Pricing Experiment in Bengaluru

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***Abstract*—The study investigated the influence of price on the perception of product quality through a field experiment conducted at an international school in Bengaluru, India. Originally inspired by the "Cakes of Deception" experiment from Brain Games [12]. The aim of the experiment was to study whether higher prices associate with higher perceived quality supported by theories such as Price-Quality Inference and Sensation Transference. Two identical cakes - labeled at ₹1500 and ₹700 were offered for tasting and later given a questionnaire to test perceived quality. The questionnaire had 91 respondents consisting of students, parents and teachers/faculty members. Results show that price is a powerful heuristic for shaping perceived value.**

***Index Terms*—Behavioural Pricing, Consumer Behaviour, Perceived Value, Price-Quality Inference, Sensation Transference,**

I. INTRODUCTION

Pricing is a process of deciding what a business will receive in exchange for goods or services they sell. A price is a monetary value that involves extensive thought process to determine. The lowest price attracts more customers but reduces overall profitability of the business. On the other hand, higher prices attracts fewer customers but increases the overall profitability of the business [6].

Behavioural pricing refers to a method for setting a price based on consumer behaviour trends. Firms need large amount of data from customers themselves to set a fair yet profitable value for their products. Frequently, customers use their own heuristics to irrationally evaluate unfamiliar or pleasing products [5]. This is when the phenomenon of price-quality inference appears.

Price-quality inference refers to how customers use price to dictate the quality of a product, first theorised by American Economist Tibor Scitovsky and refined by other economists thereafter [13]. A classic illustration of this theory is in the *Brain Games* television series episode titled, "Cakes of Deception", participants were given identical chocolate cakes, sole difference exists on the shape (square or round), to rate based on the price labels. Participants associated the cake with a higher price as more flavourful and better quality. Despite, both cakes having the exact same taste in reality [12].

The research aims to replicate the same experiment to see whether price-perception biases such as the difference in quality also applies to a more educated audience of students, parents and teachers in an International School in Bengaluru, India.

1.1 Research Question

To what extent does pricing affect consumer behaviour and perception on quality?

1.2 Research Objectives

- Replicate the "Cakes of Deception" pricing experiment within a school environment [12].
- Investigate whether higher prices result in higher perceived quality amongst students, teachers and parents.
- Evaluate if perception of value changes purely based on price labels.
- Understand the importance of pricing for businesses and how they are determined.

II. LITERATURE REVIEW

2.1 Theories and Models

The Price-Quality Inference Model meant that consumers generally use price to infer quality, so if the price of a product increases so will it's quality. Furthermore, in studies from Kardes et al. (2004) showed that individuals that use system I thinking: fast, spontaneous and automatic, when rating a set of wine brands they tend to assume what they deem obvious (high price = high quality). However, when they employ system II thinking: slow, deliberate and

effortful, they are more likely to make better judgements [12]. In this instance, Kardes et al. tested if parents or students may believe a more expensive school program is better when in reality it's the exact same as the cheaper one [10].

Figure 1: Price-Quality Inference Model flowchart shows how Price Influences Perceived Quality with Moderating Factors [2].

The Anchoring Effect theorised by Tversky and Kahneman (1974) discovered that individuals are inadequately calibrated right after the first value they encounter, therefore, initial price exposure strongly impacts perceived value [20]. Similarly, Ariely et al. (2003) asked if students were willing to pay the dollar amount equivalent to the last 2 digits of their social security number for a product. Afterwards, they were again asked their actual willingness to pay (WTP) for the product. Those with a higher social security number were willing to pay a higher price for the product. Hence, the social security number served as an anchor for the WTP [1].

Another example can be introducing the high-priced option first which is an anchor that makes other prices seem affordable and better quality, regardless of it's actual value.

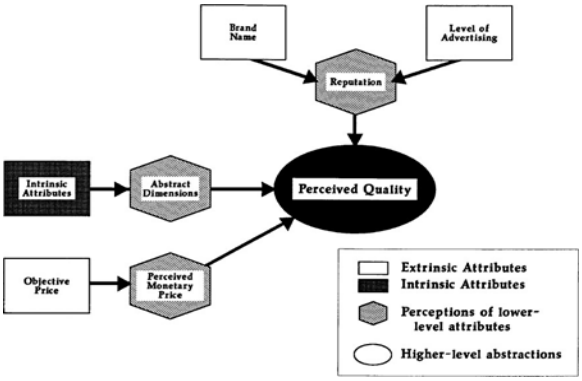

Figure 2: Flowchart Mapping the Anchoring Effect [3].

The Decoy Pricing Model, also known as Asymmetric Dominance is when businesses add a less attractive third option that lures consumers attention to the target product. The effectiveness of the decoy was proven by Huber, Payne, and Puto (1982) conducted controlled experiments with different product categories (e.g cars). They found that adding a decoy increases the selection of the target product, transcending traditional assumptions regarding rational purchasing behaviour and regularity condition (adding a new choice should not increase the probability of choosing an existing one). To summarise, the introduction of an alternative with a slightly skewed price will likely influence participants preferences [9].

Figure 3: Decoy Pricing Model Example [19].

Charm pricing refers to small changes to how a price is presented can alter consumer perception. Schindler and Kibarian (1996) discovered a common example of .99 ending prices. His observations show that consumers see ₹999 as closer to ₹900 than ₹1000. This is because individuals tend to utilise system I thinking more often then not by only paying attention to the first digit. This suggests that judgements may be influenced by how prices are framed, rather than actual quality/value itself [17].

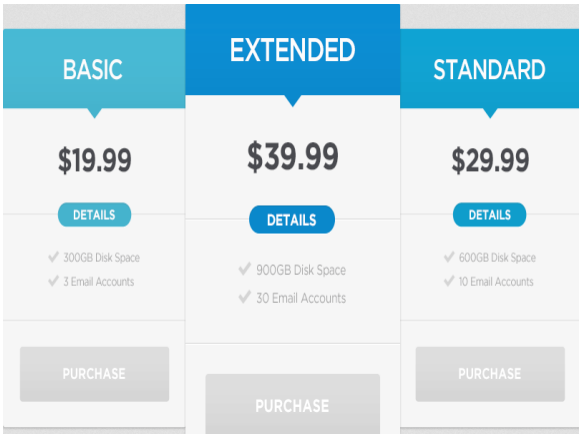

Figure 4: Charm Pricing Example [14].

2.2 Cognitive Research

Rao and Monroe (1989) challenged the assumption of high price is high quality based on general consumer perspectives. Their study found that this relationship weakens with the introduction of familiarity and direct inspection. If a consumer has notable interaction with the same or similar products, they are more likely to rely on their own judgement rather than external price cues. Also, by tasting or physical examination individuals are more likely to accurately evaluate a product [16].

Shiv, Carmon, and Ariely (2005) discovered that consumer's perception on price not only influences their perception on quality but also performance. Participants in their sequence of experiments consumed an energy drink (SoBe®) for enhancing sharpness of the mind. Selective participants paid the full price for this energy drink and selective participants paid a discounted price. Those who paid the full price consistently performed better when given puzzle-solving tasks compared to who received a discounted drink. Participants also derived greater enjoyment with the full price drink. Hence, they concluded that marketing cues like pricing can be strong enough to change real-world outcomes and that the placebo effect is applicable not only in medicine but in consumer behaviour. This suggests that products that are priced fairly low can diminish it's own effectiveness in the eyes of customers [18].

Researchers from Yale and Singapore (2013) conducted an experiment where participants were given 2 packs of chewing gum and 2 conditions. One set of participants were given pack of gums priced the same amount at 63 cents. The other set of participants were given differently priced pack of gums (62 cents and 64 cents). In a surprising revelation, when the packs were priced the same only 46% of participants chose to purchase it but when they were different 77% chose to purchase it. This shows with even a slight price fluctuation, consumers feel they are making the right choice driving buying behaviour [7].

Kurz, Efendić and Goukens (2023) conducted a large scale study with 2800 participants (university students and online respondents). They were exposed to identical products but different price labels. As a result, before using the product, participants expected higher price will allow greater enjoyment. However, once they used the product, their evaluations, regarding quality and enjoyment, did not differ from price-to-price. This may suggest price may not affect perception of quality for all products rather it's context-dependent. Hence, the generalisability of the marketing placebo effect and the price-quality inference model can be questionable as per the results of this study [11].

Park and Jang (2025) explored the spatial positioning of price information, focused on online forums. The researcher lead a series of experiments that involved digital product displays. The original and discounted price of a product was manipulated with one placed on the left and the other on the right respectively. When the regular price was placed on the left it served as an anchor. Individuals felt that the discounted price was a better deal and the product quality was better but in fact it was the same. This misconception is often noticed when individuals are browsing swiftly and not paying too much attention when making purchases. These findings exemplify that the order in which prices are shown can affect how superior something may seem [15].

III. METHODOLOGY

3.1 Experimental Design and Sampling Method

The study is a field experiment taken place in the natural setting of a school. However, it is also a correlational study with the independent variable being manipulated. The independent variable is 2 different price labels assigned to identical cakes (Cake A at ₹700 vs. Cake B at ₹1500). The dependent variable is the perceived quality measured by participants preferences and feedback on the taste. The study employs a convenience sample of students, parents and teachers who are available to join us during shell week (gathering of new students joining after the summer holidays). This sampling method is employed because of accessibility and ease. All the participants were asked to fill out a questionnaire with the assistant of our researchers. There were 91 respondents in total:

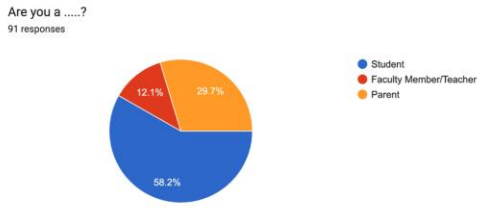

Figure 5: Pie chart showcasing the participant categories by percentage.

A vast majority of the participants were students, a considerable amount of parents and only a few faculty members were able to join us.

3.2 Procedure

The primary objective of this study is to investigate whether price labels alone can influence participants perceptions on identical cakes.

Phase 1: Preparation

- Duration: 1 week
- Procedure:

1. Two cakes were prepared to be identical in flavour, ingredients, size and icing. The only difference was the shape, one cake was square-shaped and the other was circular.
2. Printed price labels were designed and placed next to the cakes:

- Square-shaped cake: Labeled at ₹1500
- Circle-shaped cake: Labeled at ₹700

3. The labels were professionally designed and mounted on stands.
4. The ₹1500 cake will be placed on the left side and the ₹700 will be placed on the right side of the table [15].
5. A poster was also printed and placed in the backdrop.

Since, we were expecting many participants we had 2 stalls in different locations with 2 cakes each.

Phase 2: Execution

- Duration: 3 hours
- Procedure:

1. Each stall had three researchers responsible for:

- Providing clear and coherent instructions
- Serving the cakes
- Collecting responses using two designated iPads preloaded with the online questionnaire

2. Two researchers were appointed nearby to oversee the crowd management.
3. Once participants finished tasting both cakes they were handed a questionnaire which included:

- Participant Type (Student, Parent or Teacher)
- A preference between the two cakes
- Reasons for the preferred choice

3.3 Hypothesis

Null Hypothesis (H_0) - There is no significant relationship between the price (₹700 and ₹1500) and the perceived quality or preference between the cakes.

The hypothesis is supported by Rao and Monroe (1889) as a majority of the participants are of young age which makes the taste of cake appealing and familiar. Hence, many will trust their sensory experience over the implied price-quality inference. Finally, cakes can be fairly easy to evaluate and identify similarities, making price a poor quality cue.

Alternative Hypothesis (H_1) - Participant's will prefer the ₹1500 cake over the ₹700 cake and associate it with more quality.

The hypothesis is supported by The Price Inference Model that theorised how there's a positive correlation between price and quality. Higher price is associated with higher quality. This is also reliant on participants employing system I thinking. Hence, we will capture participants initial reactions just after they tried the cakes.

IV. FINDINGS

4.1 Questionnaire Results

The entirety of the research had more than 100 participants, but 91 respondents for the questionnaire, answering three questions:

1. Are you a … (student, parent or teacher)?
2. Which cake did you like more?
3. What were the differences you noticed between the cakes?

The first question is to establish the demographic or participant category. The second question is to establish preference. The third question is to prove if pricing influences perceived quality, by examining the respondents/consumers thought-process.

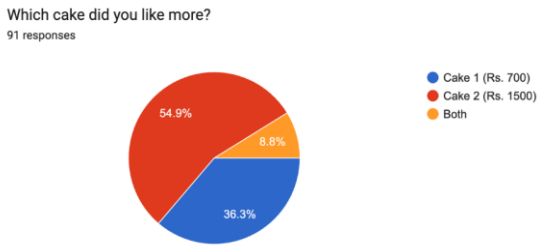

Figure 6: Pie Chart Mapping Participant's Preferred Cake based on Taste and Quality.

Difference	Tally	Frequency
Both Cakes are the Same/Equal	11111	8
Creaminess	111111111	9
Chocolateness	1111111111	10
Moist	1111111	7
Texture	111111111111	12
Sweetness	1111111111111	13
Saltiness	1	1
Icing/Frosting	11	2
Temperature	11	2
Consistency	111	3
Sticky/Gooeyness	11	2
Bitterness	11	2

Note: Twenty respondents gave vague answers like "quality" and "one was better" when asked about the difference between the cakes; therefore, their answers were excluded from the analysis.

Figure 7: Table Showcasing the Reasoning Behind Selected Preference and Differences Between the Two Cakes.

4.2 Extended Data Collection

The research then examines at all the individual responses to determine the specific percentage of participants who preferred each option, segmented by the three participants categories:

1. Student
2. Parent
3. Teacher/Faculty Member

Preferences	Tally	Frequency
Cake 1 (Rs. 700)	11111111111111 1111111	22
Cake 2 (Rs. 1500)	11111111111111 111111111111	27
Both	1111	4

Figure 8: Table Showcasing Student's Preference (Quantity)

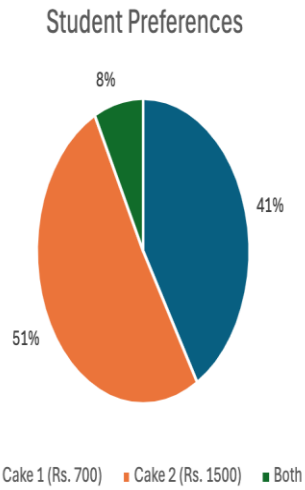

Figure 9: Pie Chart Showcasing Student's Preference (Percentage)

Preferences	Tally	Frequency
Cake 1 (Rs. 700)	1111111	7
Cake 2 (Rs. 1500)	1111111111111 11	16
Both	1111	4

Figure 10: Table Showcasing Parent's Preference (Quantity)

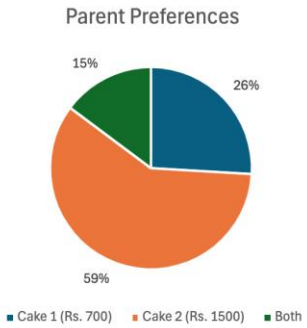

Figure 11: Pie Chart Showcasing Parent's Preference (Percentage)

Preferences	Tally	Frequency
Cake 1 (Rs. 700)	1111	4
Cake 2 (Rs. 1500)	1111111	7
Both	-	0

Figure 12: Table Showcasing Teacher's Preference (Quantity)

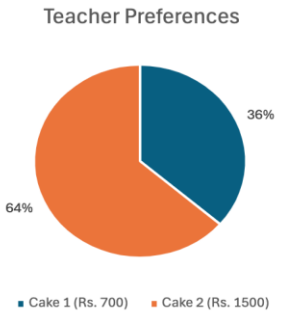

Figure 13: Pie Chart Showcasing Teacher's Preference (Percentage)

V. CONCLUSION

The aim of this study is to examine if price impacts the perception of quality amongst students, teachers and parents. The findings provide insights about the two hypothesis.

Regarding the null hypothesis (H_0) which states there is no significant relationship between the price and the perceived quality or preference between the cakes, the findings (see figure 6 and 7) indicate the contrary. Only, 8 out of 91 respondents (8.8%) were able to identify that the cakes were the exact same and 91.2% preferred either the cheaper or expensive cake.

These findings align with existing theories like Price-Quality Inference and Anchoring Effect which theorised how consumers very often search for superficial cues like price to make decisions and form attitudes towards products. In this case, the price labels lead individuals to believe and feel the difference in quality.

Furthermore, when examining different participant groups (see figure 9, 11 and 13), parents had the highest percentage (15% or 4 out of 27) of identifying that the 2 cakes taste the same compared to students (8% or 4 out of 53) and teachers (0% or 0 out of 11). This may imply that age, experience and attentiveness influences susceptibility to price-based perception bias. As some of the parents also come from business backgrounds, they may have witness something similar unfold in the real-world.

Since, the observed data show a pattern between price and perceived quality, the null hypothesis is rejected.

Concerning the alternative hypothesis (H_1), which states participant's will prefer the expensive cake over the cheaper cake and associate it with more quality, the findings somewhat validates the claim. As seen in figure 7, there were numerous differences identified by participants about the cakes, often associating the ₹1500 cake with higher quality. Nonetheless, individuals sometimes still preferred the ₹700 cake, which was unexpected given the conventional expectation on effect of price on consumer judgement.

Apart from Price-Quality Inference, the Effort Justification Theory by Festinger (1957) claimed individuals tend to allot greater value to experience or outcomes that requisites effort, hassle or some cost to obtain. Hence, individuals are more likely to assign the ₹1500 cake with more value and quality, as it cost more to obtain. Henceforth, the ₹1500 cake cherished more compared to the ₹700 cake (Festinger, 1957).

However, both cakes were shaped differently which also could've affected the perceived quality. According to Cheskin (1957), theory of Sensation Transference, established that people unconsciously

transfer the aesthetics of a product (e.g. shape) onto the perception of it's overall quality. In one of his experiments, Cheskin discovered products with a more elegant and symmetrical shape were rated higher. Similarly, individuals may have associated the ₹1500 cake with higher quality because of it's square-shape, structured and more premium presentation. Conversely, the ₹700 was circular, though familiar, the shape is still casual and more generic [4].

Similarly, the spatial positioning of the cakes (expensive one on the left and cheaper on the right) appears to shape consumer expectations. This effect is likely influenced by the natural left to right scanning tendency. In this case, the ₹1500 cake is an anchor or reference point, making the ₹700 cake appear affordable by contrast. This supports the findings of Park and Jang (2025) that price anchoring can significantly impact perception of quality, even when the intrinsic appeal (taste) is lean [15]. Furthermore, many participants expressed dissatisfaction because the cakes were overly sweet, common amongst health-conscious consumers.

Resuming our discussion of the findings (see figure 6), although, a considerable 36.2% of respondents expressed their likings for the ₹700 cake. A majority of 54.9% preferred the ₹1500 cake, proving how high price correlates with high perceived value. Hence, the hypothesis is correct.

VI. EVALUATION

6.1 Strengths

- Deterministic Relationship: the study maps a clear causal relationship between the independent variable (price differences) and dependent variable (perception of quality).
- High Ecological Validity: The experiment took place in the natural setting of a school, during a school event (Shell Week), making it more relatable and increasing the ecological validity.
- Avoidance of Demand Characteristics: The poster and price tags mounted on stands was created to manipulate individuals to thinking we are actually opening a café to ensure individuals don't behave differently by guessing the aim of the experiment. However, to avoid deception, participants were later debriefed on the actual aim of the experiment.
- Multiple Data Collection Points: The presence of two stalls in different locations reduces location-bias and we could approach more participants to join in.
- Holistic Analysis: The questionnaire allowed both quantitative and qualitative data to be collected with preferences counts (numerical data) and participants comments. This allowed a more in-depth analysis of consumer behaviour.
- Aligned with Established Theories: This design links with previous well-known behavioural pricing theories and proves many of them amongst the demographic of students, teachers and parents.

6.2 Weaknesses

- Sample Representativeness: The participant pool only pertains to one school, limiting the overall generalisability of the experiment.
- Short Duration: The experiment only went on for 3 hours, limiting the number of participants and conditions.
- Actual Purchase: Participants did not actually purchase the cakes as they were free, so real-life purchasing behaviour may differ as financial commitment wasn't involved in this experiment.
- Social Influence: Conducting the experiment in a public setting could've introduced peer pressure or conformity, especially with a large student sample.
- Semi-Controlled Product Variables: While both cakes were supposed to be identical in taste and ingredients, some participants reported subtle taste differences because some participants received more icing from one cake as compared to the other. This may have impacted participant preferences.

VII. ACKNOWLEDGMENT

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