study. ($M_{\text{laptop+speakers}} = 5.4$, $M_{\text{stereo+speakers}} = 5.8$, $M_{\text{camera+speakers}} = 2.3$).

The brand image rating was also tested to find the brand ratings for the categorisation process. ($M_{\text{sony}} = 6.2$, $M_{\text{LG}} = 5.8$, $M_{\text{Haier}} = 2.9$, $M_{\text{Akai}} = 3.2$).

Experimental results: Quality perception of Phobos

Table 2 shows the descriptive statistics of the study with respect to the two independent variables: complementarity and Sony product price level and the dependent variable which is quality perception of the new product in the bundle.

Table 2: Study 1- Quality perception: Descriptive statistics

Descriptive Statistics

Dependent Variable: quality_perception

complementarity	sony_price	Mean	Std. Deviation	N
complements	high price	5.2639	1.26254	24
	equal price	4.3333	1.11555	21
	Total	4.8296	1.27252	45
non-complements	high price	4.2840	1.27669	27
	equal price	4.1970	.90067	22
	Total	4.2449	1.11342	49
Total	high price	4.7451	1.35087	51
	equal price	4.2636	1.00148	43
	Total	4.5248	1.22156	94

Table 3 shows the results of the 2x2 ANOVA test on the quality perception of the new product, Phobos, in the experiment.

Table 3: Study 1- Quality perception: Results**Tests of Between-Subjects Effects**

Dependent Variable: quality_perception

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17.811 ^a	3	5.937	4.417	.006
Intercept	1902.575	1	1902.575	1415.549	.000
Complementarity	7.254	1	7.254	5.397	.022
sony_price	6.027	1	6.027	4.485	.037
complementarity * sony_price	4.143	1	4.143	3.082	.083
Error	120.965	90	1.344		
Total	2063.333	94			
Corrected Total	138.775	93			

a. R Squared = .128 (Adjusted R Squared = .099)

Main effects of the level of complementarity

Hypothesis 1 says that there will be a significant effect of the level of complementarity on the quality perception of the new brand in the bundle. The quality perception of the Phobos speakers was predicted to be higher in the case of complementary bundle products when compared to non-complementary bundles. As table 2 suggests, there is a significant enhancement effect ($F = 5.4$, $p < 0.05$) on the perceived quality of the new brand Phobos, under the condition of a complementary bundle offer when compared to the non-complementary offer ($M_{\text{complement}} = 4.82$, $M_{\text{non-complement}} = 4.24$). These results support H1.

Main effects of the price level of the strong product

Hypothesis 3 says that there will be a significant effect of the price level of the strong brand in the bundle on the quality perception of the new brand in the bundle. The quality perception of the Phobos speakers was predicted to be higher in the case of the

high price Sony product when compared to the equal priced Sony product in the bundle. As table 2 suggests, there is a significant enhancement effect ($F = 4.49, p < 0.05$) on the perceived quality of the new brand Phobos, under the condition of a higher priced Sony product bundle offer when compared to the equally price Sony product offer ($M_{\text{Sony_high_price}} = 4.75, M_{\text{Sony_equal_price}} = 4.26$). These results support H3.

Interaction effect

Hypothesis 5 says that there is a significant interaction effect between the level of complementarity of the bundle products and the price level of the strong brand, as depicted in Figure 1. It says that the enhancement effect in the complementary bundle offer will be greater when the price of the strong brand will be higher than the new brand. This effect will be consistently lower in the non-complementary condition. As shown in table 2, the interaction between bundle complementarity and strong brand price is moderately significant ($F = 3.08, p < 0.1$). This moderately supports hypothesis 5.

To further explain this result, let us consider the case of complementary bundle offer. The results of this study show that the perceived quality of the new product is higher when it is bundled with a high priced strong product than when bundled with an equally priced strong product ($M_{\text{Sony_high_price}} = 5.26, M_{\text{Sony_equal_price}} = 4.33, t = 2.6, p < 0.05$). However, in the case where the bundled products are non-complementary, the enhancement effect is considerably lower in both the high and equal priced strong brand conditions. But the high priced condition shows a better enhancement effect than the equal priced strong brand condition ($M_{\text{Sony_high_price}} = 4.28, M_{\text{Sony_equal_price}} = 4.19, t = 0.28, p < 0.1$).

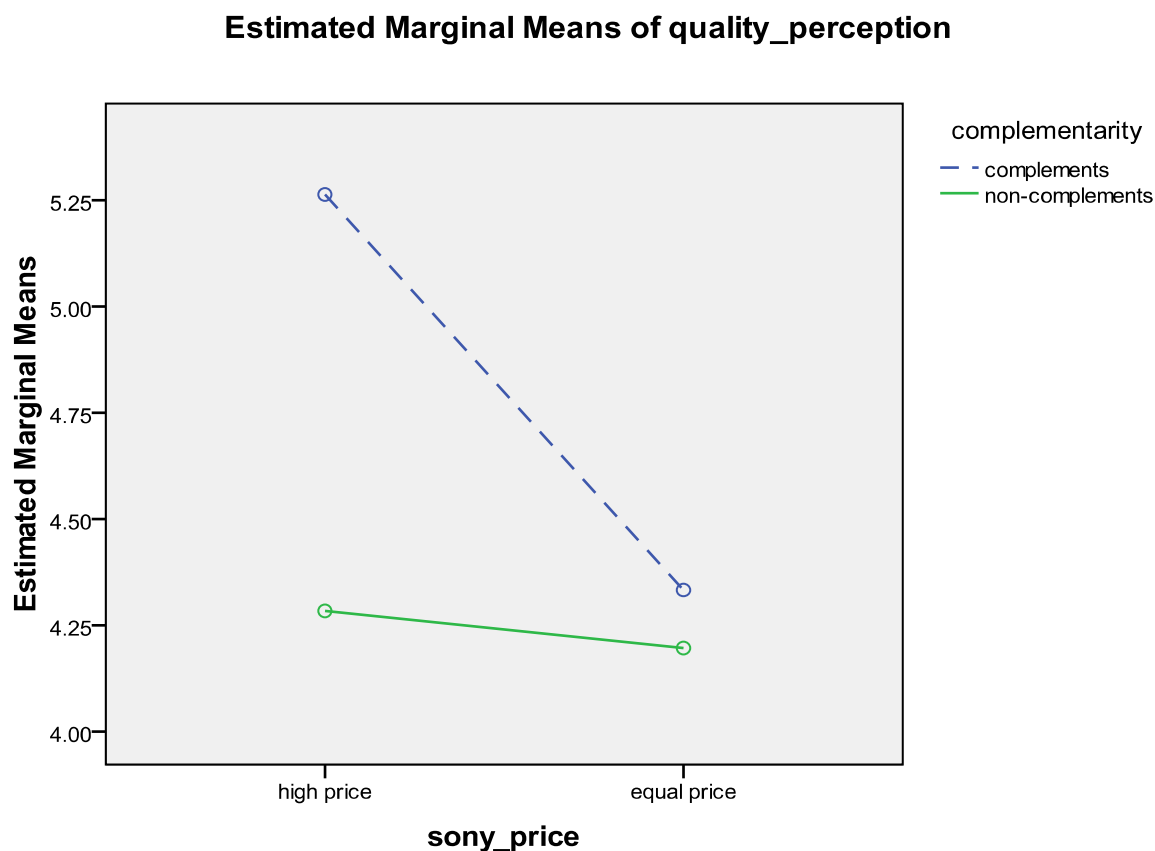
Figure 1: Study 1- Quality perception: Interaction effect**Experimental results: Categorisation of Phobos**

Table 4 shows the descriptive statistics of the study with respect to the two independent variables: complementarity and Sony product price level and the dependent variable which is categorisation of the new product in the bundle.

Table 4: Study 1- Categorisation: Descriptive statistics

Descriptive Statistics

Dependent Variable:categorisation

complementarity	sony_price	Mean	Std. Deviation	N
complements	high price	4.917	1.3805	24
	equal price	4.048	1.2440	21
	Total	4.511	1.3755	45

non-complements	high price	3.741	1.1633	27
	equal price	3.500	1.5040	22
	Total	3.633	1.3180	49
Total	high price	4.294	1.3899	51
	equal price	3.767	1.3945	43
	Total	4.053	1.4094	94

Table 5 shows the results of the 2x2 ANOVA test on the categorisation of the new product, Phobos, in the experiment.

Table 5: Study 1- Categorisation: Results

Tests of Between-Subjects Effects

Dependent Variable: categorisation

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27.263 ^a	3	9.088	5.194	.002
Intercept	1528.740	1	1528.740	873.727	.000
Complementarity	17.293	1	17.293	9.884	.002
sony_price	7.170	1	7.170	4.098	.046
complementarity * sony_price	2.298	1	2.298	1.313	.255
Error	157.471	90	1.750		
Total	1729.000	94			
Corrected Total	184.734	93			

a. R Squared = .148 (Adjusted R Squared = .119)

Main effects of the level of complementarity

Hypothesis 2 says that there will be a significant effect of the level of complementarity on the categorisation of the new brand in the bundle. The categorisation of the Phobos speakers was predicted to be higher in the case of complementary bundle products when compared to non-complementary bundles. As table 5 suggests, there is a

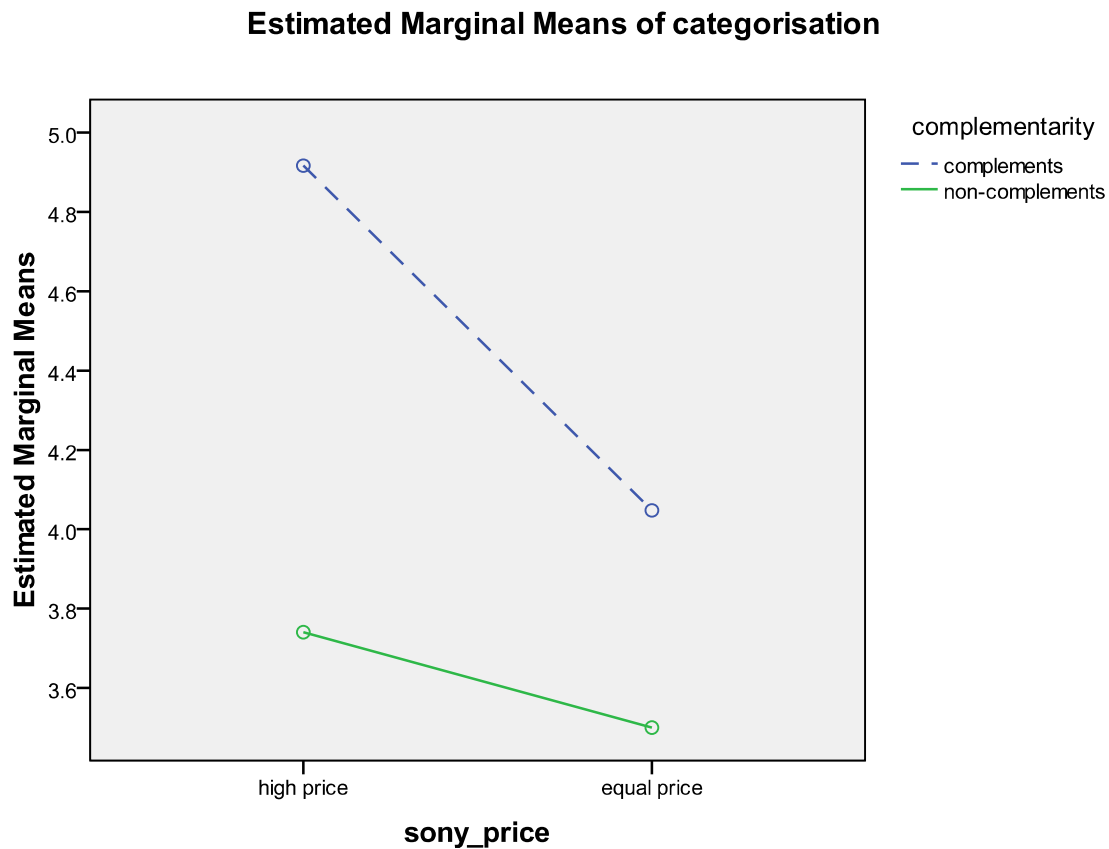
significant enhancement effect ($F = 9.88, p < 0.01$) on the categorisation of the new brand Phobos, under the condition of a complementary bundle offer when compared to the non-complementary offer ($M_{\text{complement}} = 4.5, M_{\text{non-complement}} = 3.6$). These results support H2.

Main effects of the price level of the strong product

Hypothesis 4 says that there will be a significant effect of the price level of the strong brand in the bundle on the categorisation of the new brand in the bundle. The categorisation of the Phobos speakers was predicted to be higher in the case of the high price Sony product when compared to the equal priced Sony product in the bundle. As table 2 suggests, there is a significant enhancement effect ($F = 4.1, p < 0.05$) on the categorisation of the new brand Phobos, under the condition of a higher priced Sony product bundle offer when compared to the equally price Sony product offer ($M_{\text{Sony_high_price}} = 4.3, M_{\text{Sony_equal_price}} = 3.8$). These results support H4.

Interaction effect

Hypothesis 6 says that there is a significant interaction effect between the level of complementarity of the bundle products and the price level of the strong brand. It says that the enhancement effect in the complementary bundle offer will be greater when the price of the strong brand will be higher than the new brand. This effect will be consistently lower in the non-complementary condition. However, as shown in table 5, the interaction between bundle complementarity and strong brand price is not significant ($F = 1.13, p < 0.3$). This does not support hypothesis 5. (Figure 2)

Figure 2: Study 1- Categorisation: Interaction effect

Manipulation checks

Manipulation checks were present for the complementarity levels, price level difference between Sony and Phobos products and the brand image of Sony. Consistent with the expected manipulation, the complementarity condition were successful as subjects reported a higher level of complementarity for the complementary conditions ($M_{\text{complement}} = 5.34$, $M_{\text{non-complement}} = 2.65$, $t = 11.1$, $p < 0.001$). The subjects also recognised the price manipulation of the Sony product in the bundle ($M_{\text{Sony_high_price}} = 5.75$, $M_{\text{Sony_equal_price}} = 3.79$, $t = 6.25$, $p < 0.001$). The brand image of Sony was also rated high by the subjects ($M = 5.82$), as per the manipulation intended.

Ancillary analysis

The strong brand is used to promote a new brand using bundles as a purchase inducing mechanism. The high quality perception of the strong product is expected to increase

the quality perception of the new brand. However, there might be a reverse effect on the quality perception of the strong brand when it is bundled with a relatively new product. Therefore we need to check if the bundling process harms the quality perception of the strong brand.

In this study, the participants indicated their quality perception of the Sony products after their exposure to the ads in the four conditions. There was no significant effect on the brand image of the Sony products when bundled with the Phobos speakers. Therefore we can say that the bundling of a strong product with a new brand does not harm the brand image of the strong brand in the bundle. But this result is valid only for the exposure effects and not the usage effects on the brand image.

Performing an ANOVA with quality perception of the Sony product as the dependent variable and keeping the same independent variables shows no significant effect of the manipulations in Study 1. Table 6 shows the results.

Table 6: Study 1 - Ancillary analysis

Tests of Between-Subjects Effects

Dependent Variable: man_chk_Sony_qual

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.805 ^a	3	.268	.186	.905
Intercept	2602.577	1	2602.577	1809.165	.000
complementarity	.026	1	.026	.018	.894
sony_price	.559	1	.559	.388	.535
complementarity * sony_price	.238	1	.238	.165	.685
Error	129.470	90	1.439		
Total	2761.556	94			
Corrected Total	130.274	93			

a. R Squared = .006 (Adjusted R Squared = -.027)

The results show no significant effect on the Sony quality perception by the bundling in various conditions.

Discussion

The results of Study 1 show that while introducing products in a bundle, they should be bundled with a strong brand of a price level higher than the new product. The bundles which had new products of the same price category as the strong brands were rated lower in quality than the ones which were bundled with strong brands with higher price. Additionally, having complementary products have an interaction effect on the quality perception of the new product. Therefore new products are perceived to be of a higher quality when they are bundled with a strong brand of a higher price category and which is complementary to the new product.

However, the categorisation theory was not proved in this study as the interaction effect between the price of the strong brand and the bundle complementarity was not highly significant. But the main effects of complementarity and strong brand price were supported. The complementary bundle condition is capable of inducing a comprehensive mental accounting in the minds of the consumers. Therefore there is a chance that the quality perception of one brand can influence the quality perception of the other. We saw that the quality perception of the strong brand influences the perception of the new brand. In this manner, there might be a possibility that the perception of the new brand can also affect the perception of the strong brand in the bundle. I explore this idea in the next study.

11. Study 2

The enhancement effect explored in the previous study was considered to be an affect transfer from the strong brand to the new brand in the same bundle. The consumers use the bundling as a cue and classify the brands in the same category. This condition was seen to increase in the bundles in which the products were complementary. The product attributes were readily transferred from the strong brand to the new brand. (Sheng and Pan, 2009).

The quality assurance is an important factor in the assessment of any product (Darke and Chung, 2005). If the quality assurance is available through an external source then the consumer's perception of quality of a product increases. Therefore this study uses a

condition in which the Phobos product is given a quality assurance by introducing it as a brand extension of Sony. Associating Phobos with Sony gives it the perception of higher quality due to the brand image of Sony (Park et. al., 1996; Keller, 1993).

The quality assurance in the form of a brand extension is capable of influencing the quality perception of the other brand in the bundle. When a brand is associated with a product of a questionable quality the trust on the older brand is in jeopardy as it is inducing consumers in taking risks. The affect transfer hypothesis says that the association of a strong brand with a weak brand can hamper the quality perception of the strong brand (MacKenzie, Lutz and Belch, 1986).

Therefore bundling a stronger brand with a brand whose quality is assured has a reduced negative effect on the strong brand. However, the association of a strong brand with a new brand whose quality is in question can be harmful for the strong brand as consumers might lose trust in it (Keller, 1993). This theory leads us to the seventh hypothesis.

H7: Perceived quality of the strong brand will be higher (lower) when it is bundled with a brand whose quality is (not) assured.

As suggested in Study 1, greater the complementarity, greater the use of comprehensive mental accounting by the consumers. Therefore the enhancement and categorisation process is greater while evaluating complementary bundle products. Since the brand quality heuristics lead to the affect transfer from the strong to the new brand, it is also capable of working in the opposite direction. Therefore the bundling of the strong brand with a brand whose quality is assured should have a greater positive effect the strong brand in the bundle when the offer is of complementary products than when it is non-complementary. Therefore while having complementary bundle offers the strong brand is better off in bundling with another brand whose quality is assured as the quality perception of the new brand can affect the evaluation of the strong brand. This brings us to the eighth hypothesis.

H8: Complementarity of the bundle components moderates the effects of the new component's quality assurance on the quality perception of the strong brand. Quality assurance has a stronger (weaker) effect on the quality perception of the strong brand under high (low) levels of complementarity of the bundle products.

Method

Design

This study employed a 2 (complementarity: high vs. low) x 2 (Phobos quality: assured vs. Not assured) between subjects factorial design. In every condition, the bundle consisted of a strong brand of a higher price and another brand which less expensive. The manipulation was that the other brand was either a brand extension of the strong brand or a new product. The bundle consisted of two products only. The evaluation of the strong brand and the complementarity of the products were confirmed with the help of pre-tests.

Materials and stimuli

A brand with a strong image was required to feature in every condition therefore "Sony" was chosen as the strong brand. The aim of the study was to check the quality perception of the Sony product in the bundle. The Sony product was of a higher price than the other product.

The regular prices were obtained from the real market prices of the products used. The mixed-joint form of bundle discount was adopted as it is seen to have more affect transfer than the mixed-leader form (Sheng and Pan, 2009). A 10% discount was offered in all the conditions to eliminate any discount effects. The discount was framed in the following way "Buy a Sony VAIO Laptop and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!" The bundles were priced at Rs. 31,500. The discount was not assigned to a particular product to eliminate the price-quality heuristics, in the case of the new product (Rao and Monroe, 1989). The details of the stimuli and the design of the experiment are presented in Appendix B.

Participants and procedure

Eighty three students of a state university participated in this study and they were randomly assigned to one of the four experimental conditions. Table 7 shows the details of the subject assignment and the different conditions in this study. The pretests used for this study were the same as the one used for study 2.

Table 7: Study 2-Subject distribution

Between-Subjects Factors			
		Value Label	N
Complement	1.00	complements	40
	2.00	non-complements	43
Quality assurance	1.00	no quality assurance	42
	2.00	quality assurance	41

The subjects were told that the exercise was a part of a lecture in order to prevent them from guessing the purpose of the study. They were asked to imagine that they were in an electronics store where they came across an ad which informed them about the current bundle offer. Further, they were asked to answer the question about the quality perception of the Sony product.

Results

Experimental results: Quality perception of Sony products

Table 8 shows the descriptive statistics of the study with respect to the two independent variables: complementarity and Phobos quality assurance and the dependent variable which is quality perception of the Sony product in the bundle.

Table 8: Study 2- Sony's Quality perception: Descriptive statistics

Descriptive Statistics				
Dependent Variable: Sony' s quality perception				
complement	Quality assurance	Mean	Std. Deviation	N
complements	no quality assurance	5.3833	1.63398	20
	quality assurance	6.0500	1.24382	20
	Total	5.7167	1.47254	40
non-complements	no quality assurance	5.3485	1.02600	22
	quality assurance	5.7778	1.45424	21

	Total	5.5581	1.25719	43
Total	no quality assurance	5.3651	1.33295	42
	quality assurance	5.9106	1.34583	41
	Total	5.6345	1.35912	83

Table 9 shows the results of the 2x2 ANOVA test on the quality perception of the Sony product, in the experiment.

Table 9: Study 2- Sony's quality perception: Results

Tests of Between-Subjects Effects

Dependent Variable: Sony' s quality perception

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.945 ^a	3	2.315	1.265	.292
Intercept	2635.966	1	2635.966	1440.871	.000
Complement	.488	1	.488	.267	.607
qual_assurance	6.221	1	6.221	3.401	.069
complement * qual_assurance	.292	1	.292	.160	.691
Error	144.525	79	1.829		
Total	2786.556	83			
Corrected Total	151.470	82			

a. R Squared = .046 (Adjusted R Squared = .010)

Main effects of the quality assurance

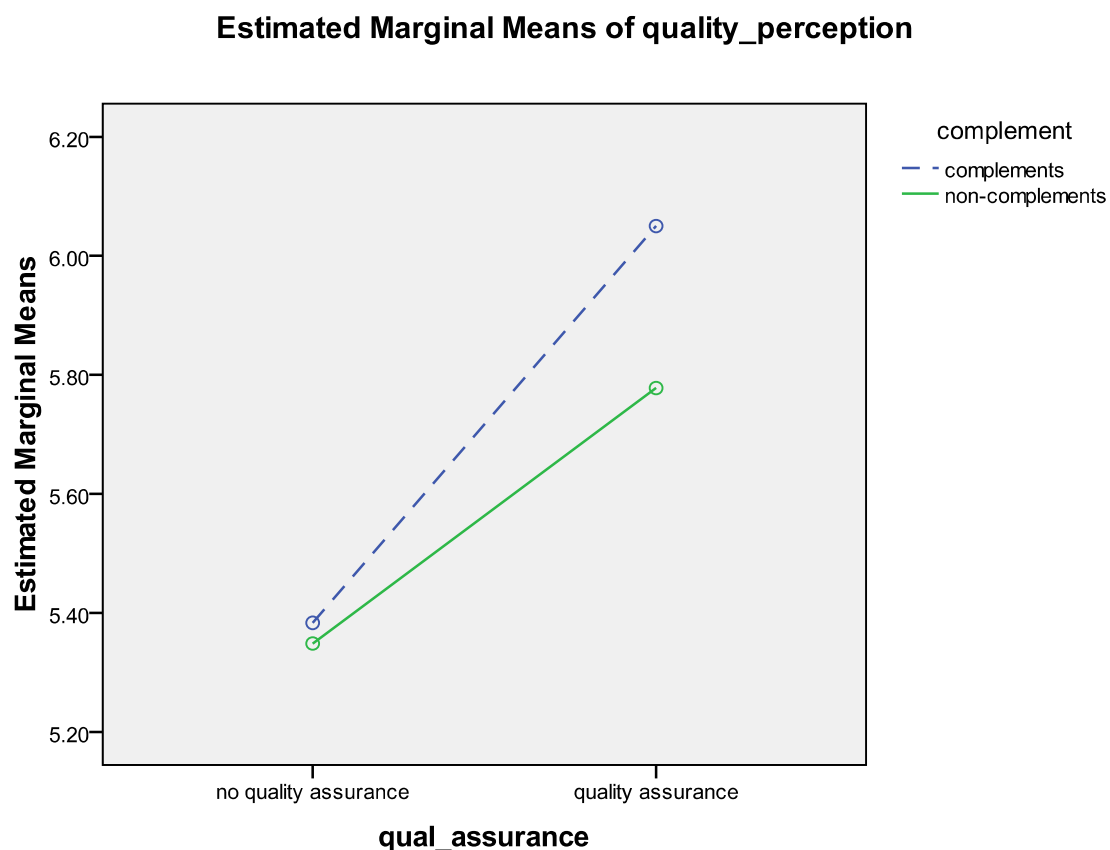
Hypothesis 7 says that there will be a significant effect of the quality assurance of the new brand in the bundle on the quality perception of the strong brand in the bundle. The quality perception of the Sony product was predicted to be higher in the case of the quality assured Phobos product when compared to the absence of the quality assurance of the Phobos product. As table 9 suggests, there is a moderately significant reverse enhancement effect ($F = 3.4$, $p < 0.1$) on the quality perception of the Sony product, under the condition where the Phobos product was introduced as a brand extension of

Sony compared to a standalone product ($M_{\text{quality assurance}} = 5.91$, $M_{\text{no quality assurance}} = 5.37$). These results support H7.

Interaction effect

Hypothesis 8 says that there is a significant interaction effect between the level of complementarity of the bundle products and the quality assurance of the new brand. It says that the reverse enhancement effect in the complementary bundle offer will be greater when the new product's quality will be assured as compared to the opposite. This effect will be consistently lower in the non-complementary condition. However, as shown in table 9, the interaction between bundle complementarity and the new brand's quality assurance is not significant ($F = 0.16$). This does not support hypothesis 8. (Figure 3)

Figure 3: Study 2- Sony's quality perception: Interaction effect



Discussion

Study 1 tested the effects of bundling on the quality perception of the strong brand but there was no significant difference in the various manipulations. However, study 2 tested the effects on the strong brand's quality perception by manipulating the quality assurance of the new brand and complementarity and found that the quality assurance's effect was significant. This shows that the bundling can harm the quality perception of even a strong brand if it is bundled with a brand of questionable quality.

12. General discussion

This study tries to further understand the consumer's bundle evaluation process, using the findings in the earlier research in this field in order to extend the research. Bundles often consist of components which are new in the market. The aim is to push the new products and induce consumer trials by tying these products with products of a well-established brand. This process is conducive in helping the new brand to be sold along with a brand with a strong image so as to increase the new brand's sales in the initial period of its introduction. Therefore it is imperative to understand the consumer's evaluation of various bundle offers so as to form bundles which produce the desired results.

Evidently, it is important to understand the effects of bundling on the consumer's perception of the new product. The functional relationship between the bundled products has an effect on the perception of quality of the product which the consumers are unfamiliar with. Also, the perception of the quality of the bundle partner dictates the perception of quality of the new product. These findings, from the previous research, paved way for this study by manipulation of the price of the stronger product in the bundle under different levels of bundle complementarity to check the effect on the perceived quality of the new product.

This study varies the level of complementarity and the price of the strong product in the bundle and checks for the impact on the quality perception of the new product. The results show that the high price of the strong brand in the bundle significantly impacts the quality perception of the new product. Additionally, the level of complementarity

also has a main effect on the quality perception due to the enhancement effect. There is a significant interaction effect of the level of complementarity and the price of the strong brand in the bundle on the quality perception of the new product.

This study was also used to understand the effect of the above manipulations on the categorisation heuristic which the consumers resorted to while being exposed to the bundle offers. The main effects of complementarity and high price of the strong product were significant but the interaction of the two was not significant on the quality perception of the new product. This shows that the categorisation of the new product is higher when it is bundled with a stronger brand of a higher price when compared to a stronger brand of equal price.

The second experiment was conducted in order to find out the effects of bundling on the strong brand. Here, the two manipulations were of the level of complementarity and the quality assurance of the new product in the bundle. The quality perception of the strong brand was tested in these cases. The results show that only the main effects of quality assurance of the new brand were significant. Therefore these results signify that it is a good practice to bundle the strong products with a new product of a strong quality perception failing to which the quality perception of the strong brand may deteriorate.

13. Managerial implications

The past research, in this field, has shown that bundling the new product with a strong brand is beneficial to it as this improves the quality perception of the new brand (Sheng and Pan, 2009). But this study takes the research one step further by studying the effects of the strong brand's price on the enhancement effect. The experiment shows that a new product is better off when it is bundled with a strong brand of a higher price. Therefore a bundle should be designed such that one sells complementary products with the strong brand of a higher price to increase the enhancement effects and induce favourable categorisation.

The introductory products need a positive evaluation for them to prosper in the market therefore they need to be introduced carefully by associating them with products which are suitable for their evaluation. An association with a strong brand will certainly help

the new product and the additional high price of the strong brand will help to further increase the enhancement effect due to the anchoring and adjustment process.

However, the position of the strong brand should not be taken for granted as the negative quality perception of the new brand can deteriorate the quality perception of the strong brand due to the reverse enhancement effect. Therefore the strong brands should associate themselves with new brands which are quality assured. Therefore even the strong brands should carefully choose their bundle partners.

14. Future research and limitations

The usage of a 10 percent discount on the bundle offers was arbitrarily set and the effect of this bundle on the transaction utility of the bundle was not studied. This could have affected the level of bundle attractiveness which could have biased the opinion of the subjects on the responses. The transaction utility of the bundle offer could have been used as a control variable to eliminate its effect on the desired results. This could have resulted in a more concrete set of responses.

The future research in this field can include the product category involvement as an independent variable to test the effects of price-quality heuristics on the quality perception of the new product. The varying discounts can also be included to understand the discount effects on the quality perception. This could have helped us understand the effect of transaction utility on the quality perception of the new product. The future research can also focus on collecting data from the field by intercepting individuals in a mall who are interested in buying speakers. This will help in collecting data which is more indicative of the response which a bundle offer can generate on the concerned population.

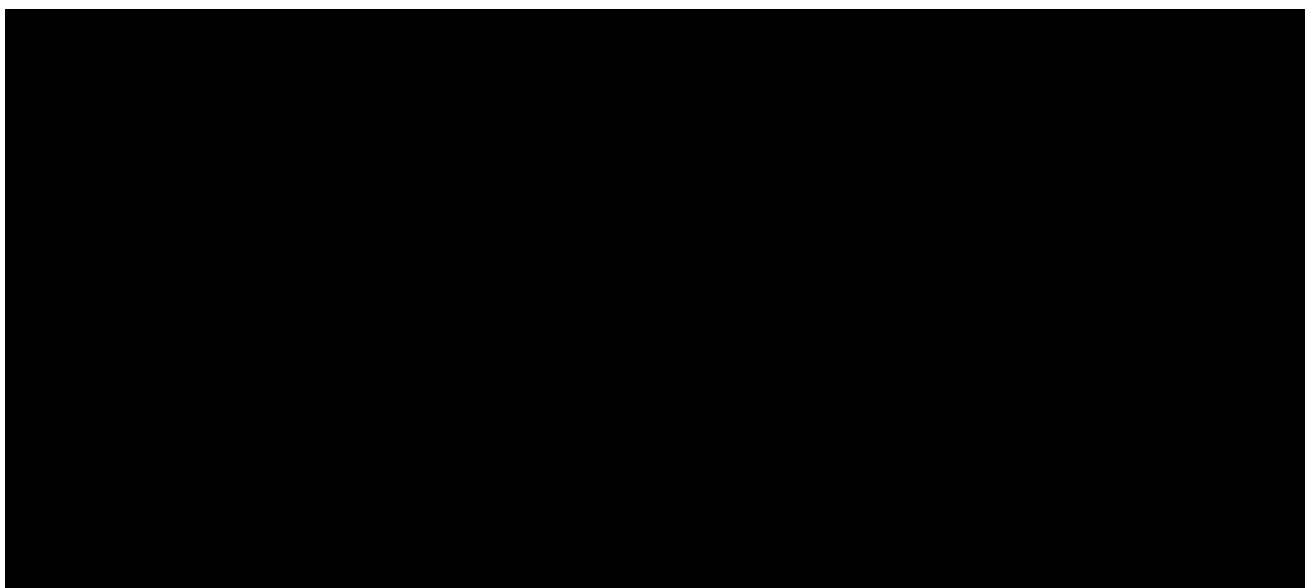
Appendix A: Experimental Design and Stimuli Used in Study 1

Complementarity	Partner brand price	Regular offer		Bundle
		Product	Price	
High	High	A: Sony Laptop	Rs. 30,000	Buy a Sony Laptop and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	
High	Low	A: Sony Stereo	Rs. 5,000	Buy a Sony Stereo and the Phobos Multimedia Speakers as a set for Rs. 9,000 only!!!
		B: Phobos Speakers	Rs. 5,000	
Low	High	A: Sony SLR Camera	Rs. 30,000	Buy a Sony SLR Camera and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	
Low	Low	A: Sony Digital Camera	Rs. 5,000	Buy a Sony Digital Camera and the Phobos Multimedia Speakers as a set for Rs. 9,000 only!!!
		B: Phobos Speakers	Rs. 5,000	

Appendix B: Experimental Design and Stimuli Used in Study 2

Complementarity	Quality Assurance New Product	Regular offer		Bundle
		Product	Price	
High	High	A: Sony Laptop	Rs. 30,000	Buy a Sony Laptop and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	
High	Low	A: Sony Laptop	Rs. 30,000	Buy a Sony Laptop and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	
Low	High	A: Sony SLR Camera	Rs. 30,000	Buy a Sony SLR Camera and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	
Low	Low	A: Sony SLR Camera	Rs. 30,000	Buy a Sony SLR Camera and the Phobos Multimedia Speakers as a set for Rs. 31,500 only!!!
		B: Phobos Speakers	Rs. 5,000	

Appendix C: Scales for experiments



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