

An Analysis of the Relationship between Quality Cues and Quality Attributes in the Purchase of Fresh Produce by Malaysian Consumers

N. Chamhuri and P.J. Batt
Curtin University
Australia

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Abstract

Consumers' preferences and the decision to purchase fresh produce from a retail store are based on a variety of quality cues. In the quality perception process, quality cues are associated with desired quality attributes (values). Malaysian consumers in the Klang Valley most often associate the appearance of the fresh produce (freshness, colour and firmness) with good taste. Fresh fruit and vegetables without any chemical residues, freedom from pests and diseases, and the origin of the produce were suggested as having a strong correlation with food safety and a beneficial impact on the environment and worker welfare. However, the quality cues utilised by consumers to associate fresh fruit and vegetables that taste good, that are safe, and produced in a way that is good for the environment and worker welfare varies significantly between each desired value.

INTRODUCTION

The basic function of food is to provide nutrition and energy for physical well-being, but food is also a major source of pleasure, worry and stress (Rozin et al., 1999). Wilcock et al. (2004) discussed that in order to reduce the uncertainty, most consumers make an implicit assumption that the food is safe to eat, aesthetically pleasing, good to taste and consistent with the product image. In 1996, the Food Marketing Institute reported that the majority of consumers were confident that the food they purchased was safe (Wilcock et al., 2004). According to Miles et al. (1999) most consumers believed that they were at less risk from food hazards. Furthermore, most consumers trusted the relevant government agencies and food processing companies that were responsible for ensuring food safety. Peri (2006) highlighted the importance of certification and traceability as instruments offered by food producers and manufacturers as a guarantee to consumers that the food was safe. However, several researchers have also shown that most consumers are unaware of the potential hazards food presents (Sockett, 1995; Woodburn and Raab, 1997; Worsfold and Griffith, 1997).

Perceived quality is a term that is frequently used to describe consumers' quality judgements. These are built on the consumers' perceptions, needs and objectives. Steenkamp (1990) focused on the theoretical concepts of the food quality perception process. Rokeach (1973) sought to develop a relationship between perceived quality and value. Value is seen as the core concept in social science. Value has been defined as a relativistic preference characterising a subject's interaction experience with some object (Holbrook and Corfman, 1983).

Steenkamp (1990) defined perceived quality as an idiosyncratic value judgement with respect to the fitness for consumption, which was based upon the conscious and/or unconscious processing of quality cues in relation to relevant quality attributes, within the context of significant personal and situational variables. When consumers select a particular food, their preferences are based on several sensory characteristics (taste, texture and odour) and non-sensory attributes (health, price, religious, ethical concerns and mood) (Prescott et al., 2002).

Fieldhouse (1995) introduced the concept of food ideology, which is defined as a combination of attitudes, beliefs, customs and taboos affecting the diet of a given group. It was reported by Rozin (1996) [cited in Prescott et al., 2002] that culture provides the strongest determinant of food choice. Each consumer eats in their own way, depending on what values and beliefs they possess (Steenkamp, 1990). However, Fieldhouse (1995) agrees with Steenkamp (1990) that most consumers are unaware of the influence these ideologies exert upon their behaviour.

This paper focuses on how Malaysian consumers associate the criteria that they utilise in their decision to purchase fresh produce with food safety, taste, concern on the environment and worker welfare.

THE MALAYSIAN FOOD INDUSTRY

The Malaysian economy today is heavily reliant on manufactured goods. However, the former Prime Minister of Malaysia, Tun Abdullah Ahmad Badawi, recognised the importance of agriculture to the national economy, proclaiming it to be the “third engine of growth”. Growth in the food industry is required to fulfil the needs of an increasing population. However, with strong economic growth, the need, preferences, lifestyle and the way Malaysian consumers consume their food is changing. Today, more Malaysians are eating more food away from home, there is a greater demand for more convenience and a greater range of food is available in retail stores.

According to the Malaysian Industrial Development Authority (MIDA), in 2008, Malaysia exported food products such as cocoa (RM 3 billion), fisheries products (RM 2.5 billion), margarine and shortening (RM 2.4 billion) and animal feed (RM 1.2 billion) to more than 200 countries. However, the Malaysian food industry is dominated by small and medium sized enterprises in such areas as fisheries, livestock, fresh fruit and vegetables and cocoa. Insufficient domestic food production has resulted in food imports becoming the major source of Malaysia’s food supply (War et al., 2008). Among the major food imports are cereals, fisheries products, fruit and vegetables, sugar, honey and meat (The Ninth Malaysia Plan, 2006).

China is the leading vegetable exporter to Malaysia, followed by India, Thailand and Australia (War et al., 2008). From 1995 to 2006, Malaysian imports of vegetables from China increased from USD 80 million to USD 200 million.

The increasing import of food from China and other countries presents a potential risk to public health in Malaysia. For example, food imported from China often contains banned substances, antibiotics, preservatives and pesticides. Despite the warnings from Hong Kong and Singapore health authorities on the danger of food products produced in China, Malaysian authorities have thus far failed to conduct more stringent checks on the quality of imported food products.

A MODEL OF PERCEIVED QUALITY

Quality cues are defined as information stimuli that are related to the quality of the product and can be ascertained by the consumer through the senses prior to

consumption (Steenkamp, 1990). Consumers are offered a large number of quality cues in the market. In the consumers' mind, desired cues are gathered and categorised, before making predictions of product quality. How the cues are gathered and categorised are based upon the beliefs and prior knowledge of the product that consumers have experienced. Quality cues include:

Implicit cues. These are derived from consumers' perception that the food they are about to consume is safe (Peri, 2006)(Figure 1).

Intrinsic cues. These are identified as the physical aspects of the product such as appearance, colour, shape, size and structure (Olson and Jacoby, 1972).

Extrinsic cues. These are not related to the physical product, but become an important indicator when comparing between two or more products that are similar in appearance. Examples include price, brand and country-of-origin labelling (Olson and Jacoby, 1972).

Credence cues. These denote features of the product which are considered important by the consumer, but are not experienced directly in consumption (Becker, 1999). These include nutrition, sustainability of agricultural production systems, genetically modified food, animal welfare, farm labour conditions and child labour (Steenkamp, 1990).

Quality attributes are defined as the functional and psychosocial benefits or consequences provided by the product (Steenkamp, 1990). This implies that quality attributes are the expected benefits that a consumer will experience after consumption. With regards to food, Peri (2006) introduced a total of five requirements for food quality, which included:

Safety requirements. This revolves around the absence of risk. It is further described as controlling biological, chemical and physical contamination (Batt et al., 2006). Food safety requirements for fresh produce are important compared to other types of agricultural products (Martinez and Poole, 2004). Since most fresh produce is perishable, the susceptibility to damage and disease is high. According to Shepherd (2006), the quality and safety of fresh produce affects the whole horticultural production and marketing chain; from the soil used to cultivate the crop, polluted water, if used for irrigation and washing harvested produce; untreated manure; and handling by retailers and consumers in store. Although the presence of microbial contamination brings serious threats to human health, consumers cannot readily detect the presence of dangerous substances such as viruses, bacteria and parasites on the fresh produce they purchase. Therefore, trusting the retail outlet or preferred vendors from whom they usually buy is one way of ensuring that the produce they purchase is safe to eat. However, as much of the fresh produce purchased is consumed raw or with minimal preparation, the problem can be accentuated. The extensive use of agrochemicals can also compromise food safety, for studies in Asia have repeatedly demonstrated that the usage of these agrochemicals is seldom in accordance with label recommendations (Shepherd, 2006).

Commodity requirements. These are defined as the conformity of the product according to the law. The demand for food safety globally has raised concerns about the impact of food regulators on international trade, particularly towards the developing countries (Martinez and Poole, 2004). Developing countries are foreseen as facing difficulties in meeting the higher levels of sanitary and phyto-sanitary regulation demanded by importing countries.

Nutritional requirements. This is one of the main purposes of eating. Consuming nutritious food provides health benefits and strengthens the body against diseases. Furthermore, consumers are increasingly turning towards products with low fat, low

sugar, no preservatives and no artificial colours or flavour enhancers (Lappalainen et al., 1998; Prescott et al., 2002). Food safety and nutritional requirements are most often associated with the credence cues (something implicit) which are based upon a consumer's experience.

Sensory requirements. According to Peri (2006), sensory requirements connect food and consumers. Becker (1999) categorised the sensory attributes as taste and juiciness. Taste is based on the observation of the food, and is influenced by the environment, geography, demography, socio-demography and psychological variables (Sijtsema et al., 2002). For example, women perceive taste, flavour and texture as being more important than men (Ragaert et al., 2004).

Production and ethical requirements. Consumers are concerned about how, when and where their food is produced. In Asia, for example, county-of-origin is currently perceived to be the most important piece of information consumers require in their decision to purchase a particular food product (Batt et al., 2006). Furthermore, consumers are showing a greater interest in the ethical values of food production, which includes organic agriculture, concern for the environment, animal welfare and worker welfare (Becker, 1999; Peri, 2006). Findings by Prescott et al. (2002) demonstrate that Malaysian consumers are placing more emphasis on health, natural content (no additives, natural and no artificial ingredients), weight control and convenience, rather than any ethical concerns in their food choice behaviour.

For the purpose of this paper, the association between quality cues and quality attributes (desired values) shall be discussed with regards to food safety, sensory evaluation (taste) and the production and ethical requirements (environmental sustainability and worker welfare).

METHODOLOGY

Random shopping mall intercepts were used for data collection. Over many years, the shopping mall intercept method has emerged as one of the most popular methods among marketing researchers (Bush and Hair, 1985; Hornik and Ellis, 1989). The study was conducted in several modern retail outlets and traditional markets around the Klang Valley region. The areas chosen were based on the desire to capture a good mixture of income and education levels which could affect consumers' attitudes towards the purchase and consumption of fresh fruit and vegetables. In all, the sample consisted of 284 useable surveys (Table 1).

The survey instrument for this research contained a combination of both structured and open-ended questions. The questionnaire was divided into four sections. Section I sought to gather information regarding the store choice behaviour of the respondents and the quality of fresh fruit and vegetables. Section II sought to examine the respondents' behaviour towards the purchase of fresh potatoes, spinach and apples. Section III discussed how respondents react to dissatisfaction, while Section IV measured socio-demographic factors. This paper will report on the results from Section II.

The original survey was prepared in English. However, in order to improve the response rates, a Malay version of the survey was also prepared as not all of the population are expert in English.

RESULTS AND DISCUSSION

The Food is Safe to Eat

In identifying that the fresh produce was considered safe to eat, for all three products (potatoes, spinach and apples), freedom from chemical residues, pests and

diseases, and organic were most frequently cited by respondents (Table 2). Freshness was also frequently cited by respondents as being associated with food that was safe to eat. In determining whether spinach or apples were safe to eat, respondents also cited freedom from blemishes and bruises. For potatoes and spinach, freedom from soil was an indication that the food was safe to eat. Given that most of the potatoes and apples sold in Malaysia are imported, respondents demonstrated their concerns with regard to the origin of the potatoes and apples available in a retail store. However, respondents showed little interest with regards to the origin of spinach, since most spinach was locally grown.

Label or brand, was among the most infrequently cited variables which were considered indicative of food safety for all three fresh products. Two other variables that were infrequently cited by respondents in determining whether the potatoes and apples were safe to eat were the availability of product information in-store and the place of purchase.

The Food has a Good Taste

Most respondents indicated that the appearance of the produce (freshness, colour and firmness) were important indicators of good taste (Table 3).

Spinach and apples without blemishes and bruises were considered indicative of good taste. For potatoes, good flesh colour was another variable often cited by respondents as indicative of good taste. Where the potatoes and apples were grown were also considered by respondents to have an impact on taste.

Again, in determining good taste, label or brand was one of the least cited variables by respondents in their decision to purchase fresh potatoes and apples.

The Food has been Produced in a Way that is Good for the Environment

Most respondents cited organic, freedom from chemical residues, and freedom from pests and diseases among the variables which were most associated with the production of all three crops in a manner that was conducive for the environment (Table 4).

The origin of the crop, whether it was imported or locally grown, and freshness were also indicative of production systems that were perceived to minimise the impact on the environment. Freedom from soil was another variable cited by respondents as having a positive impact on the environment for fresh potatoes and spinach.

The appearance, which included colour and size, promotional variables such as advertising in newspapers or catalogues, and pre-packaged produce were the variables cited less often by respondents as having any positive impact on the environment.

The Food is has been Produced in a Way that Protects Worker Welfare

Freedom from chemical residues and other variables which described how and where the fresh produce were grown, such as organically and locally grown were among the most frequently cited variables which respondents believed were associated with food production methods that protected workers welfare (Table 5).

Freedom from pests and diseases, and prepacked produce were also considered by respondents to be associated with produce that had been grown in such a way as to protect worker welfare. The country-of-origin and availability of product information at the point of purchase were cited for the purchase of fresh potatoes and apples and this was thought to have some impact on worker welfare.

CONCLUSIONS

Similar to the findings by Abbott (1999) and Kader (2002), this research revealed that consumers evaluate good taste (sensory requirements) by evaluating the physical attributes (freshness, colour and firmness) of the fresh produce. Defective product including blemishes, bruises or sprouts were least often associated with good taste.

Clearly, respondents demonstrated the relationship between credence cues (organic and the origin of the produce), freedom from chemical residues and freedom from pests and diseases in ascertaining that the food was safe to eat and met prescribed production and ethical requirements. However, in the absence of any third party endorsements, any association between the cues and attributes could create a dilemma for the consumer in verifying that the fresh produce is safe to eat and was produced in a manner that protected the environment and worker welfare. Certification and traceability procedures such as Good Agricultural Practice (GAP) and Hazard Analysis Critical Control Point (HACCP) are required to offer consumer guarantees. In Malaysia, HACCP is still voluntary and not mandatory. Furthermore, findings by Toh and Birchenough (2000) reveal that food vendors in Malaysia were being urged to improve their knowledge and attitudes towards food safety and hygiene, foodborne illness and its prevention.

Results indicate that there is a demand for better quality and safe fresh products. However, it is unclear whether the traditional markets are able to supply better quality produce to consumers. Chamhuri and Batt (2009) reveal how Malaysian consumers continue to purchase fresh produce from preferred vendors in traditional markets. An element of trust is developed from personal relationships between vendors and consumers which signifies the quality and provides an assurance of safety for the fresh produce available from the traditional markets.

In Malaysia, there is little research available to identify the quality cues consumers utilise in determining that the food is safe, tastes good and was produced in a way that protects the environment and worker welfare. Therefore, this research intends to narrow the quality perception gap that exists between the producers, policy makers and consumers to improve the performance of the Malaysian fresh produce industry. For producers, the findings of this research may be useful in new product development, in terms of improving quality and differentiating food products from competitors. For the food quality authorities, the findings may assist in establishing standards in terms of food quality and food safety education in Malaysia.

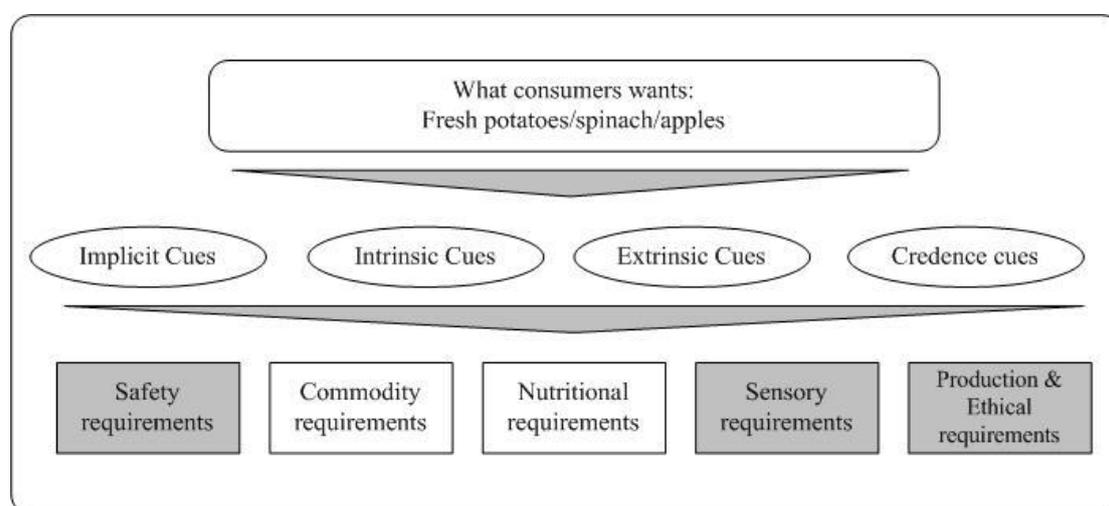
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Figure 1: A model of perceived quality



Source: Adapted from Steenkamp (1990) and Peri (2006)

Table 2: The correlation between criteria utilised in the decision to purchase fresh produce with the food safety

The fresh produce is safe to eat	Potatoes	Spinach	Apple	N
Freedom from chemical residues	144	112	140	396
Freedom from pests and diseases	113	88	93	294
Organic	28	56	43	219
Freshness	29	24	39	92
Freedom from blemish and bruise		31	47	78
Free from soil	34	30		64
Skin colour/colour	18	18	11	47
Origin of the fruit	12		19	31
Washed	29			29
Freedom from sprouting	19			19
Flesh colour	15			15
Locally grown	3	10		13
Free of wilting		13		13
Firmness	4		8	12
Label or brand	4	1	3	8
Availability of product information in-store	3		2	5
Place of purchase	1		1	2

Table 1: Profile of respondents

Characteristics	Category	Frequency	Percentage
Gender	Male	58	20.4
	Female	226	79.6
Age	18 – 25 years old	40	14.1
	26 – 34 years old	144	50.7
	35 – 44 years old	51	18.0
	45 – 54 years old	37	13.0
	55 – 64 years old	12	4.2
	65 and above	0	0.0
Education level	Primary school	3	1.1
	Secondary school	70	24.6
	Diploma	70	24.6
	First degree/professional certificate	84	29.6
	Postgraduate	57	20.1
Ethnicity	Malay	256	90.1
	Chinese	12	4.2
	Indian	6	2.1
	Others	10	3.5
Monthly income	Less than RM1,500	25	8.8
	RM1,501 – RM3,000	75	26.4
	RM3,001 – RM4,500	70	24.6
	RM4,501 – RM6,000	49	17.3
	RM6,001 – RM7,500	25	8.8
	RM7,501 – RM9,000	23	8.1
	RM9,001 and above	17	6.0

Table 3: The correlation between criteria utilised in the decision to purchase fresh produce with good taste

The fresh produce has a good taste	Potatoes	Spinach	Apple	N
Freshness	131	106	152	389
Skin colour/colour	55	73	91	219
Firmness/Firmness of the stem	81	34	62	177
Freedom from blemish and bruise		26	51	77
Flesh colour	66			66
Leaves		65		65
Country-of-origin	21		34	55
Freedom from chemical residues	17	15	15	47
Free from wilting		38		38
Organic	11	19	8	38
Freedom from pests and diseases	17	6	10	33
Variety	12	6	9	27
Freedom from sprouting	18			18
Washed	15			15
Label or brand	1		9	10
Free from soil	6	3		9

Table 4: The correlation between criteria utilised in the decision to purchase fresh produce with food production that is good for the environment

The fresh produce has been produced in a way that is good for the environment	Potatoes	Spinach	Apple	N
Organic	141	117	117	375
Freedom from chemical residues	93	96	108	297
Freedom from pests and diseases	45	49	40	134
Locally grown	39	25		64
Freshness	14	11	15	40
Country-of-origin	7		27	34
Free from soil	10	18		28
Label or brand	8		10	18
Firmness of the fruit/stem	5	3	5	13
Availability of product information in-store	5		7	12
Freedom from blemish and bruise		4	8	12
Skin colour/colour	2	2	5	9
Newspaper advertising/catalogues	5		3	8
Size	4	1	3	8
Fruit/vegetable is prepacked	2		5	7

Table 5: The correlation between criteria utilised in the decision to purchase fresh produce with food production that protects worker welfare

The fresh produce has been produced in a way that protects worker welfare	Potatoes	Spinach	Apple	N
Freedom from chemical residues	82	84	78	244
Organic	54	53	59	166
Locally grown	53	47		100
Freedom from pests and diseases	27	29	24	80
Country-of-origin	18		36	54
Fruit/vegetable is prepacked	7	15	15	37
Availability of product information in-store	14		17	31
Competitive price	10		19	29
Newspaper advertising/catalogues	10		12	22
Label or brand	8		10	18
Freshness	2	7	9	18
Advice from sales assistants	14			14
Place of purchase	11		1	12