

EVALUATING THE PERCEPTION ON OBJECTIVE QUALITY OF *BAHULU* BETWEEN LOCAL MICRO FOOD PRODUCERS AND CONSUMERS IN PENANG

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ABSTRACT

Bahulu is very popular amongst Malaysians and is listed as one of Malaysia's heritage food. Bahulu producers in Malaysia are mainly made up of local entrepreneurs who are involved in what is categorized as micro businesses. These are businesses that have less than five employees with a sales turnover of less than RM250,000. The capability of micro businesses to embark on sophisticated marketing strategies will be close to none. Thus, they depend mostly on product (objective) quality to compete and survive in the marketplace. This study attempts to identify the objective quality of bahulu as perceived by the local producers and consumers in terms of the sensory, functional and symbolic dimensions; and also to find out whether a perception gap of the objective quality between the two parties exists. To do this, a survey of both (active) bahulu producers and consumers in Penang was carried out. The study found that the three dimensions of objective quality are importantly perceived. There are however differences between the two groups in terms of how each dimension is evaluated and ranked. Although exploratory, the gaps found are important to the local micro entrepreneurs and they should take note of them in order to ensure they can sustain their bahulu businesses in the marketplace by understanding 'what' component of bahulu to improve on. The same is implied for related government agencies like FAMA and MADA who guide these bahulu producers in their business ventures.

Keywords : Objective quality, sensory dimension, functional dimension, symbolic dimension, *bahulu*, consumers

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INTRODUCTION

Bahulu is one of the many traditional Malay cakes ('kuih') that is still popularly eaten and served as snack food amongst locals especially during festive seasons like *Hari Raya*. It is a sweet, little golden brown cake that is soft, and has a slightly dry texture. It is delicious and it can be eaten either hot or cold. Although it comes in many different shapes, *bahulu-cermai* (button) and *bahulu-ikan* (goldfish) are the two most popular ones sought after by consumers. The traditional *bahulu* recipe has slowly evolved to suit the modern Malaysian lifestyle and taste preferences. *Bahulu* today comes in many different flavours like *pandan*, *pandan* with chocolate rice, cappuccino, chocolate chips, and strawberry. Those sold in the supermarkets are even named after the supermarkets where they are sold e.g. *bahulu* Tesco and *bahulu* Carrefour. The popularity of *bahulu* has earned itself a place in the list of Malaysian National Heritage alongside other foods such as *nasi lemak*, Penang *char kuey teow*, *ketupat*, and *kuih bulan* (Abdul Wahid, 2009).

In Malaysia, *bahulu* producers comprise local entrepreneurs involved in what is categorized as micro enterprises/businesses. These are businesses that have less than five employees with a sales turnover of less than RM250,000 a year. Most of these businesses find it most difficult to embark on any sophisticated marketing strategies to sell their products and compete in the marketplace. They rely heavily on related government agencies like the Federal Agricultural Marketing Authority (FAMA) and the Muda Agricultural Development Authority (MADA) to help them market their products. They also rely mostly on their product offer i.e. product quality, to have a competitive edge and survive the fierce competition. As the issue of product quality is critical, the question of whether their perception of their *bahulu* product quality is equal or similar to the ones perceived by the consumers in the marketplace comes into play to determine their survival in the market.

In the food industry, it is a common practice to use food product characteristics such as taste, smell, appearance, etc. to evaluate the 'objective quality' of the product before it is sold. However, the same 'objective quality' by the food producers may not be shared by consumers at large. Thus, it is critical to ensure that the objective quality perception of both producers and consumers matches. As Abdul Wahid (2009) argues, the potential for *bahulu* to be promoted as a heritage food tourism product for Malaysia depends on many strategic factors and product quality is one of them. With the popularity of *bahulu* as one of the top ten products sold in the market today (FAMA, 2009), it is important to study the perception of its objective quality. In line with this, the authors attempt to a) identify the objective quality of *bahulu* as perceived by the Penang local producers and consumers in terms of the sensory, functional and symbolic dimensions; and b) investigate whether both producers and consumers share the same evaluation of objective quality of the *bahulu* product. The implication of the findings to the local producers will be highlighted in this article.

LITERATURE REVIEW

The issue of product quality in food is popularly researched and reported in the literature with most focussing on objective quality of the product in question (Verbeke and Roosen, 2009; Caswell, 2000; Gayol et al., 2009). According to Garvin (1983), objective quality involves an objective aspect or feature of the thing or event. Importantly, it refers to the technical, measurable and verifiable nature of product/ services, processes and quality controls (Espejel et al., 2007; Monroe and Krishman, 1985).

Perception and preference are the main essentials to building the objective quality of food as can be found in food product literature (Beekman, 2006; Scarpa et al., 2005; Spillan et al., 2007; Rodolfo and Nayga, 1997; Betts et al., 1997; Imram, 1999; Hansen, 2005; Goyal and Singh, 2007). However, the objective quality perceived between food producers and their consumers may or may not be similar hence the applicability of a confirmation-disconfirmation theory to measure the objective quality. Anderson (1973) defined disconfirmation as “the mismatch between expectations and perceived quality”. The disconfirmation model reveals three possible outcomes: positive disconfirmation (satisfaction), confirmation (neutral), and negative disconfirmation (dissatisfaction) (Walker, 1995). The outcome of dissatisfaction may be viewed as a function of the objective quality perception (Davis and Heineke, 1988). A high perception gap indicates a large gap or difference in the perception between producers and consumers and it leads to dissatisfaction evidence.

Less variety in product quality in terms of sensory, functional and symbolic dimensions are found (Wierenga, 1983; Steenkamp, 1993) when the local traditional snack food is compared with existing brands of snacks from foreign countries in the market such as Milo, Maggi and Nestle (Euromonitor International, 2007). As a result, the consumers may not prefer or feel less satisfied with local traditional snack foods compared to foreign snack foods. For example, in Malaysia, although the trend of high product growth in local traditional snacks and chips shows *bahulu* to be popular alongside other traditional snacks like *rempeyek*, *cakar ayam*, *tebaloi*, rice based snacks, and *keropok* (FAMA, 2009), many of the local *bahulu* producers continue to offer the original *bahulu* (in terms of recipe, shape, colour, flavour, etc.). They forget that their potential consumers may be more interested in having a variety of the *bahulu* offered to them i.e. in product attributes such as appearance, colour, flavour, etc. This may cause a perception gap between the *bahulu* producers and consumers in the objective quality of *bahulu*. When this happens, local *bahulu* producers may lose potential consumers in the marketplace. This shows that it is important for the producers to understand whether or not there is a difference in the perception of product objective quality between the *bahulu* producers and consumers.

Expectancy Disconfirmation Theory and Objective Quality Context

The expectancy disconfirmation model can be categorized into four stages. First, the consumer formulates expectations regarding a product. Second, the individual makes certain attributions regarding the performance of that product. Third, he/she compares his/her perception of the product's performance against initial expectations. The final stage in the expectancy disconfirmation process is the consumer's determination of how well the product measures up to his/her initial expectations (Reisig and Chandek, 2001).

Two types of outcomes can be expected from the disconfirmation process. The first outcome is the assimilation that takes place when the evaluation of the product under full information evolves in the same direction as the evaluation of the extrinsic cue (expected quality). This evaluation implies that perceived quality comes closer to expectations under the effect of the extrinsic cue. The expected quality is defined as the expectations or beliefs regarding the anticipated performance of a product or service (Masson et al., 2008) which is created by extrinsic cues (packaging, brand, product definition, etc) that may or may not be confirmed (Hauteville et al., 2007). On the other hand, perceived quality depends on the organoleptic quality of the product and the expectation of the region, even by experts (Hauteville et al., 2007). The overall perceived quality of a food product is influenced simultaneously or successively by sensory cues as the product is tasted and by non-sensory cues (e.g brand, type of wine, alcohol content, etc) (Masson et al., 2008).

The second outcome from disconfirmation happens when the evaluation of the product under full information takes the opposite direction of extrinsic cue, thus revealing the negative effect of this information (Reisig and Chandek, 2001). If the expected quality is high and perceived quality is low, the consumer will be disappointed. On the other hand, if expected quality is low and perceived quality is high, the positively surprised consumer will overestimate the perceived quality of the product (Helson, 1964). In summary, the gap or expectancy-disconfirmation model maintains that discrepancies exist between ex ante expectations and ex post performance or experience of a good or service with indicators of the satisfaction or quality perceived by the customer (e.g. Parasuraman et al., 1985).

Gap model is another model that is quite similar to the expectancy-disconfirmation model. It was developed by Parasuraman et al. (1985). Lovelock and Wirtz (2007) further improved on the five gaps identified to seven gaps altogether (i.e. four potential gaps within the service organization and an expansion on another three gaps between management and consumers). The gap model has been one of the most acknowledged conceptual tool in the service literature used to measure service and product quality. Thus, the model is useful to measure objective quality of a product.

Objective quality can be categorized into three main dimensions. The first dimension is hedonic or sensory- a dimension that relates to the feeling of pleasure or delight in consuming. The second is commodities or functional- a dimension that refers to the performance of certain functions which are relevant to the consumer such as health benefits offered by the product and convenience benefit. The last dimension is expressive

or symbolic- a dimension that refers to attributes of the product that express status, brand, exclusiveness and others (Wierenga, 1983; Steenkamp, 1993).

Of the three, studies on the sensory dimensions have been popular (e.g. Rimal and Fletcher, 2003; Weijzen et al., 2009; McCullough et al., 2003). Hetherington et al. (2000), for instance, focused on sensory dimensions, especially on taste, by comparing the long-term effects on consumers' preference when consuming repeatedly between the sweet snacks (chocolate) and salty snacks (French fries). In this study, 21 volunteers consumed either of those snacks every day for 15 days. The outcome revealed that consumer preference for chocolate declined during the sweet snack condition but increased during the salty snack condition, whereas the level of preference for French fries remained the same during salty snack condition but increased during sweet snack condition. In short, the taste of snack foods has a direct effect on the consumers' preference. Taste reflects consumers' preferences as supported by Birch (1999), who developed a perceptive system by focusing on how genetic predispositions interacted with aspects of the eating environment to produce phenotypic food preferences. He clarified the predispositions including unlearned, reflexive reactions to basic tastes such as the preferences for salty and sweet taste; and the rejection of sour and bitter taste.

Sensory dimensions have been discussed in many ways. Thomsson et al. (2007) considered sensory characteristics for commercial snack foods to include visual, flavour, mouth feel, texture, taste and aroma/smell. Anton and Luciano (2007) stressed on the importance of food texture as an element of sensory dimension for snack foods products, with crispness being a desirable attribute and useful for predicting consumer's perception of texture. In addition, Roudaut et al. (2002) criticised the different instrumental approaches and sensory approaches applied to study crispness. Their reviews of the existing literature pertaining to the definitions of crispness revealed a unique sensory concept. They concluded that crispness is not clearly defined as a sensory attribute.

The literature also reports differences in consumers' evaluation (preference) of the sensory dimension. Kremer et al. (2007) studied on sweet and savoury waffles and found older consumers to differ from the young on their preference for the waffle's texture and flavour. The elderly perceived flavour attributes as less intense than the young. In Bower and Baxter's (2003) study of home-made and commercial daily ice creams, they found the differences of attributes between home-made products and commercial ones to be appearance, aroma, creamy flavours and texture attributes. In conclusion, the sensory aspects have major influence on consumers' perception of home-made or commercial quality. Kalviainen et al. (2003) found that the sensory dimension directly affected the overall pleasantness or preferences of consumers.

Masson et al. (2008) stated that even though sensory dimensions influence consumers' perception and preference, consumers use non-sensory cues more when evaluating product quality and making a selection among the available alternatives. This means consumers will use functional and symbolic dimensions in their evaluation of objective quality.

Gehrt's (2003) study on functional dimension reveals that previously, the Japanese snack consumers spent more on packaged snack foods but with marketing promotions, they have turned to confectionery snack food products and salty snacks as healthy, nutritious and high-energy alternatives. A study by Rimal and Fletcher (2003) showed that consumer attitudes towards nutrition can be either positive or negative, depending upon their knowledge of nutrition as well as the characteristics of the product. They further elaborated on the two effects of consumer attitude towards nutrition i.e. the probability of market participation among consumers who were previously non-participants; and the quality or frequency of purchase. They concluded that consumer decision to participate in snack food market depends on the vector of socio-economic variables associated with their preference for snack food and the vector of variables related to their perception of product attributes including nutrition.

As for the symbolic dimension, McCullough et al. (2003) reported the importance of branding element in consumers' purchase decision. Bower and Turner (2001) who studied the effect of liking, brand name and price on consumer's purchase intention found that an intrinsic factor (liking) dominates the consumer's purchase intention when assessed in combination with the extrinsic effect (brand and price label information) for branded and non branded snack food. Desai and Ratneshwar (2003) stated that consumer's perception of a brand is influenced by the nature of other products (certain brands that are dominant and highly visible in the market); with the major attribution of the product category (e.g. the size, shape, ingredients and taste of cookies). Packaging is another element that influences consumer's purchase decision (Silayoi and Speece, 2004). McNeal and Ji's (2003) study found that visual memory of packaging touts children's identification and selection of products from the store displays. Packaging evoked not only the children's memory to brand names but also of the symbolic environment made up of visual and verbal codes in which brand names were stated.

Other researches that employ the concept of objective quality based on the three dimensions do so because they found it very difficult for researchers to determine how to achieve consumer preference by using only a single dimension in their research (e.g. Bower and Whitten, 2000; McCullough et al., 2003; Bower and Ferguson, 2008; Weijzen et al., 2009). For example, Bower and Whitten (2000) stressed on consumer's perception and degree of liking (DOL) of cereal bar snack by utilizing the sensory aspect along with other attributes categorized in functional and symbolic dimensions. The study identified taste as the most important characteristic that influenced the majority of consumers, followed by textural features, price and appearance with healthy image recognized as the least significant attribute. Bower and Ferguson's (2008) study on children's perception of fresh fruits and fruit snacks found that children perceive fruit as likeable, healthy, convenient, low cost and available whereas fruit snacks as unhealthy and costly food even though they are likeable and convenient. McCullough et al. (2003) examined consumers' opinion of snack pots, brands, health concerns and frequency of consumption, and found that consumers still demand for quick and tasty snacks, and convenience is considered the main asset of snack foods i.e. pot snacks take a maximum of five minutes to prepare and do not require the consumer to stand and wait for their meals. They suggested that marketing tactics need to

be extended to include brand, price and health concerns of tasty pot snacks to penetrate the target consumers and non-target audience. Furthermore, Weijzen et al. (2009) identified factors such as taste and health, habitual snack use, self-control, anticipated regret and pleasantness of the snacks to affect consumer's intention-behavior consistency of health snack choices.

METHODOLOGY

Study Area

The study was conducted in Penang, Malaysia. Penang is identified as one of the states (apart from Kedah, Perlis and part of northern Perak) grouped in the Northern Corridor Economic Region (NCER) under the 9th Malaysia Plan (2006-2010) for the promotion of balanced and equitable national economic development. The NCER has three main economic thrusts - agriculture, manufacturing and services- dominantly influence the socio-economic inequalities in the country.

Penang is located on the northwest coast of Peninsular Malaysia by the Straits of Malacca. It is the second smallest state in Malaysia after Perlis, and the eighth most populous. The state is divided into two sections: the Penang Island, an island of 293 square kilometres located in the Straits of Malacca with an estimated population of 721,500; and Seberang Perai, a narrow hinterland of 753 square kilometres on the peninsula with an estimated population of 796,500 (Wikipedia, 2009).

Study Procedure

Two surveys, one for the *bahulu* producers and another for the *bahulu* consumers, were conducted in Penang. The surveys used semi-structured questionnaires. With the help of Penang FAMA State Office, 12 most active *bahulu* producers were identified and invited to participate in the study. The small number of local *bahulu* producers forced the researchers to use all of them (census) in the survey meant for *bahulu* producers. As for the *bahulu* consumers' survey, judgment sampling was applied. Potential respondents comprised the general public that attended *Ekspo Usahawan Bumiputera P.Pinang 2009*, an annual expo organised for indigenous entrepreneurs in Penang. All kinds of products produced and manufactured by the small and medium enterprises (SMEs) (including micro entrepreneurs like *bahulu* producers) were exhibited and sold to the public. The questionnaire started with a few screening questions (i.e. whether they eat *bahulu*, whether they have experience in *bahulu* purchase, and their age – respondents must be 18 years old or older) to ensure those who answered were suitable respondents and qualified to participate in the survey. A total of 153 questionnaires were distributed to qualified respondents during the expo. Both questionnaires for the local producers and consumers collected information on three dimensions of objective quality for *bahulu*:

- a) sensory (with nine attributes under five sub-dimensions of appearance, smell, colour, taste and texture),
- b) functional (with nine attributes under two sub-dimensions of health related and convenience) and
- c) symbolic (with 11 attributes under four sub-dimensions of price, packaging, label and brand).

Figure 1 shows the framework used for the study.

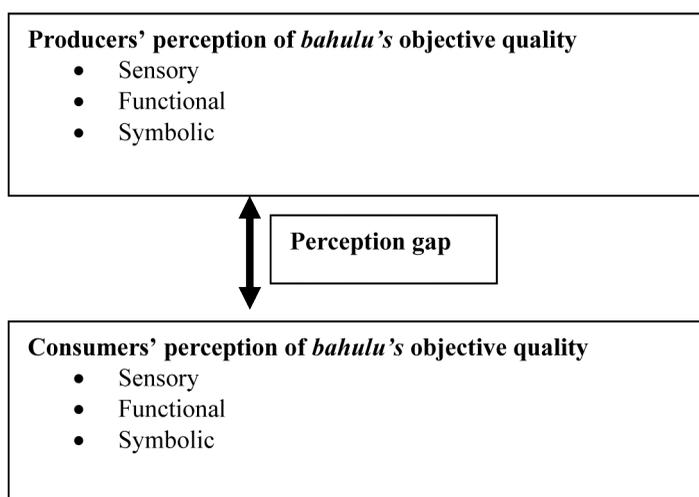


Figure 1: Conceptual Framework

To identify the objective quality for each of the groups -producers and consumers, and to find whether differences of perceptions (or gaps) exist between the two groups on objective quality, descriptive analyses were carried out using the Statistical Package of Social Science (SPSS Version 12.0). Mean average of each dimension measured were firstly calculated for both producers and consumers, followed by an attempt to find the gap scores between them. These are the normal steps used in gap analysis.

FINDINGS

As stated earlier, the small number of local *bahulu* producers forced the researchers to use all of them (census) in the survey meant for *bahulu* producers. However, only seven (58.3%) attended the survey session organised. Nevertheless, all survey responses were found to be useable for further analysis. As for the survey for *bahulu* consumers, only 77 (50.3%) of the completed questionnaires were found to be useful for further data analysis. The authors had to exclude respondents who did not satisfy the conditions specified in the qualifying questions (i.e. whether they eat *bahulu*, whether they have experience in *bahulu* purchase, whether they reside in Penang, and their age – respondents must be 18

years old or older) to ensure they were suitable respondents and qualified to participate in the survey.

In this section, the findings of the study are reported. As stated earlier, gap analysis outcomes are based on the difference in the mean averages for objective quality perception between *bahulu* producers and their consumers. As such, the results of the study are described in terms of:

- a) objective quality which explains the sensory, functional and symbolic dimensions; and
- b) ranking of the three dimensions of objective quality for *bahulu* by both parties.

A positive gap score is obtained when the *bahulu* producers' perception on a specific dimension or attribute measured is higher compared to that of their consumers, whereas a negative score indicates otherwise. Negative scores call for reconsideration on the importance of the dimension or attributes measured by the local producers as this is 'what' the consumers at large expected to get out of the product they evaluated. The width of the gap is determined by the absolute number of the gap score; a bigger score simply means a bigger difference in perception.

Objective Quality (Sensory, Functional and Symbolic) of *Bahulu* as Perceived by Producers and Consumers

Table 1 reveals the objective quality perception in the sensory dimension that consists of nine attributes. Overall, the results show differences of perception between *bahulu* producers and consumers with a higher agreement for the producers than the consumers (4.35 and 4.07 respectively). The producers consider freshness and aroma (4.86 each) as more important attributes while consumers chose "cleanliness" (4.31). The attribute, colourful is ranked lowest for both parties (3.71 and 3.06 respectively). In terms of gap analysis, the biggest gap is shown in the freshness of *bahulu* (0.78). The results show both Penang *bahulu* producers and consumers have a high level of agreement with most of the statements made about the objective quality of *bahulu* from the sensory dimension except for three attributes: natural colour of *bahulu*, sweet, and spongy (negative gaps were obtained: -0.10, -0.04 and -0.43 respectively). Consumers placed a higher level of importance on these attributes compared to the *bahulu* producers. The findings imply that *bahulu* producers may need to adjust their objective quality for these three attributes to ensure a higher level of acceptance from their consumers.

Table 1: Mean Averages and Gap Scores of Objective Quality-Sensory Dimension

Attributes	Mean Averages		Gap Scores (P-C)
	Producers (P)	Consumers(C)	
1. Fresh (appearance)	4.86	4.08	0.78
2. Clean (appearance)	4.57	4.31	0.26
3. Neat (appearance)	4.57	4.16	0.42
4. Aroma (smell)	4.86	4.19	0.66
5. Natural colour (colour)	4.14	4.25	-0.10
6. Colourful (colour)	3.71	3.06	0.65
7. Sweet (taste)	4.00	4.04	-0.04
8. Spongy (texture)	3.71	4.14	-0.43
9. Soft (texture)	4.71	4.36	0.35
Total average	4.35	4.07	0.28

Note: the mean averages were calculated based on responses from statements that used a 5 point Likert scale with 1= strongly disagree to 5= strongly agree

As for perception of objective quality in the functional dimension, the results presented in Table 2 again show differences of agreement between producers and consumers for the nine attributes measured. The highest level of agreement for producers was obtained in handy to carry (4.86) compared to convenient to serve (4.39) for consumers. Negative gaps are shown for five attributes i.e. digestible size, healthy food, light calories, less sugar, and no preservative (varies from -0.17 to -0.88). The findings imply that *bahulu* producers may need to adjust their objective quality for the five attributes especially on less sugar (biggest negative gap) when developing their *bahulu* for their consumers. They may need to “reduce sugar” in the product to match the demand from their consumers.

Table 2: Mean Averages and Gap Scores of Objective Quality-Functional Dimension

Attributes	Mean Averages		Gap Scores (P-C)
	Producers (P)	Consumers (C)	
1. Digestible size (health)	4.14	4.31	-0.17
2. Healthy food (health)	3.57	3.78	-0.21
3. Nutritiously balanced (health)	3.71	3.62	0.09
4. Light calories (health)	2.86	3.68	-0.82
5. Less sugar (health)	2.43	3.31	-0.88
6. High energy food (health)	3.71	3.57	0.14
7. No preservative (health)	3.86	4.03	-0.17
8. Handy to carry (convenience)	4.86	4.19	0.66
9. Convenient to serve (convenience)	4.71	4.39	0.32
Total average	4.35	3.88	0.47

Table 3 shows the results on perception of objective quality in the symbolic dimension

(11 attributes). Both Micro-Small and Medium Enterprises (MSMEs) and consumers show a high level of agreement on certain attributes only. *Bahulu* producers ranked price variation as most important (4.86), while their consumers ranked placement of *halal* certification label on the package as most important (4.32). For the least important attribute, both environmentally friendly packaging and manufacturing date on the package are ranked last (3.00) for *bahulu* producers, while specific brand (3.91) was ranked last by their consumers. Negative gaps were found for a number of attributes, for example, environmentally friendly packaging, expiry date label, ingredient label, nutrient label, manufacturing date and *halal* label (ranging from -0.16 to -1.06) with the biggest gap shown for manufacturing date (-1.06). In terms of positive gaps, the biggest is shown for price variation. The results show that there is disagreement in the evaluation on the importance of certain attributes. Again, Penang *bahulu* producers must pay more attention to the seven attributes that gained negative gaps. The results also show that consumers placed importance on *bahulu* packaging with information about when the *bahulu* is made and will expire, ingredients used, nutrients, *halal* label, and eco friendly packaging.

Table 3: Mean Averages and Gap Scores of Objective Quality-Symbolic Dimension

Attributes	Mean Objective Quality-Symbolic Dimensions		Gap Scores (P-C)
	Producers (P)	Consumers (C)	
1. Price variation (price)	4.86	4.06	0.79
2. User friendly packaging (package)	4.29	4.03	0.26
3. Environmental friendly packaging (package)	3.00	3.95	-0.95
4. Expiry date label on package (label)	4.00	4.16	-0.16
5. Ingredient information on package (package)	3.83	4.26	-0.43
6. Nutrient information on package (package)	3.80	4.10	-0.30
7. Manufacturing date on package (package)	3.00	4.06	-1.06
8. Manufacturing information / address (package)	4.17	4.19	-0.03
9. <i>Halal</i> label on package (label)	4.00	4.32	-0.32
10. Specific brand (brand)	4.17	3.91	0.26
11. 'See through' packaging (package)	4.43	4.01	0.42
Total average	3.96	4.10	-0.14

Ranking of Objective Quality Dimensions (Sensory, Functional and Symbolic)

Table 4 shows the overall ranking of the three dimensions made by both producers and consumers; each ranked either through self-ranking (respondents were asked to rank the three dimensions according to number 1, 2 and 3 with 1 being the most important) or is taken from the average value of the total attributes (from Table 1-3). Results from self-ranking for both producers and consumers show that the sensory dimension was ranked as most important, followed by functional and symbolic dimensions. On the other hand, ranking from total attribute averages shows a difference in the ranking between producers and consumers. Both sensory and functional dimensions share the highest score (4.35), with the symbolic dimension ranked last (3.91) for producers. As for consumers, the opposite is observed where the symbolic dimension ranked first (4.10) followed by sensory (4.07) and functional (3.88) dimensions.

An interesting finding from this result is that consumers' evaluation of the three dimensions of objective quality seems to be different when done consciously through the self ranking exercise. The sensory dimension was ranked the most important in the self ranking exercise but the symbolic dimension was ranked as most important otherwise. In contrast, *bahulu* producers' evaluation of objective quality was found to be more consistent. This is an important finding for local micro *bahulu* producers in Penang.

Table 4: Ranking of Three Dimensions of Objective Quality

Sub-dimension	Self Ranking		Total Attribute Average Ranking	
	Producers	Consumers	Producers	Consumers
1. Sensory	1.29 (1)	1.78 (1)	4.35 (1)	4.07 (2)
2. Functional	2.14 (2)	1.88 (2)	4.35 (1)	3.88 (3)
3. Symbolic	2.57 (3)	2.34 (3)	3.91 (3)	4.10 (1)

Note: numbers in parenthesis denote the ranking of the dimension relative to one another based on their mean ranks (1 = the highest rank)

Ranking of Objective Quality Sensory Sub-Dimensions

Table 5 illustrates the ranking results of sub-dimensions (i.e. appearance, smell, colour, taste, and texture) of the sensory dimension. Appearance, smell, colour, taste, and texture consist of 3, 1, 2, 1 and 2 attributes within the sub-dimensions respectively. Specific attributes for each sub dimension can be referred from Table 1 (first column). The results show that when asked to self-rank the attributes, producers placed highest importance to the appearance of *bahulu* with its colour ranked last. This is different from the consumers who ranked taste, first and texture, last. It is interesting to see that where consumers perceived taste as most important, producers on the other hand placed importance to appearance instead (taste was ranked only third).

When total attribute average for each sub-dimension was calculated and ranked, it was more interesting to find that both producers and consumers ranked colour as the most important attribute followed by taste.

Table 5: Rank of Sensory Sub-dimensions

Sub-dimensions	Self Ranking		Total Attribute Average Ranking*	
	Producers	Consumers	Producers	Consumers
1. Appearance	2.43 (1)	2.90 (3)	4.67 (4)	4.18 (3)
2. Smell	2.71 (2)	2.75 (2)	4.86 (5)	4.19 (4)
3. Colour	3.71 (5)	3.52 (4)	3.93 (1)	3.66 (1)
4. Taste	2.86 (3)	2.14 (1)	4.00 (2)	4.04 (2)
5. Texture	3.29 (4)	3.69 (5)	4.21 (3)	4.25 (5)

Note: numbers in parenthesis denote the ranking of the dimension relative to one another based on their mean ranks (1 = the highest rank)

**taken from Table 1*

Ranking of Objective Quality Functional Sub-dimensions

Table 6 shows the results of the rank obtained for two sub-dimensions of the functional dimension namely health-related (seven attributes) and convenience (two attributes). The results show consistency where health related factors were rated as more important compared to factors on convenience for both groups of respondents.

Table 6: Rank of Functional Sub-dimensions

Sub-dimension	Self Ranking		Total Attribute Average Ranking*	
	Producers	Consumers	Producers	Consumers
1. Health-related	1.29 (1)	1.19 (1)	3.46 (1)	3.76 (1)
2. Convenience	1.71(2)	1.81 (2)	4.79 (2)	4.29 (2)

Note: numbers in parenthesis denote the ranking of the dimension relative to one another based on their mean ranks (1 = the highest rank)

** taken from Table 2*

Ranking of Objective Quality Symbolic Sub-dimensions

Table 7 illustrates the ranking results in the symbolic dimension that is represented by four sub-dimensions namely price (one attribute), packaging (seven attributes), brand (one attribute), and labeling (two attributes). The self-ranking results show a difference between producers and consumers with packaging and price perceived as the two most important attributes. The total average ranking results also show dissimilar outcomes with packaging and brand placed first on the list by both groups. However, here it can be seen that producers displayed a consistent evaluation on the importance of packaging for their food products.

Table 7: Rank of Symbolic Sub-dimensions

Sub-dimension	Self Ranking		Total Attribute Average Ranking*	
	Producers	Consumers	Producers	Consumers
1. Price	2.29 (2)	1.71 (1)	4.86 (4)	4.06 (2)
2. Packaging	1.57 (1)	2.43 (2)	3.78 (1)	4.08 (3)
3. Brand	2.57 (3)	3.04 (4)	4.17 (3)	3.91 (1)
4. Labeling	3.57 (4)	2.82 (3)	4.00 (2)	4.24 (4)

Note: numbers in parenthesis denote the ranking of the dimension relative to each other based upon their mean ranks (1 = the highest rank)

**taken from Table 3*

DISCUSSION

As stated earlier, the objectives of the study are two-fold. Firstly, to identify the objective quality of *bahulu* as perceived by the Penang local producers and consumers in terms of the sensory, functional and symbolic dimensions; and secondly, to investigate whether both producers and consumers share the same evaluation of objective quality of the *bahulu* product.

The results show that the Penang *bahulu* producers studied generally have different objective quality perception of their *bahulu* compared to their consumers in terms of sensory, functional and symbolic dimensions. This is more so when perception gaps revealed negative scores for certain attributes within each sub-dimension of objective quality. Negative scores indicate that consumers placed importance on specific variables more than the producers. The findings indicate that our assumption on possible differences of perception on the importance of certain dimensions and sub-dimensions of *bahulu* food products between producers and consumers has been verified. This is something that local *bahulu* producers need to take note of when developing their product offer for their potential customers. The study found that consumers placed more importance on the following attributes: *bahulu* colour, sweetness, and spongy texture (sensory dimension); size, healthy food perception, calories, sugar and preservative contents (functional dimension); and environmentally friendly packaging, expiry date label, ingredient label, nutrient label, manufacturing date and *halal* label (symbolic dimension). These attributes will be the ones to be focused on when the producers develop their *bahulu* products in the future.

This study also attempted to rank objective quality dimensions based on its three main dimensions (sensory, functional, and symbolic dimensions). The results indicate that the sensory dimension is the most important dimension followed by functional and symbolic dimensions for both producers and consumers when they were asked to personally rank each dimension themselves (self-ranking). However, when the ranking is made through calculation based on the attributes' total average values, the results found for consumer evaluation was completely different, with symbolic dimension identified as the most

important dimension in their perception.

More interesting findings were discovered when the authors dug deeper to analyse each attribute ranking of the objective quality sub-dimensions. Except for the functional dimension that showed consistency of results between the two groups of respondents, dissimilar evaluation results on the attributes evaluated can be clearly seen throughout the ranking exercise done. The study has identified that for the sensory dimension, colour, taste and appearance are keys to a good product offer. In terms of the functional dimension, the importance of health related factors was clearly identified. Lastly, *bahulu* producers should pay attention to the price and packaging of *bahulu*, two main attributes within the symbolic dimension.

In summary, this study has descriptively identified the criticality of certain attributes, sub-dimensions, and dimensions of *bahulu* food products to both local producers and their Penang consumers. Although the study is exploratory in nature, the findings have identified certain attributes within the three dimensions measured which are of utmost importance to the consumers but are evaluated less important by the producers. The gap model posits that perception gap must be closed to ensure that the evaluation of both parties is ideally matched. Similarly, the ranking exercise shows the level of importance for each attribute and/or dimension measured.

In terms of managerial implication, Penang *bahulu* producers are left with two choices. One, is to follow their customers' needs and wants (e.g. if their customers want their *bahulu* to be less sweet, then producers must abide by their request in their product offer). The other is to educate their consumers on why their *bahulu* possesses certain attributes as offered in the marketplace. Of the two, it is much easier to implement the first strategy. The study, for example, has already managed to identify the critical attributes and dimensions which the producers can put emphasis on and start to improve on their product offer. The second option is difficult to implement given the fact that these local *bahulu* producers are micro entrepreneurs. To educate consumers at large is a big challenge for them to shoulder, considering the resources that are needed, for example, financial and expertise constraints that the producers may experience. As they are also depending very much on government agencies like FAMA and MADA to help them promote and market their products, this option is close to impossible. Consumer education involves many factors; both monetary and non-monetary in nature.

As for FAMA and MADA, the findings give them an opportunity to further help local producers in the Northern Corridor Economic Region. Information on what consumers want can be relayed to these local producers and specific strategies can also be developed.

CONCLUSION

It is imperative for local *bahulu* producers to understand what consumers want and how they evaluate their product offer. Various perception gaps between producers and consumers on *bahulu*'s objective quality (sensory, functional, and symbolic dimensions) were observed in the study. This means that both producers and consumers at large applied their own sets of objective quality on the products evaluated. The producers must act on the results found to close the perception gaps. This means that they have to improve and develop their *bahulu* according to the demand of their consumers to fulfil consumer needs. The results of this study may help the producers to adjust their objective quality in order to fulfil consumer needs in order to gain higher acceptance of their products in the market.

Limitations and Recommendations

The study acknowledges a few limitations such as the use of a small sample size, the scope of study that covers only the Penang state, and the use of descriptive analyses on the data collected. It is recommended that future studies on the subject should use a bigger sample size, and should extend the scope of study to include other states in the Northern Region or all available states in Malaysia. A bigger sample size will allow many other statistical analyses to be carried out. The issue of perceived quality from the perspective of both *bahulu* micro producers and their consumers may be one aspect to be studied by future researchers.

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