

**ANALYSIS OF PERCEPTIONS AND EXPECTATIONS OF FOOD QUALITY AMONG
FOOD MANUFACTURERS AND CONSUMERS:
A CASE STUDY IN ACCRA**

**A thesis submitted to the Department of Nutrition and Food Science, Faculty of Science
by**

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DEDICATION

This thesis is dedicated to my parents Mr. And Mrs. Atepor who laid the educational foundation on which I now build. Thank you!

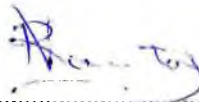
It is also dedicated to my loving husband Kwame, my children Eli and Danielle who had to make a lot sacrifices to see this work to its successful end. Without your understanding and the joy you gave me during those stressful moments, I could not have made it this far.

To God do I owe all the Glory! Your soothing words of encouragement gave me the strength and spurred me on day after day. "I know the plans I have for you" declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future."

Indeed, I have tasted and tried you Oh Lord, and I can testify of your goodness, faithfulness, mercies and unfailing love. Surely, those that wait upon the Lord shall renew their strength and will never be forsaken.

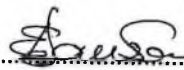
DECLARATION

I do hereby declare that, except for references to works of other researchers that have been duly cited, this work is the result of my own original research and that this thesis either in whole or in part has not been presented for another degree elsewhere.



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ABSTRACT

The consumer's perception of quality has been identified as the benchmark for quality around which all processing and marketing activities must revolve in order to achieve maximum profitability in industry. In spite of this awareness, the consumer's perception of quality is yet to be fully understood to enable manufacturers translate consumer needs and expectations into business success. A number of factors account for this failure including the complexity, subjectivity and multidimensional nature of quality.

The objective of this study was to conduct a quality perception study among Ghanaian consumers and manufacturers to investigate their understanding and evaluation of quality.

A consumer perception study was carried out among Ghanaians involving a random sample of 422 consumers and 110 food manufacturers to assess their understanding of quality and identify quality dimensions as well as other situational and demographic factors that influence consumer purchase decision-making and behaviour. Methods employed by manufacturers to translate consumer expectations into tangible quality products were also investigated. The study involved administering of questionnaires, sensory analysis and a purchase intercept survey.

Findings of the study revealed that most Ghanaian consumers had an understanding of quality. Consumers adopted the consumer-oriented approach to quality and defined quality as the weighted characteristics of a product, which in their totality add up to the customer's satisfaction.

Quality expectations were many and varied among consumers as these were tied to the individual needs of consumers. Expectations were expressed in terms of sensory attributes, labelling, safety, wholesomeness, price, packaging, performance, reliability, nutritional quality,

fitness for use and advertising among others. Results of this study further indicated that consumers' expectations of quality served as their criteria for evaluating product quality and therefore had great influence on how consumers perceived quality.

A number of product attributes were identified to have profound influence on consumer quality perception and purchase behaviour. Product labelling was identified as one of such attributes and played a significant role in initial purchase situations. Of relevance were the expiry date, list of ingredients, safety and nutritional information on product labels. Various aspects of packaging including size, type of seal or closure, type and strength of packaging material, and package disposability were also identified to influence how consumers' perceived quality. Consumers also showed awareness of environmental issues related to packaging.

Respondents' concerns for product safety and wholesomeness expressed in this study suggested that Ghanaian consumers resident in Accra were health conscious. Not only were they interested in purchasing nutritious food products, but they were equally weary about the health implications associated with the use of preservatives, presence of high levels of some food components notably sugar, salt, fat, and cholesterol in food products known to be associated with diabetes and cardiovascular diseases. Consumers also demanded that food should be well processed, wholesome and sold under hygienic conditions.

Consumers evaluated food products using quality dimensions derived from their expectations of quality. All these dimensions were important and integrated into the perceived quality during the purchase decision-making process. Nevertheless, consumers weighed the dimensions differently depending on the dimension being considered, the product being purchased, the consumer purchasing the product, familiarity with the product and other external situational influences.

Consumers' perception of food was also found to be dependent on the demographic and socio-economic characteristics of consumers.

Quality studied from the perspective of manufacturers revealed that the food industry employed methods such as market surveillance, perception studies, consumer complaints and suggestion boxes to identify the quality expectations of their customers. These quality expectations were translated into products using product specifications and different quality systems ranging from simple quality control to the implementation of ISO quality systems. Some industries supported these efforts with quality management training of their personnel. Contrary to manufacturers' claims that quality must be defined in terms of consumer satisfaction and that their customers were satisfied with their products, a high level of consumer dissatisfaction was recorded among consumers sampled in this study. These findings point to the fact that most manufacturing practices are inadequate and inefficient and further indicate that a big gap exists between the delivery of quality by industry and customer satisfaction.

Industry would therefore need to show greater commitment to quality in order to make customer satisfaction and business success a reality. A step in this direction would involve adopting a systematic approach to tackling quality issues. Industry's effort should be geared towards the identification of target markets, obtaining a clear understanding of the quality expectations of these market segments and identifying quality dimensions used by consumers and their relative importance in the quality evaluation and subsequent purchase decision making processes. Above all, quality ought to be seen as the collective responsibility of society, and industry must strive to foster a closer and more cordial relationship with the consuming public to reap the indispensable benefits of this consumer-manufacturer partnership.

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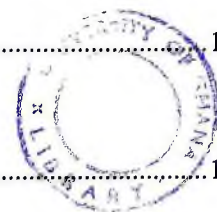


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1.0 INTRODUCTION

1.1 Definitions of quality

'Quality' is a complex and multidimensional concept that is not easy to define (Lawless, 1995). A number of definitions have been given to the word 'quality' depending on the perspective of who defines it and the purpose of the definition. The International Standards Organization (ISO, 1994) defines quality as 'the totality of features and characteristics of a product or service that bear upon its ability to satisfy stated or implied needs'. Other definitions have been coined by various quality experts including Feigenbaum (1986), Grunert (1995), Shewfelt (1999) and Crosby (1989). Despite the differences in terminologies used in the definitions, they all reflect how customers perceive quality. Most importantly, all the different views point to the fact that quality is a consumer-based perceptive/evaluative construct that is relative to a person, place and time, and is subject to the same influences of context and expectations as are other perceptual/evaluative phenomena (Cardello, 1995).

Since all economic systems aim ultimately at satisfying the customer, the customer's perception of quality is of ultimate importance and has become the most widely accepted one. The consumer simply wants a functional product, which satisfies his requirements. Thus, quality has been redefined by Fawzi (1998) as the weighted characteristics of a product or service, which in their totality add up to the consumer's satisfaction. The higher the degree of satisfaction, the higher the quality. This definition is represented by the simple equation:

$$Q = \sum_{i=1}^n W_i C_i,$$

Where W = the weight or importance the consumer attaches to a particular characteristic,

C = particular characteristic or attribute,

n = the relevant characteristics of the product or service (Fawzi, 1998).

1.2 A brief history of the quality movement

The history of the quality concept and its management dates back to many centuries before the Christian era (Juran and Gryna, 1993). In the 1700s and 1800s, master craftsmen and their apprentices were responsible for designing and building small quantities of products and therefore the maintenance of quality to a large extent was controlled by the long periods of training required by guilds, and expert workmanship. Quality maintenance was therefore not a problem. The introduction of mass production and the concept of specialization of labour during the industrial revolution however, brought variations in product quality characteristics and a decline in workmanship leading to expensive quality problems (Bowerman and O'Connell, 1997; Besterfield, 1994).

The notion that food quality must be defined and measured from the consumer's perspective dates as far back as 1870. In recent years, quality has been increasingly recognized as a core concept in building customer value and satisfaction, and hence the concept of quality is changing (Malundo *et al.*, 1997) making the understanding of the consumer's perception of quality increasingly important. With the evolution of the quality movement, industry has realized that contrary to traditional assumptions that there must be a trade off between quality and productivity, the management of quality is complementary to the management of productivity and the two cannot be separated. Rather, productivity is a by-product of quality and doing the job right the first time (Filiatrault *et al.*, 1996).

Following World War II, two major forces emerged that have had a profound impact on quality. The first was the Japanese revolution in quality spearheaded by W.E. Deming. The second major force was the prominence of product quality in the public mind (Juran and Gryna, 1993). The consumer had become more sophisticated and his expectations had been evolving and becoming more exacting. Not only was there an increasing unwillingness to accept inferior goods or poor

service but there was also increasing demand for products which were safe to use and products which did not harm the environment (Malundo *et al.*, 1997).

The revolution in quality was characterised by the 'preventive approach' to quality problems. This approach brought the change from 'quality inspection' to 'quality control' and consisted of the use of operational techniques and activities to fulfil requirements for quality (Dale and Oakland, 1994). Deming's philosophies were consumer-oriented and emphasized on the need to identify the wants and needs of consumers, which would then serve as the quality attributes of the product (Bowerman and O'Connell, 1997).

In addition to Deming, Juran and Feignbaum, Crosby, K. Ishikawa, S. Shingo and W. Taguchi were other new thinkers in the modern era of quality. The works of these 'quality gurus' caused a steer in the commitment to, understanding, and management of quality in industry (Fox, 1994). Their concepts were based on the philosophy that quality encompassed everything from initial market research to after-sales service and was aimed at creating an organizational culture centred upon quality and continuous improvements in quality of products, services, and the human resources (Dale and Oakland, 1994).

Today, quality is the major key to success and growth in the food industry because it is quality that today's discriminating consumer demands (Martin, 1988). Profitability of any product or service provider depends on providing what the consumer wants in terms of concerns of health, safety and quality issues unlike the past, where industry was merely concerned with the scheduled delivery of large quantities of goods for consumption.

1.3 Consumer interests and rights

Consumer interests have now been successfully integrated into food quality control programmes. These interests have also now been translated into rights and internationally accepted legislative documents. For instance, 'The Guidelines for Consumer Protection' was formally adopted by Resolution 39/248 of the United Nations General Assembly on 9th April 1985. Similarly, in 1993, a Food and Agriculture Organization (FAO) Committee of Experts working on the integration of consumer interests in food control agreed at its consultative meeting that the basic rights of the consumer include the right to; health and safety; protection of economic interest; choice, information, and redress.

In many developed countries, these consumer rights have been confirmed in their laws or have been announced as government policy and thus the consumer is the focal point of quality in industry. Unfortunately, unlike their counterparts in the developed countries, the majority of consumers in developing countries for a long time have not been aware of their rights, but have instead been more concerned about their basic needs (FAO, 1993).

This trend is now gradually changing in most developing countries including Ghana where the consumer ceases to be an onlooker to becoming a participant of quality in industry. In this new environment, the consumer is setting the agenda for the food industry and there is therefore a greater urgency for manufacturing and service organizations to acquire a consumer-focused marketing orientation in order to maintain their positions in today's competitive global market (Senauer *et al.*, 1991). According to Lawless (1995) and Saguy and Moskowitz (1999), consumer opinion/perception has become one benchmark for good quality and companies that will succeed need to focus on satisfying the needs and wants of food consumers. This will involve finding out what the consumer wants and then marketing products with attributes that will meet those wants

1.4 Consumer perception studies

Product quality has a very important influence on consumer behaviour, particularly when it comes to selecting but consumer's ideas about quality are, in fact, not understood well enough to be translated into business success (Stone *et al.*, 1991, Senauer *et al.*, 1991). There is therefore considerable pressure on industry to learn more about consumer behaviour, to develop rapid and reliable measures of consumer response behaviour as it relates to their products and those of the competition, and especially to understand what consumers mean by such words as 'quality' (Stone *et al.*, 1991).

Studies have revealed that consumer preferences are however not static in time (Lawless, 1995), and vary widely on the basis of cultural or demographic perspectives as well as from one consumer to another within a cultural or demographic group. Shewfelt and Prussia (1993) noted that factors such as the current mood of the consumer and intended use of the product also affect consumer behaviour. There is therefore the need to carry out frequent consumer perception studies to identify the changing social, cultural and other factors that tend to influence the consumer's needs and acceptance of products and services and use them to set quality standards (Malundo *et al.*, 1997). Ultimately consumer perception studies serve to bridge the gap between industry and the consumer. This is achieved through sensitizing industry to the consumer perspective of quality and identifying opportunities to improve business performance based on meeting consumer expectations of quality (McNutt, 1988).

A number of perception studies have been carried out in developed countries (Stone *et al.*, 1991; Burton and Andrews, 1996; Holm *et al.*, 1996). Unfortunately, very little work has been done in developing countries including Ghana. There is therefore the need to establish the link between the consumer's perception of quality and that of industry in a bid to bridge the gap between industry and the consumer.

The main objective of this study is to conduct a quality perception study among Ghanaian consumers and manufacturers resident in Accra to investigate their understanding and evaluation of quality using self-administered questionnaires, the purchase intercept technique and sensory analysis.

1.5 Specific objectives

- (1) To determine how Ghanaian consumers and manufacturers understand quality with emphasis on food.
- (2) To determine Ghanaian consumers' expectations of quality and identify and weigh the importance of product attributes used as dimensions of quality by the Ghanaian in evaluating food products.
- (3) To investigate the relationship between the consumer's perception of quality and demographics.
- (4) To use sensory analysis and the purchase intercept technique to determine how some identified quality dimensions practically influence the consumer's purchasing behaviour.
- (5) To determine the methods employed by manufacturers in identifying and satisfying the consumer's quality demands.

2.0 LITERATURE REVIEW

2.1 Quality concept

Quality is becoming an increasingly important marketing factor, both for producers and for consumers. It is frequently used in current business terminology and has become one of the watchwords in the expanding international competitive arena. Despite the popularity of this word 'quality', it is rarely defined. This according to many authors, is due to the fact that quality is a complex, elusive, multidimensional and relative concept (Martin, 1988; Fox, 1993; Cardello, 1995; Lawless, 1995; Oude Ophuis and Van Trijp, 1995; Sloof *et al.*, 1996; and Shewfelt, 1999).

What is more disturbing is that most researchers, producers, users, consultants, and decision-makers have a reasonably clear concept of the term but there are as many different concepts as there are different perspectives. Quality means different things to different people in the distribution chain and a lack of appreciation for different perspectives on quality may be the most important limiting factor in improving the quality of products as delivered to the consumer. The primary line between differing concepts of quality is orientation (Cardello, 1995; Oude Ophuis and Van Trijp, 1995; Shewfelt, 1999).

When attempting to define quality, Oude Ophuis and Van Trijp (1995) and Sloof *et al.* (1996) remarked that many authors take the metaphysical or transcendent approach that views quality to be synonymous with innate excellence, an unanalysable property, that a user can only learn to recognize through experience. Because people acquire different experiences, their quality evaluations are bound to be different.

The other extreme of the spectrum of quality definitions is taken by the objective quality approach, which refers to a measurable and verifiable superiority on some predetermined ideal standard or standards. Both quality ratings resulting from comparative product tests performed

by consumer organizations, as well as conformance to technical specifications of product management belong to this domain of quality conceptualization. Although there may be some concern about what the ideal standard is, the belief that quality can be assessed on the basis of several technical measurements forms the core of this approach (Oude Ophuis and Van Trijp, 1995).

Somewhere between the two approaches lies the perceived quality approach, which has been adopted, widely by both practitioners and academics in marketing. The perceived consumer approach considers quality dependent on the consumer's judgement (Oude Ophuis and Van Trijp, 1995; Sloof *et al.*, 1996).

Lawless (1995) remarked that no single concept or definition of quality is entirely satisfactory. He noted that quality is complex and multidimensional, contains both subjective and objective components, is situation specific, and is fluid and dynamic across time. While quality must at some time refer to consumer perceptions, objective characteristics are also important. He therefore suggested that the quality concept could only be fully understood and appreciated when all the different orientations of quality are considered together. This view was shared by Shewfelt (1999), who believed that adherence to one type of orientation with a disregard of the other can have dire consequences. A failure of a food industry to be responsive to consumer wants and needs could lead to a decline in that product consumption.

In a related development, Grunert (1995) studied food quality from a means-end perspective. He considered the product-, process- and consumer-oriented quality concepts and tried identifying the relationship between the different concepts. Grunert noted that the three types of quality are interrelated. Specifically, user-oriented quality will be affected by process- and product-oriented quality. However, these inter-relationships are by no means clear and easy, and in addition, user-

oriented quality can be influenced by factors in addition to characteristics of the product itself, like the purchase situation, the type of retail outlet, the price, brand, packaging and convenience among others. Much of the quality discussion in the food industry is centred on product- and process-oriented quality, but changes in objective quality will improve the competition situation of a food company only, when at least one of the two conditions is fulfilled; (a) the change in objective quality leads to a cost reduction either for the manufacturer or for a subsequent actor in the food chain, usually a retailer and/or (b) the change in the objective quality leads to a change in subjective, user-oriented quality.

2.2 Definitions of quality

The importance of quality has resulted in many attempts to define the term based on the three main orientations of product, process and the consumer. While some definitions are specific and describe quality in terms of product characteristics and expectations of the consumer such as price, wholesomeness, freshness, product integrity, others are more general in context.

Some definitions include:

- (a) consumer satisfaction (Shewfelt, 1999)
- (b) fitness for use (Juran, 1974)
- (c) extent to which consumers feel that a product or service exceeds their needs and expectations (Fox, 1993)
- (d) conformance to requirements (Crosby, 1989)
- (e) value for money (Fox, 1993)
- (f) the total composite product and service characteristics of marketing, engineering, manufacture and maintenance through which the product and service in use will meet the expectation by the customer (Feigenbaum, 1986).
- (g) pleasing consumers and not just protecting them from annoyances (McNutt 1988)

- (h) weighted characteristics of a product or service which in their totality add up to the consumer's satisfaction (Fawzi, 1998)
- (i) the totality of features and characteristics of a product or service that bear upon its ability to satisfy stated or implied needs (ISO 8402, 1994.)
- (j) composite of those attributes that differentiate individual units of a product, and have significance in determining the degree of acceptability of that unit to the buyer (Kramer and Twigg, 1970.)

Despite the fact that these definitions seem varied, they are nevertheless complementary and related. They all agree that quality consists of a bundle of intrinsic and extrinsic attributes, and reflects some degree of excellence if not a total absence of deficiencies and must meet a need to ensure satisfaction.

The various definitions have been reviewed and criticized by different quality experts depending on their personal orientations. Fox (1993) reviewed the Juran, ISO, Feigenbaum and Crosby definitions of quality. He commented that these definitions are complementary, since each emphasizes a particular part, which is only implicit in the others.

The ISO description elaborates on Juran's brief definition of 'fitness for use'. It emphasizes the totality of quality considerations, which together satisfy all needs, whether these are expressed or taken for granted.

Feigenbaum's definition reveals that the criteria of need, fitness and expectation that are being addressed in the definitions are the customer's. This definition also names the key divisions of the business enterprise, each of which has a critical role to play in the achievement of quality.

Finally, Crosby's definition implies that the customer's requirements can be documented, conformance to the requirements investigated independently, and hence measured.

Kramer's definition of quality has been widely approved by consumer-oriented quality experts, such as Lawless (1995), Sloof *et al.* (1996), and Malundo *et al.* (1997). The adoption of this definition is considered adequate to reflect the importance of consumer input in the early stages of product development and improvement. First, a 'composite of attributes' implies that more than one characteristic is important, that the weight of the importance of each characteristic may differ between consumers, that the interaction of characteristics may be as important as any individual characteristic, and that tradeoffs in characteristics may affect overall quality. Second, the definition suggests that only those characteristics that 'differentiate' products should be considered in quality evaluation. Finally, the measure of quality should be the 'degree of acceptability by the buyer', which is the consumer for finished food products.

Kramer's definition of quality has however been criticized by Cardello (1995), who is of the view that the definition faltered by placing the emphasis on the 'attributes or characteristics' of the food itself, rather than on the perception or acceptability of those characteristics. For that reason, he suggested that quality be defined as 'the acceptance of the perceived characteristics of a product by consumers who are regular users of the product category or those who comprise the target market'. In this definition, 'perceived characteristics' includes the perception of all characteristics of the food, not simply its sensory attributes, but the perception of its safety, convenience, cost, and value among others. Having done so, this definition embodies three critical aspects of food quality: (1) it uses the consumer as the referent, (2) it focuses on acceptability as a key measurement construct, and (3) it connotes the relativity of judgement reflected in the qualifying concepts of product category and target market.

An attempt to distinguish between the manufacturer's definition and the consumer's definition of quality by Juran and Gryna (1974) is summarized in Table 1.

Table 1: Contrasting views on quality between consumers and manufacturers

Aspects	Principal Views	
	of customers	of manufacturers
What is bought	A service needed by the Customer	Goods made by the Manufacturer
Definition of quality	Fitness for use during life of the product	Conformance to specification on final test
Cost	Cost of use including; Purchase price Operating costs Maintenance Downtime Depreciation loss on resale	Cost of manufacture
Responsibility for keeping in service	Over the entire useful time	During the warranty period
Spare parts	A necessary evil	A profitable business

2.3 Objective quality

Process- and product-oriented quality, together referred to as objective quality by Grunert (1995) are closely related and are of great relevance to researchers, producers, manufacturers and distributors, (Juran and Gryna, 1994; Shewfelt, 1999).

2.3.1 Process-oriented quality

Process-oriented quality is considered as objective quality that can be measured at the product itself by physiological method. It is concerned with the extent to which the product-oriented quality remains stable at pre-specified levels, and serves as the basis for most quality systems such as the Total Quality Management system and ISO 9000 certification, (Grunert, 1995). Process quality embodies quality of design, quality of conformance and quality of performance.

2.3.2 Product-oriented quality

A product orientation to quality views quality as a bundle of attributes that are inherent in a product and can be readily quantified by means of a food product's physical properties, such as fat percentage, muscle size of meat, cell content in milk, sugar content, colour or firmness of fruits and vegetables; throughout handling and distribution, (Grunert, 1995; Shewfelt, 1999).

Shewfelt (1999) remarked that the product-oriented quality is well suited to meet the needs of producers and distributors because it provides the best means of developing and assessing technical advances in processing and distribution. He however, cautioned that the limitations associated with the product-oriented quality should not be overlooked. Measurements that are less readily quantified carry less weight than those that are readily quantified. Such biases tend to favour processing treatments that maintain appearance (a readily quantifiable attribute) over texture (less quantifiable attribute) over flavour (very difficult to quantify). Likewise, sugar and acid measurements (readily quantified) are likely to predominate over volatile compound analysis. Instrumental methods are preferred to sensory evaluation, which is preferred over consumer testing. Thus, it is not possible to determine if the significant differences observed in appearance by treatment are even detectable by many consumers much less lead to a change in purchase behaviour.

In addition, the product-oriented approach is unable to keep pace with changes in consumer desires and expectations and is more likely to emphasize appearance leading to extended life and lower prices at the expense of flavour and disgruntled consumers.

2.4 Consumer-oriented quality

The consumer's definition of quality is the most important as it is the consumer's definition of food quality that drives the economy of the global food industry. Yet, it is precisely the

consumer's definition of food quality about which the least is known and which poses the most challenge to quantify (Cardello, 1995).

Three decades ago, the quality of a commodity was based on technical judgement of experts on specific product properties. In 1955 the main question was centred on how to produce, and quality meant meeting specifications. Many manufacturers of goods equated quality with conformance to specification at the time of final product test, in line with Crosby's definition of quality. This form of definition gave inadequate attention to numerous factors, which influenced quality as defined by customers: packaging, storage, transport, installation, reliability, maintainability and customer service. The inadequacies of these concepts of process and product-oriented quality combined with the realization by most quality experts that the consumer is the ultimate judge of quality, emphasized the need for a consumer-oriented quality concept. In 1985, the emphasis shifted from what to produce to how to produce. Today, industrial approaches view quality more in terms of consumer acceptance than expert opinion, thus, changing the definition of quality to 'meeting customer needs'. The interest in product specifications remained almost the same, except that in 1955 the interesting relationship was from specifications to production in contrast with, from customer needs to product specifications (Juran and Gryna, 1994; Grunert, 1995; Karnes *et al.*, 1995; Dalen, 1996; Malundo *et al.*, 1997). Additional documentation provided by Mc Nutt (1988) to support the need to better meet consumer expectations includes a 1981 survey which found that nearly 50% of U.S consumers believed that the quality of U.S products had dropped during the previous five years and were not meeting their needs and expectations.

The concept of perceived quality attempts to mediate between objective product characteristics and consumer preferences. It stresses that perceived quality may differ from objective quality (Holm and Kildevang, 1996). One such difference is that the product characteristics used by

consumers to evaluate quality no longer need to be measurable, thus a user-based definition may refer to product characteristics that in reality do not exist, but that the user believes to be important (Sloof *et al.*, 1996).

The consumer-oriented or perceived-quality approach puts the user in the central position (Sloof *et al.*, 1996). In this approach, quality is the selective quality perception of a consumer (Grunert, 1995) and it is defined in terms of consumer satisfaction, a much less tangible and less quantifiable concept (Shewfelt, 1999). In addition, quality refers to those features of the product, which respond to customer needs and expectations and means freedom from deficiencies, as well as good customer service if deficiencies do occur (Juran and Gryna, 1974).

In the perceived-quality approach, quality is considered to be subjective: it depends on the perceptions, needs and goals of the individual user (Sloof *et al.*, 1996). In other words, quality does not exist in a vacuum, but can only be appreciated if one understands the frame of reference of the user. The terms perceived quality and fitness for use emphasize this (Lawless, 1995).

The benefits of the perceived quality concept cannot be overemphasized. It is best suited at identifying consumer needs and expectations as well as producing a consumer-sensitive distribution system convenient for consumers and marketers. The concept also helps to bridge the gap between consumers and manufacturers/producers by translating the needs and quality expectations of the consumer into product characteristics resulting in consumer satisfaction and profitability for the manufacturer.

The consumer approach however, is not without limitations, particularly with respect to consumer variation and validity of quality measurements. Since quality is best defined by the consumer, its assessment by the consumer using cues to evaluate quality is in place (Malundo *et*

al., 1997). This situation nevertheless, presents a set of challenges. The consumer is frequently viewed as a monolith with consistent preferences but realistically, consumer preferences vary widely from one cultural or demographic perspective to another, from one consumer to another within a cultural or demographic group, or even the same consumer depending on many factors including current mood and intended use of the product (Shewfelt, 1999).

While consumers represent the only valid source of preference or acceptability, Shewfelt (1999), Sloof *et al.*, (1996) and McNutt (1988) remarked that they are not good at expressing the rationale for these preferences. Individual assessments of quality are personal and situational, and are often based on incomplete information. Furthermore, individuals change their view about quality with experience and may change their minds about what they pay attention to, therefore changing their criteria for judging quality as a product travels through the market chain. This results in a continuous change of quality definition from one market to another, and from time to time. This condition is illustrated by Dalen (1996) when he observed that whereas food safety is a must attribute that consumers take for granted in some markets, in some markets, the consumers are concerned about this topic.

The benefit of the perceived quality approach can only be attained if manufacturers are aware of the difficulties associated with the concept and are able to identify and measure consumer needs and expectations within segment markets.

2.5 Consumer needs

The term 'needs' or 'motives', as referred to by some authors, is used extensively in the marketing arena and has been defined by a number of marketing experts. Mc Carthy and Perrault (1993) define needs as the basic forces that motivate a person to do something. A similar broad definition is provided by Hawkins *et al.*, (1995) who refer to a need as a motive. In

their definition, a motive is defined as a construct representing an observable inner force that stimulates and compels a behavioural response and provides specific direction to that response. Consumer needs can therefore be considered as forces that motivate the consumer in the buying process and therefore tend to influence all the elements of the consumer-purchasing-decision-making process.

Consumer needs are not static and depend on the situation at hand. These needs are fashioned by one's demographic profile, beliefs, attitudes, income, and lifestyle. All consumers' needs have to be met, and the product features should be responsive to those needs. The response to these needs determines product satisfaction and consequently product saleability. Continuous identification, understanding, satisfying and exceeding these needs and expectations is the focus of the consumer-oriented quality concept, which is paramount in today's competitive global market. The tasks of identifying and utilizing consumer needs in marketing strategies is however a complex tasks because of the inability of the consumer to clearly articulate these needs.

Fox (1993) and Dalen (1996) classify consumer needs as explicit, implicit and latent. According to this classification, explicit needs are quite easy to identify and give a notion of what the consumer is looking for in a product, which can be expressed by clear requirements. Implicit needs are less readily identifiable and hardly expressed in the consumer's requirements but can be considered as the consumer's expectations of the product. Implicit needs are identified by sophisticated market research and by studies on the consumer's behaviour and use of product. An example of such an implicit need is the safety of a food product. Fox, however, remarked that the most difficult needs to identify are the latent needs of the consumer. These needs are not perceived as available features of a product but would readily create a market if they could be made available and give a competitive marketing advantage if capitalized on.

There are a number of theories that offer potentially useful insights into the needs of the consumer. These theories include Maslow's hierarchy of needs (Gretz *et al.*, 1996), McGuire's psychological motives, and a four-level hierarchy of needs suggested by Hawkins *et al.*, (1995).

Maslow's hierarchy of needs approach is based on four premises:

- (a) All humans acquire a similar set of needs through genetic endowment and social interaction.
- (b) Some needs are more basic or critical than others are.
- (c) The basic needs must be satisfied to a minimum level before other needs are activated.
- (d) As the basic needs become satisfied, more advanced needs come into play.

The Maslow's hierarchy of needs proposes five levels of needs: physiological, safety, belongingness, esteem, and self-actualization. This theory is very similar to the four-level hierarchy of needs proposed by Hawkins *et al.*, (1995), which identifies the levels of needs as physiological, safety, social and personal. The McGuire's psychological needs classification system is more specific than the other two and lists the set of needs as consistency, causation, categorization, cues, independence, curiosity, self-expression, ego-defense, assertion, reinforcement, affiliation, and modelling.

According to Hawkins *et al.*, (1995), the lowest-level needs are physiological and are concerned with biological needs. This is followed by safety needs, concerned with protection and physical well being; social, concerned with love, friendship, status, and esteem; and personal, concerned with self-esteem and self-fulfilment.

Motivational research has been carried out since 1950 to identify consumer needs and their link to product characteristics. These needs when identified are incorporated into various models to

help understand how they are used by the consumer in the quality perception process and ultimately influence the consumer's purchasing decision-making process. Grunert (1995) proposes, in one such motivational research work, that consumers perceive value in a food product to the extent that they believe that this product will lead to self-relevant consequences. Self-relevant consequences can also be termed as buying motives, because it is these consequences, not the product itself, the consumer is interested in. For instance, a self-relevant consequence of eating is obviously nutrition and hence survival, but this consequence does not differentiate between alternative food products and is generally not a strong motivator of food purchase in the industrialized countries. Other self-relevant consequences may include pleasing the family, socializing with friends, pleasure and enjoyment due to good taste, perfecting your cooking skills. To understand how consumers infer subjective quality from objective product characteristics, the linkage of these product characteristics to self-relevant consequences of this nature must be investigated.

To achieve this objective, a means-end chain, a model of consumer's cognitive structures depicting how concrete product characteristics are linked to self-relevant consequences is used. More specifically, it shows how a product characteristic (concrete or abstract) is linked to consequences (functional psychosocial) of consumption, which in turn may be linked to the attainment of life value (instrumental or terminal) (see for example Grunert, 1995).

Means-end chains are typically measured by semi qualitative technique called laddering from which a hierarchical value map can be derived, which summarizes the major means-end chains across a sample of respondents. Such maps can yield insight into the determinants of how consumers' value perception, or more specifically, how product characteristics are used by the consumer to infer self-relevant consequences. Applications of such maps include segmentation, product development, and advertising strategy (Grunert, 1995).

2.6 Consumer expectations

Advances in food science and technology have catapulted the quality of food products to an unprecedented height. Consumers' definitions for quality are fluid and yet their expectations are ever increasing. As they become accustomed to greater quality, they demand even more. Cardello (1995) believes that these expectations play an important role in the consumer's judgement of quality. Quality is therefore sometimes defined as a consistent conformance to consumer expectations.

Sloan (1994a) reported a consumer study conducted in 1993 by Yankelovick to investigate consumers' expectations of a quality food product. This study showed that consumers define quality in relation to three elements. The first element of quality is that consumers expect manufacturers to have mastered the basics of what they are in business to provide. The second element that consumers demand is consistency. Consumers want the products that they buy to be reliably the same each time they purchase it. The third and final element of quality is the willingness of a company to fix its mistakes. If any of these components is missing, consumers will not remain loyal for long.

A theoretical model provided by McNutt (1988) provides a useful framework to understand the expectations of consumers. The model describes four categories of expectations. These are basic requirements, consumer needs, reasonable expectations, and service obligations.

McNutt (1988) refers to certain attributes of quality that consumers consider as non-negotiable to be the basic requirements. Some of these requirements identified are safety, availability, nutrition, and freshness.

Consumers require products to be safe. They will not barter with manufacturers in this arena. Many consumer leaders emphasize the importance of microbiological safety, salmonella being cited as a major concern, but others are anticipated (McNutt, 1988). Pesticide residues, protective processing methods and expiration dates also appeal to consumer safety concerns (Sloan, 1994a).

According to McNutt (1988), availability falls within basic requirements. Consumers think they should be able to buy almost any food at any time from the local markets as well as large urban supermarkets. This view is supported by Sloan (1994b) who identified some important criteria used by consumers in deciding where to shop. Sloan's findings revealed that the neatness of the supermarket and a good variety or wide selection of products were considered important determinants in their decision-making process.

Nutrition is rapidly moving from a value-added attribute to a basic requirement of foods. Its importance varies among products and people, but some type of nutritional 'utility' is expected from everything eaten.

Freshness has also become a fundamental part of quality. Although difficult to define, it seems to imply less processing or fewer additives.

A step above the basic requirements is the assurance that products fill consumer needs. Sensory pleasure falls within this category, as does novelty or stimulation.

Another need is for multiple-use products to fit varied consumer lifestyles. At a minimum, people want a variety of choices within a product category and portions per package to accommodate different age groups and family meal patterns.

Convenience is no longer a product frill, nor is it restricted to a specific market but has become one of the expectations of consumers categorized as a consumer need. Convenience needs go beyond convenience foods. It means more than quick preparation. Awkward design as it affects purchasing, storage, and serving reduces product quality. Consumers also see industry's ignoring disposal problems as a lack of commitment to quality.

Beyond the basic expectations related to nutrition, perceived needs now include ensuring the availability of products for people with special dietary requirements such as reduced sodium, cholesterol, sugar, or fat in foods. Even without a doctor's recommendation, consumers who simply want these products consider them essential to quality.

Consumers include getting what you are paying for in their definition of quality. The quality value is considered as one of prime reasonable expectations of the consumer. People who have never heard of the price/value curve know what it means and would expect that a quality product should give them value for money.

Another reasonable expectation is that products fulfil all their promises. Consumers want more informative advertising. Consumers complain that so many advertisements today for new products concentrate on enticing consumers to purchase these products by indulging in promotional sales instead of providing informative advertisement that can aid them in their purchasing decisions. 'Cleaner' labels for easier identification of products at the point of sale is also expected by consumers.

According to McNutt (1988) and Elsner *et al.*, (1997), consumers considered packaging under the group of reasonable expectations. Clarity/visibility of products, size and reclosability of packages were some of the consumer expectations noted. Reducing media and packaging clutter

while focusing on more critical attributes of products was a suggestion by consumers. Information overload; both positive and negative forces, fighting for consumer attention could result in consumers becoming suspicious of, or totally indifferent to, all messages.

Another consumer frustration is 'uni-dimensional benefits' or products that solve one problem but create or do not deal with others. Examples cited included low calorie products that are high in salt (convenience dinners), products high in fibre but also high in saturated fat (granola bars), and 'no cholesterol' claims for products containing coconut oil.

Although food products are not repaired or sold with a maintenance agreement, consumers expect the food industry to be obligated to provide them with good services. Servicing the consumer both inside and outside the supermarket is critical for today's less-knowledgeable and time-starved consumer. For the food industry, the demand for service means responding appropriately to consumers' request for information. High quality consumer education and professional consumer communications are critical to a company being recognized as the producer of quality goods. Preparation instructions should be in clear, easy-to-understand language. Usage suggestion should show sensitivity to a wide variety of lifestyles and values. Labelling should be informative and advertising honest. Money-back guarantees were other innovative ways suggested, in which companies could provide consumer service (McNutt, 1988; Sloan, 1994a).

Service also includes accessibility to company management. Consumers expect help getting through the corporate maze when they want to be heard. Service means listening, being sensitive to the consumers' complaints and it requires action to resolve the problem. Sloan (1994a) remarked that those companies who offer superior customer service will be better positioned to retain customer trust and patronage since it is no longer enough to retain nor entice consumer

purchases. Accordingly, companies must offer superior product performance and service at a competitive price. Sloan believed that only those companies who offer a complete package would survive in the decade ahead.

2.7 Dimensions of quality

Karnes *et al.*, (1995) and Malundo *et al.*, (1997) remarked that since quality is best defined by the consumer, the consumer is the ultimate judge of quality and, the criteria used by consumers as basis for purchase and consumption decisions are the most significant. Unfortunately, according to Karnes *et al.*, (1995), a large gap exists between the theoretical advice that quality must be defined and measured using consumer preferences on the one hand, and how firms should go about doing it on the other.

Modern quality assurance is generally concerned with the various aspects of quality including quality of conformance, design, and performance. Efforts of production departments have traditionally been directed toward the use of statistical process control to achieve conformance to requirements. These efforts, however, may not ensure a high quality product unless customers' expectations are captured and translated into product specifications. To address this problem, Karnes *et al.*, (1995) suggested that to measure a product's quality, it was necessary to first identify the dimensions of quality associated with the product. These dimensions of quality can be used as a framework for disaggregating the concept of quality and exploring its basic elements. This framework for the concept of quality is a 'user-based' approach with the consumer as the ultimate judge of quality.

A crucial element in discussing perceived quality is the concept of quality indicators sometimes considered as quality dimensions. Quality is considered a multifaceted concept, which is based on several dimensions that cannot be evaluated by a consumer. Therefore consumers use

surrogate or indirect indicators of quality to make a judgement of perceived product quality. These dimensions comprise of both quality cues and quality attributes. Quality cues are ascertained by the senses prior to consumption and can be intrinsic or extrinsic. They are used by consumers to form abstract beliefs about the quality of a product. Quality attributes on the other hand, are benefit-generating product aspects that cannot be observed prior to consumption. These comprise experience quality attributes and credence quality attributes. Experience quality attributes are based on actual consumption while credence quality attributes remain purely cognitive. (Oude Ophuis and Van Trijp, 1995). Table 2 provides a list of some of these quality cues and attributes.

Table 2: Quality cues and attributes for foods

Intrinsic quality cues	Extrinsic quality cues	Experience quality attributes	Credence quality attributes
Appearance	Price	Taste	Healthfulness
Colour	Brand name	Freshness	Naturalness
Shape	Country of origin	Convenience	Animal friendliness
Size	Store		Environmental friendliness
Structure	Nutritional information		Wholesomeness
	Production information		Exclusiveness
			Method of production

A number of quality dimensions usually eight, have been listed by some authors including Lawless (1995) and Karnes *et al.*, (1995) as important to the consumer. Some of these quality dimensions involve measurable product attributes while others reflect individual preferences. These 8 quality dimensions are easily related to durable goods but have been extended by Lawless (1995) to apply to food quality as well. The dimensions of quality comprise of

- | | |
|-----------------|--------------------------------------|
| (1) Performance | (6) Serviceability |
| (2) Features | (7) Response |
| (3) Conformance | (8) Aesthetics |
| (4) Reliability | (9) Reputation and other perceptions |
| (5) Durability | |

(1) Performance

Performance in the broad sense refers to the fundamental product operating characteristics of the product. According to Lawless' (1995) discussion of how these dimensions apply to food quality, performance includes sensory attributes as well as nutrition and wholesomeness. This

emphasizes the fact that there is more to food quality than merely sensory quality. Consumers expect food to be safe and provide nutrients.

Many studies have been conducted by quality experts to identify some of the sensory quality dimensions utilized by consumers in judging a product's quality. All these attributes are interrelated. Some sensory attributes identified include flavour, taste, aroma, texture, colour, appearance, shape and size.

Hoban (1996) conducted a study to investigate how Japanese consumers view biotechnology. In the study, he concluded that taste would continue to be one of the major issues that consumers will consider when they decide which foods to buy. Similarly, Grijspaardt-Vink (1996) noted that taste is the ultimate selling point for consumers, and this explains the consumer trends towards ethnic foods and flavours being observed in the USA. In related research works, Holm and Kildevang (1996) and Letarte *et al.*, (1997) noted that a number of different criteria were mentioned when describing food positively or negatively. In most cases, several criteria were mentioned in concert. Two single concepts, taste and price, had a special position. Taste was the most frequently mentioned criterion, both in critical and favourable comments. It was sometimes mentioned as the single reason by consumers for deciding whether to buy a particular food, and it was the criterion most frequently mentioned in connection with other criteria.

The importance of taste as a quality dimension used by the consumer is strongly supported by Chambers IV and Bower (1993). These authors identified a broad spectrum of sensory input, including appearance, aroma, flavour and texture used by consumers to make purchasing and eating decisions related to muscle foods. The important qualities of meat were described as flavour, colour, texture, nutritive value, and wholesomeness. These factors remain today as

motivators related to meat purchase and consumption, but they noted that if taste quality was lacking, price and healthfulness were irrelevant and consumers refused to purchase the product.

Flavour and aroma are closely related to taste in the evaluation of the quality of most products and are reported by Sloan (1994b) as a motivator in the purchase of products by the consumer. According to Auerswald *et al.* (1999), consumer polls concerning quality criteria confirm again and again how important a product's flavour is, next to freshness and nutritional issues. This was reflected for instance, in the fact that for many years, consumers from all over the world have been complaining about flavourless tomatoes. A mailing survey conducted by Auerswald *et al.* (1999) with 3000 consumers in Berlin in 1994/95 showed the economic potential of flavour improvement of fruits and vegetables. The improved flavour of a product was estimated to possibly reach the highest price increase compared to many other improvements.

The attributes of flavour and aroma have also been identified as significant in the consumers' assessment of many food products such as soups (Bone, 1987); luncheon meat (Schutz *et al.*, 1988); dairy products (Barr, 1990); beef (Chambers and Bowere, 1993), and akara, a snack made from cowpea paste (Misra *et al.* 1996).

Appearance is one of the major attributes of quality. But it is an all-inclusive term involving size, shape, texture, mass, gloss, colour and others. The appearance of the product is the first impression a consumer has of a given food product. The impact of colour on the consumer's perception of quality has been extensively studied by Francis (1995). Francis noted that colour, as one aspect of appearance, has to be within an expected range for food acceptance and the degree of acceptability is judged within that range. If the colour is unacceptable, the other major quality factors, flavour and texture, are not likely to be judged at all. In his opinion, foods outside the normal range of acceptable colour are rejected, sometimes rather emphatically. In a

study he conducted to investigate the attributes of poultry that consumers considered in purchasing poultry, the groups of consumers reported that overall appearance, especially the colour of the meat, was an important indicator of chicken quality. The groups described their colour preferences for chicken skin to be yellow, breast meat to be light pink, and thigh meat to be beige-pink.

Francis (1995) further remarked that, colour plays a peculiar role in the consumer's assessment of quality. Colour is used as a quality dimension by consumers in assessing the maturity of most vegetables and fruits such as tomatoes and citrus fruits, which is related to a better flavour. Colour is similarly used to determine pigment content of a product, which is often an index of quality

Texture is one quality attribute that has also been mentioned as a performance quality dimension. It has been reported to be important in the assessment of muscle foods (Chambers and Bowere, 1993) and fruits and vegetables (Shewfelt, 1999). According to Shewfelt (1999), while most consumers cite flavor as an overriding consideration when asked how they evaluate fresh fruits or vegetables at consumption, consumer tests suggest that today's consumers are much more sensitive to subtle differences in texture than flavor and tend to use texture as the primary limiting factor for acceptability.

The importance of sensory attributes in the judging of the quality of products has been summarized by Chambers and Bowere (1993) and Resurreccion (1999). The authors noted that for any food product to be accepted by the consumer, its sensory quality ought to be appealing. They further remarked that although some research results suggest that consumers may be willing to trade-off sensory properties for other advantages initially, sensory properties become motivating factors for continual acceptance and purchase. This view is strongly supported by a

consumer study conducted by Light *et al.*, (1992). Their research findings indicated that even though the consumer's initial purchase of dairy products was influenced by the nutritional information provided, in the final analysis, it was the sensory attributes that determined which products the consumer purchased subsequently. These sensory attributes are assessed by the consumer either visually or by smelling and squeezing the products (Holm and Kildevang 1996).

Many quality dimensions consumers consider important these days can be categorized as credence quality attributes. Desirable product benefits like nutritional value and wholesomeness cited as performance quality dimensions by Lawless (1995) cannot be experienced directly. One has to rely on the judgement or information of others that the product contains such a quality attribute. Oude Ophuis and Van Trijp (1995) illustrate this situation using margarine. Margarine with a high percentage of polyunsaturated fats is considered beneficial for health because of its cholesterol lowering abilities, but this is a long-term effect, which is not measurable by the consumer. Health is a typical credence attribute, since usually there is no direct relation between consumption and effect. Extrinsic cues are signalled to the consumer through labelling and more effectively through advertising. In advertisements for margarine with a high proportion of polyunsaturated fatty acids, the association with health is made by showing a person who is engaging in all kinds of healthy activities and behaviours.

The effect of nutrition on consumer assessment of quality has been studied extensively by many quality experts and is closely related to the health benefit of a food product. Schutz *et al.*, (1988) conducted a mail survey study to assess the attitude of consumers towards luncheon and sliced meats. The results revealed that non-and low users had a great concern for nutritional consideration of the product. This finding agrees with a study conducted by Hoban (1996) among Japanese consumers to assess their acceptance of biotechnologically produced products.

Hoban noted that nutrition will always remain an important dimension that consumers will consider when deciding on purchasing a product

In a related consumer survey, Sloan (1994b) observed that while nine out of ten shoppers considered taste to be the most important factor in food selection, nutrition (75%), price (74%), and food safety (72%) were not far behind. With specific reference to packaged meals, Sloan (2000a) reported that features of packaged meals seen as important by consumers included taste (92%), nutrition (72%), good value (71%), appealing ingredients (71%), convenience (69%), easy direction (54%) low fat and low calorie (49%), trusted brand name (41%), and appealing packaging photo (28%).

Also the results of the survey conducted by Bruhn *et al.*, (1992) showed that the three most important factors respondents consider when shopping for food were taste (84%), product safety (71%), and nutrition (69%). These studies are consistent with national studies conducted in the US, where taste was of paramount importance while safety and nutrition vied for second place. In this study, 78% of the respondents reported that they avoided some foods because of nutritive content. The nutritive factors considered very important were total fat content (62%), saturated/unsaturated fats (61%) and cholesterol (58%).

Martin (1988) defines a wholesome food as a food product fit to eat, that is clean and uncontaminated and that has been packed and stored in a sanitary environment. The wholesomeness of a product is closely associated with the safety of the product and these two dimensions are usually considered together by the consumer in his assessment of quality. Holm and Kildevang (1996) conducted a qualitative interview to investigate the consumers' views of quality. The findings of the study showed that concerns about food safety are integrated in

everyday concepts of food quality. These concerns are sometimes expressed elaborately while at other times, they are only implied.

According to a report by Sloan (1994a), spoilage was named the number one threat to food safety in 1993 while concern for freshness, expiration dates, microbial spoilage, improper shipping/handling, and bacterial contamination followed. Concern for pesticide residues followed far behind at 13%, but was still a significant concern to consumers.

Sloan (1998a) also noted that consumers are more concerned about the food safety of certain food categories than others, whether rightly or wrongly. Slightly more than half of consumers (55%) were concerned about the safety of meat products, 52% were worried about seafood, and 44% were chary of dairy products.

The importance of a product's safety and wholesomeness has been highlighted by many studies particularly those conducted by Hoban (1996) and Hashim *et al.*, (1996). While pesticides have been a major safety issue with fresh fruits and vegetables, worries about bacteria are skyrocketing for all foods. Sloan (1998a) reported that nearly one in four consumers in the USA said they stopped buying a particular fruit in 1998 because of safety concerns. Consumers' safety concerns were reflected in their concern of 'imports', cited by nearly two-thirds of produce shoppers, while 53% mentioned 'country of origin'. Other issues of safety referred to were 'poor handling' (47%) while 'residues and pesticides' were rated as major concern by 53%. Long-term safety issues like 'tampering/proper refrigeration,' and 'irradiation' took a back seat to these new emerging environmental and international concerns.

A study conducted by Hohan (1996, 1999) to investigate the acceptability of biotechnologically products among American and Japanese consumers confirmed the important role that the safety

of a product played in the acceptability of a product. Initial findings revealed that both groups of consumers were sceptical about biotechnologically produced food product. However, when consumers in the study were assured of the safety of the process and resulting products, the willingness of consumers to patronize biotechnologically produced food products significantly increased. Acceptance further rose when consumers were provided with additional information on the environmental benefits of this group of products. A similar trend was observed by Resurreccion (1999) in a study conducted to assess consumers' acceptance of irradiated foods.

(2) Features

Features as a quality dimension is considered as the 'adds-on' that enhance the basic functions of the product. Lawless (1995) applying this dimension to food products, describes features to include attributes like convenience in preparation. According to Grijspaardt-Vink (1996), convenience is the second important food trend in Europe. This eating trend is associated with the more solitary lifestyle that is emerging in Europe. Katz (1999a) defines convenient food as one that takes less time to prepare than a non-convenient food. Additionally, convenience may also include the time to serve and clean up as well as the time to shop.

Sloan *et al.*, (1994) and Sloan (1996) have investigated the role of the convenience in purchasing of food products among consumers in the U.S.A. Sloan (1996) remarked that convenience more than ever continues to be the driving force spurring the desires of America's food product needs. Findings of their studies have also revealed that, in the area of convenience, consumers are willing to pay extra to save time, within certain limits. Consumers regard time as a priority, so foods in convenient forms, such as single-servings, microwave products, and certain foods in special convenient packaging are all being purchased with increasing frequency.

Some foods enjoying a boost in sales in the USA as a result of their added convenience include cheese and frozen fruits and vegetables. Sloan (2000b) reported that 80% of consumers interviewed cited cheese as a convenient food. Similarly, Sloan (1996) reported that 64.3% of consumers stated convenience to be the number one reason for buying frozen vegetable and fruit items.

(3) Conformance

Conformance is the quality dimension that refers to the extent to which a product meets design specifications. According to Lawless (1995) conformance is a match between product concept, consumer expectations, and what the product delivers.

(4) Reliability

Reliability concerns the degree to which the product is consistent upon repeat tastings and repeat purchases (Lawless 1995). Sloan (1994a) noted that reliability and consistency were listed as one of the elements of quality when consumers were asked to define quality. A product that is inconsistent in quality was inevitably bound to lose its customers to its competitor.

(5) Durability

Durability, as a quality dimension, according to Lawless (1995) may imply a good shelf life. Consumers consider shelf life an important indicator of the freshness and general wholesomeness of a food product. According to Martin (1988), freshness is difficult to define because it is determined by individual perceptions based on product appearance, taste, and texture. Ultimately, Martin remarked that freshness reflects the degree to which microbiological spoilage or chemical deterioration has occurred and the most popular cue currently available to the consumer to assess this important quality attribute is the shelf life of the product.

In a consumer survey reported by Sloan *et al.*, (1994) to identify the level of importance consumers attached to various quality attributes, it was noted that the single quality attribute that was of extreme concern to most consumers was freshness dating on food packages. With regards to freshness dating on food packages, 48%, 40%, 11% and 1% of consumers indicated that they were 'extremely concerned', 'very concerned', 'somewhat concerned' and 'not concerned' respectively.

(6) Serviceability

Lawless (1995) notes that serviceability for a food may imply user friendly directions, ease of preparation or recipe tolerance_wide limits on the abuse of the product during cooking due to failure to measure accurately or follow preparation instructions. This quality dimension has become increasingly important perhaps because of the current trends towards convenient foods and more especially because of lower cooking skills of today's timed-pressed consumer.

(7) Response

Response dimension of quality involves customer support such as telephone hot line (Lawless 1995). McNutt (1988) noted that consumer accessibility to company management of a product was explicitly stated by consumers as one of their expectations of a good quality product. Consumers expected to get help through the corporate maze when they wanted to be heard. Listening and being sensitive to the consumers' complaints as well as taking prompt action to resolve consumer problems were all identified by McNutt as indices used by consumers to assess quality.

(8) Aesthetics

Aesthetics comprise quality attributes and cues as listed by Oude Ophuis and Van Trijp (1995). Lawless (1995) in referring to food products remarked that the 'aesthetics' dimension of a

product included not only sensory attributes such the product's appearance, flavor, odour, sound, or feel to the touch; but package design as well.

Elsner *et al.*, (1997) investigated the impact of packaging on consumers' perception of quality. The findings of their study suggested that packaging is seen by many consumers as a direct indication of product quality and can influence purchase decision. The type of packaging can directly influence the ease of use by consumers, especially in instances where the package can have functional properties, such as reclosability or microwave/conventional oven temperature resistance. Package size also plays a role in the purchase of many products by consumers.

From the simulated test conducted by Elsner *et al.*, (1997) in the consumer study, it was evident that packaging was indeed very important to the consumer. Clarity/visibility of the products and size were the top two reasons participants chose a particular package of a product.

According to Hollingsworth (1996), packaging is the first impression given to consumers about a product and consumers consider it an essential quality dimension. Packaging is exceptionally important not only to the consumer but to the producer as well and it has been identified by marketing personnel to be one of the most effective marketing tools. Hollingsworth (1996) stressed that packaging receives far more attention today in the quest for enhanced product performance than other quality attributes. The moves by Pepsi, The Quaker Oats Co and Snapple Beverage to introduce innovative packaging in terms of shape, types, and graphics underscore just how important packaging has become in the battle for consumer hearts and minds (Hollingsworth, 1996).

(9) Reputation and other perceptions

Finally, is the reputation and goodwill of the firm producing the product, the effectiveness of the firm's advertising, and other things such as price that affect the consumer's perception of product quality. The continuing goodwill of consumers toward the integrity of the brand name is extremely important if a company desires to maintain its competitive edge over its competitors.

Karnes *et al.*, (1995) were of the view that reputation and brand name are often one of the primary contributors to perceived quality. This view is largely supported by Sloan *et al.*, (1984); Karnes *et al.*, (1995); Hashim *et al.*, (1996); Holm and Kildevang (1996) and Elsner *et al.*, (1997) who in different studies observed that consumers purchased food products based on brand names. According to Sloan (2000b), 42% of consumers in a survey considered a trusted brand name an important feature of packaged meals. It was generally observed in all studies that consumers often distinguished between brands of a product, of different quality, by means of their preference for a particular brand.

Identification of quality dimensions is considered the first step in the measurement of perceived quality. The intricacies of how the consumer utilizes the dimensions in making a particular purchase have however not been fully elucidated. What is evident according to Kramer and Twigg (1970) and Molnar (1995), is that, from the consumer's perspective, food quality is certainly a unitary concept. When asked about the quality of a particular food item, the consumer does not pause, separate, and analyze all of the individual factors that may be contributing to his/her perception of the quality of the item. This is because humans are wonderfully adept at providing integrated responses to what appear to be, upon reflection, complex judgmental processes. Thus, quality is a single entity in the mind of the consumer who integrates any number of specific attributes through the use of his senses to arrive at an overall perceived quality. In the light of this unique ability, it is easy to understand why many

researchers place heavy emphasis on consumer judgements as a direct practical measure of what is meant by a product's quality.

Molnar (1995) and Holm and Kildevang (1996), in measuring quality from the consumer's perspective in different studies observed that consumers mentioned a number of different quality dimensions when describing the quality of a product. One unique trait of food quality is the hierarchical and dynamic interactions of almost all attributes. For this reason, in formulating an evaluation system for food products, intercorrelations cannot be ignored. Criteria mentioned together were not necessarily independent, but they were sometimes substantially intertwined. Taste or palatability seemed not to only depend on ingredients, spices and preparation of food, but was sometimes influenced by what consumers knew and felt about the foods' manufacture. The results further showed that consumers combined quality cues and made inferences when information was incomplete. This emphasized also that quality parameters are not independent but often intertwined; for instance, consumers' views on taste or convenience seemed to be influenced by price or knowledge of processing methods and vice versa.

Sloan *et al.*, (1984) have also added to the knowledge of consumer's use of quality dimensions by noting that although consumers have identified these factors as their overall food quality determinants, in everyday practice they rearrange their priorities depending on the type of food. For example, when considering hamburger meat, the most important characteristic is its leanness (lack of fat), followed by a good red color (which would denote freshness), and absence of an objectionable odor. The cut of the meat is also taken into consideration. High quality bread is judged by its freshness, the fact that it is made from whole grain, that it contains no preservative, and that it is soft. Green beans must be fresh, with good colour and texture, and free of stems and strings. High quality cheese, by the consumer's definition, is not processed. Its flavor, color, and its brand play a part in the determination of quality.

In discussing the concept of quality and the importance of quality dimensions, Karnes *et al.*, (1995) stated that certain product characteristics receive more weight than others and may be ranked differently by each consumer. In other words, the relative importance of different quality attributes change depending on the product, purchasing situation, and consumer. They argue, however that all dimensions combine together to produce the product's quality image. Furthermore, quality assessments involve multiple attributes that are somehow integrated by the consumer into an overall quality image. It is for this quality image that the consumer is willing to pay money, not just a particular dimension of quality, such as features or appearance.

The need to measure quality from the consumer's perspective has been largely agreed upon by most quality experts as well as marketing personnel. Because the consumer's perspective is typically based on a number of characteristics rather than a single attribute of the product, Karnes *et al.*, (1995) and Oude Ophuis and Van Trijp (1995) remarked that it is important to identify consumer relevant quality indicators and attributes, their relative importance, and their relations with physical product parameters. Only with this information will it be possible to adjust product quality to the wants and needs of consumers. By using this approach, a firm can also develop segmentation strategies with respect to quality by focusing on a few chosen quality dimensions. Manufacturers can therefore focus on seeking quality improvements that provide maximum return. Oude Ophuis and Van Trijp (1995) further remarked that apart from the perception elements, one should realize the confinements of place, product and person. Different products have different quality cues and attributes, different persons will have different quality orientations, and contextual and situational factors as place can have various effects on perceived quality.

Many techniques have been suggested for the identification and weighing of quality dimensions used by consumers in the determination of quality with the view of bridging the gap between

producer defined quality and consumer based quality perception. These include the quality enhancement method (Malundo *et al.*, 1997; Shewfelt *et al.*, 1997); analytical hierarchy process (Karnes *et al.*, 1995); quality guidance (Oude Ophuis and Van Trijp, 1995); and consumer testing and surveys (Shewfelt *et al.*, 1997).

2.8 Perception process

Perceived quality is considered as an overall, global concept, like an attitude and it is the result of a perception process (Oude Ophuis and Van Trijp, 1995). The overall quality judgement is formed on the basis of visible and invisible product characteristics that may have actually been experienced, or are believed to be associated with the evaluated product (Cardello, 1995; Hawkins *et al.*, 1995; Oude Ophuis and Van Trijp, 1995; and Zeithaml and Bitner, 2000).

Perceived quality is a psychological construct (Sloof *et al.*, 1996) that is based on the consumer's judgement. The quality concept is grounded in the perceptions of the average consumer and closely allied with the concept of acceptability. According to Cardello (1995), the consumer's judgement of acceptability has repeatedly been shown to correlate highly with consumer judgement of the quality of food.

The perception process in relation to quality and the consumer's resulting perceived quality of food has been extensively discussed by Cardello (1995), Lawless (1995), Oude Ophuis and Van Trijp (1995), Sloof *et al.*, (1996) and Zeithaml and Bitner (2000). These authors have looked at some of the different aspects of the process, and identified some factors that tend to influence the perception process, and thus, the perceived quality.

A review of the different papers by these authors clearly emphasizes that the definition and measurement of perceived quality are relative not only to the person who is doing the evaluation,

but to a wide range of situational and contextual factors. The analysis of the quality concept by the authors along the modalities of person, product, and place otherwise referred to as situation or context; denotes the relativity and specificity of the concept of perceived quality.

Different conceptual models of the quality perception process have been proposed by Hawkins *et al.*, (1995); Oude Ophuis and Van Trijp (1995); Sloof *et al.*, (1996) and Zeithaml and Bitner (2000). The model presented by Hawkins *et al.*, (1995) describes the general perception process whereas, those presented by the other authors are discussed with reference to quality perception. One noticeable difference in these models is the use of different terminologies. Despite this difference, one thing that runs through all the different models is the recognition that consumers selectively choose indicators or dimensions of product quality from an array of product-related attributes, and then combine their evaluations of the individual quality indicators into an overall judgement of product quality.

Models presented by Sloof *et al.*, (1996) and Zeithaml and Bitner (2000) are very similar with each discussing quality in the light of an assigned quality and quality acceptance or satisfaction. The main difference between these models is that, whereas Sloof *et al.*, (1996) make reference to food quality, Zeithaml and Bitner mention quality in relation to service providing.

Sloof *et al.*, (1996) deliberate on the distinction between assigned quality and the acceptability of a product. Assigned quality according to this model, is the quality notion a consumer has of a product and results from evaluating that product with respect to the consumer's specific criteria which comprises only intrinsic product properties. Acceptability according to the model, is a further stage in the perception model. Acceptability defines whether the consumer in a particular situation is willing to buy a particular product, and is the result of relating the product's assigned quality to other products and to extrinsic factors such as price.

The conceptual model presented by Oude Ophuis and Van Trijp (1995) can be broken down into cue acquisition and categorization, quality attribute belief formation, and integration of quality attribute beliefs. The model (Figure 1) shows the integration of quality cues (intrinsic and extrinsic), quality attributes (experience and credence) and the influence of other factors such as prior experience, level of education, perceived quality risk, quality consciousness, usage goals and other personal and situational factors to judge quality.

All the different models proposed provide some insight into better understanding the perception process. The discussion of the perception process in this review will however be limited mainly to the models presented by Hawkins *et al.* (1995); and Oude Ophuis and Van Trijp (1995) which are most relevant to this study. According to Hawkins *et al.* (1995), perception is one major step in the information processing for consumer decision-making. The perception process is extremely selective and consists of those activities namely exposure, attention and interpretation by which an individual acquires and assigns meanings to stimuli. Perception is considered the critical activity that links the individual consumer to group, situation, and marketer influences and the understanding of the process facilitates identification of market segments.

According to the model (Figure 2) proposed by Hawkins *et al.* (1995), perception begins with exposure, which occurs when a stimulus comes within the range of one of the primary sensory receptors. Stimulus in the context of quality, refers to intrinsic product properties that define the state of the product (Sloof *et al.*, 1996). Oude Ophuis and Van Trijp (1995) categorize these intrinsic properties into experience quality attributes, credence quality attributes and intrinsic quality cues (Table 2). Most of the stimuli to which an individual is exposed are 'self-selected' and this selection is influenced by the individual's needs, expectations and lifestyle (Hawkins *et al.*, 1995).

The step following the exposure to stimulus in the model presented by Hawkins *et al.*, (1995) is the attention process. Attention occurs when the stimulus activates one or more of the sensory receptors and the resulting sensations go into the brain for processing. Because the amount of stimuli consumer is exposed to is large, the consumer selectively attends to those stimuli that physically attract him (stimulus factor) or personally interest him (individual factors). These selected stimuli form the consumer's set of surrogate indicators or dimensions of quality that are evaluated in the interpretation step into an overall judgement of product quality; the perceived quality.

Stimulus factors that affect what stimuli consumers attend to are physical characteristics of the stimulus itself, such as quality cues and attributes. Individual factors are characteristics of the individual, such as interests and needs. Both these factors are moderated by the situation in which they occur.

Interpretation is the assignment of meaning to stimuli that have been attended to. It involves both a cognitive or factual component and an affective or emotional response. Cognitive interpretation appears to involve a process whereby new stimulus to which the consumer is exposed is placed into existing categories of meaning. Affective interpretation on the other hand, is the emotional or feeling response triggered by the stimulus. The conceptual model proposed by Oude Ohpuijs and Van Trijp (1995) is essentially an integral part of the interpretation stage and shows how the consumer integrates the selected quality indicators in the interpretation process to arrive at the perceived quality.

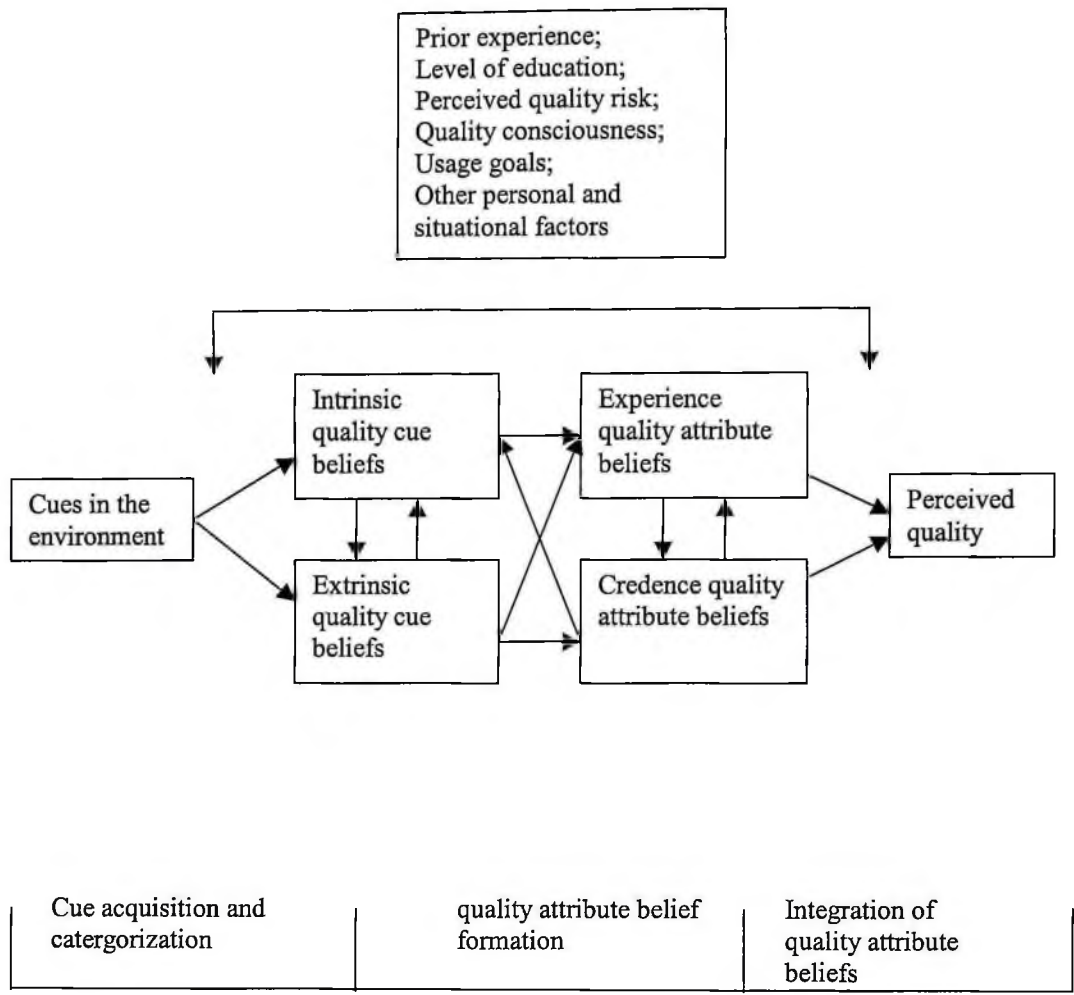
According to the models proposed by Hawkins *et al.*, (1995); and Oude Ohpuijs and Van Trijp (1995), interpretation is a function of the individual as well as stimulus and situation characteristics. A number of individual characteristics influence interpretation. Some of these

are gender and social class. Two particularly important identified personal variables affecting interpretation are learning and expectations. Meanings attached to various stimuli are learned during an individual's growing up process and vary widely across cultures. These learned meanings are reflected as attitudes and tend to influence the interpretation process of perception. Likewise, consumers tend to interpret stimulus consistently with their expectations. Cardello (1995) and Francis (1995) provide examples to illustrate this fact using colour and brand name as quality cues.

A variety of situational characteristics influence interpretation. Temporary characteristics of the individual, such as hunger or loneliness, influence the interpretation of a given stimulus, as do moods. The amount of time available also affects the meaning assigned to stimuli. Similarly, physical characteristics of the situation such as temperature, the number and characteristics of other individuals present, the nature of display of the stimulus, external distraction and the reason the stimulus is being processed affect how it is interpreted.

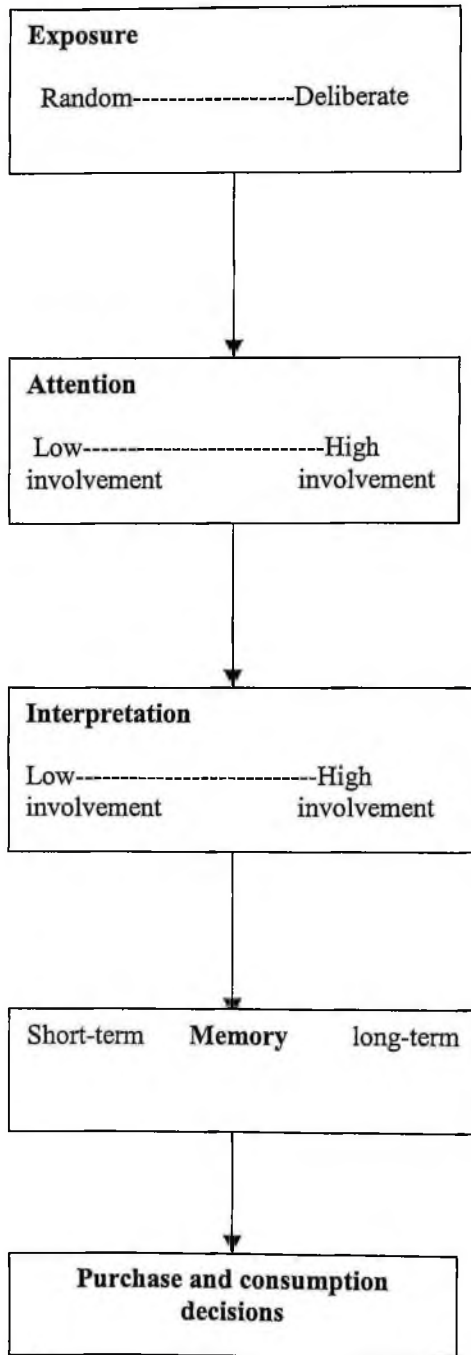
The stimulus sets the basic structure to which an individual responds. The structure and the nature of the product, advertisement, or sales presentation have a major impact on the nature of mental processes that are activated on the final meaning assigned to the stimuli. The source of the stimulus also affects its interpretation. Price, presentation format, type of stimuli and the nature of the product influence how promotional claims are interpreted. Previous experience with same or competing products or firms, and the nature of the other firm's advertising campaigns also influence interpretation. For instance, consumers interpret quality claims for a brand in light of that brand's price relative to competing brand's prices. Factors indirectly related to the product such as its country of origin, can have a major influence on the meaning assigned to the product and thus on the consumer's perception of quality.

Figure 1: Conceptual model of the quality perception process



Source: Oude Ophuis, P. A. M. and H. C. M. Van Trijp (1995).

Figure 2: Perception process



Source: Hawkins, D.; Best, R. J. and K. A. Coney (1995)

2.9 Consumer decision-making process

Consumers in evaluating information about purchase alternatives, may weigh not only a product type in relation to other types of products, but also differences in brands within a product type and the stores where the products may be available. Furthermore, many consumer decisions focus not on brand attributes but rather on the feelings or emotions associated with acquiring or using the brand or with the environment in which the product is purchased or used. Thus, a brand may be selected not because of an attribute (price, style, and functional characteristics) but because of an individual's emotional attachment to that brand. This makes the evaluation process very complicated, and, depending on their choice of criteria, consumers may make seemingly irrational decisions.

Hawkins *et al.*, (1995) and Mc Carthy and Perreault (1993) have attempted explaining the steps involved in the consumer decision-making process, and have identified a set of other variables that affect the process. The basic decision making process (Fig 3) shows the steps consumers may go through trying to find a way to satisfy their needs. The term consumer decision produces an image of an individual carefully evaluating the attributes of a set of products, brands, services, and rationally selecting the one that solves a clearly recognized need for the least cost. It has a rational, functional connotation. While consumers do make many decisions in this manner, many others involve little conscious effort (Hawkins *et al.*, 1995). Mc Carthy and Perreault (1993) noted that individuals who have had a lot of experience solving certain problems could move quickly through some of the steps or almost directly to a decision.

It is helpful, therefore, to recognize that there are three levels of decision-making. These decision-making approaches are used for any kinds of products including food products. As the consumer moves from a very low level of involvement with the purchase decision to a high level of involvement, decision-making becomes increasingly complex. While purchase involvement

is a continuum, it is useful to consider habitual, limited, and extended decision making as general descriptions of the types of processes that occur along various points of the continuum. The types of decision processes are not distinct, but blend into each other (Hawkins *et al.*, 1995).

Consumers use habitual decision-making or routinized response behaviour when they regularly select a particular way of satisfying a need when it occurs. Habitual decision-making is typical when a consumer has considerable experience in how to meet a need and has no need for additional information. Habitual decision-making is also typical for low involvement purchases; that is, purchases that have little importance or relevance for the consumer (Mc Carthy and Perreault, 1993). According to Hawkins *et al.*, (1995), habitual decision-making involves no decision per se. A problem is recognized, internal search (long term memory) provides a single preferred solution (brand), that brand is purchased, and an evaluation occurs only if the brand fails to perform as expected. A completely habitual decision does not even include consideration of the 'do not purchase' alternative. Mc Carthy and Perreault (1993), explain that, the reason decision-making becomes simpler with time is that people learn from experience; both positive and negative things. As consumers approach the decision making process, they bring attitudes formed from previous experiences and social training.

Limited decision-making covers the middle ground between habitual decision-making and extensive decision-making. In its simplest form, limited decision-making is very similar to habitual decision-making (Hawkins *et al.*, 1995). Consumers use limited decision making when they are willing to put some effort into deciding the best way to satisfy a need. Limited decision making is typical when a consumer has some previous experience in solving a problem but is not certain which choice is best at the current time (Mc Carthy and Perreault, 1993). Hawkins *et al.*, (1995) reported that limited decision making also occurs in response to some emotional or environmental needs. For example, a consumer may decide to buy a new brand or product

because the individual is bored with the current, otherwise, satisfactory brand. This decision might involve evaluating only the newness or novelty of the available alternatives.

Extended decision making is the response to a very high level of purchase involvement (Hawkins *et al.*, 1995) and it is reportedly used by consumers for a completely new or important need, that is, when they put much effort into deciding how to satisfy it. According to Hawkins *et al.*, (1995), extended decision-making involves an extensive internal and external information search, which is followed by a complex evaluation of multiple alternatives. After the purchase, doubt about its correctness is likely and a thorough evaluation of the purchase takes place. Hawkins *et al.*, (1995) however remarked that relatively few consumer decisions reach this extreme level of complexity.

Hawkins *et al.*, (1995) and Mc Carthy and Perreault (1993) have proposed that the consumer decision-making process is composed of a sequential process and most consumers seem to use the following five steps.

- (1) Problem recognition
- (2) Information search—recalling (internal search) and gathering information (external search) about possible solutions
- (3) Setting criteria and evaluating alternative solution
- (4) Purchasing of product
- (5) Post purchase evaluation

Problem recognition is the first stage in consumer decision process. The problem recognition is the result of a discrepancy between a desired state (what the consumer would like) and an actual state (what the consumer perceives as already existing) that is sufficient to arouse and activate the decision process. The kind of action taken by consumers in response to recognized problems

relates directly to the situation, its importance to the consumer, and the dissatisfaction or inconvenience created by the problem.

Both the desired state and the actual state are influenced by the consumer's lifestyle and current situation. If the discrepancy between these two states is sufficiently large and important, the consumer will begin to search for a solution to the problem. A number of variables have been identified by Hawkins *et al.*, (1995) that can affect problem recognition. The desired state is commonly influenced by culture, social status, reference groups, household characteristics, financial status/expectations, previous decisions, individual development, motives, emotions and current situation. The actual state on the other hand, is influenced by past decisions, normal depletion, product/brand performance, individual development, emotions, government/consumer groups, availability of products and the current situation.

Following problem recognition, consumers may engage in extensive internal and external search, limited internal and external search. Information may be sought on (1) the appropriate evaluative criteria for the solution of the problem (2) the existence of various alternative solutions and (3) the performance of each alternative solution on each evaluative criterion.

Most consumers, when faced with a problem recall a limited number of brands that they feel are probably acceptable solutions. These acceptable brands, the evoked set, are the initial ones that the consumer seeks additional information on during the remaining internal and external search process.

Consumer internal information (information stored in the memory) may have been actively acquired in previous searches and personal experiences or it may have been passively acquired through low-involvement learning. In addition to their own memory, consumers may seek

information from four major types of external sources (1) personal sources, such as friends and family; (2) independent sources, such as consumer groups, paid professionals, and government agencies, (3) marketing sources, such as sales personnel and advertising and (4) experiential source, such as direct product inspection or trial. The fact that only one of these four information sources is under the direct control of the firm suggests that manufacturers need to pay close attention to product performance and customer satisfaction after the purchase.

During and after the time that consumers gather information about various alternative solutions to a recognized problem, they evaluate the alternatives and select the course of action that seems most likely to solve the problem.

Evaluative criteria are the various features a consumer looks for in response to a particular problem. They are the performance levels or characteristics consumers use to compare different brands in light of their particular consumption problem. The number, type and importance of evaluative criteria used differ from consumer to consumer and across product categories.

The measurement of which evaluative criteria are used by the consumer; how the consumer perceives the various alternatives on each criterion, and the relative importance of each criterion is a critical first step in utilizing evaluative criteria to understand consumer's perception of quality and also to develop marketing strategy.

Evaluative criteria such as price, size, colour which are quality cues, can be judged easily and accurately by consumers. Other criteria such as wholesomeness, health benefits, mode of production, which are essentially credence quality attributes, are more difficult to judge. In such cases, consumers often use price, brand name, or some other variable as a surrogate indicator of quality.

After consumers judged alternative brands on several evaluative criteria, decision rules are used to select one brand from the various choices. Hawkins *et al.*, (1995) mention five decision rules for the purpose. These are disjunctive, conjunctive, lexicographic, elimination-by-aspects, and compensatory.

The evaluation step is followed by the purchasing of the product. Most consumer products are acquired through some form of retail outlet, usually a store or a marketplace. The store's image and the type and amount of retail advertising exert important influences as evaluative criteria. The major dimensions of store image are merchandise, service, clientele, physical facilities, convenience, promotion, store atmosphere, institutional, and post transaction factors. Outlet location is identified as an important attribute for many consumers, with closer outlets being preferred over more distant ones. Larger outlets have also been found to be generally more preferred over smaller outlets.

Following some purchases, consumers may have second thoughts and experience doubts or anxiety about the wisdom of the purchase. The buyer may have chosen from among several attractive alternatives, weighing the pros and cons and finally making a decision but later, may experience doubts. This is referred to by Hawkins *et al.*, (1995) and Mc Carthy and Perreault (1993) as postpurchase dissonance. This phenomenon is most likely to occur among individuals with a tendency to experience anxiety; after an irrevocable purchase; when the purchase was important to the consumer; and when it involved a difficult choice between two or more alternatives. Dissonance may lead a buyer to search for additional information to confirm the wisdom of the decision and so reduce tension. Without this confirmation, the buyer might buy something else next time or not comment positively about the product to others.

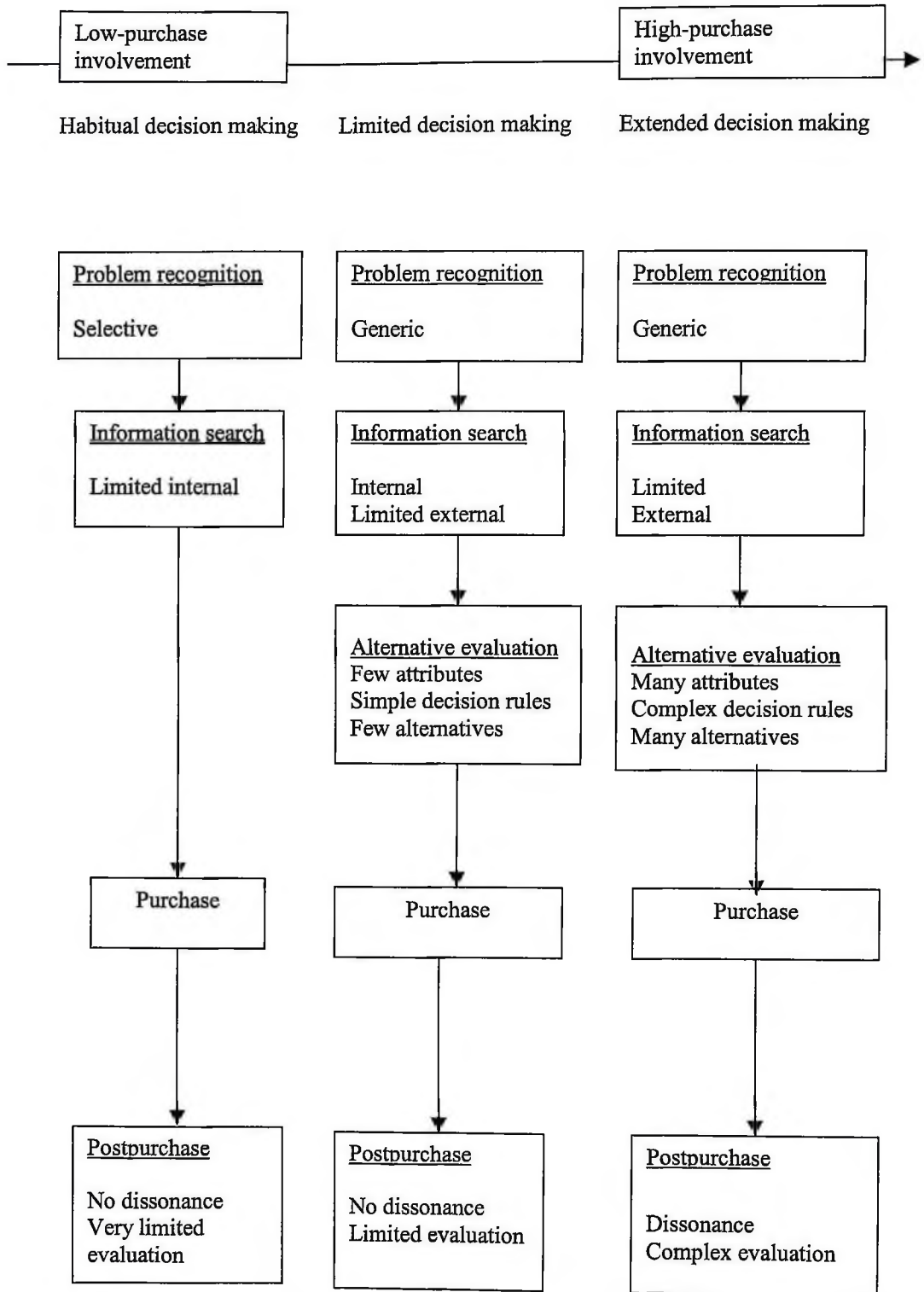
Whether or not the consumer experiences dissonance, most purchases are followed by product use. This may be by the purchaser or by some other member of the purchasing unit. Marketing managers are interested in product use for a variety of reasons. The major reason is that consumers use a product to fulfil certain needs. If the product does not fulfil these needs, a negative evaluation may result.

Disposition of the product or its package may occur before, during, or after product use. Understanding disposition behaviour has become increasingly important because of the ecological concerns of many consumers. The ease of recycling or reusing a product's container has become a key product attribute for many consumers.

Postpurchase dissonance, product usage, and disposition are potential influences on the purchase evaluation process. Consumers develop certain expectations about the ability of the product to fulfil instrumental and symbolic needs. To the extent that the product meets these needs, satisfaction is likely to result. Dissatisfaction however, will result in switching brands, products, or stores, and warning friends which are some noted common reactions to a negative purchase evaluation.

After the evaluation process, and where applicable the complaint process, consumers have some degree of repurchase motivation. There may be strong motive to avoid the brand, a willingness to repurchase it some of the time, a willingness to repurchase it all of the time, or some brand loyalty which is a willingness to repurchase coupled with a psychological commitment to the brand.

Figure 3: Involvement and types of decision making



Source: Hawkins, D.; Best, R.J. and K.A. Coney (1995)

2.10 Consumer trends

A trend indicates a general movement or direction of change in attitudes or behaviour that has the strength and endurance to change the course of overall consumption patterns. It is called a 'grown-up fad' by Senauer *et al.*, (1991) which has been tried, liked, and adapted by a significant number of people. Senauer *et al.*, (1991) cited that the Food Marketing Institute of the United States in 1987 identified ten trends in consumer attitudes and behaviour among American consumers. These trends are consistent with the observations of many others (Sloan 1996, 1999a, 1999b, 1999c, 2000c; Katz, 1999a, 1999b; Giese, 1999, Pszczola, 1999) made in the USA, and show promise of continuing for some years to come not only in the USA but globally (Senauer *et al.*, 1991).

Sloan *et al.*, (1984) have explained that as a result of economic, political, and social influences, consumer lifestyles have changed drastically within the past decade. These changes have brought about changes in eating patterns, food choices, methods of preparing foods, and the manner in which the food is consumed. Sloan (1993a) commented that consumers' passion for stimulation taste sensations, fresh foods, and a health-energetic, but effortless lifestyle are clearly the major factors driving the food market, and they are going to spawn generations of new and innovative consumer products.

Neotraditionalism

The first of ten trends cited by Senauer *et al.*, (1991) is one associated with a desire for premium quality products and a willingness to pay more to obtain them. This trend has been named 'neotraditionalism' and is reflected in the increase demand for gourmet foods, produce guaranteed to be pesticide-free, and foods with especially good flavour (Senauer *et al.*, 1991; Grijspaardt-Vink 1996 and Hoban, 1996). This trend has also been identified by Sloan (1994a), and is evident in the fact that American food shoppers have come to expect top quality.



Increased demand for food products that provide freshness (Sloan, 1993a) and pleasurable sensory experiences (Katz 1999b; Sloan 1999d, 2000a and Sloan *et al.*, 1984) are some characteristics of this trend.

'Neotraditionalism' according to Senauer *et al.*, (1991), embodies values that demand fewer but higher quality and more durable goods. Quality includes improving the overall sense of health and well-being of consumers at the same time minimizing the environmental impacts of their consumption behaviours (Senauer *et al.*, 1991; Sloan 1996; 2000). This trend is consistent with and reinforces the demand for safe and wholesome food and for food packaging and processing that help protect the environment (Sloan, 1994a; Grijspaardt-Vink, 1996) as well as offer real value for today's environmentally and cost-conscious consumers.

Adventure

The second trend identified by Senauer *et al.*, (1991) is a trend towards adventure. This trend expresses itself in a desire for variety, for new tastes and new foods, for adventure that involves little real risk. Embracing new varieties is now a way of life for today's consumer (Sloan 1998b). Hollingsworth (1994) remarked that today's consumer wants choice, variety, newness and have come to expect changes and exciting new offerings. This assessment of the consumer is supported by Sloan *et al.*, (1984) who commented that consumers are more willing to try new and different products and to experiment with new and different cuisines.

Factors identified by Senauer *et al.*, (1991) that have led to the emergence of the trend towards adventure include increase in incomes, composition of a family, demand for diversity in an increasingly diverse population and consumer's increasing boredom with old products or availability of new ones. This trend towards adventure creates many opportunities in the

development, distribution and marketing of food products and should be of great relevance to the manufacturer (Sloan *et al.*, 1984).

Individualism.

The trend towards individualism has emerged as a result of the busy and individualistic lifestyle of today's consumer, which makes it difficult for the family to have meals together. Increasingly, individuals in a household are choosing the food they want to eat, independent of the homemaker. These food choices are a reflection of the consumer's identity and beliefs (Senauer *et al.*, 1991). Other developments that foster the individualism trend are the more solitary lifestyle of the consumer and the rise of the population of working women who have less time to cook (Grijspaardt-Vink, 1996).

Indulgence

A trend towards indulgence is consistent with the trend towards quality, adventure, and individualism. It arises from an attitude of self-gratification (Senauer *et al.*, 1991). Katz (1999c) describes indulgence as a form of extravagance although it may not necessarily be monetary in nature. The cost may be in terms of time, or difficulty, or calories or fat, or some other coin of the realm. The key is that consumers indulge in spite of the cost and usually find ways to compensate the guilt that follows. The consumer trend towards indulgence and the types of foods that consumers commonly indulge in have been extensively discussed by Sloan's (1993a), Katz (1999), Pszczola (1999), Giese (1999) and Hollingsworth (1999).

Cocooning

Cocooning is a trend towards staying home. This trend reflects people's desires to protect themselves from the hassles of public appearances and uncertainties of social interactions. It also reflects fear about the safety of some urban environments and the need for a change of pace

after work (Senauer *et al.*, 1991). Cocooning means a higher demand for take-out-to-eat foods (Sloan, 1996), for frozen foods (Sloan, 2000a), for home delivered foods or home meal replacement (HMR) and for technologies that would enable self-sufficiency and shop-at-home services (Hollingsworth, 1999).

Grazing

The term 'grazing' was coined to describe the continuous snacking or frequent, light eating behaviour emerging among consumers. According to Senauer *et al.*, (1991), this trend is consistent with the need for adventure and for food variety. It is also consistent with individualism and with time management needs for convenient ready, ready to-eat foods. This trend is characterized by consumers eating on the run, eating little amounts more often, selecting foods themselves, and at least during the day, eating independently of other family members (Sloan 1999e).

Take-out food, finger food, food on a stick, buffet service, vending machines, and microwaves all facilitate this trend (Katz, 1999; Sloan 1996; 1999b), which is limited only by the nutrition, quality, and taste of the food available for grazing. Sloan, (2000d) predicts that hand held foods are expected to reach \$ 2 billion in sales by 2002 as a result of the grazing trend.

Wellness

The trend towards wellness is characterized by an increasing emphasis on physical fitness and the effect on diet and other personal habits on long-term health. Grijspaardt-Vink (1996) and Wrick *et al.*, (1993) in separate reports noted that consumers are keenly aware of the close relationship between food and health and this has resulted in a change of eating habits aimed at

better nutrition. This trend is consistent with an aging and better-informed population (Senauer *et al.*, 1991).

The trend towards wellness was mentioned in a report by Sloan (2000c) on a consumer study conducted among American consumers. According to Sloan, nearly two-thirds of grocery shoppers reported that their purchase decisions were driven by their desire to either reduce a risk of, or manage a specific health condition. The desire to ensure overall good health (88% of respondents) rather than balanced nutrition or even lower fat was one important factor that motivated healthy food purchase decisions. Additionally, Sloan (2000c) reported that respondents saw food as an integral part of the self-care movement and nine out of ten shoppers believed that healthy eating played a key role in disease prevention.

A number of groups of products have been distinguished which respond directly to the demand of healthful foods. The first group is the supplements and fortified foods (Sloan, 1994a; Sloan, 2000c). The second group of products is the nutraceuticals (Grijspaardt-Vink 1996; Sloan, 1996). Other identified groups include phytochemicals (Sloan, 1996), organic and functional foods (Sloan, 1999d). The last group of health promoting foods is food products that contain active culture (Grijspaardt-Vink 1996; Sloan, 1999c).

Ethics

This trend is characterized by an increased need of consumers to be socially responsible for environmental degradation, to become tolerant of diversity in society and to get along with one's neighbours, and the need to improve education and health care. Greater concern about extremes in poverty and hunger, especially about the homeless, and more generous food assistance for the poor might be on the increase (Senauer *et al.*, 1991).

Selectivity

Consistent with a quest for quality and convenience, consumers are increasingly intolerant of unsafe, poor constructed, and overpriced products (Senauer *et al.*, 1991). Senauer *et al.*, (1991) remarked that at least half of American consumers switch brands of food products readily, especially if the product does not have a unique characteristic such as flavour or status niche. Brands of products that made the biggest rise in sales emphasized healthiness, indulgence, single-serving sizes, and product innovation.

Controlling Time

Lack of time and an increased need to manage one's time has and will continue to lead to a greater demand for convenience in foods and other goods and services (Senauer *et al.*, 1991; Sloan, 1994a; 1996; 2000a). In the last decade, Schutz *et al.*. (1988) and Senauer *et al.*, (1991) noted that nearly two-thirds of women have entered the labour force. According to these authors, this new role of women has caused a considerable shift in the consumption pattern and purchasing behaviour of most families. This view point is strongly supported by a survey reported by Sloan (2000a) in which 74% of consumers interviewed stated lack of time as the number one reason for serving prepared meals at home.

A number of consumer surveys reported by Senauer *et al.*, (1991), Sloan (1994a; 1998b; 1998c; 2000a) and Hollingsworth (2000) have all shown that the most priced recent goods and services were those that gave more convenience and control. These products included microwave ovens, home replacement meals, products with friendly directions, and value added products such as pre-cut, pre-cleaned marinated products. The consumer's demand for strict control of time has also resulted in a change of shopping habits (Hollingsworth 2000; Senauer *et al.*, 1991; Sloan, 1998c).

2.11 Consumer research methodologies

A survey, also referred to as a consumer research study has been described by Aaker *et al.*, (1995) as the overwhelming choice for primary data collection. Surveys can be designed to capture a wide variety of important but sometimes unexpected information on many diverse topics and subjects (Aaker *et al.*, 1995; Shewfelt 1999). Consumer research obtains detailed information also of consumer attitudes, opinions, behaviours, habits and practices (Hashim *et al.*, 1996).

Attitudes are however, very often the subjects of surveys. Information on attitude frequently is obtained in the form of consumers' awareness, knowledge, or perceptions about a product, its features, availability, pricing, and various aspects of the marketing efforts. Surveys can also capture the respondents' overall assessment and the extent to which the object is rated as favourable or unfavourable. Information can also be obtained about a person's image of something (Aaker *et al.*, 1995; Shewfelt 1999). Furthermore, surveys strive to identify and quantify those factors, whether human or product related, that drive consumer acceptance or willingness to purchase. Specific needs which are also not being met by currently available products, and anticipated future opportunities can then be identified (McCarthy and Perreault, 1993). Decisions are also the topic of research but the focus is not so much on the results of decisions in the past, but more on the process by which respondents evaluate things (Aaker *et al.*, 1995; Oude Ophuis and Van Trijp 1995).

Aaker *et al.*, (1995) remarked that researchers seeking survey information are often keenly interested in those aspects of decision process that people use to choose actions. Marketers are often concerned with the reason people behave as they do. According to these authors, most behaviour is directed toward satisfying one or more human needs. Thus the reason for a

consumer's behaviour is often obtained by measuring the relationship between actions and needs, desires, preferences, motives and goals.

Measuring behaviours usually involves four related concepts: what the respondents did or did not do; where the action takes place, the timing, including past, present, and future; and the frequency or persistence of behaviour. It often means assessing what, where, when, and how often. Surveys can also be conducted to determine respondents' life-styles.

Well-designed and well-executed research studies provide insight into the population by profiling consumers and identifying target consumers and target markets in the general market (McDermott, 1990). Social contact and interaction are often the focus of survey research and bear heavily on other issues relevant to the survey. So the family setting, memberships, social contacts, reference groups, and communication of respondents frequently are measured or assessed within the survey research process (Aaker *et al.*, 1995).

Demographic factors obtained through surveys include such variables as age, sex, marital status, education, employment, and income, among others. Motivation and knowledge are also frequently measured using surveys (Aaker *et al.*, 1995).

The principal advantage of a survey identified by Aaker *et al.*, (1995) is that it can be used to collect a great amount of data about an individual respondent at one time. Secondly, the method is versatile, can be employed in virtually any setting; whether among teenagers, old persons and the methods are adaptable to research objectives that necessitate either a description or casual design. Shewfelt (1999) also noted that well-performed consumer oriented studies provide external validity, thus giving a better appreciation of the potential performance of a product in the marketplace.

These advantages are nevertheless not easy to achieve. Aaker *et al.*, (1995) remarked that there is bound to be a number of errors when surveys are conducted, some of which can be controlled and others that cannot be controlled. They recommended that knowledge of all potential sources of errors and a reduction of their impact on the survey findings is important to increase validity of results.

2.11.1 Survey methods

There are two basic methods for obtaining information about customers. The types of primary data collected are dependent on the objectives of the test. The data collection methods are of two types: questioning (self-reporting) and observing. Self-reported data can be obtained by several routes, including personal face-to-face, by telephone interviews, or with mailed questionnaires and can range from qualitative to quantitative research. Data on observed behavior can be collected through personal observation or through mechanical or electronically controlled devices (Fletcher *et al.*, 1993; Mc Carthy and Perreault 1993).

Quantitative research involves the use of identical questions and response alternatives in which the information can be quantitatively summarized. Samples can be larger and more representative than those of qualitative methods. Quantitative research also lends itself to the application of various statistics, which facilitates the drawing of conclusions. For these reasons, most survey researches are quantitative research, which seeks structured responses (Mc Carthy and Perreault 1993).

Aaker *et al.*, (1995) noted that there are as many survey methods as there are different forms of communication technology. The choice of a survey method, that is, whether to use mail, or telephone or personal interviews, is determined by a number of factors. The most important factors are the sampling plan to be employed, the type of population to be surveyed, the response

rates required, the question form and content, need for accuracy, and the available budget and resources for the survey. According to these authors, the choice of a data collection method involves a series of compromises in matching the often conflicting requirements of the situation with the strengths and limitations of the available methods.

2.11.1.1 Purchase intercept technique (PIT)

Purchase intercept technique is one of the personal interviewing methods described by Aaker *et al.*, (1995). It is different from but related to the mall intercept approach. The purchase intercept technique combines both in-store observation and in-store interviewing to assess shopping behaviour. Like a mall intercept, PIT involves intercepting consumers while they are in a shopping environment; however, PIT is administered at the time of an observable, specific product selection, as compared to consumers in a mall location. The researcher unobtrusively observes the consumer make a purchase in a particular product category and then intercepts the consumer for an interview as soon as the purchase has been made.

The major advantage of PIT is that it aids buyer recall. Interviewing at the point of purchase minimizes the time lapse between the purchase and data collection, and can provide a neutral set of memory cues for the respondent while the purchase is still salient. Apart from difficulties in gaining access to stores, the principal disadvantage of PIT is that it samples only purchasers and not anyone else who might be influencing the decision on what to buy or where to shop.

2.11.1.2 The Drop-off approach

Since each of the basic methods of data collection has different strengths and weaknesses, it is sometimes desirable to combine them and retain the best features of each while minimizing the limitations. The drop-off approach method is one such combination method, which is

particularly well suited to studies within compact geographical areas. The sequence of the process is as follows:

-telephone or personal contact to get co-operation

-self-administered questionnaire delivered by the interviewer to be either picked up or mailed in.

The major advantages are (1) only lightly trained interviewers are required to gain the cooperation of the respondents, deliver the questionnaires, and arrange a return visit; (2) response rates are high, generally between 70 and 80 percent, in part because of the initial commitment to cooperate, coupled with the realization that the person who dropped the survey will be returning to pick up the completed questionnaire; (3) several questionnaires can be left in each household or offices if all adults are part of the sample; (4) lengthy questionnaires can be used without affecting the response rate; and (5) it is a very cost effective method.

2.11.2 Consumer sensory testing methods

Sensory evaluation is a scientific discipline used to evoke, measure, analyze and interpret reactions to those characteristics of foods and materials as they are perceived by the senses of sight, smell, taste, touch, and hearing (Stone and Sidel, 1993). This definition embodies the concept that sensory analysis is a multidisciplinary science that uses human panelists and all their senses to measure the sensory characteristics and acceptability of food products as well as many other materials (Watts *et al.*, 1989). Accordingly, Hollingsworth (1998) defines sensory testing as the process of quantifying product attributes relative to real people.

In presenting an overview of the historical development of sensory testing, Schutz, (1998) remarked that it is difficult to tease out the various components of sensory science since it is not a single discipline, but rather one that draws on many other disciplines for its basic scientific tenets, and in many cases, practices. Disciplines that have contributed to the development of

sensory testing include psychology, physiology, statistics and home economics (Schutz, 1998). Other fields of science noteworthy are food science and technology (Stone and Sidel, 1993) and communication studies (Hollingsworth, 1998).

Today, the importance and application of sensory science in the food industry cannot be overemphasized. Sensory analysis has expanded to become a dynamic force in the food business. Many companies now put as much emphasis on a human taster as they put on a gas chromatograph or Instron reading (Chambers IV, 1990), because they have come to realize firstly, that there is no one instrument that can replicate or replace the human response (Watts *et al.*, 1989), but more importantly that, when consumers talk about a product's quality and their willingness to purchase the product, their discussion was most often in the context of that product's sensory attributes (Watts *et al.*, 1989; Stone *et al.*, 1991).

The food industry uses sensory testing to answer question of quality under three main headings; discrimination, description, and acceptance/preference/hedonic (Carpenter *et al.*, 2000). The first two, referred to as product-oriented testing methods by Watts *et al.*, (1989), provide information on specific sensory characteristics of a food. These product-oriented testing methods are important in the development of new products or the reformulation of existing ones; the identification of changes caused by processing methods, storage or use of new ingredients; and the maintenance of quality control standards.



2.11.2.1 Affective tests

Acceptance, preference and hedonic testing methods are usually collectively referred to as acceptance tests (Carpenter *et al.*, 2000), affective tests (Meilgaard *et al.*, 1991; Stone and Sidel, 1993) or as consumer-oriented testing methods (Watts *et al.*, 1989). These methods are all

closely related and answers to consumer preference and acceptance questions are usually inferred from data obtained from a hedonic testing (Lawless and Heyman, 1999).

Affective tests are characterised by the use of a representative sample of consumers to assess the reactions of the public to a variety of stimuli, even environmental annoyances (Lawless and Heyman, 1999). These testing methods provide valuable information on the market potential of a product by identifying the consumer's likes and dislikes, preferences, and requirements for acceptability and purchase likelihood of a product (Meilgaard *et al.*, 1991; Stone and Sidel, 1993; Watts *et al.*, 1989).

Despite the seemingly immense benefits associated with affective tests and the significant contribution of consumer data to sensory data, Schutz (1999) cautioned the non-sensical uses and interpretation of consumer data could lead to inappropriate generalization about product and population with grave consequences. Among the important shortfalls of affective tests are that they are relative, skewed, and difficult to replicate. These characteristics result from the use of untrained panelists as instruments to measure multivariate stimuli.

2.12 Influence of some demographic characteristics on perception of quality

Demographics have been identified as a set of the external factors that tend to influence a consumer's purchasing behaviour (Hawkins *et al.*, 1995). Demographics are used to describe a population in terms of its size, distribution, and structure. The size refers to the number of individuals in a population, while the structure describes the population in terms of age, income, education and occupation. Distribution on the other hand, describes the location of the individuals in terms of geographic region, rural, urban, or suburban location. Each of these factors influences the behaviour of the consumer and contributes to the overall demand for various products and services (Hawkins *et al.*, 1995).

2.12.1 Education

Education is a direct measure of status and is used as a component in several of the multiple item indexes. Educational level influences all aspects of one's lifestyle and consumption patterns, including taste, values, and information processing style (Hawkins *et al.*, 1995). Despite the fact that education seldom gives a complete explanation of consumption patterns, it gives a good insight into the purchasing power of consumers since it is closely related to the income levels as well as purchasing behaviour (Senauer *et al.*, 1991).

It is also reported that the ability of a country's people to read and write has direct influence on the development of the economy. The degree of illiteracy affects the way information is delivered. Low literacy sometimes causes difficulties with product labels and instructions for which words are used and thus minimizes the usefulness of product labelling (McCarthy, and Perreault, 1993).

Education has also been identified to be the most important determinant of knowledge about nutrition. Those with more education also tend to be more adventurous in their food selections and will adopt new food varieties more quickly. Educated people are also reported to be better informed about food safety issues and will demand higher quality and food service. Price is also predicted to be less of a deciding factor for them than food quality and diet compatibility (Senauer *et al.*, 1991).

2.12.2 Occupation

Occupation is considered the most widely used single cue that allows for the evaluation and definition of individuals. Occupation is associated with education and income although the association is no more as strong as it was in the past. The type of work a consumer does and the types of individuals a consumer works with directly influence a person's preferred lifestyle and

all aspects of the consumption process. A typical example is the higher number of women in the labour force, earning more money, having fewer children, and making food choices that reflect the need of convenience (Senauer *et al.*, 1991).

2.12.3 Income

Income has traditionally been used as a measure of both purchasing power and status. Historically, the association between income and status has been high but is declining in recent years. Correlations between income and education of 0.33 and income and occupation category of 0.4 have been reported (Hawkins *et al.*, 1995).

Income, notwithstanding the present trends, continues to be an important demographic dimension. Income, according to Mc Carthy, and Perreault, (1993) is necessary to maintain a lifestyle and also shapes a person's needs. Likewise, there is a higher status attached to higher incomes than lower ones since the amount of money people have can specially affect the type of products they buy. Senauer *et al.*, (1991) however cautioned that income cannot explain lifestyles fully since an individual's spending habits varies with other demographic dimensions as well.

2.12.4 Sex

Subtle differences continue to exist in purchasing behaviour due to sex although surveys consistently indicate that women want the same basic attributes of a product as men do (Hawkins *et al.*, 1995). Senauer *et al.*, (1991) have pointed out that the new role of women in terms of their entry into the labour force has affected their perception of quality and purchasing behaviour. Both men and women alike now are reported to express strong preferences for modern lifestyles as a general concept. Nevertheless, the attitudes and behaviours towards

specific aspects of their lifestyle remain very conservative (Senauer *et al.*, 1991, Hawkins *et al.*, 1995).

2.12.5 Family life cycle

Many other demographic dimensions have been identified to be helpful in understanding consumer buying behaviour. Marital status, age, the number and ages of the children in the family all have an especially important effect on how people spend their income. Put together, these dimensions give an indication of the life cycle stage of a family (Mc Carthy, and Perreault, 1993).

Age has been reported to affect the consumption of products ranging from beer to toilet paper to vacations. The age of the consumer is reported by Hawkins *et al.* (1995) to shape the media he uses, where he shops, how he uses products and how he thinks and feels about marketing activities. For instance, it was noted by Senauer *et al.* (1991) that age affects food consumption because calorie and nutritional needs of consumers change as people age. Changing age distribution and family life cycle continue to affect the consumption trends. This is because of specific needs and expectations of each group, which continues to change throughout the family life cycle (Mc Carthy, and Perreault, 1993). It was observed for instance that, singles and young couples seemed to be more willing to try new products and brands, and are careful price conscious shoppers. Younger people however, usually with no children, on the other hand seemed to spend less on food and not very careful in their choice of food products.

3.0 MATERIALS AND METHODS

3.1 Study design

The study was conducted in three stages.

- (1) Administration of questionnaires to consumers and manufacturers;
- (2) Market surveillance to observe consumer behaviour using the purchase intercept technique as outlined by Aaker *et al.*, (1995), and
- (3) Consumer sensory test.

3.2 Materials

Data collection instruments

Cocoa beverages

3.3 Administration of questionnaires

The first stage of the study involved administering questionnaires to both consumers and manufacturers.

3.3.1 Data collection instruments

Three self-administered structured questionnaires were used. Each questionnaire was designed to contain both open-ended and closed-ended questions. Questionnaires 1 (Appendix 1) and 2 (Appendix 2) were administered to consumers. Questionnaire 3 (Appendix 3) was administered to manufacturers.

3.3.1.1 Questionnaire 1- Consumers

This questionnaire was designed to help identify the consumer's understanding of quality with regards to food products as well as the various quality dimensions considered important by the consumer for product acceptability and one's willingness to purchase the product. This

questionnaire also served to identify the factors from the consumer's background that tend to influence his/her perception of quality. The views of the respondents on the roles to be played by regulatory bodies, manufacturers, and consumers in ensuring that the needs of the consumers are consistently met were to be brought out in this questionnaire.

3.3.1.2 Questionnaire 2-Consumers

This questionnaire served to weigh the different quality dimensions. In this questionnaire, consumers were asked to weigh the various attributes of both specific and non-specific products presented in the questionnaire. Issues pertaining to packaging, labelling, convenience foods, and places of sales were addressed in the questionnaire.

3.3.1.3 Questionnaire 3-Manufacturers

This questionnaire was administered to manufacturers. The contents of this questionnaire included questions on the manufacturers' own understanding of quality and their understanding of quality from the customer's perspective. The questionnaire also sought to determine the strategies employed by the various organizations and establishments to identify the needs of their customers and ensure that these needs and expectations are consistently met.

3.3.2 Sample

A survey of consumers and industrialists located in different parts of Accra, provided the database for the study. Eligible respondents were Ghanaian adults, over the age of 18 who regularly participate in their food purchasing and who were willing to participate in the survey. Respondents were selected from a number of workplaces, organisations and industries since this was the most cost effective method to assess different categories of people. The respondents included civil servants, public servants, self-employed and people working in the private sector. All categories of staff at these workplaces were considered during sampling. Selection of

respondents was done by random sampling so as ensure a fair representation of consumers from different ethnic, cultural, educational, socio-economic, and age groups. The sample size consisted of a total of four hundred consumers and two hundred manufacturers.

3.3.2.1 Criteria of inclusion

Questionnaires were administered only to literate respondents since questionnaires were self-administered.

3.3.3 Pre-testing

Pre-testing of the questionnaires involved assessing each of the different sets of questionnaires on twenty respondents for the purpose of improving the questionnaires. Questionnaires were modified according to deficiencies identified by the respondents.

Respondents for the pre-test and the actual survey were drawn from the same population to ensure that respondents were similar to those included in the actual survey in terms of background characteristics, familiarity with the topic, and attitudes and behaviours of interest. Pre-testing was continued until no further changes to the questionnaires were needed.

During the pre-testing, questionnaires 1, 2, and 3, required 45 minutes, 60 minutes, and 50 minutes, respectively to complete.

3.3.4 Test procedure

3.3.4.1 Consumers

The questionnaires were administered using the drop-off approach (Aaker *et al.*, 1995). An initial personal or telephone contact was made with various organizations, industries and workplaces to get cooperation. This was followed by hand delivery of self-administered

questionnaires to employers in these offices where permission was granted. Several questionnaires were randomly distributed per institution. Questionnaires 1 and 2 were administered to 200 consumers each. Questionnaires were left with respondents for a maximum of one week with occasional reminders sent to the respondents until the questionnaires were finally collected.

3.3.4.2 Manufacturers

Questionnaires were distributed using the drop off approach as described above (Aaker *et al.*, 1995). However, in the instance of manufacturers, only one questionnaire was distributed per industry to the person designated by the authorities. Questionnaire 3 was administered to 200 manufacturers. Questionnaires were left with respondents for a maximum of one week with occasional reminders sent to the respondents until the questionnaires were finally collected.

3.4 Purchase intercept technique (PIT)

3.4.1 Data collecting instrument

A pre-tested one-page questionnaire (Appendix 4) comprising of two sections was used. The first section of the questionnaire provided personal data on the consumer. Questions in the second part of the questionnaire provided details of the shop visited, product purchased, consumer purchasing habits, dimensions considered by consumer in the evaluation of quality of products purchased.

3.4.2 Sampling procedure

Nine supermarkets and two markets in Accra were randomly selected for the market survey. The list of supermarkets and markets sampled is presented in Table 3. Every tenth consumer in a particular shop or market, who bought food products, was included in the sample. A total of 109

consumers of different ethnic, cultural, educational (literate and illiterate), socio-economic, and age groups were interviewed.

Table 3: Shops sampled for Purchase intercept survey

Name of Shop	Location
Mellow Mart	Sakumono
Mobil Mart	Sakumono
S-Roni Enterprise	Nungua
Mobil Mart	Ring road
Lypak enterprise	Kaneshie
Koala supermarket	Osu
Ghana Groceries	Osu
Markola market	Accra
A-life supermarket	Teshie-Nungua
Maniciple stores	Legon
Nascata supermarket	Madina
Madina market	Madina

3.4.3 Test procedure

In order to assess shopping behaviour and reasons behind that behaviour, both in-store observation and in-store interviewing was done (Aaker *et al.*, 1995). Customers were unobtrusively observed as they purchased a food product. They were then intercepted and interviewed to probe their reasons for purchasing choices using a one-page questionnaire (Appendix 4).

3.5 Consumer sensory testing

The consumer sensory testing was conducted in two parts. The first part of the test was to determine consumers' degree of liking, attribute diagnostics and purchase likelihood of samples of cocoa products using a nine point hedonic scale. The second part was to determine the influence of labeling information on consumers' willingness to purchase the products.

3.5.1 Experimental design

The design used in the sensory test was a randomised complete block design. Each of the panelists was presented with all four samples used in the test.

3.5.2 Subjects

Seventy-two untrained consumers participated in this study. This sample size was based on that recommended by Carpenter *et al.*, (2000) for acceptance tests. Subjects were randomly chosen from households, the University of Ghana, and the Ghana Standards Board.

3.5.3 Screening of subjects

Subjects were screened, as outlined by Meilgaard *et al.*, (1991). Only subjects who fitted the following criteria were included in the test. This included the fact that subjects must:

- (1) Be 18 years and above
- (2) Be a consumer (slight, moderate, or heavy) of cocoa beverages and regularly participate in their food purchasing (Lange *et al.*, 1999).
- (3) Not be suffering from a cold or any condition that could affect his/her senses of taste.

3.5.4 Test products

Four samples of cocoa beverages (Milo and Chocolim, produced by Nestle Ghana Limited; and Richoco, and Bournvita produced by Cadbury Ghana Limited) purchased from one location were assessed.

Reasons for choosing this product category included:

- (1) Their long shelf life and their large price range
- (2) Availability of a number of well-known, easily identifiable brands.

3.5.5 Preparation of samples

Samples presented were prepared in a standardized manner. This method of preparation was based on basic preparation instructions provided on package label. A standardized amount of cocoa product (125g) was dissolved in a standardized quantity of water (900 ml). The samples were held at room temperature until served.

3.5.6 Presentation of samples

Each subject was served with 80 ml of each product. Samples were presented in white plastic disposable cups with spoons for stirring to ensure effective mixing before tasting. A cup of drinking water for rinsing of mouth in between tastings to minimize carry over effects was also provided for each subject. The three digit coded samples (Appendix 5) were served at room temperature. The presentation order of the four samples (Appendix 6) followed the William's Latin Square design, balanced for order and first order carry over effects (Carpenter *et al.*, 2000)

3.5.7 Sensory testing conditions

The sensory testing was conducted in the laboratory that was equipped with adequate lighting and expectorating facilities. Evaluation was done between 10am-12pm and 2pm-4pm each day to lower the incidence of the subject just having had a recent meal (Watts *et al.*, 1989; Stone and Sidel, 1993).

3.5.8 Consumer acceptance test procedure

Subjects were presented with four coded samples at the same time. Each of these samples was one of the cocoa products being considered. Each subject was asked to assess each sample for taste, consistency, intensity of these attributes, as well as overall acceptability, and purchase likelihood as described by Meilgaard *et al.*, (1991). These attributes were assessed on a 9-point hedonic scale which was an unstructured discontinuous scale anchored at the left end with

'disliked extremely', at the middle with 'neither disliked nor liked', and at the right end with 'liked extremely' (Lawless and Heyman 1999) (see ballot sheet, Appendix 7). Panelists evaluated the samples by checking a category on the scale. Samples were then collected and discarded.

3.5.9 Test procedure to assess the effect of labelling information on purchase likelihood

Subjects were presented with a new set four coded samples. Samples presented to subjects were the same as those used in the acceptance test, however the order and the codes of each sample presented to the subject in this test was different from those presented in the acceptance test. This precaution was taken to minimize bias. For each sample presented, subjects were presented with the corresponding labelling information typed out (see Appendix 8) to help them identify each sample. In order that the experimental conditions were similar to real conditions, only information corresponding to the real nature of the product was given.

The following labelling information was provided;

- (1) product name and brand
- (2) price
- (3) list of ingredients
- (4) name of manufacturer
- (5) country of origin
- (6) net content

Subjects were asked to taste the samples presented and read the corresponding labeling information and then indicate their likelihood of purchase for each of the products using a 9-point hedonic scale as the one described in the acceptance test provided in ballot sheet (Appendix 7).

3.5.10 Subject socio-demographics and consumption pattern and behaviour

After the consumer sensory test, a questionnaire was given to each subject to complete. The questionnaire provided socio-demographic details on each subject. Questions on subject's consumption habits and behaviours were also asked (Appendix 9).

3.6 Data analyses

The Statistical Package for Social Sciences SPSS version 10 (1999) was used to analyze data from respondents. Data obtained from questionnaires were prepared for analyses using standard editing and coding procedures as described by Aaker *et al.*, (1995). Sensory data was converted to numerical scores as determined by Thurstonian methods in order to conform to the assumptions underlying analysis of variance (Lawless and Heyman 1999; Stone and Sidel, 1993). Analyses of data involved calculations of means, frequencies and presentation of the totals as percentages of the entire sample population. Simple tabulation and cross tabulation were utilized to analyze the data and chi-square tests were conducted to test the independence of variables. For all two by two (2x2) cross tabulations however, the exact Fisher's test was used to test the independence of variables.

A combination of bivariate analyses was also utilized to test the significance of associations between the various indices. Correlation coefficients were calculated and stepwise regression analyses were conducted on the sensory data to identify the relationship between the different attributes assessed. The General Linear Model (GLM) approach was used to perform the two factor repeated measure analysis of variance (ANOVA) on the sensory data and the Duncan's Multiple Range test was carried out to identify the differences between means observed in the ANOVA (O'Mahony, 1986). Statistical significance was defined at $P < 0.05$. Data was graphically represented by bar charts and pie charts.

4.0 RESULTS

4.1 Ghanaian consumers' perception of quality

In order to obtain the Ghanaian consumer's perception of quality, a consumer survey was carried out from February to August 2001. As part of the survey, 2 sets of questionnaires (Appendices 1 and 2) were administered to 200 consumers each. Of the 400 questionnaires distributed, 243 (128 of Questionnaire 1 and 115 of Questionnaire 2) were collected and usable, indicating a response rate of 60.7%. These questionnaires contained different sets of questions, which collectively sought to bring out the Ghanaian consumer's perception of quality with emphasis on food products. Questions in Appendix 1 centred on consumer attitudes, beliefs, and other situational factors while questions in Appendix 2 bordered on various intrinsic and extrinsic quality cues, experience and credence quality attributes of food products, which have been identified in previous studies (Naaeder, 2000; Oude Ophuis and Van Trijp, 1995; Sloan, 1994b) to influence a consumer's perception of quality and ultimate purchase behaviour.

4.1.1 Demographic characteristics of respondents

The demographic profile of respondents is presented in Table 4. Respondents were predominantly unmarried men between the ages of 30–39 years and resident in different parts of Accra. All except 3 of the respondents were Christians. A study of the demographic profile revealed that all respondents had some form of education, with 73.7% of them possessing tertiary education. Two hundred and thirteen respondents were employed with 49.4% of them having monthly earnings of 300,000-800,000 cedis.

Table 4: Demographic characteristics of consumer respondents ^a.

Characteristic	Category	Respondents	
		n	%
Sex	Male	130	53.5
	Female	113	46.5
Age	18 – 29	50	20.6
	30 – 39	105	43.2
	40 – 49	61	25.1
	50 – 59	26	10.7
	60 – 69	1	0.4
Marital status	Married	82	33.7
	Single	157	64.6
	Separated	4	1.6
Occupational status	Employed	214	88.8
	Unemployed	13	5.4
	Student	14	5.8
Ethnic group	Ga/Adangbe	42	17.3
	Akan	113	46.5
	Ewe	72	29.6
	Guan	6	2.5
	Northner	10	4.1
Religion	Christian	240	98.8
	Moslem	2	0.8
	Traditionalist	1	0.4
Educational level	Basic	3	1.2
	Secondary	61	25.1
	Tertiary	179	73.7
Net monthly income	Below ₺300,000.00	36	14.8
	₺300,000.00 - ₺800,000.00	120	49.4
	₺800000.00- ₺1,500,000.00	73	30.0
	Above ₺1,500,000.00	14	5.8
Number of dependants	0 – 4	209	79.7
	5 –10	43	19.9
	Above 10	1	0.6

^a Profile of consumers sampled for Questionnaires 1 and 2.

Total number of respondents (N) = 243.

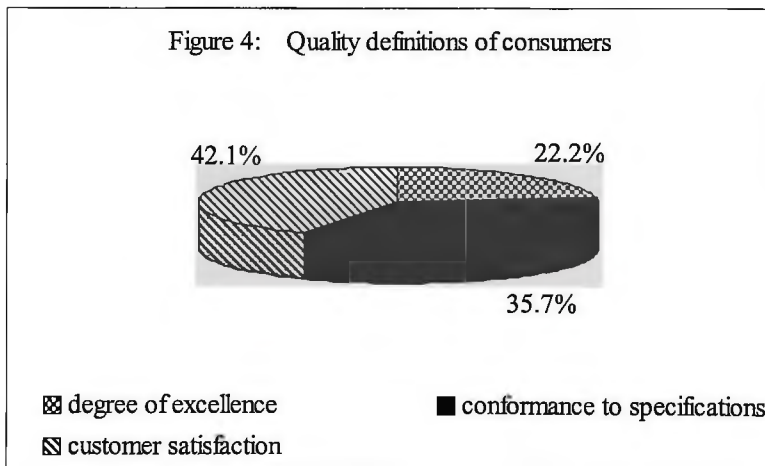
n = frequency

4.1.2 Quality definitions and quality awareness

Respondents were provided with three definitions of quality and requested to choose the one which best suited their perception of quality. Twenty two percent (22.2%) defined quality as

'the degree of excellence', 35.7% defined quality in terms of 'adhering or conforming to a set of requirements' while a higher percentage (42.1%) said quality was 'the ability to satisfy the needs of the consumer' (Figure 4). Demographic characteristics of consumers were not observed to influence their definitions of quality.

With respect to the level of quality awareness among the Ghanaian, a high proportion (59.3%) of respondents were of the opinion that the Ghanaian consumer was not quality conscious while 40.7% believed otherwise (Figure 5). In ranked order, reasons given by respondents for the perceived lack of quality consciousness included low income levels (54.8%), low literacy level (23.3%), lack of consumer sensitisation on quality issues (17.8%), and others (4.1%) such as lack of interest, consumer beliefs, attitudes and background (Table 5).



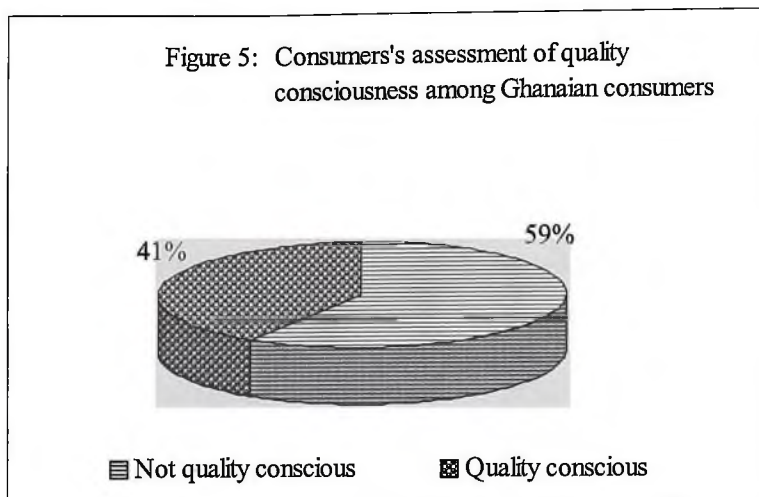


Table 5: Reasons given by respondents for perceived lack of quality consciousness among Ghanaian consumers

Reason	Respondents	
	n	%
Low income levels	40	54.8
Lack of quality sensitisation	13	17.8
Low educational level	17	23.3
Others such as consumers' lack of interest in quality, beliefs, attitudes, and background of consumer	3	4.1
Total	73	100

n = frequency

4.1.3 Consumer expectations of quality

Respondents were asked to explain what they considered a quality product, by providing a list of their expectations of a good quality product based on quality attributes they associated with food products. The answers to this question were many and very diverse and included both specific quality attributes and features of quality, which were, mentioned either singly or in combination with others. A list of expectations identified in this current study is represented in Table 6.

The majority (39.9%) of consumers expressed their expectations of quality in terms of labelling features with the majority of respondents expecting adequate provision of information on product labels with emphasis on expiry date marking. Thirty-two (32.5%) also associated quality with sensory quality. Sensory attributes mentioned by consumers were taste (20.2%), texture (3.3%) and aroma (3.3%). Taste was cited by the majority of respondents either singly or in combination with other attributes. Sixteen percent (16.5%) of respondents associated quality with nutritional quality, while, equal proportions of consumers (10.3%) expressed their expectations of quality in terms of price and safety related issues. Other identified consumer expectations were aesthetic appeal (9.9%), appreciable shelf life (9.1%), high product performance (4.5%), effective storage and delivery of product (3.3%), convenience for use (2.1%), product accessibility and availability (1.2%), and reasonable advertising (0.8%).

In contrast to the above mentioned discrete expectations provided by some respondents, others however provided broad base responses which were more of quality definitions. Among these were 'product conformance to a set quality attributes or requirements' (16.0%), 'fitness for use' (2.5%) and customer satisfaction (16.5%). With regards to those who expressed quality in terms of conformance to specifications, part of them said they expected a quality product to conform to standard specifications spelt out in technical documents such as the Ghana Standards written by the Ghana Standards Board and the British standards (BSI), while the other part of this group of respondents simply said a quality product was a product that conformed to the requirements of regulatory agencies mandated to ensure quality goods.

Table 6: Quality attributes consumers expect from quality products ^a

Quality attributes	n	%
Good sensory quality	79	32.5
Taste	49	20.2
Texture	8	3.3
Aroma	8	3.3
Unspecified	14	5.8
Labelling Features	97	39.9
English label	3	1.2
Adequate provision of information	37	15.2
Brand name	3	1.2
Usage instructions	5	2.1
Country of origin	3	1.2
Expiry date	31	12.8
Date of manufacture	8	3.3
Net content	2	0.8
List of ingredients	5	2.1
Safety related attributes	103	42.3
Wholesomeness	45	17.7
Good hygienic conditions at the point of sales	22	9.1
Well processed	10	4.1
Absence of preservatives	5	2.1
Absence of toxic substances	21	8.6
Price (Affordable/ money's worth)	25	10.3
Freshness	8	3.3
Long shelf life	22	9.1
Good nutritional quality	40	16.5
Availability/accessibility	3	1.2
Good storage and delivery system	8	3.3
Reasonable advertising	2	0.8
Aesthetic appeal/packaging	24	9.9
Reliability	10	4.1
Conformance to requirements	39	16.0
Fitness for use	6	2.5
Convenience for use	5	2.1
Meet customer satisfaction	40	16.5
High performance	11	4.5

^aNumber of respondents being 243.

n = frequency

4.1.4 Quality factors influencing purchase decisions

The importance of consumers in the growth and development of businesses has been acknowledged by many quality experts and companies and there is therefore considerable keenness to study consumer behaviour and particularly understand what the consumer means by the term 'quality'. Unfortunately, very little success has been achieved in this regard (Stone *et al.*, 1991). The failure of most consumer research studies to capture the consumer's perception of quality and pre-empt consumer purchase decisions according to Stone *et al.* (1991), stems from the fact that consumers interviewed usually respond to questions with information recalled from advertisements or with information they believe interviewers want to hear. As a result, when asked what they expect from a product or what qualities they look for, consumers typically state that the product should be fresh, natural, rich, refreshing and so forth.

To minimize the 'erroneous' responses given by consumers in surveys and also clearly bring out the effects of some quality attributes on purchase decisions, consumers in this study were asked questions on specific quality attributes and situational factors which have been identified by Lawless (1995) as quality dimensions utilized by consumers in the assessment of the quality of a product.

4.1.4.1 Consistency of product quality

In a study reported by Sloan (1994a), consistency of quality was identified as one of the three elements of quality that consumers demanded from manufacturers. A similar trend was observed among Ghanaian consumers when asked in Appendix 2 how often they expected a product to deliver the same level of consistency with each purchase (Table 7). Of the 115 respondents who answered the question, 65.2% indicated that they expected manufacturers to deliver good quality products 'every time' their products were purchased. Thirty-one percent (31.3%) said they

expected the quality of a product to be consistent ‘most of the time’ and only 3.5% indicated that they expected quality to be consistent ‘sometimes’.

Table 7: Consistency of product quality

Number of times consumers expect consistent product quality with each purchase	Respondents	
	n	%
Every time	75	65.2
Most of the times	36	31.3
Sometimes	4	3.5
Total	115	100.0

n = frequency

Chi-square analyses and cross tabulations showed that the following demographic characteristics of sex ($\chi^2 = 0.102$, $df = 1$, $p = 0.839$, Appendix 10), marital status ($\chi^2 = 2.900$, $df = 1$, $p = 0.123$, Appendix 11), education. ($\chi^2 = 0.127$, $df = 1$, $p = 0.722$, Appendix 12) and income level ($\chi^2 = 1.045$, $df = 2$, $p = 0.593$, Appendix 13) did not influence the consumers’ expectations of consistency in the quality of products. Age was however observed to marginally influence a consumer’s expectation of quality with older consumers insisting more on the consistency of quality of products with each purchase of the product ($\chi^2 = 8.070$, $df = 3$, $p = 0.045$, Table 8).

Table 8: Consumer expectations of the consistency of product quality across the different age groups ^a.

Age (years)	Number of times consumers expect product quality to be consistent with each purchase					
	Every time		Most of the times		Total	
	n	% ^b	N	% ^b	n	% ^b
18-29	8	44.4	10	55.6	18	100
30-39	33	64.7	18	35.3	51	100
40-49	23	82.1	5	17.9	28	100
Above 50	11	78.6	3	21.4	14	100
Total	75	67.6	36	32.4	111	100

Summary statistics

Pearson Chi-square = 8.070, df = 3, p = 0.045

^a Number of respondents (N) being 111.

^b Percentage is based total number of respondents in each row.

n = frequency

4.1.4.2 Wholesomeness of product

Wholesomeness is one of the important characteristics of quality which according to Martin (1988) means that the food is fit to eat, that it is clean and uncontaminated, and that it has been packed and stored in a sanitary environment. Despite the fact that wholesomeness cannot be experienced directly by the consumer, it is of great concern to them and continues to be one of the important quality dimensions used by consumers in the assessment of the quality of food products (Lawless 1995; Torjusen *et al.*, 2001). As such, consumers tend to assess wholesomeness based on other indicators such as freshness (Martin 1988), expiry date, method of processing (Sloan *et al.*, 1984), hygienic conditions prevailing at the points of processing and selling, packaging, country of origin, safety issues, and even brand name (Sloan, 1998a) among others.

In this study, the importance of ‘wholesomeness’, its assessment by the Ghanaian consumer and its influence on consumer behaviour were investigated in Appendix 2. Findings indicate that 43 of the 243 consumers (17.7%) sampled mentioned this attribute as one of their expectations of a good quality product. Other related attributes such as ‘hygienic conditions at the place of sales’ (9.1%), ‘expiry date’ (12.8%), ‘appreciable shelf life’ (9.1%), ‘adequate processing’ (4.1%) and ‘freshness’ (3.3%) were also mentioned (Table 6).

The importance of wholesomeness was further investigated when consumers were presented with a list of product attributes and asked to indicate which of the attributes was of greatest concern to them (Appendix 2). Results in Table 9 reveal that 82.7% of respondents said the aspect of the product that was of greatest concern to them was the wholesomeness of the product. Other mentioned attributes were ‘taste’ (8.2%), and texture (1.8%), and appearance (7.3%).

Table 9: Quality attributes of concern to consumers

Product attribute	Respondents	
	n	%
Wholesomeness	91	82.7
Taste	9	8.2
Texture	2	1.8
Appearance	8	7.3
Total	110	100

n = frequency

Indicators of wholesomeness

To identify indicators used by consumers to assess the wholesomeness of a product, consumers were presented with a list of attributes and asked to rank in the order of importance on a 8-point scale (1 =extremely important, 8 = extremely unimportant), the attributes they would use in the assessment of the wholesomeness of a product prior to purchase of the product (Appendix 2,

question 3). Responses were analysed using the Friedman's test to verify if there were any significant differences in the level of importance attached to the various attributes. Results of Friedman analysis and the mean scores are presented in Table 10 and Figure 6.

Table 10: Relative importance of quality attributes used by consumers to assess the wholesomeness of food products ^a

Attribute	Mean rank ^b	Number of respondents (N)	Mean Score ^c	Standard deviation	% ^d
Expiry date	1.93 a	111	1.34	0.84	99.1
Environmental conditions at the point of sales	3.18 b	103	2.20	1.38	89.3
Package	4.20 c	105	2.76	1.38	82.9
Texture	4.26 cd	104	2.95	1.76	71,2
Colour	4.85 de	104	3.36	1.84	59.6
Vendor's appearance	5.11 e	100	3.65	2.07	59.0
Brand name	5.91 f	102	4.19	2.05	45.1
Convenience of use	6.55 g	100	4.79	2.17	35.0

Summary statistics

Chi-square = 278.886, df = 7, p < 0.001.

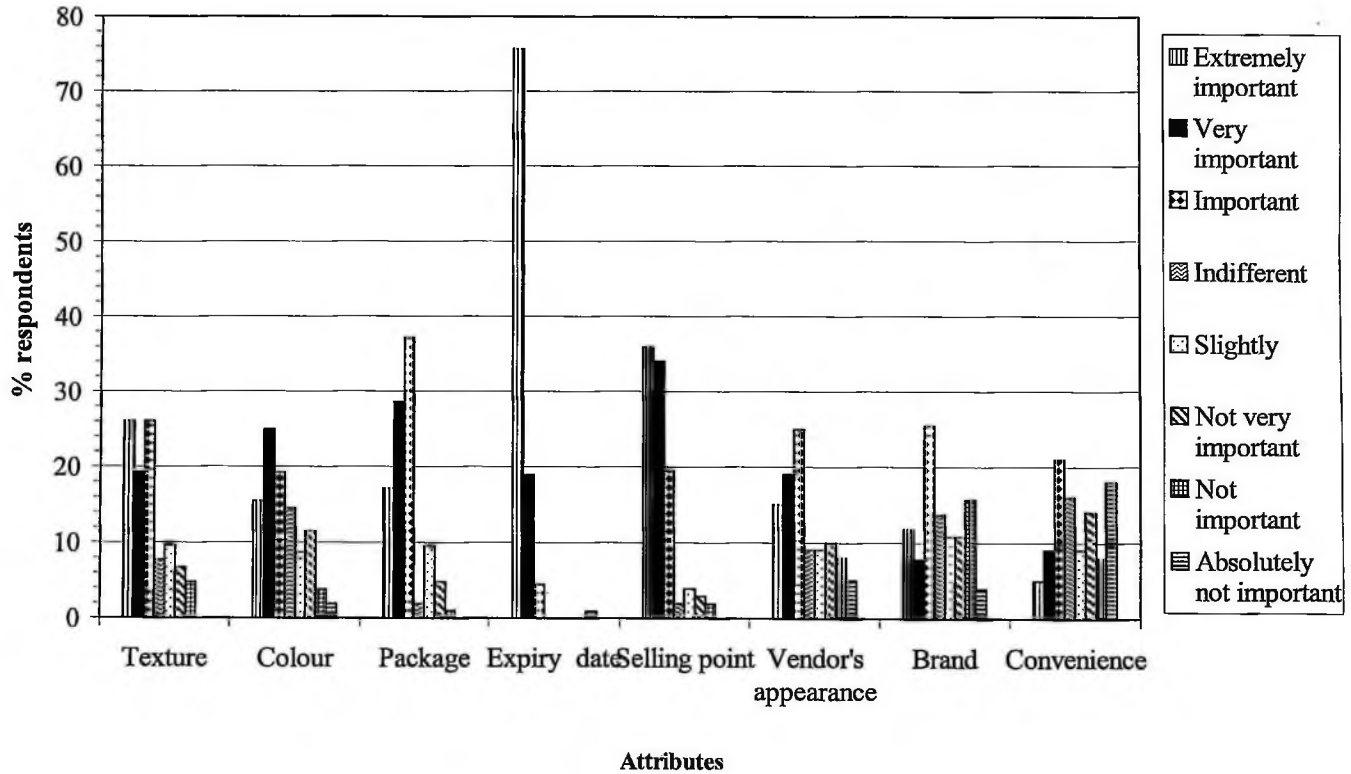
^a Mean ranks and mean scores based on an 8-point scale (1 = extremely important, 8 = extremely unimportant)

^b Mean ranks based on 100 respondents and values followed by same letters (a to g) within a column are not significantly different at p < 0.05 using Friedman's test.

^c Mean scores based on N number of respondents

^d Percent of respondents ranking the attributes important to extremely important on an 8-point scale.

Figure 6: Relative importance of attributes used by consumers in evaluating product wholesomeness.



Mean ranks presented in Table 10 shows the order of importance of the various dimensions in the assessment of a product's wholesomeness. Results indicate that there is a statistical difference between the mean ranks of the attributes ($\chi^2=278.886$, $df = 7$, $p < 0.01$). Expiry date was ranked as the most important of all the attributes (mean rank of 1.93) and described as 'extremely important' by consumers with a mean score of 1.32. Figure 6 shows that 75.7% of consumer said the expiry date was 'extremely important' in the assessment of the wholesomeness of a product and gave it a score of 1. Indeed, only 0.9% found the expiry date information 'absolutely not important'.

'Environmental conditions pertaining at the point of sales' was ranked as the second important attribute used by consumers with a mean rank of 3.18. According to respondents, it is 'very important' in the assessment of wholesomeness with a mean score of 2.22 and 35.9% of respondents rated it as 'extremely important'. The third ranked attribute was 'type of package' (mean rank 4.20). The mean score of 2.8 shows that consumers consider it to be 'very important' in the assessment of wholesomeness but next to 'environmental conditions pertaining at the point of sales'. Again it was observed from the Figure 6 that only 17.7% of consumers gave 'package' an 'extremely important' score. The attributes of 'texture', 'colour', 'appearance of vendor', 'brand name' and 'convenience' were ranked fourth, fifth, sixth, seventh and eight in that order.

4.1.4.3 Point of sale of products

The influence of the 'place of sale' on a consumer's perception of product quality and purchasing behaviour was assessed in Appendix 2 (questions 22-27) by verifying the factors that determine where a consumer decided to shop. Results are presented in Tables 11-15.

A majority (87%) of respondents stated that the environment in which a product was sold was a strong determinant in purchasing decision. A relatively low proportion (40 %) however, noted

that the way in which the products were arranged or displayed influenced their purchasing decisions, ($\chi^2 = 54.69$, $df = 1$, $p = 0.001$, Table 11). In view of the fact that only 40% considered the 'display of products' in their choice of a shopping place suggested that other factors apart from the 'display of products' in a shop were relevant to consumers in their decision to patronize a particular shopping centre.

With particular reference to where consumers preferred to purchase pre-packaged food products, 90.4%, and 6.1%, of respondents said that they preferred to purchase pre-packed food products from supermarkets or shops and open markets respectively. Two percent (2.6%) indicated that they would prefer a door-to-door vehicle delivery service (Table 12). When asked what consumers considered when selecting a place for purchasing food products, 70.4% mentioned the 'hygienic conditions' prevailing at the shopping site. Thirteen percent mentioned the 'variety or wide selection of products available', 7.8% mentioned price, 5.2% said 'proximity' and 1.7% each indicated 'attitude of sales person' and 'other unspecified reasons' for shopping at a particular location (Table 13). A cross tabulation of the variables 'effect of environment on the quality perception of the consumer' and 'preferred environment to purchase pre-packaged food' shown in Table 14 however, revealed that whether a person decided to shop in a supermarket or out of the supermarket was irrespective of the influence of the environmental conditions on the consumer's perception of quality ($\chi^2 = 2.123$, $df = 1$, $p = 0.158$).

Table 11: The influences of purchase environment and the display arrangement of products on consumers perception of quality ^a.

Consumers perception of quality	Factor					
	Purchase environment		Display arrangement		Total	
	n	% ^b	n	% ^b	n	% ^b
Influence on quality	100	87.0	46	40.0	146	65.5
No influence on quality	15	13.0	69	60.0	69	36.5
Total	115	100	115	100	230	100

Summary statistics

Pearson chi-square = 54.69, df = 1, p < 0.001

^a Number of respondents (N) = 115.

^b Percentage is based on total number of respondents in each column.

n = frequency

Table 12: Shopping locations consumers prefer to purchase of pre-packaged food products

Shopping location	Respondents	
	n	%
Supermarket or shop	103	90.4
Open market	7	6.1
Door to door delivery service	3	2.6
Others (unspecified)	1	0.9
Total	114	100.0

n = frequency

Table 13: Factors consumers consider in their selection of a place to purchase pre-packaged food and meals.

Factor	Respondents			
	n		%	
	Pre-packaged food product	Meal	Pre-packaged food product	Meal
Hygiene	81	100	70.4	87.0
Proximity	6	1	5.2	0.9
Variety of products available	15	3	13.0	2.6
Price	9	6	7.8	5.2
Attitude of sales personnel	2	5	1.7	4.3
Others	2		1.7	
Total	115	115	100.0	100.0

n = frequency

Table 14: Cross tabulation of association of quality with environment in which pre-package product is sold by environment in which consumers prefer to purchase pre- package product ^a

Respondent responses on whether the environment in which a product is sold affects their perception of quality	Environment from which pre-packaged product is bought					
	Super market/ shop		Open market, door to door delivery service, and others (unspecified)		Total	
	n	% ^b	n	% ^b	n	% ^b
Yes	91	91.9	8	8.1	99	100.0
No	12	80.0	3	6.7	15	100.0
Total	103	90.4	11	9.6	114	100.0

Summary statistics of Fisher's exact test

Pearson chi-square = 2.123, df = 1, p = 0.158

^a Number of respondents being 114.

^b Percentage is based total number of respondents in each row.

n = frequency

4.1.4.4 Packaging and its influence on purchase decision

Packaging is an element of the product environment for which marketers are said to spend over \$50 billion annually (Peter and Olson, 1996). According to Hollingsworth (1996) it is the face of a product and the first impression given to a consumer about the product. Packaging has therefore become increasingly important in the battle for consumer hearts and minds and considered the way forward in the food industry. To investigate the Ghanaian consumer's attitude towards packaging and determine how this influenced his purchasing choices, consumers were asked questions on their choice of packaging, attributes of packaging that were of importance to them, and environmental concerns associated with packaging (Appendix 2 questions 4-13)

Seventy percent (70.4%) of consumers admitted that they associated the quality of a product with the package of the product. When asked to check their level of agreement with the statement, 'packaging and labelling provide an excellent perception of the quality of consumable products', 29.8% of respondents said they 'strongly agreed', 46.5% 'agreed', 8.8% were 'uncertain', 12.3% 'disagreed' and 2.6% 'strongly disagreed'. Results are graphically represented in Figure 7.

Importance the respondents attached to packaging was supported by the willingness of 84.1% of respondents to pay more for a better quality packaging. The relationship between the 'willingness of consumers to pay more for a better quality package' and 'consumers' association of quality with type of package' was tested. Results of the chi-square analysis showed that the willingness of a consumer to pay more for a product was dependent on whether he associated the quality of a product with the type of packaging or not, ($\chi^2 = 8.062$, $df = 1$, $p = 0.008$, Table 15). Significantly more of the consumers (63.6%) who said they associated the quality of a product with the type of packaging were ready to pay more for a better package than those who did not associate the quality of a product with the product (6.5%).

Figure 7: Consumers' level of agreement with the statement that 'packaging and labelling provide an excellent perception of the quality of consumable products'

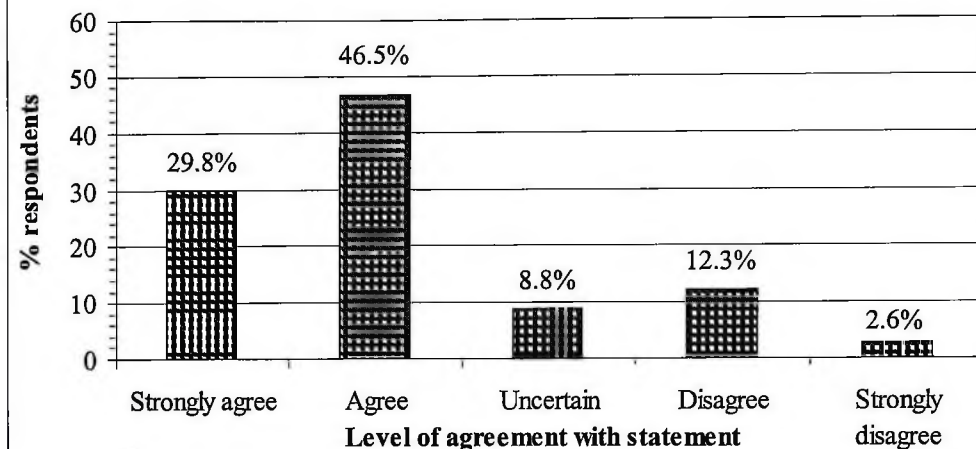


Table 15: Cross tabulation of consumers who associate quality with product package by consumers willing to pay more for a better quality package.

Willingness to pay more for better quality packaging	Respondent responses on whether they associate package with quality					
	Yes		No		Total	
	n	% ^a	n	% ^a	n	% ^a
Yes	68	63.6	22	20.6	90	84.1
No	7	6.5	10	9.3	17	15.9
Total	75	70.1	32	29.9	107	100

Summary statistics Fisher's exact test

Pearson Chi-square = 8.062, df = 1, p = 0.008

^a Percentage is based total number of respondents, i.e.107 respondents.

n = frequency

4.1.4.4.1 Attributes of product package important to consumers

Various attributes of packaging have been identified to play a role in consumers' attitudes to packaging. These include material, colour, reclosability/seal type, size, disposability after use and over packing of packaging. (Elsner *et al.*, 1997; Peter and Olson, 1996; Sloan, 1993b). In

this study, consumers were requested to rank in order of importance aspects of a package they would consider when purchasing a consumable product using an 8-point scale (1 = extremely important, 8 = extremely unimportant). Friedman test was conducted on responses to determine if the average rankings differed across variables. Table 16 shows a compilation of analysis results.

Results of Friedman test indicate that the level of importance consumer attached to the different attributes of packaging were different ($\chi^2 = 165.599$, $df = 5$, $p < 0.01$). The 'type of seal or closure' was ranked as the most important attribute of packaging considered by consumers in the purchase of a product (mean rank 2.12). A mean score of 1.88 suggests that it is considered 'extremely important'. A study of the distribution of scores among consumers represented graphically in Figure 8 shows that 48.1% of respondents actually considered 'seal type' 'extremely important', 26.4% regarded it as 'very important' and 20.8% as 'important'. Three (3.8%) of the consumers gave a score of 4 ('indifferent') while 0.9% gave a score of 6 signifying 'not very important'.

Followed in importance of package attributes after 'seal type' was 'type of package' (i.e. whether glass, plastic etc.). A calculated mean score of 2.53 assumes that consumers considered this attribute 'important' in their consideration of the package of a food product. The 'strength of package' (mean rank 2.84, mean score 2.62) came next, followed by 'size of package' (mean rank 4.16, mean score 3.77), 'disposability of package' (mean rank 4.52, mean score 4.21) and 'colour of package' (mean rank 4.57, mean score 4.29) in descending order of importance.

In addition to these identified packaging attributes that tend to influence a consumer's purchase decisions, other factors such as rust and distortion of food package were also identified. Results shown in Table 17 brought out the extent to which 'rust' and the 'distortion' of the package of a

product influenced the Ghanaian consumer's judgement of quality. Ninety-nine percent (99.1%) of consumers interviewed admitted that the presence of 'rust' on a canned product influenced their perception of the quality of the product with 71.0% consumers stating that 'presence of rust' influenced them to an 'extremely large extent'. Similarly, 97.2% of respondents said the 'distortion' of a can influenced their judgement of the quality of a product with 46.7% stating that this was to 'an extremely large extent'.

Table 16: Relative importance of package attributes used by consumers to assess the quality of food products^a

Attributes	Mean rank ^b	Number of respondents (N)	Mean Score	Standard deviation	% ^d
Type of seal	2.12 a	106	1.84	0.99	95.3
Nature of packaging material	2.80 b	106	2.46	1.37	80.2
Strength	2.84 b	106	2.56	1.30	84.9
Size	4.16 c	104	3.75	1.40	48.1
Disposability	4.52 d	99	4.19	1.87	43.4
Colour	4.57 d	102	4.26	1.69	33.3

Summary statistics

Chi-square = 165.599, df = 5, p < 0.05

^a Mean ranks and mean scores based on a 7-point scale (1 –extremely important, 7 = extremely unimportant)

^b Mean ranks based on 97 respondents and values followed by same letters (a to d) within a column are not significantly different at p < 0.05 using Friedman's test

^c Mean scores based on N number of respondents

^d Percent of respondents ranking the attributes important to extremely important on an 8-point scale.

Figure 8: Relative importance of product packaging attributes

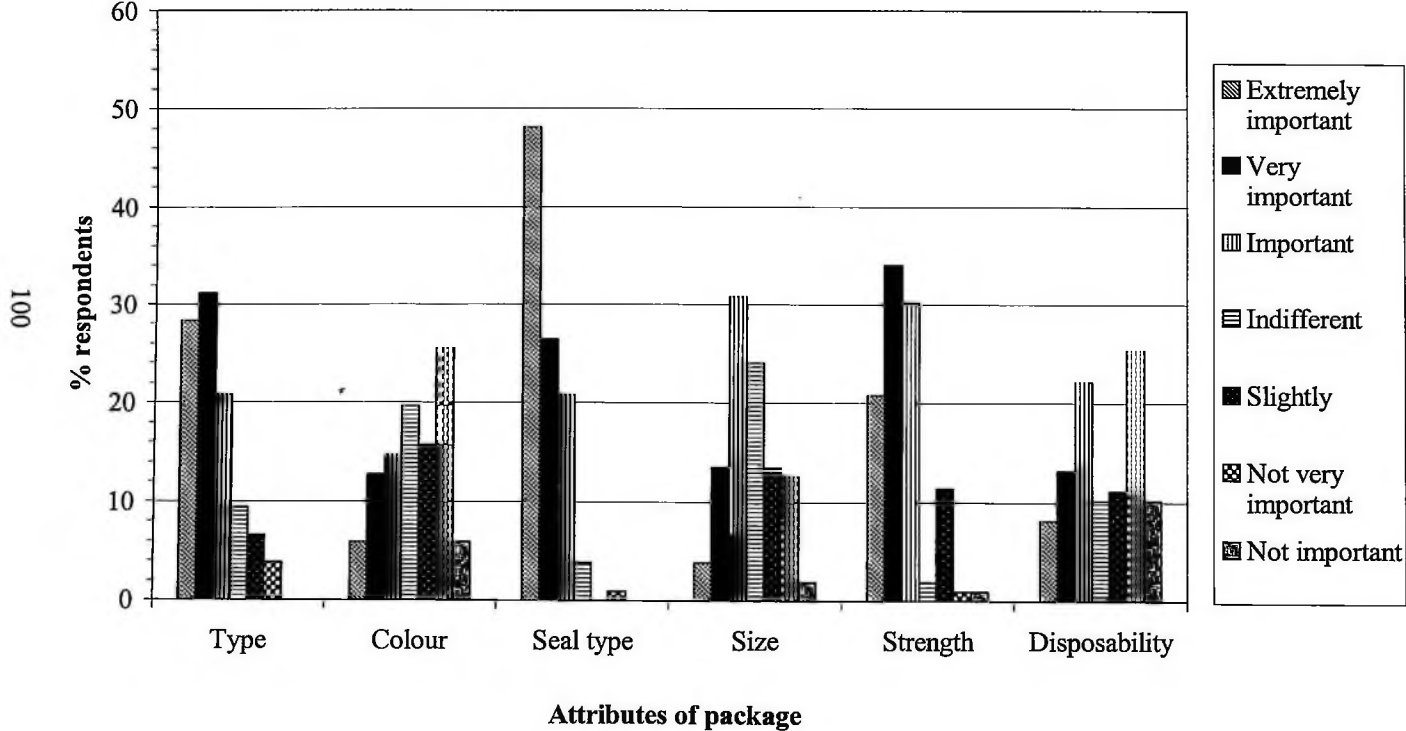


Table 17: Extent to which rust and distortion of packaging cans of products influence consumers' perception of the quality of the products.

Extent to which factor influences consumer perception	Condition of packaging can					
	n		%		Cumulative percentage	
	Rusting of can	Distortion of can	Rusting of can	Distortion of can	Rusting of can	Distortion of can
Extremely large extent	76	50	71.0	46.7	71.0	46.7
Very large extent	23	25	21.5	23.4	92.5	70.1
An extent	7	29	6.5	27.1	99.1	97.2
Indifferent		1		0.		98.1
Absolutely no extent	1	2	0.9	1.9	100.0	100.0
Total	107	107	100.0	100.0		

n = frequency

To determine consumers' preference for different packaging, consumers were presented with a list of products in different packaging alternatives and asked to indicate their preferences.

Consumer packaging choices with respect to the various products is compiled in Table 18.

Table 18: Consumer packaging preferences for different products.

Product	Package Type	Preferences of respondents	
		N	%
Coca-Cola drink	Bottle	69	60.0
	Can	46	40.0
Pineapple juice	Bottle	86	75.4
	Can	28	24.6
Orange juice	Bottle	61	53.0
	Tetra pak	54	47.0
Milo cocoa beverage	Sachet	31	27.2
	Can	83	72.8
Frytol cooking oil	Sachet	7	6.1
	Bottle	107	93.9

n = frequency

Consumers generally showed a preference for bottled drinks as compared to canned drinks and the percentage was highest for pineapple juice (75.4%). This was also reflected in the majority of respondents (90.6%) preferring packages that could allow a better view of the product. With regards to a cocoa beverage product like 'Milo', consumers indicated preference for the product packaged in a can with 72.8% choosing Milo in can over Milo in sachet. Again, 93.9% of consumers said they preferred bottled cooking oil as against 6.1% who preferred cooking oil packaged in sachet.

4.1.4.4.2 Environmental concerns

Several new studies suggest that concern for the environment is moving rapidly among consumers around the world and this is exhibited in their demands for environmentally sound manufacturing practices with special emphasis on the use of environmentally friendly packaging (Sloan, 1993b; Elsner *et al.*, 1997; Resurreccion, 1999; Torjusen *et al.*, 2001).

To assess the Ghanaian consumer's awareness of environmentally friendly packages, respondents were firstly asked if they knew what an environmentally friendly package was and secondly, requested to indicate the type of package they preferred. The package options presented in the question were 'a biodegradable package', 'a non-biodegradable package', 'a recyclable package' and 'a non-recyclable package'.

The majority of consumers (84.1%) responded that they knew what an environmentally friendly package was as shown in Figure 9. Forty-nine (42.7%) of respondents chose 'a biodegradable package', 2.9% chose a 'non-biodegradable package', 50.5% preferred a 'recyclable package' and 3.9% opted for a 'non-recyclable package', (Table 19).

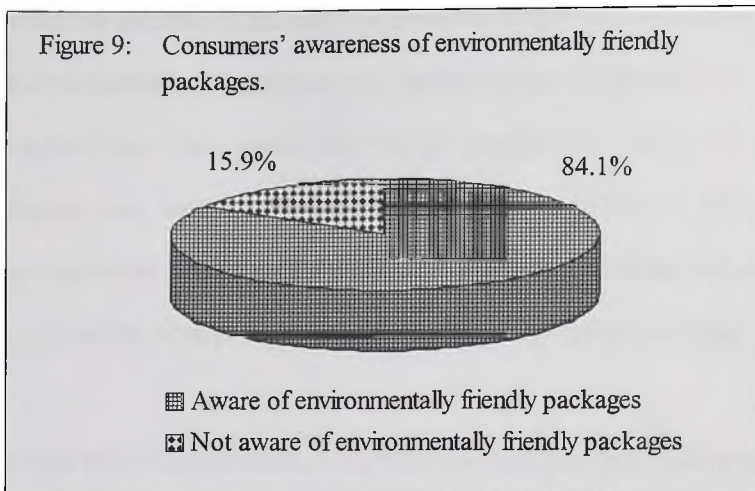


Table 19: Consumer packaging preferences with regards to environmental concerns.

Package Type	Preferences of respondents	
	n	%
Biodegradable package	44	42.7
Non-biodegradable package	3	2.9
Recyclable package	52	50.5
Non-recyclable package	4	3.9
Total	115	100.0

n = frequency

4.1.4.5 Labelling and its influence on purchase decision

Consumers' responses to various aspects of product labelling are compiled in Table 20. A study of this table reveals that product labelling was relevant to 98.2% of consumers with 49.1% describing it as 'extremely important', 38.6% saying it was 'very important' and 10.5% stating that labelling was 'important. Only 1.8% indicated that they were 'indifferent' to product labelling. A similar trend was observed in responses when consumers were asked about the

usefulness of labelling information provided on products in their purchase decisions. Sixty-two (62.3%) indicated that labelling information was 'extremely useful' while 33.3% and 3.5% said labelling information was 'very useful' and 'useful' respectively. Only one respondent said labelling information was 'neither useful nor useless'. Indeed, 72.8% of respondents claimed they 'always read the labels in contrast to only 1 respondent who admitted that he never read the label. Twenty-six (26.3%) of respondents also replied that they 'sometimes' read the labels.

In spite of the high level of importance consumers attach to labelling information a number of consumers expressed scepticism about some nutritional claims on labels. Table 20 shows that 6.1%, 71.9% and 21.9 percent of consumers doubted nutritional claims 'always', 'sometimes' and 'never' respectively. This could probably be the reason why consumers who were purchasing a product for the first time indicated that they searched for information on the product from previous users and friends (45.3%), vendors (27.4%) and other sources (6.6%) instead of relying on label information (20.8%). Regulatory agencies (50.0%), advertisements (25.0%), opinion leaders (12.5%), and scientific material (12.5%) constituted the other sources of information mentioned by respondents (Table 21).

Most consumers considered the pictorial representation on the package from 'very important' to not 'very important'. Five percent (5.3%), 25.7% and 29.2% of consumers said the pictorial representation of a product was 'extremely important', 'very important' and 'important' respectively. Nineteen percent (19.5%) were 'indifferent' to the pictorial representation of the product while 17.7% and 2.7% said the pictorial representation of the product on the package was 'not very important' and 'absolutely not important' respectively. From responses obtained, it appears that even though consumers find it important to have a picture on the package to tell consumers what the content of the package looked like, consumers did not seem to attach an extreme level of importance to it.

Table 20: Consumer attitudes towards various aspects of product labelling.

Aspect of product labelling	Response alternatives	Responses of respondents	
		n	%
Importance of product labelling	Extremely important	56	49.1
	Very important	44	38.6
	Important	12	10.5
	Indifferent	2	1.8
Total		114	100.0
Reading of labels	Never	1	0.9
	Always	83	72.8
	Sometimes	30	26.3
Total		114	100.0
Usefulness of labelling information	Extremely useful	71	62.3
	Very useful	38	33.3
	Useful	4	3.5
	Indifferent	1	0.9
Total		114	100.0
Doubting of nutritional claims on labels	Never	25	21.9
	Always	7	6.1
	Sometimes	82	71.9
Total		114	100.0
Importance of pictorial representation of product on label	Extremely important	6	5.3
	Very important	29	25.7
	Important	33	29.2
	Indifferent	22	19.5
	Not very important	20	17.7
	Absolutely not important	3	2.7
Total		113	100.0

n = frequency

Table 21: Sources of information consulted by consumers in their first-time purchase of products.

Source of information	Respondents seeking information	
	n	%
Users of the product	34	32.1
Vendor	29	27.4
Product label	21	19.8
Friend/peers/family members	14	13.2
Others	8	7.5
Total	106	100

n = frequency

4.1.4.5.1 Relative importance of pieces of labelling information

To determine the piece of labeling information most relevant to consumers in their purchase decision making, consumers were asked to rank various pieces of labeling information they considered during purchase in order of importance on an 8-point scale (1 = extremely important, 8 = Absolutely not important). Responses obtained were analyzed using the Friedman test. Results of rank means and mean scores are represented in Table 22. A distribution of the scores is also presented in Figure 10.

Friedman test shows that there is a significant difference between average rankings across variables ($\chi^2 = 292.505$, $df = 7$, $p < 0.01$). Expiry date (mean score, 1.33; mean rank, 1.99) was ranked as the most important information sought after by consumers on a package. Health and safety information (mean score, 2.10; mean rank, 3.07) and nutritional information (mean score, 2.63; mean rank, 3.97) were ranked second and third respectively. List of ingredients was ranked fourth (mean score, 2.90; mean rank, 4.26). Labelling information of least importance to consumers was the 'net content 'of package (mean score, 4.39; mean rank, 6.04). A look at the score distribution also reveals that the scores were relatively evenly distributed with only 'expiry date showing a very high percentage of consumers (78.6%) giving it a score of 1 (extremely important).

Table 22: Relative importance of labelling information used by consumers to assess the quality of food products ^a

Labelling information	Mean rank ^b	Number of respondents (N)	Mean Score ^c	Standard deviation	% ^d
Expiry date	1.99 a	112	1.33	0.70	98.2
Health and safety information	3.07 b	108	2.08	1.31	90.7
Nutritional information	3.97 c	110	2.56	1.38	81.8
List of ingredients and additives	4.26 c	108	2.87	1.72	72.2
Preparation and serving information	5.12 d	108	3.45	1.84	61.1
Country of origin	5.69e	110	4.08	2.26	47.3
Name of manufacturer	5.88 e	108	4.19	2.21	47.2
Net content	6.04 e	108	2.87	1.72	46.2

Summary statistics

Chi-square = 292.505, df = 7, $p < 0.05$

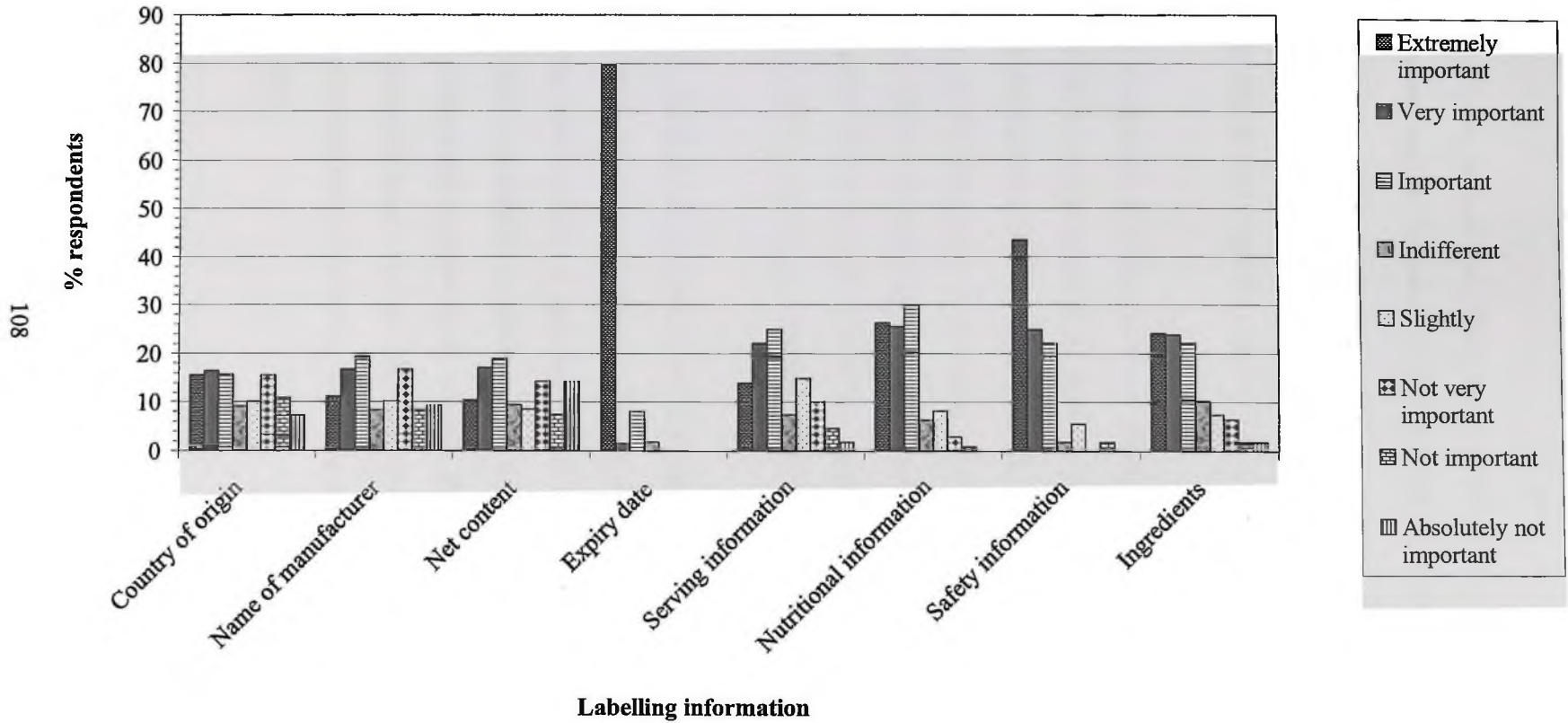
^a Mean ranks and mean scores based on an 8-point scale (1 –extremely important, 8 = extremely unimportant)

^b Mean ranks based on 103 respondents and values followed by same letters (a to e) are not significantly different at $p < 0.05$ using Friedman’s test

^c Mean scores based on N number of respondents

^d Percent of respondents ranking the attributes important to extremely important on an 8-point scale.

Figure 10: Relative importance of labelling information.



4.1.4.6 Price

Price, an extrinsic quality cue has been identified by Oude Ophuis and Van Trijp (1995) as one of the quality dimensions used by consumers in their decision to purchase a product. To determine how consumers' purchase decisions were influenced by the price of a product, consumers were asked a series of questions on their attitudes towards the price of a product in relation to the quality of the product (Appendix 1 questions 10-12).

Seventy-one (71.7%) of consumers indicated that 'price ' influenced their decision to purchase a product in contrast to 28.3% who responded in the negative. Respondents were also asked the extent to which they associated the price of the product with the quality of the product. All except 2 respondents (1.6%) said price was associated with and indicative of quality. The majority of consumers (56.3%) associated the price of the product with its quality to a 'large extent'. The same number of consumers (21.1%) said they associated the price of the product to the quality to 'very large extent' and a 'small extent' (Figure 11.).

Respondents (29.7%) also expressed sentiments of discouragement to purchase a product because of the price of the product nevertheless, the majority of consumers (58.6%) 'scarcely' compromised on quality because of cost. It was observed that 10.2% and 27.3% of consumers had to 'always' and 'often 'compromise on quality because of price respectively. Only 3.9% claimed they 'never' compromised on quality for price (Table 23). A chi-square analysis to test the dependency of respondent's income with the extent to which they compromised on quality however revealed no observable trends, and the two variables were independent of each other ($\chi^2 = 0.228$, $df = 2$, $p = 0.0.892$).

Table 23: Number of times consumers with different income levels compromise on quality because of cost ^a.

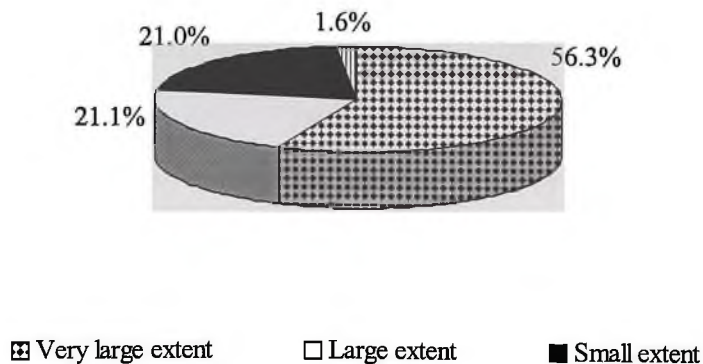
Income levels (¢)	Respondent responses on number of times quality is compromised on because of cost							
	n				% ^b			
	Very often	Often	Scarcely	Never	Very often	Often	Scarcely	Never
Below 300,000.00	4	4	15	1	3.1	3.1	11.7	0.8
300,000.00 – 800,000.00	6	18	39	0	4.7	14.1	30.5	0.0
800000.00- 1,500,000.00	2	13	16	3	1.6	10.2	12.5	2.3
Above 1,500,000.00	1	0	5	1	0.8	0.0	3.9	0.8
Total	13	35	75	5	10.2	27.3	58.6	3.9

^a Number of respondents being 128.

^b Percentage is based total number of respondents.

n = frequency

Figure 11: Extent to which consumers associate the price of a product with the quality of the product



4.1.4.7 Advertising and other factors

In addition to packaging, price, and labeling information, respondents identified ‘advertisements’ (42.2%), ‘fashionability of the product’ (16.4%), ‘status symbol nature of product’ (11.7%), ‘curiosity’ (16.4%) and ‘peer influence’ (10.2%) as factors influencing their purchase decisions (Table 24).

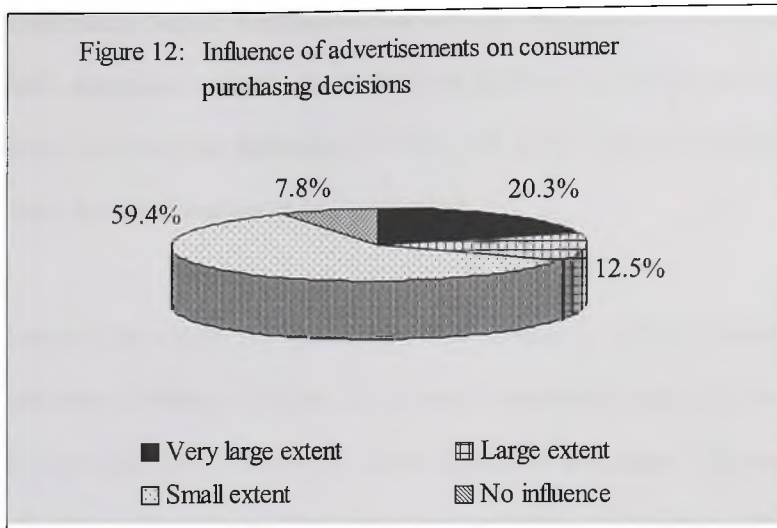
Table 24: Advertising and other factors that influence consumer decision making process^a.

Factor	Respondents being influenced by factor	
	n	%
Advertisements	54	42.2
Fashionability	21	16.4
Status symbol	15	11.7
Peers	13	10.2
Curiosity	21	16.4
Promotional sales	29	22.7

^a Number of respondent (N) = 128.

n = frequency

Consumers were asked to further elaborate on the influence of advertisements by indicating the extent to which they were influenced by product advertisements and promotional sales in their decision to purchase a product. Even though less than half (42.5%) of consumers replied that they were influenced by advertisements in their purchase decisions, when consumers had to express the extent to which advertisement influenced their purchase decisions, it was realized that 20.3%, 12.5% and 59.4%. of consumers were influenced by advertisements to a ‘very large extent’, ‘a large extent’ and a ‘small extent’ respectively. Only 7.8% maintained that they were not influenced by advertisements in their purchasing decisions (Figure 12). With regards to promotional sales, only 22.7% of consumers said they were influenced in contrast with 77.3% who replied that promotional sales did not affect their purchasing behaviour.



4.1.5 Relative importance of quality dimensions

To weigh the importance of product attributes used as dimensions of quality by the Ghanaian consumer in evaluating the quality of food products, consumers in this study were presented with different products and asked to rank quality dimensions used in purchasing decision in order of importance on a 7-point scale (1 = extremely important, 7 = absolutely not important). Responses were analysed using the Friedman test and results are presented in Tables 25 and 26. Analyses were conducted in a two way manner to find out if consumers attached the same level of importance to a particular quality dimension across different products on the one hand, and on the other hand, if in their assessment of a particular product, consumers weighed the various quality dimensions differently.

Mean scores for the different quality dimensions across different products ranged from 1.39 to 4.46 signifying that all these dimensions were considered 'extremely important' to 'neither important nor unimportant' in the assessment of quality. Results of the Friedman's test indicate that there are significant differences in rank means indicating that consumers weigh a particular quality dimension across various products differently and also weigh various quality dimensions differently in the quality assessment of a particular food product ($p < 0.05$). Individual scores

provided by respondents further revealed that the level of importance a consumer attached to a particular quality dimension in the assessment of the quality of a product was dependent on a number of factors including the individual involved, the product being evaluated, the intended use of the product and the dimension being considered.

It was also observed from results that irrespective of the products, with the exception of isolated cases, the dimensions of country of origin, brand name, convenience, and price were considered relatively less significant in the assessment of the quality of a product. This trend was most obvious with the dimension of price where it was observed from the Friedman's results shown in Table 26, that there was no significant difference in how consumers weighed this dimension across different products ($F = 1.227$ $df = 14$ $p = 0.249$). With the exception of yam and soft drinks, price was generally placed at the bottom of the consumers' priority list in respondents' assessment of quality.

In contrast to the dimensions of price, convenience, brand name and country of origin, the dimensions of nutrition, sensory quality, packaging, reliability and performance played significant roles in consumers' evaluation of food quality. The sensory and nutritional qualities seemed to be of great importance to consumers irrespective of the product. Nutrition was particularly important in the assessment of milk products with emphasis on infant milk. Similarly the level of importance consumers attached to the reliability of a product was almost the same across all products (Table 26) except that there were significant differences between the level of importance attached to this dimension in the assessment of milk products, maize and biscuits.

Table 25: Descending order of importance of quality dimensions used in the evaluation of different products by consumers (Mean ranks in parenthesis) ^a.

Product	Order of importance									
	1st	2nd	3 rd	4 th	5th	6th	7th	8th	9th	10th
Canned evaporated milk	Nutrition (3.90a)	Package (4.25a)	Performance (4.58a)	Reliability (4.68a)	Sensory (4.76a)	Aesthetics (5.58a)	Convenient (6.38b)	Price (6.69bc)	Brand (7.04cd)	Country of origin (7.14d)
Powdered infant milk	Nutrition (3.58a)	Package (4.30b)	Performance (4.64b)	Sensory (4.72b)	Reliability (4.81b)	Aesthetics (5.82bc)	Convenient (6.02c)	Country of origin (6.81d)	Brand (7.02d)	Price (7.28d)
Canned tomato paste	Package (3.78a)	Nutrition (4.29a)	Sensory (4.28a)	Reliability (4.70a)	Performance (4.71a)	Aesthetics (5.66a)	Convenient (6.04b)	Price (6.60b)	Country of origin (7.12cd)	Brand (7.82d)
Peanut butter	Sensory (3.77a)	Nutrition (4.29a)	Package (4.42a)	Performance (4.56a)	Reliability (4.97a)	Aesthetics (5.36a)	Convenient (6.09b)	Price (6.71 b)	Country of origin (6.97c)	Brand (7.85c)
Biscuits	Sensory (3.79a)	Performance (4.25a)	Nutrition (4.49a)	Package (4.61a)	Aesthetics (5.04a)	Reliability (5.18b)	Price (6.74b)	Convenient (6.77b)	Brand (6.96b)	Country of origin (7.16b)
Rice	Performance (3.28a)	Sensory (4.03b)	Reliability (5.00bc)	Nutrition (5.01bc)	Price (5.09cde)	Package (5.97cde)	Aesthetics (6.01cde)	Convenient (6.23de)	Brand (7.05ef)	Country of origin (7.33f)
Flour	Performance (2.98a)	Sensory (4.67b)	Package (5.06bc)	Reliability (5.07bc)	Nutrition (5.17bc)	Aesthetics (5.31bc)	Price (5.52bcd)	Convenient (6.19cd)	Brand (7.34d)	Country of origin (7.69e)
Yam	Performance (3.30a)	Sensory (3.61b)	Reliability (4.77bc)	Price (5.03bc)	Nutrition (5.26bcd)	Convenient (5.82 de)	Aesthetics (6.14e)	Package (6.89f)	Brand (7.05f)	Country of origin (7.14f)
Maize	Performance (3.40a)	Sensory (4.00b)	Nutrition (4.59b)	Reliability (4.63b)	Price (5.51b)	Aesthetics (5.60bc)	Package (5.70d)	Convenient (6.29d)	Brand (7.49e)	Country of origin (7.80e)

Table 25 (cont.): Descending order of importance of quality dimensions used in the evaluation of different products by consumers (Mean ranks in parenthesis) ^a.

Product	Order of importance									
	1st	2nd	3 rd	4 th	5th	6th	7th	8th	9th	10th
Gari	Performance (3.27a)	Sensory (3.85ab)	Reliability (4.70cd)	Nutrition (5.19cd)	Aesthetics (5.28cd)	Price (5.53d)	Package (5.64d)	Convenient (5.86d)	Country of origin (7.82e)	Brand (7.85e)
Iced water	Package (3.09a)	Reliability (4.81b)	Performance (4.95b)	Convenient (5.05b)	Sensory (5.05b)	Aesthetics (5.08b)	Nutrition (5.98cd)	Price (6.55de)	Brand (6.60de)	Country of origin (7.84e)
Alcoholic beverages	Package (4.07a)	Performance (4.75ab)	Sensory (4.77ab)	Reliability (5.05ab)	Aesthetics (5.54abc)	Convenient (5.75bcd)	Nutrition (5.89bcd)	Brand (5.99cd)	Price (6.43cd)	Country of origin (6.76d)
Soft drinks	Package (3.79a)	Sensory (4.33a)	Performance (4.52a)	Reliability (4.89a)	Nutrition (5.02a)	Aesthetics (5.52a)	Convenient (5.95b)	Price (6.58bc)	Brand (6.79c)	Country of origin
Fruit juices	Package (3.48a)	Sensory (4.31a)	Nutrition (4.52a)	Performance (4.80a)	Reliability (5.11a)	Aesthetics (5.75a)	Convenient (6.16b)	Price (6.66bc)	Brand (6.74bc)	Country of origin (7.47c)
Squashes	Package (3.74a)	Sensory (4.32a)	Nutrition (4.70a)	Reliability (4.78a)	Performance (4.81a)	Aesthetics (5.45a)	Convenient (6.12b)	Price (6.43bc)	Brand (7.07c)	Country of origin (7.59c)

^a Mean ranks based on an 8-point scale (1 = extremely important, 8 = absolutely not important). ^b Mean ranks based on 100 respondents and values with a row followed by same letters (a to g) within a row are not significantly different at $P < 0.05$ using Friedman's test.

Table 26: Relative importance consumers attach to a quality dimensions in the evaluation of different products by (Mean ranks in parenthesis) ^a .

Order Of impor- tance	Package	Performance	Reliability	Price	Country of origin	Brand	Convenience	Aesthetics	Nutrition	Sensory
	1 st	Iced water (4.97a)	Flour (5.53a)	Powdered infant milk (6.44a)	Alcoholic beverages (6.01a)	Powdered infant milk (6.17a)	Fruit juices (6.47a)	Iced water (6.22a)	Biscuits (6.81a)	Powdered infant milk (4.86a)
2 nd	Fruit juices (5.97ab)	Rice (6.30ab)	Canned evaporated milk (6.96a)	Rice (6.36a)	Fruit juices (6.80a)	Soft drinks (6.65a)	Powdered infant milk (6.63a)	Powdered infant milk (7.27ab)	Canned evaporated milk (6.14ab)	Powdered infant milk (7.24a)
3 rd	Squash (6.05abc)	Gari (6.91abc)	Fruit juices (7.05ab)	Flour (6.52a)	Squash (7.07ab)	Powdered infant milk (6.79a)	Soft drinks (6.87ab)	Soft drinks (7.43ab)	Fruit juices (6.44ab)	Fruit juices (7.35a)
4 th	Soft drinks (6.50 abc)	Maize (7.36abcd)	Squash (7.35ab)	Canned evaporated milk (7.53a)	Alcoholic beverages (7.31ab)	Squash (6.92a)	Fruit juices (6.99abc)	Peanut butter (7.54ab)	Squash (7.40bc)	Squash (7.46a)
5 th	Powdered infant milk (6.91bc)	Yam (7.62abcd)	Canned tomato paste (7.59ab)	Maize (7.43a)	Canned evaporated milk (7.56ab)	Iced water (7.27a)	Squash (7.01abc)	Fruit juices (7.54ab)	Soft drinks (7.45bc)	Peanut butter (7.56a)
6 th	Canned tomato paste (6.62 bcd)	Powdered infant milk (7.78abcd)	Soft drinks (7.63 ab)	Yam (7.45a)	Soft drinks (7.63abc)	Flour (7.40ab0)	Canned evaporated milk (7.61abc)	Iced water (7.63ab)	Biscuits (7.53bc)	Soft drinks (7.80a)
7 th	Canned evaporate d milk (7.06bcd)	Biscuits (7.84bcd)	Iced water (7.76ab)	Fruit juices (7.54)	Biscuits (7.65abc)	Rice (7.53ab)	Canned tomato paste (7.89abcd)	Canned evaporated milk (7.67abc)	Canned tomato paste (7.56bcd)	Canned evaporated milk (7.87ab)

Table 26 (cont.): Relative importance consumers attach to a quality dimensions in the evaluation of different products by (Mean ranks in parenthesis) a .

Order of importance	Dimension									
	Package	Performance	Reliability	Price	Country of origin	Brand	Convenience	Aesthetics	Nutrition	Sensory
8 th	Biscuits (7.73cd)	Soft drinks (8.18bcd)	Peanut butter (8.24abc)	Squash (7.58a)	Canned tomato paste (7.79abc)	Alcoholic beverages (7.67ab)	Flour (7.96abcd)	Squash (7.76abc)	Peanut butter (7.69cde)	Iced water (7.95ab)
9 th	Alcoholic beverages (7.75cd)	Canned evaporated milk (8.27bcd)	Flour (8.29abc)	Soft drinks (7.60a)	Rice (7.99abc)	Canned evaporated milk (7.97ab)	Alcoholic beverages (8.04abcd)	Canned tomato paste (7.87abc)	Rice (8.41cdef)	Canned tomato paste (8.23ab)
10 th	Peanut butter (8.33de)	Fruit juices (8.84cd)	Rice (8.50abc)	Gari (7.62a)	Iced water (8.17abc)	Biscuits (8.06abc)	Biscuits (8.42abcd)	Flour (7.96abcd)	Flour (8.53cdef)	Gari (8.23ab)
11 th	Flour (8.74de)	Canned tomato paste (8.67de)	Alcoholic beverages (8.54abc)	Powdered infant milk (7.78a)	Flour (8.66abc)	Canned tomato paste (9.06bcd)	Gari (8.53abcd)	Gari (8.30bcde)	Gari (9.13def)	Rice (8.29ab)
12 th	Rice (9.66ef)	Peanut butter (8.92de)	Gari (8.81abc)	Iced water (7.96a)	Peanut butter (8.75abc)	Peanut butter (9.37cd)	Peanut butter (8.87abcd)	Rice (8.70bcde)	Maize (9.30def)	Alcoholic beverages (8.34ab)
13 th	Gari (9.98f)	Squash (8.99de)	Maize (9.18bc)	Canned tomato paste (8.27a)	Yam (9.35)	Yam (9.50cd)	Rice (9.67bcd)	Alcoholic beverages (8.74cde)	Yam (9.57ef)	Flour (8.48abc)
14 th	Maize (11.18g)	Iced water (9.33de)	Yam (9.42bc)	Biscuits (8.32a)	Gari (9.58cd)	Maize (9.56d)	Maize (9.47cd)	Maize (9.40de)	Iced water (9.84f)	Yam (9.23bc)
15 th	Yam (12.55h)	Alcoholic beverages (9.83e)	Biscuits (9.60c)	Peanut butter (8.67a)	Maize (9.90d)	Gari (9.79d)	Yam (9.82d)	Yam (9.81e)	Alcoholic beverages (10.15f)	Maize (9.30c)

^a Mean ranks based on an 8-point scale (1 = extremely important, 8 = absolutely not important). ^b Mean ranks based on 100 respondents and values with a row followed by same letters (a to g) within a column are not significantly different at $P < 0.05$ using Friedman's test.

4.1.6 Consumer attitudes towards new, value-added, and convenient food products

The major consumption patterns of consumers have changed dramatically with changing consumer lifestyles. One of the major social and economic trends of the last quarter century is the increased participation of women in the labour force. This factor, together with other evolving lifestyles, has resulted in ten trends in consumer behaviour and attitudes (see 2.10). These trends are characterized by an increasing willingness to purchase new, convenient and value-added food products (Senauer *et al.*, 1991).

Ghanaian consumers' attitudes to new, convenient and value-added food products were assessed in by asking respondents if they were interested in new, convenient and value-added food products. Consumers were also presented with a list of products belonging to these categories of food and were asked to indicate the products they were likely to purchase. Eighty eight percent (88.6%) of respondents expressed the readiness to try new products, 77.1% indicated that they were willing to try value-added products and 60.4% said they were interested in convenient foods (Table 27). Respondents, choices made from the list of food products representing these food categories however showed low levels of consumer willingness to purchase these products. (Table 28) Apart from iodated salt (93.0%), groundnut paste (82.6%), shitomix (52.2%), and banku powder (49.6%), that consumers seemed willing to purchase, all other products showed fairly low patronage with percentages of consumers willing to purchase them being less than 30%.

Table 27: Consumers attitudes towards new, convenient and value added products.

Product category	Respondents interested in product category	
	n	%
New	101	88.6 ^a
Convenient	67	60.4 ^b
Value-added	84	77.1 ^c

^aPercentage calculated based on 114 respondents.

^bPercentage calculated based on 111 respondents.

^cPercentage calculated based on 109 respondents.

n = frequency

Table 28: Consumers attitudes towards different new, convenient and value added products ^a.

Product	Respondents willing to purchase product	
	n	%
Iodated salt	107	93.0
Shito mix (dehydrated pepper sauce)	60	52.2
Groundnut paste	95	82.6
Fufu powder	34	29.6
Cassava dough (banku) powder	57	49.6
Canned snails	17	14.8
Canned palm fruit	32	27.8
Canned garden eggs	15	13.0
Canned fresh pepper	21	18.3
Irradiated chicken.	14	12.2
Irradiated yam tubers	12	10.4
Sliced uncooked yam chips	22	19.1
Packaged frozen spinach	30	26.1

^aPercentages calculated based on 115 respondents

n = frequency

4.1.7 Nutritional and health concerns

Consumers (92.1%) sampled in this study pointed out that they avoided certain food products because of health reasons. Food categories identified by consumers as having health implications were alcohol (8.0%), fatty foods (34.1%), cholesterol (11.4%), high caloric foods (13.6%) such as sugary and starchy foods, artificial additives (6.8%), foods with high salt content (5.7%), and others (5.6%) such as food products high in caffeine and protein (Table 29). Diseases consumers listed to be associated with some of these food products included cardiovascular diseases, diabetes, and cancer.

One other identified health concern associated with food was the presence of allergens (7.8%) in food. Respondents identified foods as eggs, peanuts, fish and crustacean as some of the causes of food allergy. This group of products fall within the list of Codex Alimentarius identified allergic food groups (Humbert, 2001; Taylor and Hefle,2001)...

Table 29: Food products avoided for health reasons.

Food product	Respondents avoiding food product	
	n	%
Alcoholic beverages	7	8.0
Fatty foods	30	34.1
High caloric food	12	13.6
Cholesterol	10	11.4
Foods containing allergens	13	14.8
Salty foods	5	5.7
Foods with artificial additives	6	6.8
Proteineous food	1	1.1
Caffeine	4	4.5
Total	88	100.0

n = frequency

4.1.8 Consumer attitudes towards quality assurance

In order to determine consumer concerns on the quality of food products found on the Ghanaian market and better understand how issues could be solved from the consumer's point of view, consumers were asked about their general perception of the quality of products on the market and the role of consumers and other shareholders in assuring the quality of products on the Ghanaian market. Consumers were further asked if they believed in the need to set up consumer associations and the efficiency of governmental agencies such as the Ghana Standards Board in protecting the consumer (Appendix 1, questions 20-30).

4.1.8.1. Level of consumer satisfaction with food products on the Ghanaian market

Seventy six (76.6%) of consumers said they were not satisfied with food products on the Ghanaian market in contrast to 23.4% who stated they were satisfied (Figure 13). According to consumers (86.7%), products met their expectations only 'sometimes'. Eight percent (8.6%) of respondents indicated that products 'scarcely' met their expectations while only 4.7% found products to 'always' meet their expectations.

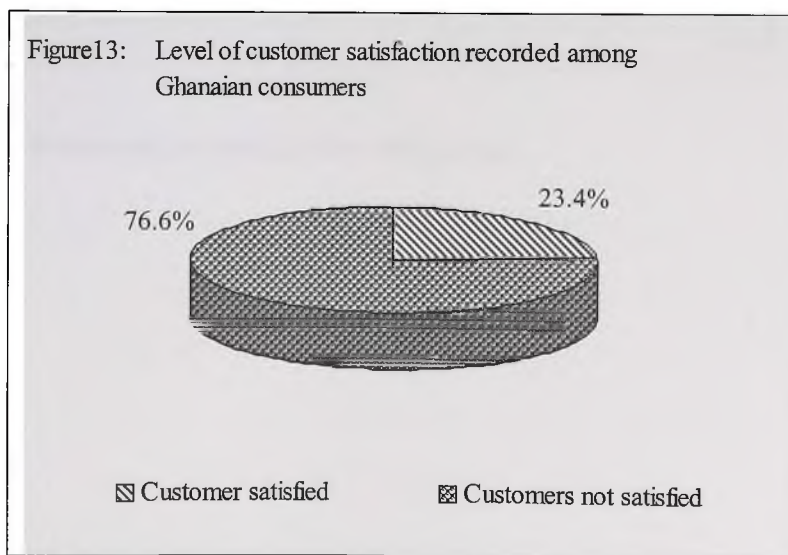


Table 30 shows a list of problems associated with products enumerated by respondents. These defects included 'poor labelling' (11.7%), 'poor packaging' (20.8%), 'inconsistency in quality' (5.2%), 'adulteration' (9.1%); 'inability of product to satisfy intended or advertised need' (5.2%), 'expired/poorly stored' (40.2%) and 'poor quality' (37.7%). All respondents admitted boycotting expired products found on the market shelves. Whereas 50% of these respondents did not take any further actions, 40.4%, 4.4%, and 2.6%, said they went on further to notify the vendor, regulatory agencies, other consumers, respectively. Two percent (2,6%) also informed not just one group of people, but all the already mentioned groups of persons (Table 31)

Table 30: Problems associated with food products sold on the Ghanaian market.

Problem	Respondents mentioning problem	
	N	%
Poorly labelled	9	11.7
Poorly packaged	16	20.8
Inconsistency of quality	4	5.2
Adulteration	7	9.1
Inability to serve intended use	4	5.2
Expired/poorly stored	8	10.4
Poor quality (unqualified) ^a	29	37.7
Total	77	100.0

^a Respondents did not mention specific defect with product

n = frequency

Table 31: Actions taken by consumers when expired products are found on the markets.

Action taken	Respondents taking action	
	N	%
Refuse to purchase product	57	50.0
Notify vendor	46	40.4
Notify regulatory agencies	5	4.4
Notify other consumers	3	2.6
All the above	3	2.6
Total	114	100.0

n = frequency

Table 32: Methods employed by consumers to communicate their grievances to manufacturers.

Method	Respondents employing method	
	n	%
Newspapers and electronic media	10	8.2
Boycott of products	16	13.1
Regulatory Agencies	10	8.2
Consumers pressure groups	27	22.1
Consumer studies and market surveillance activities	10	8.2
Customer service outlets	49	40.2
Total	122	100.0

n = frequency

To address consumer concerns, consumers were asked how best they believed that they could communicate their grievances to the manufacturers. Responses shown in Table 32 above indicates that the majority (40.2%) believed that consumers could express their opinions about the poor quality of products to manufacturers by communicating either directly to them through their customer service outlets or salespersons. A good number of consumers (22.1%) also believed in communicating their grievances via consumer groups while 13.3% opted for the boycott of products as a means of registering their discontentment with the quality of a product.

Other means of communication suggested by consumers were regulatory agencies (8.2%) and consumer studies and market surveillance activities (8.2%)

4.1.8.2 Ensuring of quality of food products on the market

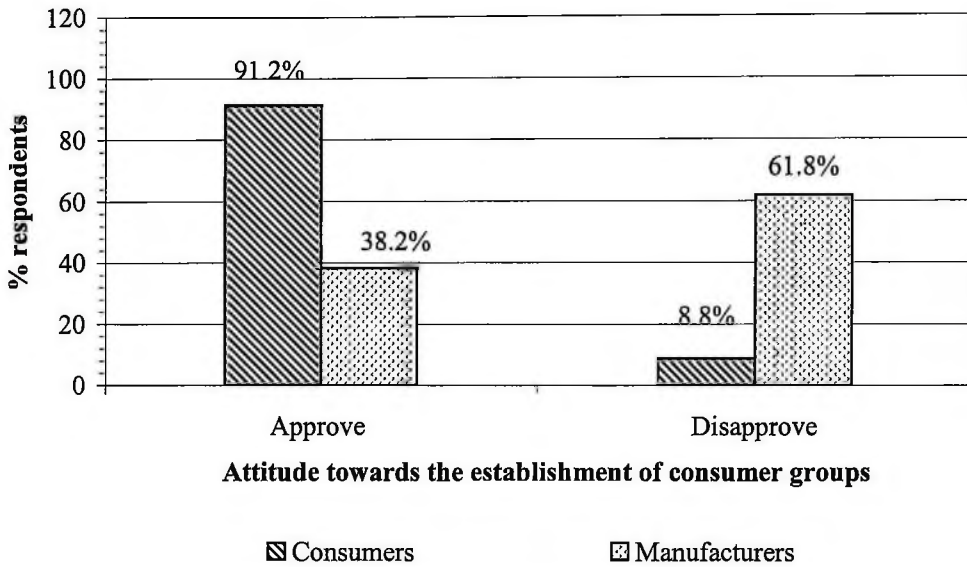
Consumers were also asked who they believed should be responsible for ensuring the quality of products on the market. It was agreed by most consumers (54.3%) that quality assurance was the collective responsibility of manufacturers, regulatory agencies and consumers groups (Table 33) and 91.2% in contrast to 8.8% approved the establishment of a consumer association to see to consumer concerns (Figure 14).

Table 33: Group of persons responsible for ensuring quality of food products on the Ghanaian markets

Group of persons	Respondents	
	n	%
Regulatory agencies	16	12.6
Manufacturers	2	1.6
Consumers	4	3.1
Regulatory agencies and manufacturers	18	14.2
Regulatory agencies and consumers	16	12.6
Manufacturers and consumers	2	1.6
All the above	69	54.3
Total	127	100.0

n = frequency

Figure 14: Attitude of consumers and manufacturers towards the establishment of consumer groups.



The role of regulatory agencies with special emphasis on Ghana Standards Board (hereafter referred to as the Board) in the assurance of food quality was also evaluated by consumers and results are presented in Table 34. Most of the respondents admitted that they had confidence in the role played by Ghana Standards Board in monitoring the quality of products sold on the Ghanaian market. These respondents said the Board had performed creditably in removing a number of expired products off the market shelves and educating and notifying consumers when the need arose. Thirty-two (32.8%) of respondents were however not very satisfied with the activities of the Board and believed that there was more that needed to be done to safe guard the interests of consumers. Despite the fact that only 67.2% of consumers had confidence in the activities of the Ghana Standards Board, 72.2% of all consumers however admitted looking out for the Board's 'certification mark' to ascertain that the product had been inspected, tested and approved by the Board.

Table 34: Consumers' assessment of the performance of Ghana Standards Board in its role of ensuring quality of food products on the market.

Statement	Responses of respondents			
	n		%	
	Yes	No	Yes	No
Has confidence in the activities of Ghana Standards Board in ensuring the quality of products on the market ^a	84	41	67.2	32.8
Looks out for the Ghana Standards Board certification mark on a product label before purchasing the product ^b	91	35	72.2	27.8

^a Percentage based on 125 respondents.

^b Percentage based on 126 respondents.

n = frequency

4.1.9. Influence of demographic characteristics on consumer purchase behaviour

The consumer's perception of quality is subjective and relative to a person, place and time (Cadello, 1995). It is also closely linked with the need and expectations of the consumers which are greatly determined by the demographic and socio-economic profile of the consumers (Senauer *et al.*, 1991; Hawkins *et al.*, 1995; Mc Carthy and Perreault 1993). Experts have therefore recommended the study of consumer demographics and general lifestyles in relation to their needs to gain a better understanding of the consumer's perception of quality and ultimately use this information in market predictions. Factors that have been identified to influence consumers' perception of quality and purchasing behaviour include age, marital status, income level, educational level, religion, family size, beliefs, social status, and upbringing among others (Giffit *et al.*, 1972; Senauer *et al.*, 1991; Hawkins *et al.*, 1995, Mc Carthy and Perreault 1993; Chaudry, 1992; Kilara and Iya, 1992; Pike, 1992).

To determine if some of the above mentioned factors influenced the Ghanaian consumer's perception of quality, consumers' opinions on the influence of these factors on their quality

perceptions were sought on the one hand, and on the other, the influence of demographic and socio-economic factors on consumers' perception of quality was evaluated using cross tabulations and chi-square analysis to test if consumer responses on quality issues were independent of their demographic and socio-economic characteristics.

Opinions expressed by respondents are shown in Table 35 and indicate that respondents were of the view that demographic and socio-economic factors influenced a consumer's perception of quality. This finding was supported by results of the chi-square analyses.

Table 35: Consumers' views on the influence of demographics and related factors on consumers' perception of quality. (Frequency of each cell is in parenthesis)

Factor	Percentage of respondents agreeing that factor influences quality ^a					Row Total
	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	
Upbringing	26.4 (33)	56.0 (70)	13.6 (17)	3.2 (4)	0.8 (1)	100.0 (125)
Education	55.9 (71)	38.6 (49)	2.4 (3)	2.4 (3)	0.8 (1)	100.0 (127)
Social status	27.0 (34)	50.0 (63)	13.5 (17)	7.1 (9)	2.4 (3)	100.0 (126)
Income	36.0 (45)	46.4 (58)	6.4 (8)	8.0 (10)	3.2 (4)	100.0 (125)
Religion	4.8 (6)	22.2 (28)	30.2 (38)	30.2 (38)	12.7 (16)	100.0 (126)
Urbanization	7.9 (10)	54.8 (69)	24.6 (31)	7.9 (10)	4.8 (6)	100.0 (126)
Age	14.3 (18)	39.7 (50)	23.0 (29)	17.5 (22)	5.6 (7)	100.0 (126)
Marital status	4.8 (6)	29.6 (37)	25.6 (32)	24.0 (30)	16.0 (20)	100.0 (125)

^a Percentages calculated based on row totals.

4.1.9.1 Sex

An analysis of responses across sex revealed that respondents' attitude towards some aspects of labelling and packaging depended on sex (Tables 36 to 38). Consumer's attitude towards labelling was found to be dependent on the sex of respondents ($\chi^2 = 7.729$, $df = 1$, $p = 0.005$). A higher percentage of the female respondents than male respondents (84.3% as against 61.3%)

admitted being influenced by labelling information. Sex was also found to influence how useful consumers perceived label information ($\chi^2 = 4.329$, $df = 1$, $p = 0.037$) with more men than women stating that label information was 'extremely useful' in their purchase decisions (73.1% as against 54.1%). Similarly, it was observed that a significantly higher percentage of women than men (80.6% as against 58.5%) associated the package with the quality of a product ($\chi^2=6.735$, $df = 1$, $p = 0.009$).

Table 36: Influence of labelling information on men and women ^a.

Influence of labelling information	Respondents					
	Men		Women		Total	
	n	% ^b	n	% ^b	n	% ^b
Has influence	46	61.3	43	84.3	89	70.6
No influence	29	38.7	8	15.7	37	29.4
Total	75	100.0	51	100.0	126	100

Summary statistics of Fisher's exact test

Pearson Chi-square = 7.727, $df = 1$, $p = 0.005$

^aNumber of respondents being 126.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 37: Usefulness of label information as assessed by men and women ^a.

Usefulness of labelling information	Respondents					
	Men		Women		Total	
	n	% ^b	n	% ^b	n	% ^b
Extremely useful	38	73.1	33	54.1	71	62.8
Useful to very useful	14	26.9	28	45.9	42	37.2
Total	52	100.0	61	100.0	113	100

Summary statistics of Fisher's exact test

Pearson chi-square = 4.329, df = 1, p = 0.037

^a Number of respondents being 113.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 38: The views of men and women on whether product quality is associated with packaging ^a.

Views expressed	Respondents					
	Men		Women		Total	
	N	% ^b	n	% ^b	n	% ^b
No association	22	41.5	12	19.4	34	29.6
An association	31	58.5	50	80.6	81	70.4
Total	53	100.0	61	100.0	115	100.0

Summary statistics of Fisher's exact test

Pearson chi-square = 6.735, df = 1, p = 0.009

^a Number of respondents being 115.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

4.1.9.2 Age

Respondents (54%) were of the view that age had some bearing on a person's perception of quality (Table 35). Consumers' perception of quality was indeed observed from results of the

chi-square analysis to be dependent on age in some regards. Consumers' attitudes towards price regulation ($\chi^2 = 8.705$, $df = 3$, $p = 0.033$, Table 39) and the influence of the status symbol nature of a product on a consumer's purchase decision ($\chi^2 = 9.662$, $df = 2$, $p = 0.008$, Table 40) varied across age groups.

With regards to consumers' attitudes towards price regulation of products sold on the Ghanaian market, it was realized from results presented in Table 39 that a higher proportion of respondents below the age groups of 40 years approved the establishment of a national agency to regulate the prices of products sold on the markets.

Table 39: Reactions of consumers of different age groups to the regulation of prices of products sold on the market by ^a.

Age groups (years)	Attitudes of Respondents					
	Do not approve		Approve		Total	
	n	% ^b	n	% ^b	n	% ^b
18-29	3	9.4	29	90.6	32	25.4
30-39	12	25.0	36	75.0	48	38.1
40-49	13	39.4	20	60.6	33	26.2
Above 50	5	38.5	8	61.5	13	10.3
Total	33	26.2	93	73.8	126	100.0

Summary statistics

Pearson Chi-square = 8.705, $df = 3$, $p = 0.033$

^a Number of respondents being 126.

^b Percentage in each cell is based on total number of respondents in respective row.

n = frequency

A reverse trend was observed in the consumers' attitude towards the purchase a product because it was a status symbol as shown in Table 40. Whereas younger consumers within the age groups of 18-29 years (18.8%) and 30-39 years (18.4%) were attracted to purchase a product because it enhanced their self-esteem, older consumers were absolutely not influenced by this factor.

Table 40: The influence of the status symbol nature of a product on the quality perception of consumers' of different age groups ^a.

Age groups (years)	Influence on Respondents					
	Has influence		No influence		Total	
	n	% ^b	N	% ^b	N	% ^b
18-29	6	18.8	26	81.3	32	100.0
30-39	9	18.4	40	81.6	49	100.0
Above 40	0	0.0	46	100.0	46	100.0
Total	15	11.8	106	83.5	127	100.0

Summary statistics

Pearson Chi-square = 9.662, df = 3, p = 0.008.

^aNumber of respondents being 127.

^bPercentage in each cell is based on total number of respondents in respective row.

n = frequency

4.1.9.3 Marital status.

Consumers' responses to questions on 'the influence of price on decision-making' ($\chi^2 = 7.777$, df = 1, p = 0.005, Table 41), and 'interest in value added foods ($\chi^2 = 5.701$, df = 1, p = 0.017, Table 42) varied across marital status of respondents. This suggests that the Ghanaian consumer's perception of quality is influenced by marital status as reported by Senauer *et al.*, (1991), Hawkins *et al.*, (1995), Mc Carthy and Perreault (1993). Results further indicated that 34.4% of consumers sampled in this study also believed that a person's marital status somewhat influenced how he perceived quality.

Table 41: Influence of price on decision making of consumers of different marital status ^a.

Influence of Price	Respondents					
	Single		Married		Total	
	n	% ^b	n	% ^b	n	% ^b
No influence	19	42.2	15	19.0	34	27.4
Has influence	26	57.8	64	81.0	90	72.6
Total	45	100.0	79	100.0	124	100.0

Summary statistics

Pearson Chi-square = 7.777, df = 1, p = 0.005.

^aNumber of respondents being 124.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 42: Consumers attitudes towards value added food products across different marital status ^a.

Attitude	Respondents					
	Single		Married		Total	
	n	% ^b	n	% ^b	n	% ^b
Not interested	13	37.1	12	16.4	25	23.1
Interested	22	62.9	61	83.6	83	76.9
Total	35	100.0	73	100.0	108	100.0

Summary statistics of Fisher's exact test.

Pearson Chi-square = 5.701, df = 1, p = 0.017

^aNumber of respondents being 108.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Of great interest is the influence of price on purchase decision and consumers' attitude towards value added food products across the different groups. It was observed that a greater proportion of those who were married (81.0%) than those who were single (57.8%) were influenced by price in their purchase decisions (Table 41). With regards to consumer attitudes toward value added products, the proportion of respondents who were interested in these products was greater in married consumers (83.6%) than in singles (62.9%) as shown in Table 42.

4.1.9.4 Ethnic background

Most consumers (82.4%) interviewed were of the opinion that a consumer's perception of quality was influenced by his upbringing. The upbringing of an individual has been recognized by Giffit *et al.*, (1992) to be determined to a large extent by one's ethnic origin and has been reported to influence consumer behaviour, however no observable trends were seen from chi-square analyses.

4.1.9.5 Religion

Religion has been noted to play a significant role in shaping various aspects of a person's lifestyle, in particular, his perception of food quality and his food habits. Studies have shown that consumers belonging to different religious groups tend to exhibit different dietary practices based on their religious teachings and beliefs (Chaudry, 1992; Kilara and Iya, 1992; Huang and Ang, 1992; Bosley and Hardinge, 1992; Hardinge and Hardinge, 1992; Pike, 1992).

In the current study, 4.8% of consumers interviewed agreed that religion had some influence on a consumer's perception of food quality. Chi-square analyses could however not be conducted to ascertain the influence of religion on a consumer's perception of quality due to the lack of religious diversity observed among consumers sampled in this study.

4.1.9.6 Education

The majority of respondents (94.5%) indicated that education greatly impacted on a consumer's perception of quality (Table 35). Results of the chi-square analysis indicate that education did influence how Ghanaian consumers perceived food quality. Results in Table 43 indicated that a significantly higher percentage of consumers with tertiary education (89.4%) than those with secondary education (72.7%) sought information when purchasing a food product for the first time ($\chi^2 = 5.312$, $df = 1$, $p = 0.043$). Consumers' interest in new products followed a similar trend

with a higher percentage of consumers with tertiary education showing keener interest in new products than their lesser educated counterparts (92.8% vs 77.4%; $\chi^2 = 5.265$, $df = 1$, $p = 0.041$) as shown in Table 44.

Table 43: The search of product information in the purchase of a new product by consumers of different educational levels ^a.

Statement	Responses of respondents of different educational levels					
	Secondary level		Tertiary level		Total	
	n	% ^b	n	% ^b	n	% ^b
No information search is done	9	27.3	10	10.6	19	15.0
Information search is done	24	72.7	84	89.4	108	85.0
Total	33	100.0	94	100.0	127	100.0

Summary statistics of Fisher's exact test

Pearson Chi-square = 5.312, $df = 1$, $p = 0.043$

^aNumber of respondents being 127

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 44: Interest shown by consumers of different educational levels in new, unfamiliar products ^a.

Attitude towards new products	Responses of respondents of different educational levels					
	Basic and secondary levels		Tertiary level		Total	
	N	% ^b	n	% ^b	n	% ^b
Not interested	7	22.6	6	7.2	13	11.4
Interested	24	77.4	77	92.8	101	88.6
Total	31	100.0	83	100.0	114	100.0

Summary statistics of Fisher's exact test

Pearson Chi-square = 5.265, $df = 1$, $P = 0.041$

^aNumber of respondents being 114

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Results of analyses further indicated that a consumer's awareness of environmentally friendly packages was dependent on his level of education with level of awareness increasing with level of education (Table 45). Whereas 89.0% of consumers with tertiary education said they were aware of environmentally friendly packages, only 68.0% of those with secondary education or less had some knowledge of what environmentally friendly packages were. Incidentally, none of the consumers with basic education had any idea of such packages ($\chi^2 = 6.337$, $df = 1$, $p = 0.024$).

Table 45: Awareness of environmentally friendly packaging among consumers of different educational levels ^a.

Level of awareness	Responses of respondents of different educational levels					
	Basic and secondary levels		Tertiary level		Total	
	n	% ^b	n	% ^b	n	% ^b
Not aware	8	32.0	17	68.0	25	100.0
Aware	9	11.0	73	89.0	82	100.0
Total	17	15.9	90	84.1	107	100.0

Summary statistics of Fisher's exact test.

Pearson Chi-square = 6.337, $df = 1$, $p = 0.024$.

^a Number of respondents being 107.

^b Percentage in each cell is based on total number of respondents in respective row.

n = frequency

4.1.9.7 Income

Income levels of consumers continue to serve as an important dimension used to measure both the purchasing power and the status of an individual (Hawkins *et al.*, 1995). The income level therefore plays a crucial role in consumer's purchasing behaviour and perception of quality. In this study, 82.4% of respondents agreed that a person's income level had some influence on the way he perceived quality and made purchasing decisions (Table 35). Cross tabulations of consumer responses indicated that income levels of respondents had some influence on their

responses to questions bordering on their quality perception of food products. Results in Table 46 showed that awareness of environmentally friendly packages varied across the different income levels. Consumers belonging to higher income brackets showed greater awareness of environmentally friendly packages than their counterparts in lower income groups ($\chi^2 = 11.287$, $df = 2$, $p = 0.004$). Ninety one percent (93.0%) and 83.8% of consumers earning above $\text{€}800,000$ and between $\text{€}300,000$ - $\text{€}800,000$ respectively, had knowledge of environmentally friendly packages in contrast to 50% of those earning below $\text{€}300,000$.

Table 46: Awareness of environmentally friendly packaging among consumers of different income levels ^a.

Level of awareness	Responses of respondents of different income levels							
	Below $\text{€}300,000$.		$\text{€}300,000$ - $\text{€}800,000$		Above $\text{€}800,000$		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Not aware	5	50.0	9	16.7	3	7.0	17	15.9
Aware	5	50.0	45	83.3	40	93.0	90	84.1
Total	10	100.0	54	100.0	43	100.0	107	100.0

Summary statistics

Pearson Chi-square = 11.287, $df = 2$, $p = 0.004$

^a Number of respondents being 107.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

Consumers' attitude towards price in relation to quality was also greatly influenced by their income levels. It was observed that significantly ($\chi^2 = 16.293$, $df = 2$, $p < 0.001$) more of those earning incomes less than $\text{€}300,000$ (95.8%) advocated for the regulation of prices of products by Government to ensure that products were not sold at exorbitant prices (Table 47).

Table 47: The reaction of consumers of different income levels towards the establishment of a Governmental agency to regulate the price of food products sold on the Ghanaian markets ^a.

Consumer reaction towards establishment of regulatory body	Responses of respondents of different income levels							
	Below ₵300,000		₵300,000 - ₵800,000		Above ₵800000		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not approve	1	4.2	13	21.0	19	47.5	33	26.2
Approve	23	95.8	49	79.0	21	52.5	93	73.8
Total	24	100.0	62	100.0	40	100.0	126	100

Summary statistics

Pearson Chi-square = 16.293, df = 2, p < 0.001.

^a Number of respondents being 126.

^b Percentage in each cell is based on total number of respondents in respective column

n = frequency

4.2 Ghanaian manufacturers' perception of quality

A manufacturer's perception of quality is based on his definition of the word and his perception of his customers which together impact on his delivery of quality to these customers. A clear understanding of the Ghanaian manufacturer's perception can therefore only be obtained if this is done in the context of the manufacturer's definition of quality, the type of customer the service is being provided to, and steps taken to deliver quality. To achieve this aim, Questionnaire 3 was administered to manufacturers in which a number of questions were asked to bring out the manufacturers' understanding of quality and identify steps taken by them to satisfy the consumer. Of the 200 questionnaires distributed, 110 or 55% were completed and collected using the drop-off approach.

4.2.1 Description of Companies

4.2.1.1 Business size

All the 110 industries involved in this study were food-manufacturing companies registered with the Ghana Standards Board. Of these companies, 73 (66.4%), 17 (15.5%), and 20 (18.2%) were small scale, medium scale, and large scale respectively (Table 48). This size classification was based on the Ghana Standard's Board classification of these companies.

4.2.1.2 Persons contacted

In each company, one employee, usually a senior staff was requested to complete the questionnaire. Respondents in the 110 industries were either general managers, production managers or quality assurance managers in their respective companies or persons within these various departments appointed by the managers. The majority (56.4%) of the respondents in this study were general managers (Table 48).

Table 48: Size of companies and persons contacted ^a

Item	N	%
Size		
Large	20	18.2
Medium	17	15.5
Small	73	66.4
Person contacted		
General manger	62	56.4
Quality control officer	21	19.1
Production officer	27	24.5

^a Sample size (N) = 110

n = frequency

4.2.1.3 Products manufactured

Table 49 shows the different varieties of products manufactured by the companies sampled. The companies in the study manufactured a total of 22 different products. The majority of companies (17.3%) manufactured non alcoholic beverages.

Table 49: Types of products manufactured by companies.

Product	Manufacturers	
	N	%
Alcoholic beverages	12	10.9
Cocoa beverage	3	2.7
Biscuits	12	10.9
Canned fish	7	6.3
Canned palm fruit	7	6.3
Cashew nuts	3	2.7
Cereal mix	3	2.7
Corn chips (snack)	4	3.6
Non alcoholic beverages	19	17.3
Flour	2	1.8
Frozen yam	2	1.8
Frozen yoghurt/ice cream	3	2.7
Fruit juice	2	1.8
Fufu powder	2	1.8
Ice lolly	3	2.7
Jam	4	3.6
Peanut butter	2	1.8
Sausages	3	2.7
Bottled pepper sauce (shito)	2	1.8
Spices	6	5.5
Sweets	1	0.9
Bagged drinking water	10	9.1
Total	110	100

n = frequency

4.2.1.4 Types of customers

A number of different types of customers served by the industries in this study were identified. Hundred (90.9%) of industries served only one category of customers while 7 (6.4%) and 3 (2.7%) served two and three types of customers respectively. The different categories of customers identified in the study included the general public, retailers, wholesalers, Khebab sellers, children, and those from bars, supermarkets, hotels, ministries, schools, and other industries. The majority of industries (58.2%) identified the general public as the bulk of their customers. On the contrary, only 2 (1.8%) of the companies cited children as their customers and incidentally, these companies all manufactured ice lollies (Table 50).

Table 50: Types of customers served by companies ^a

Type of customer	N	%
General public	64	58.2
Retailers	10	9.1
Exporters	7	6.4
Bar keepers	6	5.5
Super markets	14	12.7
Children	2	1.8
Hotels	5	4.5
Wholesalers	6	5.5
Others such as, industries, agencies, schools, etc.	12	10.9

^a Sample size (N) = 110

n = frequency

4.2.1.5 Staff

The staff profile of industries sampled is presented in Tables 51 and 52. Three levels of staff namely low, medium and senior staff were found in the industries. Whereas 45 (40.9%) of the industries had only one level of staff type, 40 (36.4%) and 25 (22.7%) had two and three levels of staff types, respectively (Table 51). It was also observed that large-scale industries had two or

more levels of staff types. Five percent (5.9%) of medium scale industries had one, while the majority (94.1%), had two or more levels of staff, respectively. Similarly, 60.3% and 46.6% of small-scale industries had one and two or more, levels of staff types. A statistical analysis of results showed significant differences in the distribution of staff types across the different sizes of industries at a 95% level confidence ($\chi^2 = 33.798$, $df = 2$, $p < 0.001$).

The calibre of personnel employed and their distributions within the different size categories of industries are shown in Table 52. The lowest level of staff was most predominant with 72 companies employing low-level staff, 65 having medium level staff and 64 companies employing senior staff.

Table 51: Cross tabulation of the number of staff categories by size of industry ^a.

Size of industries	Number of staff types					
	1		2 or more		Total	
	n	% ^b	n	% ^b	n	% ^b
Large scale	0	0.0	20	100	20	100.0
Medium scale	1	5.9	16	94.1	17	100.0
Small scale	44	60.3	29	46.6	73	100.0
Total	45	40.9	65	59.1	110	100.0

Summary statistics

Pearson Chi-square = 33.798, $df = 2$, $p < 0.001$

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 52: Distribution of high, medium and low level staffs employed within small medium and large scale industries ^a.

Size of industry	Calibre of staff employed within industries					
	High		Medium		Low	
	n	% ^b	n	% ^b	n	% ^b
Large scale	20	31.3	20	30.8	14	19.4
Medium scale	15	23.4	14	21.5	12	16.7
Small scale	29	45.3	31	47.7	46	63.9
Total	64	100.0	65	100.0	72	100.0

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

4.2.2 Manufacturers' definitions of quality

To better understand the manufacturer's perception of quality, manufacturers were asked to define quality, as they perceived it. Results presented in Figure 15 show that 47 (42.7%) of manufacturers defined quality in terms of 'consumer satisfaction'. Thirty three percent (33.6%) defined quality in terms of 'degree of excellence' while 23.6% defined quality as 'conformance to specifications'. Cross tabulations and chi-square analyses in Table 53 indicated that there were no significant differences in definitions given by the general managers, and managers and personnel in the departments of Production and Quality Assurance ($\chi^2 = 8.198$, $df = 4$, $p = 0.085$, Appendix 14). Results indicate that the respondents' perception of quality was independent of the individual's department.

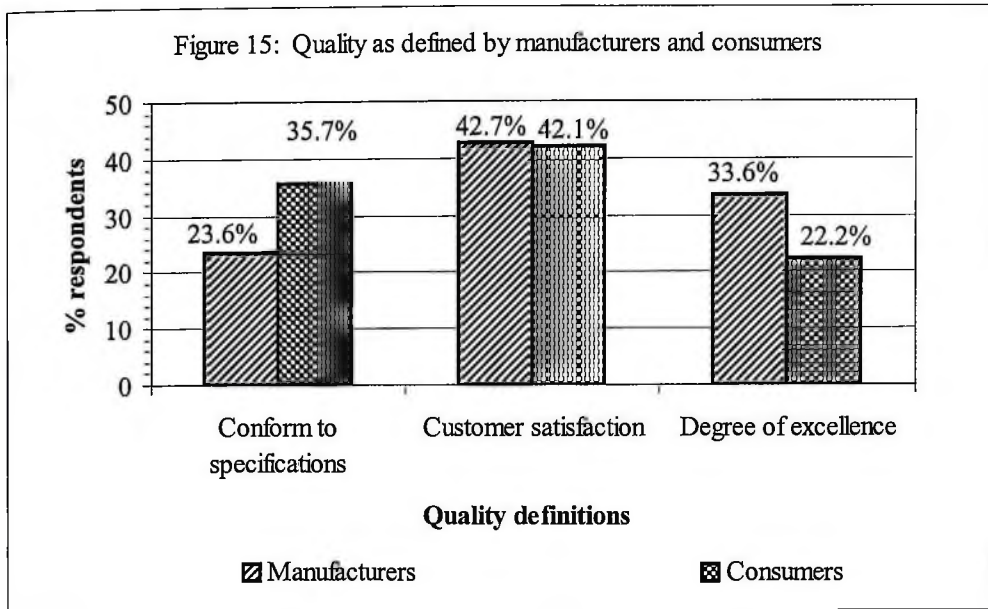


Table 53: Manufacturers definitions of quality.

Definition	n	%
Consumer satisfaction	37	33.6
Degree of excellence	26	23.6
Conformance to specifications	47	42.7
Total	110	100.0

n = frequency

4.2.3 Ghanaian manufacturer's perception of the Ghanaian consumer

Quality experts have argued that there is a gap between industry and the consumer which can be bridged only when the manufacturer has a clear understanding of what his customer means and wants in terms of quality. Previous studies by Stone *et al.* (1991) have shown that the consumers' ideas about quality are usually not very well understood by manufacturers. A high quality product, acceptable to the consumer can be attained if the consumers' expectations are understood, captured and translated into product specifications by the manufacturer (Karnes *et*

al., 1995). In this study, some of these issues raised by other researchers concerning the quality perception of consumer's vis-a vis that of manufacturers were investigated. A series of questions were posed to the Ghanaian manufacturers to firstly find out their impressions about their Ghanaian consumers' level of quality consciousness and secondly, to bring out their understanding of what they believed their customers expected from their products. To this end, manufacturers were requested to enumerate the quality attributes they thought their consumers looked out for and which were invariably used as quality dimensions in assessing the quality of their products.

4.2.4 Quality consciousness among Ghanaian consumers as perceived by Ghanaian manufacturers

A total of 75 (68.2%) manufacturers were of the view that the Ghanaian consumer was quality conscious in contrast with 35 (31.8%) who responded otherwise (Table 54). All manufacturers however agreed that most Ghanaians could not always purchase top quality products because of financial constraints and more often than not, consumers' emphasis was on quantity instead of quality.

The views of industries of the level of quality consciousness among Ghanaian consumers were irrespective of their size ($\chi^2 = 0.812$, $df = 2$, $p = 0.666$). A study of the cross tabulation (Table 54) nonetheless showed that 70% and 69.9% of the large and small scale industries, respectively believed that the Ghanaian consumer was quality conscious in contrast with 58.8% of the medium scale companies.

Table 54: Level of quality awareness as perceived by manufacturers of large scale, medium scale and small scale industries ^a.

Type of industry	Responses given by manufacturers					
	Consumer is not quality conscious		Consumer quality conscious		Total	
	n	% ^b	N	% ^b	n	% ^b
Large scale	6	30.0	14	70.0	20	100.0
Medium scale	7	41.2	10	58.8	17	100.0
Small scale	22	30.1	51	69.9	73	100.0
Total	35	73	75	100.0	110	100.0

Summary statistics

Pearson Chi-square = 0.812, df = 4, p = 0.666

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective row.

n = frequency

4.2.5 Quality attributes identified by manufacturers as expected by consumers

A total of 17 quality attributes were listed by manufacturers as quality attributes expected by their customers of their products and services (Table 55). Table 56 shows that the majority (67 or 60.9%) of respondents mentioned two quality attributes as being used by their customers in assessing the quality of their products.

A study of Table 55 indicates that taste was mentioned by 49.1% of respondents either singly or in combination with other attributes as an important quality dimension used by consumers in the assessment of the quality of their products. Other quality attributes mentioned by respondents were texture (31.8%), colour (30.9%), wholesomeness (23.6%), and packaging (11.8%). Quality value, labelling, meeting consumer needs and satisfaction and price were mentioned by 1.8%, 2.7%, 2.7% and 5.5% of manufacturers, respectively.

Manufacturers (2.7%), who failed to identify distinct quality attributes expected by their customers, or who were unwilling to disclose these attributes were those who said their customers expected their needs to be met or that they expected a certain level of satisfaction in response to the question 'quality attributes customers expect from manufactured products'.

Table 55: Quality dimension identified by manufacturers as being used by their customers in assessing the quality of their products ^a

Quality dimension	n	%
Taste	54	49.1
Quality value	2	1.8
Price	6	5.5
Alcohol content	10	9.1
Label	3	2.7
Wholesomeness	26	23.6
Odour	9	8.2
Flavour	3	2.7
Appearance/Absence of sediments	4	3.6
Colour	34	30.9
Texture	35	31.8
Package	13	11.8
Appreciable shelf life	6	5.5
Safety	3	2.7
Ability to satisfy consumer need	3	2.7
Conformance to requirements	9	8.2
Nutrient content	3	2.7

^aNumber of respondents being 110.

n = frequency

Table 56: Number of attributes identified by manufacturers as being used by their customers in assessing the quality of their products

Number of attributes	N	%
1	20	18.2
2	67	60.9
3	22	20.0
4	1	0.9
Total	110	100.0

n = frequency

4.2.6 Influence of cost on quality

The extent to which manufacturers associated the cost of a product with the quality of a product and the degree of compromise on quality due to cost involved were investigated. The majority of respondents (67.3%) associated the cost of a product with the quality of the product to a ‘large extent’. Twenty-five (25.5%) percent and 7.3% of respondents associated cost with the quality of a product to a very large extent’ and to a ‘small extent’ respectively. No manufacturer thought that cost was not associated with the quality of a product (Table 57).

Despite the fact that many manufacturers believed that obtaining a high quality product demanded investing more money into the product, Sixty-percent (60.0%) of the manufacturer in contrast to 40% said they were not discouraged to deliver a good quality product because of the cost involved. The majority of manufacturers (56.0%) also stated that they ‘never’ compromised on the quality of their products because of cost (Figure 16).

Chi-square analyses were also conducted to determine the association between the size category of a company, the quality orientation of the company, and the impression manufacturers had

about Ghanaian consumers on the one hand, and the willingness of the companies to produce quality goods on the other. Results in Table 58 and 59 showed that whether a manufacturer was discouraged to produce quality products or not because of cost was dependent on both the size of the industry ($\chi^2 = 10.457$, $df = 2$, $p = 0.005$, Table 58) and the manufacturer's definition of quality ($\chi^2 = 23.667$, $df = 2$, $p < 0.001$, Table 59). This variable was however independent of the impression the manufacturer had about Ghanaian consumers in terms of quality, ($\chi^2 = 0.175$, $df = 1$, $p = 0.682$, Appendix 15).

A significantly higher proportion (58.8%) of those within the medium scale group of industries said they were discouraged to produce quality products because of cost, and a higher percentage (90%) within the large scale companies said they were not discouraged to deliver quality despite the cost involved, ($\chi^2 = 10.475$, $df = 2$, $p = 0.005$, Table 58). Results of cross tabulations (Table 59) also showed that a significantly higher percentage (57.7%) of those who defined quality in terms of 'conformance to specifications' were discouraged to produce quality because of cost as compared to manufacturers who defined quality in terms of 'consumer satisfaction' (55.3%) and 'degree of excellence' (8.1%), ($\chi^2 = 23.667$, $df = 2$, $p < 0.001$).

'The number of times an industry compromised on quality because of cost' was also investigated and responses were cross-tabulated with the variables 'size of company' and 'manufacturer's quality perception of Ghanaian consumers'. Chi-square analyses were carried out to test the independence of these variables. Results presented in Table 60 indicate that significantly more of the large scale (55.0%) and small scale (50.7%) manufacturers 'never compromised' on quality ($\chi^2 = 6.785$, $df = 2$, $p = 0.034$). It was also observed that whether a manufacturer compromised on quality or not was irrespective of the level of quality awareness he believed his customers had ($\chi^2 = .254$, $df = 1$, $p = 0.684$, Table 61)

Table 57: Extent to which manufacturers associate cost with quality of product ^a

Extent to which cost is associated with quality of product	Manufacturers responses	
	n	%
Very large extent	28	25.5
Large extent	74	67.3
Small extent	8	7.3
Total 4	110	100.0

n = frequency

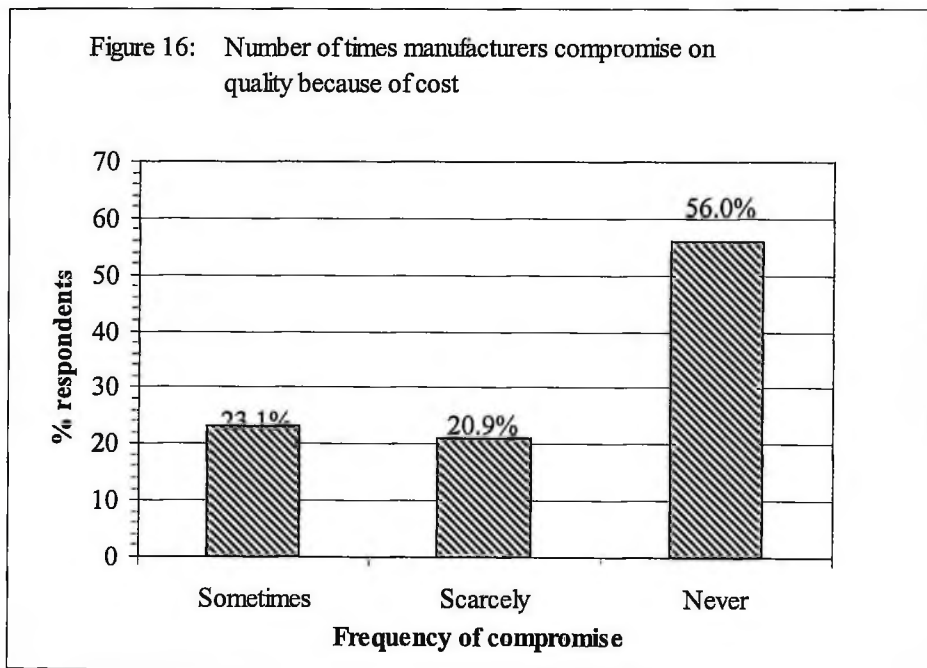


Table 58: Attitudes of large scale, medium scale and small scale industries to the production of quality products ^a.

Attitude	Responses given by manufacturers of different size industries							
	Large scale		Medium scale		Small scale		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Not discouraged to produce quality products despite cost involved	18	90.0	7	41.2	41	56.2	66	60
Discouraged to produce quality products because of cost involved	2	10.0	10	58.8	32	43.8	44	40.0
Total	20	100.0	17	100.0	73	100.0	110	100.0

Summary statistics

Pearson Chi-square = 10.457, df = 2, p = 0.005.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 59: Attitudes of manufacturers with different quality definitions towards the production of quality products ^a.

Attitude towards the production of quality products	Manufacturers quality definitions							
	Degree of excellence		Conformance to specifications		Consumer satisfaction		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Not discouraged to produce quality products	34	91.9	11	42.3	21	44.7	66	60.0
Discouraged to produce quality products because of cost involved	3	8.1	15	57.7	26	55.3	44	40.0
Total	37	100.0	26	100.0	47	100.0	110	100.0

Summary statistics

Pearson Chi-square = 23.667, df = 2, p < 0.001

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 60: Number of times large scale, medium scale and small scale industries compromised on the quality of their products because of cost ^a.

Number of times product quality was compromised	Manufacturers of different size industries							
	Large scale		Medium scale		Small scale		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Sometimes	9	45.0	14	82.4	36	49.3	59	53.6
Never	11	55.0	3	17.7	37	50.7	51	46.4
Total	20	100.0	17	100.0	73	100.0	110	100.0

Summary statistics

Pearson Chi-square = 6.785, df = 2, p = 0.034.

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 61: Number of times industries with different perceptions of the Ghanaian consumer's level of quality consciousness compromised on the quality of their products because of cost ^a.

Number of times product quality was compromised	Responses given by manufacturers with different perceptions of level of quality awareness among consumers					
	Consumer is not quality conscious		Consumer is quality conscious		Total	
	n	% ^b	n	% ^b	n	% ^b
Sometimes	20	57.1	39	52.0	59	53.6
Never	15	42.9	36	48.0	51	46.6
Total	35	100.0	75	100.0	110	100.0

Summary statistics

Pearson Chi-square = 0.254, df = 1, p = 0.684

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective column

n = frequency

4.2.7 Manufacturers' assessment and assurance of customer satisfaction

The importance of satisfying the consumer in the present competitive global market cannot be over emphasized. One aim of this study therefore was to investigate the level of consumer satisfaction recorded by the industries and the methods employed by Ghanaian food manufacturing industries to ensure consumer satisfaction. Manufacturers were asked a series of questions on the receipt, frequency, recording, and resolution of consumer complaints. Questions probing how manufacturers ensured that consumers consistently received high quality products, with emphasis on measures put in place to determine what consumers expected and quality systems installed by manufacturers to achieve these goals were asked.

4.2.7.1 Quality assurance measures employed to ensure delivery of quality products

Twenty-three (20.9%), 66 (60.0%), 14 (12.7%) and 7 (6.4%) of manufacturers stated that they took 0, 1, 2, and 3 precautionary measures respectively. Number of precautions a manufacturer took was irrespective of both the extent to which the manufacturer associated cost with quality ($\chi^2 = 1.596$, $df = 2$, $p = 0.450$, Appendix 16) and the industrialist's impression about quality awareness among Ghanaian consumers ($\chi^2 = 0.472$, $df = 2$, $p = 0.790$, Appendix 17). The number of precautionary measures taken by manufacturers was found to be dependent on the respondent's definition of quality ($\chi^2 = 20.647$, $df = 4$, $p < 0.001$, Table 62)

Types of precautionary measures employed by manufacturers are presented in Table 63. Forty-five out of the 110 (40.9%) manufacturers indicated that they had put strict monitoring process procedures in place from the raw material receipt to the finished product to ensure that products reached consumers in the best state. Twenty-five of the respondents stated that as precautionary measures taken, they stressed on adequate delivery systems since they strongly believed that improper delivery systems contributed to the deterioration of the quality of a product. Identified

delivery systems referred to were the use of refrigerated vans used in delivery of products to the point of sales.

Fourteen (12.7%) manufacturers also cited the use of effective packaging as precautionary actions taken to ensure that customers received quality products. Seven other manufacturers went a step further to ensure that the seals of their packages were tamper-proof to guarantee the quality of their products as received by the ultimate consumer. Inscription of storage instructions, adequate storage facilities, appreciable shelf life were considered most important by 1 (0.9%), 14 (12.7%), and 6 (5.5%) of the respondents as measures to ensure the delivery of top quality products.

Table 62: Number of precautionary measures taken by industries with different orientations of quality to ensure the quality of their products ^a.

Number of precautionary measures taken	Responses given by manufacturers of with different definitions of quality							
	Degree of excellence		Conformance to specifications		Consumer satisfaction		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
0	0	0.0	10	38.5	13	27.7	23	20.9
1	24	64.9	14	53.8	28	59.6	66	60.0
2 or more	13	35.1	2	7.7	6	12.8	21	19.1
Total	37	100	26	100	47	100	110	100.0

Summary statistics

Pearson Chi-square = 20.647, df = 4, p < 0.001.

^a Number of respondents being 110

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 63: Precautionary measures used by Ghanaian manufacturers to ensure the quality of their products ^a.

Precautionary measure employed	Manufacturers	
	n	%
Good delivery system (delivery vans)	25	22.7
Closely monitored production process	45	40.9
Effective packaging	14	12.7
Inscription of storage instructions	1	0.9
Use of tamper-proof seals	7	6.4
Effective storage systems	14	12.7
Extended shelf life	6	5.5

^a Number of respondents (N) = 110

n = frequency

The relationship between these identified precautionary measures and the variables ‘definition of quality’, ‘size category of company’, ‘extent to which one associates cost with quality’ and ‘one’s impression about quality awareness among Ghanaian consumers’ was evaluated using cross tabulations and chi-square statistics. In all instances, it was noted that precautionary measures employed by manufacturers were independent of the manufacturer’s view on quality awareness among consumers. It was also observed that precautionary measures such as ‘process control’, ‘inscription of storage instructions’, and ‘extension of shelf-life’ were independent of all variables mentioned.

Results however revealed that employing an ‘effective delivery system’ was dependent on the ‘extent to which quality was associated with cost’, ($\chi^2 = 21.049$, $df = 2$, $p < 0.0001$). A study of Table 64 points out that 75% of manufacturers who associated cost with quality to a ‘small extent’ invested in effective delivery systems more as compared to only 25.7% of those who associated cost with quality to a ‘large extent’. None of the manufacturers who associated cost with quality to a ‘very large extent’ employed ‘effective delivery systems’.

Table 64: Cross tabulation of the use of delivery vans as a precautionary measure to ensure quality of product by extent to which manufacturers' associate cost with achievement of quality^a.

Precautionary measure	Extent to which manufacturers associate cost with quality							
	Very large extent		Large extent		Small extent		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not use delivery vans	28	100.0	55	74.3	2	25.0	85	77.3
Use delivery vans	0	0.0	19	25.7	6	75.0	25	22.7
	28	100.0	74	100.0	8	100.0	110	100.0

Summary statistics

Pearson Chi-square = 21.049, df = 2, p < 0.001.

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

4.2.7.2 Manufacturers' assessment of level of customer satisfaction

Manufacturers were asked to give a measure of the level of satisfaction among their customers. Thirty (27.3%), 68 (61.8%) and 12 (10.9%) rated customer satisfaction as 'totally satisfied', 'satisfied', and 'neither satisfied nor dissatisfied', respectively (Figure 17). Customer satisfaction as assessed by manufacturers was found to be dependent on the use of precautionary measures by a company to ensure consumer satisfaction, ($\chi^2 = 11.085$, df = 2, p = 0.004). The results in Table 65 indicate that all manufacturers who stated that their customers were 'totally satisfied' with their products used precautionary measures to ensure customer satisfaction. Significantly more of those who reported that their customers were 'satisfied' with their products (72.1%) were also observed to employ precautionary measures in contrast with only 66.7% of those manufacturers who responded that consumers were 'neither satisfied nor satisfied' with their products.

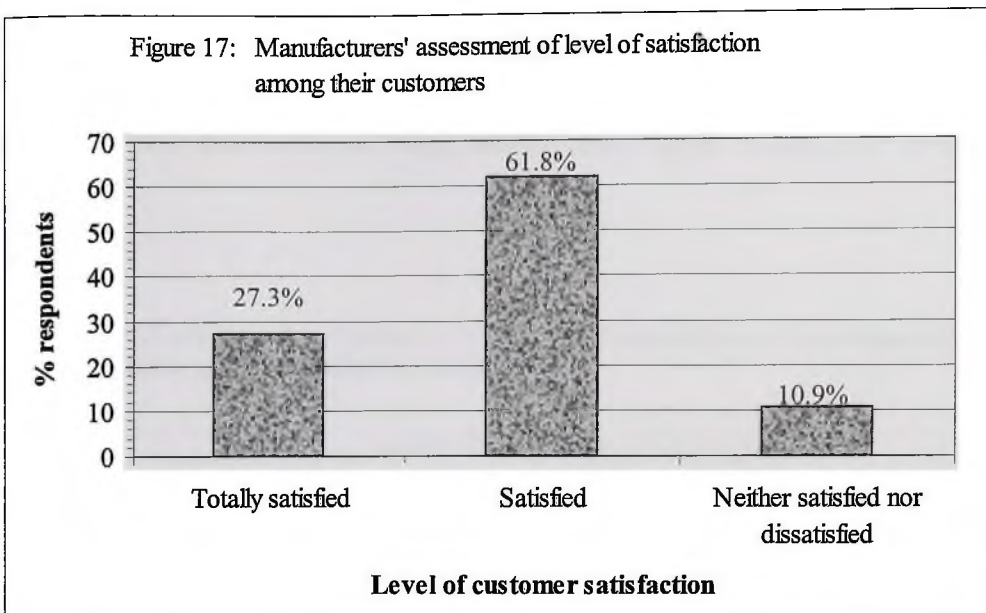


Table 65: Level of customer satisfaction in relation to the use of precautionary measures ^a.

Level of customer satisfaction	Use of precautionary measures to ensure consumer is delivered with quality product					
	Do not use any precautionary measures		Use of precautionary measures		Total	
	n	% ^b	n	% ^b	n	% ^b
Totally satisfied	0	0.0	30	100.0	30	100.0
Satisfied	19	27.9	49	72.1	68	100.0
Neither satisfied nor dissatisfied	4	33.3	8	66.7	12	100.0
Total	23	20.9	87	79.1	110	100.0

Summary statistics

Pearson Chi-square = 11.085, df = 2, p = 0.004

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective row

n = frequency

Results in Table 66 further indicated that the 'level of customer satisfaction recorded' was dependent on whether a manufacturer compromised on quality or not, ($\chi^2 = 7.911$, df = 2,

$p = 0.019$). It was observed that a higher percentage (66.7%) of those who recorded 'total customer satisfaction' never compromised on quality in contrast with 41.2% and 25.0% of those who reported that their customers were 'satisfied' and 'neither satisfied nor dissatisfied', respectively.

Table 66: Level of customer satisfaction recorded by manufacturers in relation to number of times quality is compromised on ^a

Level of customer satisfaction	Number of times quality is compromised on					
	Sometimes		Never		Total	
	n	% ^b	n	% ^b	n	% ^b
Totally satisfied	10	33.3	20	66.7	30	100.0
Satisfied	40	58.8	28	41.2	68	100.0
Neither satisfied nor dissatisfied	9	75.0	3	25.0	12	100.0
Total	59	53.6	51	46.4	110	100.0

Summary statistics

Pearson Chi-square = 7.911, $df = 2$, $p = 0.019$

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective row.

n = frequency

4.2.7.3 Receipt and recording of consumer complaints

Receipt of consumer complaints was used as an indication of consumer satisfaction in this study, with the assumption that most of the consumers who are dissatisfied with products received would complain to manufacturers. Eighty-one (73.6%) of the 110 manufacturer admitted receiving complaints from consumers. Of these, 60.5% were small-scale industries, while 14.8% and 24.7% were medium-scale and large-scale industries, respectively. Considering these proportions of manufacturers within each size classification, it was realized that whereas all the large size industries admitted having received complaints from their customers, only 70.6% and 67.1% of middle scale and small scale industries said they received consumer complaints (Table

67). Results of chi-square analysis showed in Table 67 indicates that the ‘receipt of consumer complaints’ was dependent on the size of the industry ($\chi^2 = 8.837$, $df = 2$, $p = 0.012$).

Table 67: Frequency of consumer complaints received by large scale , medium scale, and small scale industries ^a.

Industry type receiving complaint	Receipt of complaints					
	Do not receive complaints		Receive complaints		Total	
	n	% ^b	n	% ^b	n	% ^b
Large scale	0	0.0	20	100.0	20	100.0
Medium scale	5	29.4	12	70.6	17	100.0
Small scale	24	32.9	49	67.1	73	100.0
Total	29	26.4	81	74.6	110	100.0

Summary statistics

Pearson Chi-square = 8.837, $df = 2$, $p = 0.012$.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective row.

n = frequency

An association was also found between the ‘receipt of complaints and ‘customer satisfaction’ ($\chi^2 = 15.457$, $df = 2$, $p < 0.001$, Table 68). Fifty-five percent (55.2%) of respondents who received no complaints from their customers were manufacturers who reported that their customers were ‘totally satisfied’ with their products and services. It was also observed that of those who said their customers were ‘totally satisfied’; only 46.7% said they received complaints as against 83.8% and 83.3% of those who said their customers were ‘satisfied’ and ‘neither satisfied nor dissatisfied’ respectively (Table 68).

Table 68: A cross tabulation of level of customer satisfaction by the receipt of consumer complaints by industries ^a.

Level of customer satisfaction recorded	Receipt of complaints					
	Do not receive complaints		Receive complaints		Total	
	n	% ^b	n	% ^b	n	% ^b
Totally satisfied	16	53.3	14	46.7	30	100.0
Satisfied	11	16.2	57	83.8	68	100.0
Neither satisfied nor dissatisfied	2	16.7	10	83.3	12	100.0
Total	29	26.4	81	73.6	110	100.0

Summary statistics

Pearson Chi-square = 15.457, df = 2, p < 0.001.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective row.

n = frequency

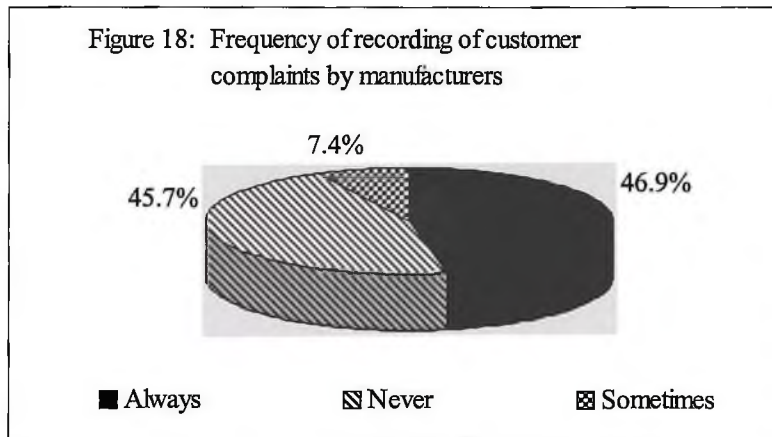
The nature of complaints received ranged from ‘dissatisfaction with product’ to ‘dissatisfaction with the length of time to obtain product’. Table 69 presents the distribution of the different types of complaints received. Sixty-three (77.8%) of the complaints were about the ‘poor quality of products’. Thirty-eight (46.9%), 37 (45.7%), and 6 (7.4%) of the 81 respondents who received complaints said they ‘always’, ‘never’ and ‘sometimes’ recorded the complaints received (Figure 18).

Table 69: Nature of consumer complaints received ^a.

Nature of complaint	Respondents employing method	
	n	%
Poor quality product	63	77.8
Poor customers relations	5	6.2
Defective packaging	6	7.4
Encumbersome procuring process	7	8.6
Total	81	100

^aNumber of respondents being 81.

n = frequency



4.2.7.4 Frequency of consumer complaints

The frequency of receipt of consumer complaints was investigated and results are presented in Table 70. Most manufacturers (56.4%) said they received complaints at least once a month while 26.4% responded that they never received complaints. In order to determine the relationship between the variables 'frequency of receipt of complaints' and 'consumer satisfaction', the frequency of receipts of complaints was grouped into 'often', 'scarcely' and 'never'. This was cross-tabulated against 'consumer satisfaction' ('totally satisfied' and

‘satisfied’). Results are presented in Table 71 and show that the level of consumer satisfaction is dependent on the frequency of receipt of complaints. Of the 30 manufacturers who said their customers were totally satisfied, 53.3% of them ‘never’ received complaints as against 13.3% and 33.3% of them who received complaints ‘scarcely’ (i.e. less than once a month) and ‘often’ (i.e. more than once a month or once a month) respectively, ($\chi^2 = 14.240$, $df = 2$, $p = 0.001$). Comparing the frequency of complaint receipt across the different levels of consumer satisfaction reported showed that a higher percentage of manufacturers who responded that their customers were ‘satisfied’ than those who reported ‘total customer satisfaction’ received complaints ‘often’ (61.8% vs. 33.3%) and ‘not often’.

Table 70: Frequency of receipt of consumer complaints.

Number of times complaints are received	Respondents	
	n	%
More than once a week	8	7.3
Once a week	13	11.8
Once in two weeks	11	10.0
Once a month	30	27.3
Once a year	11	10.0
Less than once a year	8	7.3
Never	29	26.4
Total	110	100.0

n = frequency

Table 71: A cross tabulation of level of customer satisfaction by the frequency of receipt of consumer complaints by industries ^a.

Frequency of Receipt of complaints	Level of customer satisfaction recorded							
	Often		Scarcely		Never		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Totally satisfied	10	33.3	4	13.3	16	53.3	30	100.0
Satisfied	42	61.8	15	22.1	11	16.2	68	100.0
Total	52	53.1	19	19.4	27	27.5	98	100.0

Summary statistics

Pearson Chi-square = 14.240, df = 2, p = 0.001.

^aNumber of respondents being 98.

^bPercentage in each cell is based on total number of respondents in respective row.

n = frequency

4.2.7.5 Resolution of consumer complaints

Actions taken by some manufacturers to resolve consumer complaints were identified and are presented in Table 72. Actions taken include a simple apology, a refund, and a replacement among others. Seventy-nine (97.5%) respondents said they took actions to resolve consumer complaints. Only 2 (2.5%) of the manufacturers confessed they ignored consumer complaints. Fifty-eight (71.6%), 9 (11.1%), and 9 (11.1%) of the manufacturers resolved complaints with replacement of the product, an apology, and a refund, respectively.

In addition to the various short-term actions taken by manufacturers to resolve customer complaints, other long term and more permanent corrective actions were also identified. These include process modification such as reformulation of product (61.3%), reworking of product (16.1%), change in packaging (19.4%) and change in distribution system (3.2%) aimed at ameliorating the quality of their products based on complaints received. Whereas some manufacturers (6.9%) effected these changes as often as 'once a week' (0.9%), others did so

'twice a month' (17.2%), 'once a month' (6.9%), 'once' (20.7%) and 'as the need arose' (48.3%), respectively.

Table 72: Long term and short term actions taken by manufacturers to resolve customer complaints and improve product quality ^a.

Action taken	Respondents	
	N	%
Short term		
Apology	9	8.2
Product replacement	58	52.7
Refund	9	8.2
Others (unspecified)	3	2.7
Long term		
Reformulation	19	17.3
Reworking	5	4.5
Change in distribution method	1	0.9
Change in packaging	6	5.5

^a Number of respondents (N) = 110

n = frequency

4.2.7.6 Methods employed by manufacturers in identifying consumer needs and expectations

One hundred and three (93.6%) of the 110 manufacturers sampled made attempts to find out the needs of their customers. Only 7 manufacturers, all small-scale industries said they did not particularly make efforts to identify the needs of their customers.

Seven methods were identified which were either used singly or in combination with others and are presented in Table 73. The majority of manufacturers (70%) however employed only one of the seven identified methods. The main methods used by manufacturers included simple methods such as 'customer observation' (12 or 10.9%), 'experience acquired over long years'

(39 or 35.5%), 'use of suggestion boxes' (3 or 2.7%), 'consumer complaints' (34 or 30.9%). Other more elaborate methods included the uses of 'documented customer specifications' (10 or 9.1%), 'market surveillance' (40 or 36.4%) and 'consumer perception studies' (9 or 6.4%).

Examining the distribution of the use of perception studies across the different size categories of industry indicated that only large scale and small scale industries conducted perception studies (Table 74). Of the manufacturers who conducted perception studies, 5 (71.4%) were small-scale industries. This figure constitutes 6.8% of all small-scale industries sampled. Two (28.6%) were large-scale industries, constituting 6.8% of large-scale industries in the study. No medium scale industry was found conducting consumer perception studies.

Table 73: Methods employed by industries to identify their customers' needs ^a.

Method	Respondents	
	n	%
Observation	12	10.9
Experience	39	35.5
Suggestion boxes	3	2.7
Customer complaints	34	30.9
Market surveillance	40	36.4
Customer satisfaction	10	9.1
Customer perception studies	7	6.5

^aNumber of respondents (N) = 110

n = frequency

Table 74: Use of consumer perception studies by large scale, medium scale and small scale industries to identify consumers' needs ^a.

Industry	Respondents using consumer perception studies as a means to identify consumer needs	
	N	% ^b
Large scale	2	28.6
Medium scale	0	0.0
Small scale	5	71.4
Total	7	100.0

Summary statistics

Pearson Chi-square = 24.158, df = 8, p = 0.002.

^a Number of respondents being 110.

^b Percentage in each cell is based on column total (7 respondents).

n = frequency

4.2.7.7 The use of product standard specifications to ensure consumer satisfaction

A total of 51 manufacturers said that they possessed product specifications that guided them in their manufacturing processes. This comprised of 17, 13 and 21 large scale, medium scale, and small scale industries, respectively, (Table 75). Calculating the percentages of manufacturers within each size category indicated that whereas 85% of large-scale industries and 76.5% of medium scale industries possessed specifications, only 28.8% of small-scale industries produced according to documented product specifications. The calculated chi-square statistic indicates that these values are statistically significant ($\chi^2 = 27.292$ df = 2, p < 0.001).

Table 75: The use of product specifications by large scale, medium scale, and small scale industries ^a.

Statement	Responses of manufacturers from large, medium and small scale industries							
	Large scale		Medium scale		Small scale		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not use product specifications	3	15.0	4	23.5	52	71.2	59	53.6
Use product specifications	17	85.0	13	76.5	21	28.8	51	46.4
Total	20	100.0	17	100.0	73	100.0	110	100.0

Summary statistics

Pearson Chi-square = 27.292, df = 2, p < 0.001.

^a Number of respondents being 110.

^b Percentage in each cell is based on total number of respondents in respective column

n = frequency

The possession of product specifications was also found to be dependent on a manufacturer’s definition of quality ($\chi^2 = 6.531$, df = 2, p = 0.038, Table 76). Manufacturers who defined quality in terms of ‘degree of excellence’ comprised 45.1% of those who had specifications while respondents who defined quality in terms of ‘conformance to requirements’ and ‘customer satisfaction’ made up for 15.7% and 39.2% respectively. Considering these percentages in terms of the proportion of respondents within the various groups of definitions, it was also observed that a higher percentage (62.2%) of manufacturers within the group of those who defined quality in terms of ‘degree of excellence’ used specifications compared to only 30.8% and 42.6% of those within the groups of those who defined quality as ‘conformance to requirements’ and ‘customer expectations’ respectively.

Table 76: The use of product specifications by industries with different definitions of quality ^a.

Statement	Responses of manufacturers with different definitions of quality							
	Degree of excellence		Conformance to requirements		Customer satisfaction		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not use product specifications	14	37.8	18	69.2	27	57.4	59	53.6
Use product specifications	23	62.2	8	30.8	20	42.6	51	46.4
Total	37	100.0	26	100.0	47	100.0	110	100.0

Summary statistics

Pearson Chi-square = 6.531, df = 2, p = 0.038.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column

n = frequency

The relationship between the possession of product specifications and consumer satisfaction was assessed to investigate if those who used specifications recorded higher customer satisfaction. This was also to serve as a measure of the efficacy of these specifications. It was observed from Table 77 that all the manufacturers who responded that their customers were 'neither satisfied nor dissatisfied' with their products possessed no product specifications. Seventy-three (73.3%) of manufacturers who said their customers were 'totally satisfied' had product specifications while 42.6% of those who reported that customers were 'satisfied' used product specifications. This result was statistically significant ($\chi^2 = 19.525$ df = 2, p < 0.001).

Three different types of quality specifications were identified (Figure 19). Thirty (58.8%) manufacturers had company specifications, 12 (23.5%) had customer specifications and 9 (17.6%) possessed national specifications. Customer specifications were used largely by

manufacturers who produced for the export market or who produced on order and were observed in this study to all be small scale industries.

It was also realized from 78 that the level of customer satisfaction recorded by the various industries depended on the type of specification utilized by these industries ($\chi^2 = 15.237, df = 2, p < 0.001$). Results presented in Table 78 show that 11 (91.7%) out of the 12 manufacturers who used 'customer specifications' reported 'total consumer satisfaction'. The majority (72.4%) of those who said they that their consumers were 'satisfied' with their products used company standards.

Table 77: A cross tabulation of the use of product specifications by level of customer satisfaction recorded by industries ^a.

Possession of product specifications	Level of customer satisfaction recorded					
	Do not possess product specifications		Possess product specifications		Total	
	n	% ^b	n	% ^b	n	% ^b
Totally satisfied	8	26.7	22	73.3	30	100.0
Satisfied	39	57.4	29	42.6	68	100.0
Neither satisfied nor dissatisfied	12	100.0	0	0.0	12	100.0
Total	59	53.6	51	46.4	110	100.0

Summary statistics

Pearson Chi-square = 19.525, df = 2, p < 0.001.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective row.

n = frequency

Figure 19: Types of quality product specifications utilized by industry

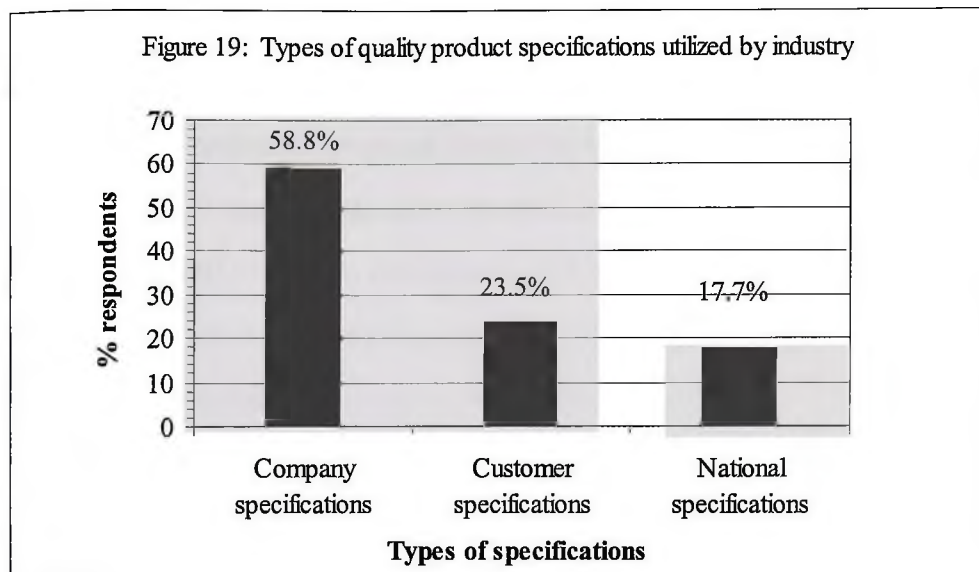


Table 78: A cross tabulation of the type of product specifications by level of customer satisfaction recorded by industries ^a.

Type of product specifications	Level of customer satisfaction recorded						
	n			% ^b		% ^c	
	Totally satisfied	Satisfied	Row total	Totally satisfied	Satisfied	Totally satisfied	Satisfied
Company	9	21	30	40.9	72.4	30.0	70.
Customer	11	1	12	50.0	3.4	91.7	8.3
National	2	7	9	9.1	24.1	22.2	77.8
Column total	22	29	51	100.0	100.0	43.1	56.9

Summary statistics

Pearson Chi-square = 15.237, df = 2, p < 0.001.

^aNumber of respondents being 51.

^bPercentage in each cell is based on total number of respondents in respective column.

^cPercentage in each cell is based on total number of respondents in respective row.

n = frequency

4.2.7.8 The use of quality systems to ensure consumer satisfaction

Eighty-three (75.5%) of manufacturers interviewed said they had quality systems in place to ensure that they consistently produced products to satisfy consumers. It was observed from results in Table 79 that all large-scale industries had some form of quality system in place. Ninety four (94.1%) of medium size industries and only 64.4% of small scale industries used quality systems in their manufacturing processes. The distribution of quality systems across the different sizes of industry was found to be statistically significant ($\chi^2 = 14.534$ df = 2, $p < 0.0001$).

The possession of quality systems by the industries was cross tabulated with the level of consumer satisfaction recorded by the industries. It was realized from results presented in Table 80 that all manufacturers who responded that their customers were 'totally satisfied' had a form of quality system in place. Seventy five percent of those who reported that their customers were 'satisfied' also had quality systems in place and only 2 (16.7%) of manufacturers who said their customers were 'neither satisfied nor dissatisfied' had quality systems in place. These figures were found to be statistically significant ($\chi^2 = 32.159$ df = 2, $p < 0.001$) indicating that the level of customer satisfaction recorded depended on whether a manufacturer had a quality system in place to ensure production of quality products or not.

Table 79: Use of quality systems by large scale, medium scale, and small scale industries ^a.

Possession of quality systems	Responses of manufacturers from large, medium and small scale industries							
	Large scale		Medium scale		Small scale		Total	
	n	% ^b	n	% ^b	N	% ^b	n	% ^b
Do not possess a quality system	1	0.0	1	5.9	26	35.6	28	26.2
Possess a quality system	16	100.0	16	94.1	47	64.4	79	73.8
Total	17	100.0	17	100.0	73	100.0	107	100.0

Summary statistics

Pearson Chi-square = 14.534, df = 2, p = 0.001.

^aNumber of respondents being 107.

^bPercentage in each cell is based on total number of respondents in respective column

n = frequency

Table 80: A cross tabulation of the use of quality systems by level of customer satisfaction recorded by industries ^a.

Possession of quality systems	Level of customer satisfaction recorded							
	Totally satisfied		Satisfied		Neither satisfied nor dissatisfied		Total	
	N	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not possess a quality system	0	0.0	17	25.0	10	83.3	27	24.5
Possess of quality systems	30	100.0	51	75.0	2	16.7	83	75.5
Total	30	100.0	68	100.0	12	100.0	110	100.0

Summary statistics

Pearson Chi-square = 32.159, df = 2, p < 0.001.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Figure 20 shows the four different types of quality systems identified. These included Total Quality Management (TQM) (10.9%), ISO 9000 (2.7%), Quality Control (53.6%) and Hazard Analysis Critical Control Point (HACCP) (8.2%). A cross tabulation showing the distribution of the types of quality systems across large-, medium- and small scale industries is presented in Table 81. A study of Table 81 shows that the least common quality system employed by industries sampled was the ISO 9000 and only large scale industries were found to implement it. It was also noted that 75% of those who implemented TQM were large-scale industries and the remaining 25% were all medium size industries. No small-scale industry had either ISO 9000 or TQM quality systems in place. Instead it was observed that all the small-scale industries implemented either quality control (93.6%) or HACCP (6.4 %) quality systems. These observations however could not be substantiated with chi-square analyses since more than 20% of cells within the Table had expected counts less than 5.

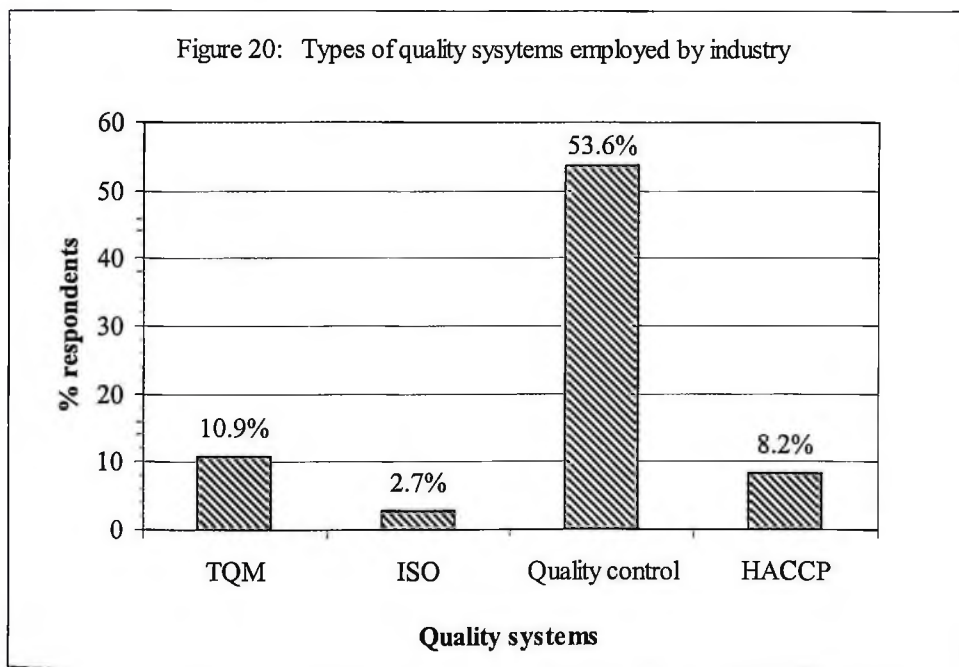


Table 81: Types of quality systems used by large scale, medium scale and small scale industries ^a.

Type of quality system	Responses of manufacturers from large, medium and small scale industries									
	N			Row total	% ^b			% ^c		
	Large scale	Medium scale	Small scale		Large scale	Medium scale	Small scale	Large scale	Medium scale	Small scale
Tqm	9	3	0	12	45.0	18.8	0.0	75.0	25.0	0.0
Iso	3	0	0	3	15.0	0.0	0.0	100.0	0.0	0.0
Qc	6	9	44	59	30.0	56.3	93.6	10.2	15.3	74.6
Haccp	2	4	3	9	10.0	25.0	6.4	22.2	44.4	33.3
Column Total	20	16	47	83	100.0	100.0	100.0	24.1	19.3	56.6

Summary statistics

^a Number of respondents being 83.

^b Percentage in each cell is based on total number of respondents in respective column.

^c Percentage in each cell is based on total number of respondents in respective row.

n = frequency

4.2.8 Need for consumer groups

Results obtained on manufacturers' reaction towards the establishment of consumer pressure groups and their role in the improvement of quality in the food industry, are presented in Figure 14. Sixty eight of the 110 manufactures sampled (61.8%) said there was a need for consumer groups with their main responsibility being to communicate the needs, quality expectations and concerns of consumers to manufacturers. These consumer groups could also serve as pressure groups to help eliminate sub-standard products off the Ghanaian market. Forty two (38.2%) of the manufacturers however were against the establishment of consumer groups. According to 16 (38.1%) of these 42 manufacturers, consumer groups could be antagonistic to the activities of industry. The other manufacturers who disapproved the existence of consumer groups were of the view that these groups were of no relevance to the progress of industry.

A chi-square analysis of the relationship between 'manufacturers' reactions towards consumer groups' and their assessment of quality consciousness among Ghanaian consumers ($\chi^2 = 5.640$ $df = 1$, $p = 0.018$, Table 82) indicated that manufacturers' attitude towards consumer groups was dependent on their assessment of quality awareness of the consumer. Significantly more (76.5%) of those who saw the need for a consumer group were manufacturers who believed the consumer was quality conscious in contrast to only 23.5% who said consumers were not quality conscious.

Table 82: A cross tabulation of Manufacturers' attitude towards the establishment of consumer groups by their perception of quality awareness among Ghanaian consumers customer satisfaction recorded by industries ^a.

Manufacturers perception of quality consciousness among consumers	Manufacturers' attitudes towards the establishment of consumer groups					
	Disapprove		Approve		Total	
	n	% ^b	n	% ^b	n	% ^b
Consumer is not quality conscious	19	45.2	16	23.5	35	31.8
Consumer is quality conscious	23	54.8	52	76.5	75	68.2
Total	42	100.0	68	100.0	110	100.0

Summary statistics

Pearson Chi-square = 5.640, $df = 1$, $p = 0.018$.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

4.2.9 Training of staff in quality management programmes

Today's quality management programmes strive at inculcating a culture of quality into industry. This can however only be achieved when industry sees the training of personnel as an integral part of quality programmes since it is the staffs who constitute the quality implementation teams. Training programmes in quality management and customer services conducted in Ghanaian industries were investigated.

Fifty eight (52%) of manufacturers sampled trained their staff in quality management course while 52 (47.3%) did not. Forty four (40%) of industries sampled also trained staff in personnel and sales departments in customer service to enhance their performance. It was further realized from Table 83 that significantly more manufacturers within the large scale (85%) and medium scale (64.7%) groups carried out staff training compared to only 41.1% of the small scale industries, ($\chi^2 = 13.298$, $df = 2$, $p = 0.001$).

Table 83: Training of staff in large scale, medium scale and small scale industries ^a.

Staff training	Responses of manufacturers from large, medium and small scale industries							
	Large scale		Medium scale		Small scale		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
No training	3	15.0	6	35.3	43	58.9	52	47.3
Training given	17	85.0	11	64.7	30	41.1	58	52.7
Total	20	100.0	17	100.0	73	100.0	110	100.0

Summary statistics

Pearson Chi-square = 13.298, $df = 2$, $p = 0.001$.

^aNumber of respondents being 110.

^bPercentage in each cell is based on total number of respondents in respective column

n = frequency

4.3 Purchase intercept survey

As part of the study, a consumer purchase survey was conducted using the purchase intercept technique (PIT) to determine how some identified quality dimensions practically influenced consumer purchasing behaviour and also validate the responses provided by respondents in the self administered questionnaire (Appendix 4).

4.3.1 Demographic characteristics of respondents

One hundred and nine consumers were sampled from ten shops and two markets, respectively in parts of Accra. List of shops and their locations is presented in Table 3. The sample was composed of persons from different socio-economic groups in order to reveal the different behaviours according to socio-economic characteristics (Table 84).

Table 84: Demographic profile of consumers sampled for purchase intercept survey.

Characteristic	Category	Respondents	
		n	%
Sex	Male	43	39.4
	Female	66	60.6
	Total	109	100.0
Age	18 – 29	34	31.2
	30 – 39	37	33.9
	40 – 49	28	25.7
	50 – 59	8	7.3
	60 – 69	2	1.8
	Total	109	100.0
Marital status	Married	31	28.4
	Single	75	68.8
	Divorced	1	.9
	Separated	2	1.8
	Total	109	100.0
Occupational status	Employed	86	78.9
	Unemployed	5	4.6
	Student	12	11.0
	Retired	3	2.8
	House helps	3	2.8
	Total	109	100.0
Ethnic group	Guan	1	0.9
	Ga/Adangbe	24	22.0
	Akan	41	37.6
	Ewe	35	32.1
	Northner	8	7.3
	Total	109	100.0
Educational level	None	4	3.7
	Basic	16	14.7
	Secondary	29	26.6
	Tertiary	60	55.0
	Total	109	100

n = frequency

4.3.2 Consumer purchasing habits

To determine consumer purchasing habits and investigate how quality dimensions influenced consumer behaviour during actual purchase of a product, respondents were questioned on the product they purchased as they were intercepted in the shops and markets using the questionnaire in Appendix 4. Questions such as number of times the respondent visited the shop, the number of times they purchased the particular product and reasons for purchasing that product over others were asked. The attitude of consumers towards product labels and information and the effects of brand names and product advertisements on a consumer's decision- making process were investigated in this survey.

Table 85: Products purchased by respondents

Types of products	Respondents	
	n	%
Drinking water	4	3.7
Desert	2	1.8
Bread	5	4.6
Snack (pastry)	4	3.7
Meat products	12	11.0
Milk (evaporated and full cream)	9	8.3
Fresh produce	9	8.3
Gari/Tapioca	3	2.8
Cereals/grains/legumes	5	4.6
Powdered milk	3	2.8
Shortening (margarine and mayonnaise)	5	4.6
Vegetable cooking oil	3	2.8
Cocoa beverages	7	6.4
Fruit drink	4	3.7
Fresh fish	2	1.8
Carbonated soft drinks	15	13.8
Alcoholic beverages	1	.9
Biscuits	2	1.8
Tampico/ice lollies	9	8.3
Tea	3	2.8
Oats	2	1.8
Total	109	100.0

n = frequency

Table 85 shows the list of products sampled. A total of 22 different groups of products were purchased by respondents. Whereas some products were purchased as frequently as everyday, others were being purchased for the first time. It was however noted that many food products were bought routinely, at least once a month. Respondents also varied in the number of times they frequented a particular shop. While some visited a shop on a daily basis, others were visiting the shop for the very first time as at the time of this survey. The number of times a particular product was being purchased and the frequency of visits to the shop are presented in Tables 86 and 87.

Reasons why people bought different products from different shops included among other things, the cost of the product in a particular shop, proximity of shop, cleanliness and neatness of shop, good customer service provided, and a good variety or wide selection of products available in a given shop.

Table 86: Frequency of purchase of products.

Frequency of shop visits	Respondents		
	n	%	Cumulative Percentage
Every day	12	11.0	11.0
3 times a week	4	3.7	14.7
2 times a week	15	13.8	28.4
Once a week	26	23.9	52.3
2 times a month	17	15.6	67.9
Once a month	19	17.4	85.3
6 times a year	1	.9	86.2
4 times a year	5	4.6	90.8
First time	10	9.2	100.0
Total	109	100.0	

n = frequency

Table 87: Frequency of visits of consumers to shops sampled.

Frequency of purchase	Respondents		
	n	%	Cumulative Percentage
Every day	16	14.7	14.7
4 times a week	3	2.8	17.4
3 times a week	9	8.3	25.7
2 times a week	11	10.1	35.8
Once a week	33	30.3	66.1
2 times a month	14	12.8	78.9
Once a month	13	11.9	90.8
4 times a year	1	0.9	91.7
2 times a year	3	2.8	94.5
Once in two years	1	0.9	95.4
5 th visit	1	0.9	96.3
3 rd visit	2	1.8	98.2
2 nd visit	1	0.9	99.1
First time	1	0.9	100.0
Total	109	100.0	

n = frequency

4.3.3 Quality dimensions considered during purchase of food products

A number of reasons were given by respondents for the purchase of products (Table 88). Forty eight (44%) of respondents cited the sensory characteristics as the most important reason for purchasing various products. The sensory attributes included taste (36), appearance (2), texture (5) and freshness (3).

Health concerns notably, nutritional quality, wholesomeness, absence of additives and health benefits such as low contents of fat and cholesterol and high fibre content associated with the products were mentioned by 14 (12.8%) of respondents as reasons for buying a particular

product over others. The price and quality value was mentioned by 11 (10.9%) of respondents. Packaging (3 or 2.8%), availability (3 or 2.8%) and suitability of a product (3 or 2.8%) were the least mentioned reasons for patronising a product.

Table 88: Reasons given for the purchase of products

Reason	Respondents	
	n	%
Taste	36	33.0
Novelty	2	1.8
Price/money's worth	11	10.1
Nutritional quality	5	4.6
Absence of preservatives	1	0.9
Convenience	8	7.3
Country of origin	2	1.8
Freshness	3	2.8
Appearance	2	1.8
Reputation of product	3	2.7
Suitability of product	3	2.8
Health benefits (e.g. low fat, cholesterol contents)	6	5.5
Packaging	3	2.8
Brand name	3	2.8
Availability	3	2.8
Preference	6	5.5
Flavour	2	1.8
Value added product	1	0.9
Wide range of varieties available	2	1.8
Wholesomeness	2	1.8
Texture	5	4.6
Total	109	100

n = frequency

A cross tabulation of the frequency of purchase of products against the reasons for purchase of the products is presented in Table 89. Results indicate that 50% of respondents who said they purchased a product because they simply preferred the product were consumers who were habitual buyers of the product and purchased the product at least twice a week. Sixty five (64.5%) of all consumers who habitually bought a product said taste was the most important reason why they bought the product.

Of the four consumers who mentioned adventure, in other words, the desire to try a new product or a 'wide variety of products', 50% were consumers trying the product for the first time. The 2 other consumers were consumers who had tried the product before, but were not habitual buyers of the products. These consumers decided to purchase the product for a change. Results also indicate that for most people who were buying a product for the first time, 20% considered the need to buying a new product while 30% considered the reputation of the product. This they assessed by looking at the country of origin, brand name, trademark, and recommendation of the vendor.

It is also interesting to note that price was not mentioned by any of the habitual buyers as their reason for purchasing a product. Ninety percent (90.9%) and 9.1% of consumers who mentioned price as an important attribute in the purchase of a product were consumers who either purchased the product 'not often' or 'scarcely'. The relationship between the frequency of purchase and the reason for purchasing a particular product could however not be ascertained statistically using the chi-square analysis due to the sparsely distributed nature of the sample. More than 20% of cells therefore had counts less than 5.

Table 89: A cross tabulation of reasons for purchase of product by the frequency of purchase of products

Reason	Frequency of purchase of products ^c												
	n ^b					% ^d				% ^e			
	Very often	Not often	Scarcely	First time	Row Total	Very often	Not often	Scarcely	First time	Very often	Not often	Scarcely	First time
Sensory quality	20	25	2	1	48	64.5	40.3	33.3	10.0	41.7	52.1	4.2	2.1
Price effect	0	10	1	0	11	0.0	16.1	16.7	0.0	0.0	90.9	9.1	0.0
Health concerns	4	9	0	1	14	12.9	14.5	0.0	10.0	28.6	64.3	0.0	7.1
Reputation	1	4	0	3	8	3.2	6.5	0.0	30.0	12.5	50.0	0.0	37.5
Convenience	1	6	1	1	9	3.2	9.7	16.7	10.0	11.1	66.7	11.1	11.1
Suitability	1	2	0	0	3	3.2	3.2	0.0	0.0	33.3	66.7	0.0	0.0
Adventure	0	1	1	2	4	0.0	1.6	16.7	20.0	0.0	25.0	25.0	50.0
Preference	3	1	1	1	6	9.7	1.6	16.7	10.0	50.0	16.7	16.7	16.7
Packaging	0	2	0	1	3	0.0	3.2	0.0	10.0	0.0	66.7	0.0	33.3
Availability	1	2	0	0	3	3.2	3.2	0.0	0.0	33.3	66.7	0.0	0.0
Total	31	62	6	10	109	100.0	100.0	100.0	100.0	28.4	56.9	5.5	9.2

^a Number of respondents being 109.

^b n = frequency

^c Regrouped frequency of product purchase

^d Percentage in each cell is based on total number of respondents in respective column.

^e Percentage in each cell is based on total number of respondents in respective row

4.3.4 Attitude towards labels during actual purchase of product

Forty three (39.4%) as against 66 (60.6%) of respondents said they read labels on products before purchasing the products (Figure 21). Reading of the label on a product was found to be independent of most of the demographic characteristics of respondents. Label reading was independent of sex ($\chi^2 = 1.412$, $df = 1$, $p = 0.235$, Table 90) and age ($\chi^2 = 6.699$, $df = 3$, $p = 0.082$, Table 91). Results in Table 90 however show that a higher percentage of the women than the men read the labels (43.9% vs. 32.6%) even though this percentage is not statistically significant.

The cross tabulation results (Table 91) of 'reading of labels' with 'age' also showed that the percentages of respondents within the various age groups who read labels increased as age group increased. Sixty percent (60%) of respondents above the age of 50 read product labels compared to 50% of respondents within the age ranges of 40-49, 40.5% of those in the age group of 30-39 and 23.5% of those in the age group of 18-29.

Despite the fact that chi-square analysis results (Table 94) did not show any dependency between the variables 'label reading' and education ($\chi^2 = 1.139$, $df = 2$, $p = 0.566$), it was observed that a higher percentage of those with tertiary education (45%) read labels as compared with 37.9% and 31.1% of those with secondary and basic education, respectively. All the respondents who had no form of education did not bother to read the labels or even ask someone to assist them.

Table 93 indicates the piece of information on labels most important to consumers during actual purchase situations. Of those who read the labels, 45.2% (19) mentioned the expiry date markings as the most important information they looked out for. A cross tabulation of the variables 'label information important to consumer' and 'the number of times respondents purchased a particular product' (Table 94) showed that only consumers who bought products

'very often' (42.1%) and 'often' (57.9%) mentioned expiry date as the most important information they looked out for. Of the respondents who bought products 'scarcely', 50% mentioned the brand name as the most important labelling information sought after while the other 50% mentioned the net content of the product being purchased. In effect, only consumers who bought a product 'scarcely' concerned themselves with the net content of the product being purchased. Results also showed that 33.3% and 66.7% of those who bought the product for the first time looked out for the brand name of the product and list of ingredients respectively. Labelling information was however not of much interest to those who purchased the products 'very often' and 'often'. The trends observed however are not conclusive since data was too sparsely distributed to be analysed statistically.

Figure 21: Reading of product label by consumers during purchase intercept survey.

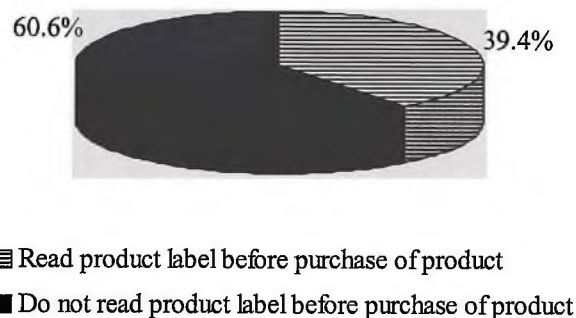


Table 90: Attitude of men and women towards product labels ^a.

Attitude	Respondents					
	Men		Women		Total	
	n	% ^b	n	% ^b	n	% ^b
Do not read labels	29	67.4	37	56.1	66	60.5
Read labels	14	32.6	29	43.9	43	39.5
Total	43	100.0	66	100.0	109	100.0

Summary statistics

Pearson Chi-square = 1.412, df = 1, p = 0.235.

^aNumber of respondents being 109.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 91: Attitude of consumers of different age groups towards product labels ^a.

Respondents' attitude towards labels	Age group (years)									
	18-29		30-39		40-49		Above 50		Total	
	n	% ^b	N	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not read labels	26	76.5	22	59.5	14	50.0	4	40.0	66	60.5
Read labels	8	23.5	15	40.5	14	50.0	6	60.0	43	39.5
Total	34	100.0	37	100.0	28	100.0	10	100.0	109	100.0

Summary statistics

Pearson Chi-square = 6.699, df = 3, p = 0.082

^aNumber of respondents being 109.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 92: Attitude of consumers of different educational levels ^a towards product labels

Attitude towards labels	Respondents of different educational levels							
	Basic		Secondary		Tertiary		Total	
	n	% ^b	n	% ^b	n	% ^b	n	% ^b
Do not read labels	11	68.8	18	62.1	33	55.0	62	59.0
Read labels	5	31.3	11	37.9	27	45.0	43	41.0
Total	16	100.0	29	100.0	60	100.0	105	100.0

Summary statistics

Pearson Chi-square = 1.139, df = 2, p = 0.566.

^a Number of respondents being 105.

^b Percentage in each cell is based on total number of respondents in respective column.

n = frequency

Table 93: Most important labelling information

Labelling information	Respondents	
	n	%
Expiry date	19	45.2
Brand name	6	14.3
List of ingredients	6	14.3
Price	1	2.4
Country of origin	4	9.5
Net content	1	2.4
Nutritional information	5	11.9
Total	42	100.0

Table 94: Cross tabulation of the importance of labelling information on a product by the frequency of purchase of the product ^a.

Labelling information	Respondents of different educational levels									
	Very often		Not often		Scarcely		First time		Total	
	n	% ^b	n	% ^b	N	% ^b	n	% ^b	n	% ^b
Expiry date	8	61.5	11	52.4	0	0.0	0	0.0	19	45.2
Brand name	1	7.7	2	9.5	1	50.0	2	33.3	6	14.3
List of ingredients	1	7.7	1	4.8	0	0.0	4	66.7	6	14.3
Price	0	0.0	1	4.8	0	0.0	0	0.0	1	2.4
Country of origin	1	7.7	3	14.3	0	0.0	0	0.0	4	9.5
Net content	0	0.0	0	0.0	1	50.0	0	0.0	1	2.4
Nutritional information	2	15.4	3	14.3	0	0.0	0	0.0	5	11.9
Total	13	100.0	21	100.0	2	100.0	6	100.0	42	100.0

^aNumber of respondents being 42.

^bPercentage in each cell is based on total number of respondents in respective column.

n = frequency

4.4 Determination of the effect of some sensory attributes on consumer purchase using sensory analysis

A number of quality cues and attributes of a product have been identified by Oude Ophuis and Van Tripj (1995) to influence a consumer's perception, product acceptance and willingness to purchase a product. Notable among these quality attributes are taste, appearance and texture. In this study, a sensory evaluation involving 72 Ghanaian consumers was conducted to investigate how some identified quality dimensions influence the consumer's acceptance and willingness to purchase a product. The influence of labelling on consumer purchase behaviour was also investigated.

4.4.1 Demographic and socio-economic characteristics

Demographic and socio-economic characteristics of the consumer population are presented in Table 95. Panelists were predominantly single males aged between 18 and 29 years of age. Seventy seven percent of panelists (77.8%) had tertiary education and 86.1% had income levels below ₦800,000.

Table 95: Demographic characteristics of consumer panelists ^a.

Characteristic	Category	Respondents	
		n	%
Sex	Male	52	72.2
	Female	20	27.8
Age	18 – 29	43	59.7
	30 – 39	21	29.2
	40 – 49	6	8.3
	50 – 59	1	1.4
	60 – 69	1	1.4
Marital status	Married	49	68.1
	Single	23	31.9
Educational level	Basic	5	6.9
	Secondary	11	15.3
	Tertiary	56	77.8
Net monthly income	Below ₦300,000.00	33	45.8
	₦300,000.00 -₦800,000.00	29	40.3
	₦801000.00- ₦1,500,000.00	10	13.9

^a. Number of respondents (N) = 72

n = frequency

4.4.2 Background information on purchasing and consumption of cocoa beverages

Background information on purchasing and consumption of cocoa beverages are presented in Tables 96 and 97. This was obtained from responses to questions on;

- (1) type of beverage usually consumed
- (2) frequency of consumption of cocoa beverage
- (3) reading of product labels

(4) importance of price, nutritional information, brand name in purchase decision-making process.

Table 96: Consumption pattern of cocoa beverages ^a

Frequency of consumption of cocoa beverage	Respondents	
	n	%
Daily	26	36.1
Four times a week	8	11.1
Thrice a week	6	8.3
Twice a week	7	9.7
Once a week	7	9.7
Once a month	10	13.9
Less than once a month	8	11.1
Total	72	100

Number of respondents (N) = 72.

n = frequency

Table 97: Types of cocoa beverages consumed by panellist sampled ^a

Frequency of consumption of cocoa beverage	Respondents	
	n	%
Milo	44	61.1
Richoco	7	9.7
Bournvita	5	6.9
Chocolim	13	18.1
Altime	1	1.4
Drinking chocolate	2	2.8
Total	72	100.0

n = frequency

^aNumber of respondents (N) = 72.

Results in Table 96 indicate that 65.2% of panellists said they consumed cocoa beverages at least once a week with 36.1% consuming a beverage daily. Milo was cited by 61.1% of all panellists

as the cocoa beverage usually consumed (Table 97). Reasons for the consumption of this beverage included taste preference, nutritional content and brand name among others.

All panellists interviewed claimed they read the labels on products before purchasing the product although some admitted that the labels were only read when the product was being purchased for the first time. When asked about the importance of price, brand name and nutritional content of a product on consumers' decision to purchase cocoa beverages, 68.1% said that price influenced them while 73.6% and 86.1% stated that brand name and nutritional content of a product influenced them respectively (Table 98).

Table 98: Influence of brand name, nutritional quality and price on consumers' decisions to purchase cocoa beverages ^a

Attribute	Respondents	
	n	%
Price	49	68.1
Brand name	53	73.6
Nutritional quality	62	86.1

Number of respondents (N) = 72.

n = frequency

4.4.3 Sensory attributes affecting consumer liking and purchase likelihood

To investigate how taste and consistency of a product influenced a consumer's overall liking and willingness to purchase the product, panelists were presented with four cocoa beverages, namely Milo, Richoco, Bournvita and Chocolim. Panelists were requested to indicate their overall liking for these products, as well as their liking for taste and consistency and their willingness to purchase the products. Panelists were also asked to carry out a diagnostic attribute test by

describing these quality attributes using a 9-point scale (1 = dislike extremely, 9 = like extremely).

Sensory and willingness to purchase scores were analysed by a two factor repeated measures analysis of variance using the General linear model (GLM) approach. Differences between mean scores were tested using the Duncan's Multiple Range test. Mean scores for sensory attributes and willingness to purchase a product, and the frequencies of respondents rating these attributes to be 5 or higher for the different cocoa beverages are presented in Tables 99 and 100. Detail results of the analysis of variance and Duncan's Multiple Range test are presented in Appendix 18 A-G.

Chocolim and Richoco were most liked by consumers with overall liking ($f = 11.621$, $df = 3$, $p < 0.01$) and taste ($f = 20.821$, $df = 3$, $p < 0.01$) mean scores being significantly higher than those of Milo and Bournvita. Richoco was given the highest overall mean score of 6.15 with 83.33% of all respondents rating it to be 5 or higher ('like nor dislike' to 'like extremely'). Bournvita, on the other hand, was found least acceptable with an overall liking mean score of 4.32.

With regards to taste, Chocolim was given the highest mean score of 6.65 with 87.5% of panellists rating taste 5 or higher ('like nor dislike' to 'like extremely') on a nine-point scale. The taste mean score of Richoco was found to be comparable with that of Chocolim and was rated by 90.28% of respondents to be 5 or higher ('like nor dislike' to 'like extremely'). The mean score for Milo was also significantly different from that of Bournvita. The taste of Milo was found more liked than that of Bournvita but less acceptable than those of Richoco and Chocolim.

Tastes of the preferred products (Chocolim and Richoco) were described as significantly sweeter than Milo and Bournvita. Taste intensity scores ranged from as low as 2.79 (Milo) to as high as 6.01 (Richoco). These results pre-suppose that consumers tend to prefer sweet tasting cocoa beverages. It is interesting however to note that even though the taste of Milo was more liked than that of Bournvita, there was no statistical difference in their mean scores for taste intensity. A study of the mean scores further indicated that Milo was described as the least sweet by panelists with a mean score of 2.79. One could presume therefore that in the acceptance of the taste of a product, other attributes apart from sweetness of the product are considered by the consumer.

Significant differences were observed in consumers' degree of liking of the consistencies of the various cocoa products ($f = 10.393$, $df = 3$, $p < 0.01$). Chocolim with a mean score of 6.39 was more liked than Milo and Bournvita but not more than Richoco in terms of consistency. The consistencies of Richoco and Milo on the other hand were found to be preferred to that of Bournvita. In describing the consistency of the samples, consumers rated the consistency of Richoco and Chocolim significantly differently from that of Milo and Bournvita, ($f = 11.461$, $df = 3$, $p < 0.001$). Richoco and Chocolim were described as thicker than Milo and Bournvita in consistency.

Willingness to purchase the various products was found to be significantly different. Consumers were more willing to purchase Chocolim and Richoco followed by Milo and Bournvita in declining order. Panelists' willingness to purchase mean score was highest for Chocolim (6.26) with 81.9% of panellists giving 'willingness to purchase' a score of 5 or above on the scale.

Table 99: Mean sensory scores and purchase likelihood scores before and after reading of product labels for different cocoa beverages ^a.

Sample	Attributes						
	Overall liking	Taste	Consistency	Taste intensity	Consistency intensity	Purchase likelihood before reading label	Purchase likelihood after reading label
Milo	4.83 a	5.57 b	5.35 b	2.79 a	4.21 a	4.71 b	5.89 b
Chocolim	6.08 b	6.65 c	6.39 c	6.19 b	5.69 b	6.26 c	6.69 c
Richoco	6.15 b	6.58 c	5.88 bc	6.01 b	5.58 b	6.17 c	6.37 bc
Bournvita	4.32 a	4.10 a	4.33 a	3.33 a	4.10 a	3.89 a	4.86 a

^aBased on responses from 72 qualified consumers using a 9-point scale (1 = dislike extremely, 9 = like extremely). Means followed by the same letter within a column are not significantly different from each other at $p < 0.05$ using the Duncan's Multiple Range Test

Table 100: Frequencies of respondents rating attributes to be 5 and higher for different cocoa beverages ^a. (Percentage for each cell in parenthesis).

Sample	Attributes						
	Overall liking	Taste	Consistency	Taste intensity	Consistency intensity	Purchase likelihood before reading label	Purchase likelihood after reading label
Milo	40 (55.6)	36 (50.0)	34 (47.2)	62 (86.1)	49 (68.1)	43 (59.7)	28 (38.9)
Chocolim	23 (31.9)	18 (25.0)	19 (26.4)	25 (34.7)	33 (45.8)	24 (33.3)	15 (20.8)
Richoco	23 (31.9)	20 (27.8)	25 (34.7)	25 (34.7)	30 (41.7)	23 (31.9)	25 (34.7)
Bournvita	46 (63.9)	53 (73.6)	51 (70.8)	65 (90.3)	50 (69.4)	57 (79.2)	42 (58.3)

^aBased on responses from 72 qualified consumers using a 9-point scale (1 = dislike extremely, 9 = like extremely).

4.4.3.1 Factors influencing consumers' liking for cocoa beverages

To determine the relationship between sensory variables and their influence on consumer liking of a product and willingness to purchase the products, bivariate correlations and stepwise multiple regression analyses were carried out. Data used for analyses were pooled scores of all cocoa samples presented which gave mean scores of 5.35 for overall liking, 5.73 for taste, 5.49 for consistency and 5.26 for willingness to purchase. Bivariate correlations were carried between all variables and results are presented in Table 101.

Pearson correlation coefficients obtained showed a linear relationship between all variables. To determine the extent to which taste and consistency contributed to overall liking, the overall liking scores were regressed on taste and consistency scores, selecting the variables stepwise. Criteria used for the selection of variables was probability of f to enter and f to remove > 0.10 . A similar procedure was used to determine the influence of taste, consistency and overall acceptability on willingness to purchase the products. A summary statistics of regression analyses of factors influencing overall liking and willingness to purchase the product are presented in Tables 102 and 103. Details of analysis of variance results of the regression models are presented in Appendix 19 A-C.

In the regression analysis of overall liking on sensory variables (Table 102), the model explained 47.7% of the variability of overall liking. The most important predictor in the model was taste explaining 45.0% variability of overall liking whereas consistency explained only 2.7% of variance of overall liking. Partial correlation coefficients presented in Table 101 also revealed a stronger relationship between overall liking and taste (0.592) as compared to correlation between consistency and overall acceptance (0.022).

Fifty two percent (52.3%) of the variability in overall liking unexplained in this regression model could be attributed to other quality attributes such as colour, aroma, presence of sediments, and inconsistencies in consumer assessments.

4.4.3.2 Factors influencing consumers' willingness to purchase products

Results in Table 103 show that overall liking is the most important predictor of a consumer's willingness to purchase a cocoa beverage and accounted for 40.9% of variations in the regression model. Consistency and taste explained 12.7% and 3.9% of variability observed in the willingness to purchase the products, respectively.

Table 101: Correlation matrix for sensory attributes and purchase likelihood

Variables ^b	Overall liking	Taste	Consistency	Taste intensity	Consistency intensity	Purchase likelihood 1	Purchase likelihood 2
Overall acceptance	1.000						
Taste	0.671	1.000					
Consistency	0.441	0.438	1.000				
Taste intensity	0.528	0.514	0.421	1.000			
Consistency intensity	0.288	0.328	0.378	0.340	1.000		
Purchase likelihood 1	0.639	0.629	0.602	0.604	0.412	1.000	
Purchase likelihood 2	0.239	0.313	0.261	0.167	0.254	0.354	1.000

^a. All correlation coefficients are significant at the 0.01 level (2-tailed). N = 288.

^b Purchase likelihood 1 = Purchase likelihood before reading of product labels
 Purchase likelihood 2 = Purchase likelihood after reading of product labels.

Table 102: Summary statistics of regression analysis of factors influencing overall acceptance of cocoa beverages by consumers.

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	T	P	Partial Correlation	% R ² change
	B	Std. Error					
Constant	0.939	0.303		3.104	0.002		
Taste	0.596	0.048	0.591	12.404	< 0.001	0.592	45.0
Consistency	0.182	0.048	0.181	3.806	< 0.001	0.220	2.7

R = 0.690

R² = 0.477

Adjusted R² = 0.473

Std. Error of the Estimate = 1.73

f = 129.827, df = 2, p < 0.001.

Table 103: Summary statistics of regression analysis of factors influencing purchase likelihood (before reading of product label) of cocoa beverages by consumers.

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	T	P	Partial Correlation	% R ² change
	B	Std. Error					
Constant	-0.054	0.289		-0.188	0.851		
Overall liking	0.314	0.056	0.302	5.652	< 0.001	0.318	40.9
Consistency	0.363	0.046	0.348	7.893	< 0.001	0.424	12.7
Taste	0.287	0.056	0.274	5.131	< 0.001	0.291	3.9

R = 0.758

R² = 0.575

Adjusted R² = 0.571

Std. Error of the Estimate = 1.63

f = 128.159, df = 3, p < 0.001.

4.4.4 Influence of socio-economic and demographic characteristics on consumer acceptance and willingness to purchase cocoa beverages

A one-way analysis of variance was conducted to determine the significance of variables on sensory quality of consumers in different socio-economic and demographic groups. Results are summarized in Tables 104 and 105. Details of analysis of variance results are presented in Appendix 20. The only acceptance scores influenced by socio-economic and demographic variables were 'overall liking' and 'consistency intensity'. Analysing overall scores by the sex variable revealed that men consumers liked the products marginally more than their female counterparts (mean score 5.52 vs. 4.9, $f = 3.892$, $df = 1$, $p = 0.049$, Table 104). A similar trend was observed for the 'consistency intensity' variable with men rating the intensity of product significantly higher than women (mean scores 5.12 vs. 4.36, $f = 6.568$, $df = 1$, $p = 0.011$, Table 104).

Table 104: Mean sensory scores of men and women for cocoa beverages ^a.

Attributes	Sex of panelists		df	F-value	P-value
	Male	Female			
Overall liking	5.52	4.92	1	3.892	.049
Consistency intensity	5.12	4.36	1	6.568	.011

^aBased on responses from 72 qualified consumers using a 9-point scale (1 = dislike extremely, 9 = like extremely).

Consumers' overall liking scores were also found to be significantly different across the three levels of education of consumers ($f = 3.223$, $df = 2$, $p = 0.041$, Table 105). Consumers with secondary education (mean score 5.44), tertiary education (mean score 5.48) found the products more acceptable than those with basic education (mean scores 4.05) in terms of overall liking. The lower ratings for overall liking given by consumers of lower educational levels is in line with the observation that consumers with lower educational levels consume cocoa beverages less

often than educated consumers. Results pre-suppose that the low level of consumption of these products by consumers of lower educational levels may not only be due to their inability to afford these products, but also due to the fact that they have not developed a taste for them.

Table 105: Mean overall acceptance scores of panelists of different educational levels for cocoa beverages ^a.

Educational level of panelists	Overall liking	df	f-value	p-value
Basic	4.05 a	2	3.223	.041
Secondary	5.48 b			
Tertiary	5.44 b			

^aBased on responses from 72 qualified consumers using a 9-point scale (1 = dislike extremely, 9 = like extremely).. Means followed by the same letter within a column are not significantly different from each other at $p < 0.05$ using the Duncan's Multiple Range Test.

4.4.5 Influence of labelling information on willingness to purchase cocoa beverages

To determine the influence of label information on a consumer's willingness to purchase a product, consumers were provided with the products together with some labelling information and asked to indicate their willingness to purchase the products. An analysis of variance was carried out to test the difference between consumers' willingness to buy the various products. Results are presented in Tables 99 and 100.

The willingness to purchase Chocolim remained significantly higher than consumers' willingness to purchase Bournvita and Milo after reading the label. It was also observed that the order of willingness to purchase the various products did not also change before and after reading the labels except that mean scores given after consumers read labels were generally higher for all products (Table 99). A regression analysis revealed that the attributes of taste and

texture accounted for 11.7% of variation in purchase likelihood after labels were read in contrast to 57.5% before labels were read (Table 106).

Table 106: Summary statistics of regression analysis of factors influencing purchase likelihood (after reading of product label) of cocoa beverages by consumers.

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	T	P-value	Partial Correlations	% R ² change
	B	Std. Error					
Constant	3.861	0.364		10.616	< 0.001		
Taste	0.230	0.058	0.246	3.975	< 0.001	0.229	9.8
Consistency	0.142	0.057	0.153	2.477	0.014	0.145	1.9

R = 0.342

R² = 0.117

Adjusted R² = 0.111

Std. Error of the Estimate = 2.08

f = 18.924, df = 2, p < 0.001.

To further test the influence of label information of consumers' willingness to purchase the products, a paired t-test analysis was carried out to compare mean score before and after reading labels. Results of this test are represented in Table 107. Results indicate that the mean scores for willingness to purchase the products before and after reading labels were significantly different with consumers showing a higher willingness to purchase products after reading of labels (mean scores 5.95 vs. 5.26, t = -4.424, df = 287, p < 0.01). The aspect of label information that had the most influence on consumers could however not be determined from the design of this current study.

The percentage of consumers who were willing to purchase the cocoa beverage brand they cited as their habitual products went up by 6.9% (from 25.0% to 31.9%) after reading the labels. The majority of the panelists (62.5%) however chose to buy the same product before and after the

reading of labels irrespective of whether these products were the ones they habitually purchased or not.

Table 107: Summary statistics of paired T-test of effect of labelling on purchase likelihood of cocoa beverages by consumers.

Variable ^a	Mean	N	Std. Deviation	t	df	p-value (2-tailed)
Purchase likelihood 1	5.26	288	2.48	4.424	287	<0.001
Purchase likelihood 2	5.95	288	2.21			

^a Purchase likelihood 1 = Purchase likelihood before reading of product labels and Purchase likelihood 2 = Purchase likelihood after reading of product labels.

5.0 DISCUSSION

Consumers' perception of food quality, and their attitude and practices related to food quality are themes of interest for food producers and retailers, public authorities and health educators. This interest is reflected in discussions about how food quality is defined, how consumers perceive food quality and their food choices, and about risk perception and risk communication (Holm and Kildevang, 1996). Results of this study have shown that an individual's understanding and perception of food quality are closely associated with his definition and expectations of quality, criteria for judging quality, purchase decisions and demographic characteristics.

5.1 Understanding, definitions and expectations of quality

Consumers and manufacturers have an understanding of quality, and are able to provide definitions that best suit their perceptions of quality. Interestingly, most consumer respondents had low opinions of the level of quality consciousness among Ghanaian consumers. More manufacturers than consumers however, believed that the Ghanaian consumer was quality conscious since they demanded quality products from industry. Nevertheless, manufacturers agreed with their consumers that this level of quality consciousness is not reflected in the purchasing behaviour of most consumers and attributed this to the fact that consumers' emphasis is on quantity instead of quality.

The manufacturer's or company's impression of his customers is extremely important in anticipating how much effort a manufacturer will be willing to invest in providing quality products and services to his customers. A low opinion of customers could lead to little commitment to quality and thus resulting in unsatisfied consumers. It is fairly encouraging that 68% of Ghanaian manufacturers sampled believe that the consumer is quality conscious and this could probably translate into the provision of better quality products and services.

The perceived lack of quality consciousness among consumers has been attributed to the lack of education on quality, low literacy levels and most importantly, to low income levels of the Ghanaian consumer. The findings suggest a perception that poverty negatively affects quality considerations among consumers. This view is shared by Lange *et al.*, (1999) who noted that consumers tend to compromise between perceived quality and price, and thus often chose their less preferred product under economic constraints. Similarly, a United Nations Report (1993) stated that even though quality issues and food safety concerns are as important to consumers in developing countries as their counterparts in developed countries, both the level of participation and the degree of sophistication to the concerns about quality are closely associated with economic considerations.

All three orientations of quality definitions based on product-, process-, and consumer-, were expressed by respondents in this study. Respondents quality definitions were individualistic and had no bearing on either the demographic profiles of consumers nor the calibre of manufacturer as was also noted by Schonberger and Knod (1997). This diversity of views consumers have of quality has been largely attributed to the different experiences acquired by consumers over the years (Sloof *et al.*, 1996).

In spite of the divergent views on quality, the most popular definition of quality among manufacturers and consumers was 'consumer satisfaction'. The preference for this definition suggests that manufacturers and consumers realize the importance of using the consumer as the benchmark for quality and together agree that 'meeting the consumer's needs' is synonymous to 'the attainment of quality'. Consumers' adoption of the phrase 'conformance to specification' as another suitable definition of quality also suggests that consumers expect that products manufactured conform to certain measurable quality standards which are based on consumer quality expectations and needs as speculated by McNutt (1988).

Consumer expectations of quality

Consumers have a good understanding of quality and an idea of what they expect from a quality product. These expectations are closely linked to their perception and judgment of quality and tend to reflect their personal needs. In the minds of most consumers, quality is multidimensional, and even though some consumers have difficulty in expressing their expectations in discrete terms as was reported by Lawless (1995), most consumers expect more than one attribute in relation to a good quality product. According to Karnes *et al.*, (1995), this bundle of attributes are integrated by the consumer into an overall quality image and it is for this quality image that the consumer is willing to pay money, and not just a particular dimension of quality, such as features or appearance.

Quality expectations identified in this study fall within the four categories of basic requirements, consumer needs, reasonable expectations, and service obligations proposed by McNutt (1988). The majority of these expectations however were basic consumer requirements and comprised of product sensory quality with emphasis on taste, nutritional quality, safety and the provision of comprehensible and adequately informed labels with special emphasis on expiry date markings on a product. These basic requirements have been described by McNutt (1988) as non-negotiable expectations of quality and could therefore constitute some of the relevant dimensions used by consumers in the assessment of the quality of a food product and hence have great influence on a consumer's purchase decisions.

A comparative study of the list of quality expectations enumerated by consumers (Table 6) and that provided by manufacturers as the supposed expectations of the consumer (Table 55) indicates that the list of attributes mentioned by manufacturers is comparable with those presented by consumers suggesting that manufacturers have a fair idea of the expectations of their consumers. Among the list of attributes easily identified by manufacturers were those of

taste (49.1%), texture (31.8%), colour (30.9%), wholesomeness (23.6%), and packaging (11.8%).

A critical study of the Tables 6 and 55 however revealed that manufacturers had not fully captured all consumer expectations. Consumers' expectations with regards to nutrition, advertising, and reliability were considerably overlooked by manufacturers. Emphasis also laid on some of these attributes such as labelling, packaging, wholesomeness and price were different among manufacturers and consumers. The inability of industry to fully capture consumer expectations and needs and effectively integrate them into quality products could have accounted for the relatively high percentage of consumers (76.6%) who stated that they were dissatisfied with the quality of food products sold on the Ghanaian market.

5.2 Customer satisfaction

Theoretically, consumers and manufacturers tend to agree that quality ought to be defined in terms of customer satisfaction. It can be speculated therefore that manufacturers consider the consumer as the ultimate judge of quality and see the need to ensure maximum customer satisfaction through the consistent production of high quality products to achieve optimum business success. An evaluation of the level of consumer satisfaction as assessed by consumers and manufacturers in this study however revealed that this consensus on the concept of quality is not manifested in practice.

Measurements of customer satisfaction provided by manufacturers and consumers contradicted one another. Whereas as many as 76.6% of consumers stated that they were dissatisfied with products sold on the market, none of the manufacturers interviewed stated that their customers were dissatisfied. Only 10.9% of manufacturers mentioned that their customers were neither satisfied nor dissatisfied with the quality of their products. According to consumers, problems

encountered with the products found on the market were poor, labelling, packaging and quality. Others were expired products, product adulteration, inconsistency in quality and inability of product to satisfy intended use.

A number of reasons could have accounted for the discrepancies observed in the responses of the two groups of respondents. Firstly, it was realized that whereas consumers gave their assessments based on all products sold on the market irrespective of whether they locally produced or imported, manufacturers limited their assessment of customer satisfaction to their individual products. This evidently affected their assessments of customer satisfaction and could explain why the two assessments of customer satisfaction were at variance.

A second possible reason for the discrepancies in responses of manufacturers and consumers could be due to an overestimation of customer satisfaction by manufacturers, which could either be intentional or unintentional. According to Aaker *et al.* (1995), one difficulty associated with the administration of questionnaires is the inaccuracy of responses provided by respondents. They noted that there was mounting evidence that respondents distorted their responses in ways that they believed will enhance their prestige in the eyes of the interviewer and would not put them at variance with their perception of the prevailing norms and society. As such, manufactures interviewed in this in this study could have presented an erroneous impression of the level of satisfaction among their customers to safeguard the image of their companies.

Manufacturers could also have overestimated the level of customer satisfaction unintentionally as a result of their inability to accurately measure this parameter. The inability of manufacturers to fully identify consumer expectations of quality coupled with the seemingly low opinion some manufacturers had about the level of quality awareness among consumers as was observed in this study, suggests that manufacturers underrated their customers and expected a mediocre

quality standard among customers. As a result of this low opinion of their customers and the inability of manufacturers to obtain a clear understanding of the desirable level of quality standard expected from them, manufacturers were bound to have the erroneous impression that consumers were content with any level of quality provided them and thus, overestimated the level of consumer satisfaction among their customers.

Another probable factor contributing to the false assessment of customer satisfaction reported by manufacturers could be the passive attitude towards poor quality products adopted by most unsatisfied customers. For instance, it was noted that only 50% of consumers admitted drawing the attention of vendors, regulatory agencies, and consumers when they came across expired products on the market shelves. The other half of consumers quietly registered their discontentment by simply refusing to purchase such expired products. It was realized that even though 73.6% of manufacturers stated that they received customer complaints, it could be inferred that the gravity of these complaints were underrated and their potential effects on customer satisfaction and willingness to purchase the product were underestimated.

Filiatrault *et al.*, (1996) noted in a survey conducted among manufacturers that the receipt and frequency of customer complaints, even though an underestimation, will continue to be a good indication of the level of customer satisfaction. It is therefore important to render these communication channels more effective to allow consumers greater access to industry. Mc Nutt (1988) also remarked that customer accessibility to company management of a product was explicitly stated by consumers as one of their expectations of a good quality product. According to this author, listening and being sensitive to the consumer's complaints as well as taking prompt action to resolve consumer problems are all indices used by the consumer to assess quality.

5.3 Factors influencing consumer purchase decisions, judgement and perception of quality

The perception process is an integral part of the consumer decision making process and identified as one major step in the information process of consumer decision making when purchasing a product. This perception is formed on the basis of visible and invisible product characteristics that may have actually been experienced, or are believed to be associated with the evaluated product (Hawkins *et al.*, 1995; Oude Ophuis and Van Trijp, 1995; and Zeithaml and Bitner, 2000). According to Cardello (1995), a consumer's acceptability, judgement, perception of quality and purchase decisions are all interrelated and together determine the overall consumer behaviour.

Consistency in quality or reliability, packaging, labelling, and sensory attributes were some of the visible product characteristics identified in this study. Among the list of invisible product characteristics were product wholesomeness and nutritional attributes. Advertising was the most prominent of situational a factor that was addressed by consumers. The following discussion on factors influencing consumers' purchase decisions, perception and judgement of quality focuses on the above-mentioned factors and is based on findings obtained from the self-administered questionnaires (Appendices 1 & 2), purchase intercept survey and the sensory evaluation of cocoa beverages.

5.3.1 Reliability

Reliability which concerns the degree to which a product is consistent in quality upon repeat tastings and repeat purchases (Lawless, 1995) was identified in this study as a key element of quality that consumers expected and demanded from manufacturers. This finding was consistent with those reported by Sloan (1994a) and Naaeder (2000).

Consumer's concerns for a reliable product is usually implied (Fox, 1994) and could have accounted for the appreciably low number of consumers who mentioned it as an expectation of quality (Table 6). The important role that product reliability however played in consumer's purchase choices, perception and evaluation of quality was brought to light when this issue of product reliability was directly addressed in questionnaires. An overwhelming majority of consumers identified this attribute as both a quality expectation and a critical quality dimension used in their assessment of product quality. In fact, results of the study indicated that inconsistencies in product quality was identified as one of the prominent factors that contributed to the high level of customer dissatisfaction recorded among respondents. Consumers' consideration for product reliability as a critical attribute of quality was also irrespective of their personal characteristics further suggesting that it is a universally demanded attribute.

Consistency in product quality is a basic and non-negotiable attribute that plays a crucial role in the purchase decision; quality assessment and perception of the Ghanaian consumer. According to Schonberger and Knod Jr. (1997), consumers expect a zero deviation from targeted or expected results. This attribute must therefore be of great relevance to industry. Unfortunately, results of the study suggest that most manufacturers failed to identify the unique role that reliability played in maintaining one's market share and may have resulted not only in unsatisfied customers but also in the lose of these valuable customers to competitors where theses were available.

5.3.2 Sensory attributes

Sensory attributes are considered a constituent of product performance, the fundamental operating characteristics of a product (Lawless, 1995). The importance of sensory attributes in the judging of the quality of products has been emphasized in the findings of this study as well as those conducted by Chambers and Bower (1993) and Resurreccion (1999). The authors noted

that the consumer's acceptance of any food product depended immensely on the extent to which its sensory quality appealed to the consumer.

In the current study, the theoretical views on the influence of sensory quality of a product on the consumer's purchase decision, perception and judgement of quality were consistent with consumer purchase practices observed during the purchase intercept survey and the sensory evaluation of cocoa beverages. Consumers and manufacturers regarded good sensory attributes an integral part of product quality and consumers used these sensory attributes as quality dimensions in their evaluation of product quality. This was reflected in consumers' importance ratings of quality dimensions in the evaluation of food products presented in Appendix 2 as well as their purchase choices during the purchase intercept survey and their sensory evaluation of cocoa beverages.

In real life situations, as was to be the case in the purchase intercept survey, and the sensory evaluation of cocoa beverages, the sensory quality of a product had a significant influence on product acceptability and purchase choices of the consumers. This was especially conspicuous during the purchase intercept survey where the majority of respondents sampled who also happened to be habitual buyers of a product (i.e. bought the product at least once a month), cited good sensory attributes of a product as the single most important reason for purchasing that product over others. Chambers and Bower (1993) and Resurreccion (1999) remarked that although some research results suggest that consumers may be willing to trade-off sensory properties for other advantages initially, sensory properties become motivating factors for continual acceptance and purchase. This view is strongly supported by a consumer study conducted by Light *et al.*, (1992) in which he reported that though the consumer's initial purchase of dairy products was influenced by the nutritional information provided, in the final

analysis, it was the sensory attributes that determined which products the consumer purchased subsequently.

A broad spectrum of interrelated attributes form the basis of sensory input utilized by consumers in judging a product's quality. In this study, texture, appearance, and odour were identified as some of the relevant sensory attributes of a product; however, taste occupied a special position in the minds of consumers and was the most frequently mentioned criterion for quality evaluation. It was sometimes mentioned as the single reason of consumers for deciding whether to buy a particular food and it was the criterion most frequently mentioned in connection with other criteria. Similar observations were made by Stone *et al.*, (1991) who noted that when consumers talked about a product's quality, the discussion was most often in the context of the product's sensory attributes with particular reference to the taste of the product.

The importance of taste as a quality dimension has also been pointed out in other studies carried out among consumers in other countries. Studies conducted by Hoban (1996) among Japanese consumers, and Grijspaardt-Vink (1996) among American consumers all concluded that taste will continue to be one of the major issues, if not the ultimate selling point that consumers will consider when purchasing food products. Studies by Chambers IV and Bowere (1993); Sloan (1994b; 2000a) and Naaeder (2000) gave similar findings. This clearly underscores the importance of taste in the consumer's assessment of the quality of a food product and careful attention must be given to taste if manufacturers intend to maintain their customers.

5.3.3 Wholesomeness

The wholesomeness of a product is closely associated with the safety of the product and these two quality attributes are usually considered together by the consumer in his assessment of quality (Martin, 1988). The importance of the wholesomeness and safety of

a product have been highlighted in studies conducted by Hoban (1996), Hashim *et al.*, (1996) and Holm and Kildevang (1996). These studies collectively showed that concerns about product wholesomeness and food safety are integrated in everyday concept of food quality.

Findings of this current study were consistent with those reported in previous studies. Wholesomeness and product safety were identified as the most frequently mentioned consumer expectations of quality and were expressed in consumer concerns for hygienic conditions at the point of sales of products, adequate processing methods, appreciable shelf life, product freshness, inscription of expiry date markings, and absence of preservatives and toxic substances.

The wholesomeness of a product is a credence quality attribute that remains purely cognitive (Oude Ophuis and Van Trijp, 1995) and cannot be experienced directly by the consumer. Consumers therefore used indicators to assess this attribute. An expiry date marked on food products was the best indicator of the product wholesomeness. It was noted that during actual purchase situations in this study, consumers looked out for expiry date markings and relied heavily on this single information to determine product wholesomeness and thus make purchase choices. The assessment that the 'expiry date' is the most widely used and perhaps the most reliable indicator of consumers' evaluation of wholesomeness is supported by Sloan *et al.*, (1984) who observed that 48% of American consumers in a survey indicated that the 'best before date' marking on products was of 'extreme concern' to them.

In declining order of importance, environmental conditions pertaining at the point of sales, type of package, and product texture were other important indicators of product wholesomeness. The use of these attributes as indicators of wholesomeness pre-supposes that a deficiency in any of

these attributes would invariably affect an individual's assessment of wholesomeness, which will inevitably bear on his overall judgement and perception as well as his willingness to purchase the product.

The inclusion of the environmental conditions pertaining at the point of sales as one of the determinants of product wholesomeness brings into sharp focus the influence of external factors on consumer quality judgement, perception and purchase decision and emphasizes the view that a consumer's attitude to quality is not confined to the inherent characteristics of a product but extends to other external and situational factors as reported by Hawkins *et al.*, (1995), Letarte *et al.* (1997) and Mc Carthy and Perreault (1993). It would therefore be expedient on the part of manufacturers to monitor the quality of their products along the marketing chain until it reaches the ultimate consumer to ensure maximum profitability.

5.3.4 Packaging

Packaging was identified as extremely important to both consumers and manufacturers and hence explains consumers' readiness to pay more for an improved packaged product. The importance of packaging was not confined to its aesthetic properties, but included its ability to protect the product from spoilage and its functional properties such ease of use and reclosability which permitted convenient storage of product. Consumers expected manufacturers to deliver well-packaged products since consumers considered packaging a direct indication of the quality of the product. According to Hollingsworth (1996), packaging is the face of a product and the first impression given to the consumer about the product. This impression in his opinion has appreciable influence on the consumer's judgment and perception of quality.

The importance consumers attach to packaging has also been reported by Senauer *et al.*, (1991) who remarked that a package's appearance may be as important as its content or its price in the

consumer's decision. An unappealing package could therefore result in the outright rejection of a product. Additionally, they also observed that consumers attached great importance to packaging not only because of appearance but also because some custom designed packages had the ability to keep products fresh. This realization of the importance of packaging by the food manufacturers explains the immense attention packaging is receiving in the food industry today, in the quest for enhanced product performance. In fact, Hollingsworth (1996) and Peter and Olson (1996) described packaging as currently one of the most effective marketing tools.

Various aspects of product packaging were considered by consumers in this study in their purchase decisions. The type of seal, type of packaging material, and strength of packaging, in declining order of importance were some of the features consumers used in judging product packaging. These attributes, unlike the less considered ones such as size, disposability, and colour had direct influence on the integrity of the product. It could therefore be speculated that consumers' assessment of packaging was essentially based on the ability of the package to protect the product, keeping it fresh and wholesome. This clearly underscores consumers' need for wholesome and safe products.

Other packaging features crucial in consumers' consideration of packaging choices were the presence of rust on cans, distortion of cans and clarity and visibility of products through package. Consumers' perception of the quality of a product was greatly influenced by these factors. According to Heid and Joslyn (1981), can defects such as rust and distortion suggest product malhandling and unwholesomeness, which each negatively affected the consumer's perception of the quality of the product. Consumers' preference for clear packaging materials on the other hand was associated with the advantage of having an unobstructed view of the contents of the package which a clear package accorded them. This advantage permitted them to inspect the product thoroughly in order to make a better evaluation of the product.

Disposability was another of the packaging features considered by consumers in their choice of a package type and this was reflected in consumers' inclination towards environmentally friendly packages such as biodegradable and recyclable packages. These packages do not adversely harm the environment and have been in high demand as a result of the increasingly greater consumer concern for the degradation of the environment (Sloan, 1993b; Resurreccion, 1999; Torjusen *et al.*, 2001). The level of importance consumers however, attached to this feature was relatively low, with it being ranked fifth in the list of four other features. These results therefore suggest that consumers' preference for environmentally friendly packages will not necessarily alter their buying habits to reflect their environmental concerns unless other more important packaging features are present. This view is consistent with that shared by Sloan (1993b) who pointed out that despite the fact that recycling far outweighed any reason for preferring a particular package type, the environment took a lower priority when consumers were reminded of other packaging benefits. She concluded therefore, that the environment is usually key until consumers are reminded of other important packaging functions, and in her view, an environmentally friendly package would not provide a marketing benefit until these more important packaging criteria are met.

In spite of the responses obtained from consumers on the importance of the various attributes of packaging in their evaluation of both package and product quality, it was observed from the study that a consumer's decision to purchase a particular type of packaging was product specific. For instance, consumers generally showed a preference for bottled drinks as compared to canned ones. Consumer's inclination towards bottled drinks could be attributed to several factors including lower cost, low incidence of rust, and better visibility of product associated with bottled drinks. With regards to cocoa beverages such as 'Milo', consumers indicated preference for canned products over the product in sachets. Again, the majority of consumers said they preferred bottled cooking oil to cooking oil packaged in sachet. Consumers' dislike for cocoa

beverages and cooking oil in sachets could be associated with the strength of packaging material and the difficulty of reclosability and storability associated with products in sachets. Products such as cocoa beverages and cooking oil are hardly single serving products and would therefore need to be stored conveniently for subsequent usage. Any inconveniences with reclosure and storage of this products will therefore render the product less appealing to consumers and could have been reasons why consumers in the study showed a higher preference for cocoa beverage and cooking oil packaged in can and plastic bottles respectively. The few respondents who choose sachet products could have done so because of lower cost and smaller sizes available. It could be concluded that in making their purchasing choices, consumers consider these attributes of packaging in relation to other factors such as price, type of product, purpose of purchase, ease of use, and convenience and integrate all these into an overall concept. It is this overall perception that ultimately determines their purchasing choices.

5.3.5 Labelling

Labelling has tremendous impact on a consumer's perception of quality, evaluation of quality and purchase decision. The provision of adequate, comprehensible and truthful information, have become increasingly important to the consumer not only because consumers associate these attributes with a good quality product but because it also accords the consumer the opportunity to make informed purchasing choices. Product label has therefore become both a quality expectation as well as an important quality dimension used in the evaluation of product quality especially in first time purchase of a product.

Reading of labels

In spite of the fact that most consumers attach great importance to the labels of a product, in practice, very few consumers read product labels during shopping. A similar trend was observed by Light *et al.* (1991) among American consumers. Light *et al.*, (1992) found out that only 50%

of consumers sampled indicated that they actually read the labels on products before purchasing the products. The low percentage of consumers in this study who read product labels before buying the product could be due to the low level of literacy among consumers, the inability to interpret and effectively utilize product labels to make informed choices.

Burton and Andrews (1996) in their study on consumers' attitudes to labels remarked that although most consumers express interest in product labels, the inability of most of these consumers to utilize this labelling information to their advantage results in a dwindling interest in labels. Most consumers are therefore seen to hardly read product labels and base their purchasing choices on other attributes of the product or information obtained from other sources such as friends, and advertisements instead of product labels. This view is supported by Sloan (1998d) who reported that consumers' interest in labels appeared to be waning. Label reading among American consumers had declined from 45% in 1995 to 28% in 1998.

Another factor for the low percentage of consumers who read product labels, could be attributed to the fact that most respondents were familiar with products being purchased, as these were repeat purchases. Most consumers were therefore exhibiting a habitual decision-making process as described by Hawkins *et al.*, (1995) and Mc Carthy and Perreault (1993) (see 2.9). Shopping for these routine food products is a task involving little or no effort and in which consumers who had become familiar with a particular brand name, did not consider it necessary to read the label anymore but quickly moved through the stages of decision-making process.

Two categories of habitual decision processes have been pointed out by Hawkins *et al.*, (1995). These are the repeat purchase decisions and the brand loyal decisions. In the repeat purchase decisions, the consumer attaches little importance to the product category being purchased, as he believes that all other brands are of the same quality. Such a consumer simply settles for any

product and habitually purchases it without second thoughts. The second category, the brand loyal decision, involves the identification and selection of a particular brand of product to meet a need and it is the result of a previous extensive decision making process. The consumer then forms an emotional attachment to the particular brand and continues to buy it in subsequent purchases.

Consumers belonging to these two categories were identified during the purchase intercept survey. Consumers read everything on the label when they bought the product for the first time, however in the case of consumers who were familiar with the brand name upon repeated purchase, they did not read the label anymore. The few who read the label did so only to check the expiry dates on the packages. It could be inferred therefore that familiarity with a product has an impact on consumers' attitudes to labels. Hashim *et al.*, (1996) observed similar behaviour among American shoppers. In a study by MacDonald and Sharp (2000), they observed that most habitual consumers tend to purchase the brands they were familiar with irrespective of the quality and price of the brand in comparison with other competing ones as they had unconsciously come to accept these brands to be synonymous with top quality. They concluded therefore that brand awareness was particularly important in low involvement situations in which consumer may engage in little active information search to make a purchase choice.

Labelling information

Labelling information affects consumer purchase decisions and this was clearly exhibited by consumers in the sensory evaluation conducted in this study. A considerable number of consumers were seen to change their purchase likelihood of a product after being exposed to the labels of the product.

Consumers tend to look out for various pieces of labeling information and weigh them differently in their assessment of the product. The singular, most important piece of information sought after by the consumer is the expiry date on product labels. This piece of information can be easily identified and understood by most consumers. It is important to all categories of consumers, particularly habitual shoppers who usually read product labels only to verify expiry dates of products.

The significance of the expiry date could be attributed to the fact that consumers consider it as the best indicator of product wholesomeness, an attribute that has been repeatedly shown to be of paramount importance to consumers in the evaluation of product quality. Consumers' dependence on the expiry date as a vital indicator of product quality has resulted in some vendors manipulating this variable to their advantage. To safeguard and protect the interest of the consumer therefore, it is mandated by law that product labels be marked in indelible ink to prevent such label manipulations by unscrupulous marketers (GS 100, 1980).

Another piece of information of significance to consumers is the nutritional information provided on labels even though the credibility of this information is sometimes doubted. The importance of nutritional labelling is closely associated with consumers' interest in both health and safety information and the list of ingredients provided on product labels. Consumer interest in nutritional label has been reported by Senauer *et al.*, (1991) to be increasing steadily in recent years although Burton and Andrews (1996) argue that very few of consumers know how to utilize this piece of information effectively to make informed choices.

The growing consumer interest in nutritional label and related issues stem from their believe that food and nutrition have a moderate to strong impact on health (Bruhn *et al.*, 1992). Current consumer concerns for nutrition and its association with diseases has resulted in changing food

consumption patterns and a trend towards wellness (2.10) as described by Senauer *et al.*, (1991). Consumers therefore tend to avoid foods high in fat, cholesterol, sugar, starch, artificial additives, and alcohol all in a bid to lower their incidence of such diet related diseases. The increased health consciousness reported among today's consumers and the change in consumption patterns has been attributed mainly to both media and health reports on dietary related diseases and the national campaigns to lower the intake of some of these foods (Senauer *et al.*, 1991).

Consumers' relatively low interest in the country of origin and the name of the manufacturer inscribed on product labels suggest that consumers do not show any appreciable preference for imported products over their locally produced counterparts. This finding does not therefore support the general perception that Ghanaian consumers do not patronise made in Ghana products but rather suggests that consumers tend to base their purchase decisions on other supposedly more relevant attributes such as product wholesomeness, sensory attributes, performance and aesthetics, among others.

The importance of labelling to the consumer indicates that the industry can no longer gloss over this product attribute if it intends to enjoy good consumer patronage of its products. In fact, labelling could be used as an indispensable tool in the advertising of a product, and thus give one's product a competitive advantage over other brands. In order to achieve this however, it is imperative that manufacturers provide their customers with creditable labelling information (Mazis and Raymond, 1997). This information should also be legible and presented in a language that the consumer understands. A comprehensible and adequate amount of information also needs to be provided to ensure its effective interpretation and usage by consumers to enhance their purchase decision process. Creyer and Ross (1997) have pointed out that the ease with which information can be processed by the consumer is a significant determinant of the purchase choice outcome. According to these authors, different label formats presumably highlight

different aspects of product label, which in turn determines how effectively the consumer can access and process the information. In the light of these findings, it would be expedient on the part of manufacturers to pay particular attention to all aspects of product labelling in both the development of new products and the repositioning of an existing one from the initial stage of concept generation, to the final stage of product introduction onto the market.

5.3.6 Price

Price, an extrinsic quality cue has been identified by Oude Ophuis and Van Trijp (1995) as one of the quality dimensions used by consumers in their decision to purchase a product. It has been reported by Agbeve (1996) to have both positive and negative impacts on the appeal of a product to the consumer. It is one of the controllable variables that a company puts together to satisfy a target group (Mc Carthy and Perreault, 1993) and is therefore of immense importance to manufacturers as well as consumers.

The perceptions that price influenced a consumer's assessment of quality has been suggested from the findings of this study. Price was indicative of the quality of the product and most consumers associated the price of a product with its quality to a large extent. These findings were consistent with those of a study among American consumers (Sloan *et al.*, 1984), in which it was reported that 60% of consumers sampled considered price and quality to be of equal importance.

In spite of the importance consumers seemed to attach to price, very few consumers mentioned price in their list of quality expectations and ranked this dimension fairly low in their evaluation of product quality. The majority of consumers (58.6%) also said that they scarcely compromised on quality because of cost and this was irrespective of their income levels. According to Sloan *et al.* (1984), all over the world today, price is increasingly becoming secondary in consumer

purchase decisions and most consumers would boycott poor quality products irrespective of its attractively low price. It is interesting to note however that when consumers were intercepted during the purchase intercept survey and asked of their reason for purchasing a particular product over others, price was instantly mentioned by 10% of respondents. While the findings on the one hand do not support the perception that consumers comprise on quality for cost, one can not totally rule out the fact that consumers may alter their purchasing choices because of the cost of the product.

Consumer's attitudes towards price remains to be fully understood. Beard (1991) presented three scenarios of consumer reaction to price. He noted that when the price of a product was too high, consumers either ceased buying the product, switched to a less expensive but similar product, or complained to the manufacturer about quality and price, usually in that order, but nevertheless continued to purchase the product. It could be speculated from the findings of this study that the Ghana consumer had found ways of going round the issue of price, and considered price more in terms of quality value, a ratio of the quality received per money, a more relevant index to today's sophisticated consumer (Creyer and Ross, 1997). As such, consumers had adopted purchasing practices such as buying smaller and more affordable packages of a preferred brand than purchasing a lower quality brand. This purchase patterns ensured that consumers obtained the best bargains for their money and could therefore be the reason why most consumers did not consider price as a deterrent for purchasing good quality products.

5.3.7 Advertisements and other factors

Situational factors which influenced consumers purchase decisions, perception and judgment of quality in this study included advertising, peers, fashionability of a product among others. The influences of these external factors originate from consumers' desire for peer acceptance, affiliation, comfort, esteem, knowledge, respect, status, achievement, prestige, pleasure, variety,

recognition, identification and sociability and are considered by Mc Carthy and Perreault (1993), as some of the motivating forces that influence consumer behaviour. This clearly underscores the importance of identifying the needs of the consumer, understanding consumer behaviour in the content of these situational factors, and then designing products to satisfy this needs to achieve optimum market profitability.

The expenditures on advertising and promotion by the food industry are enormous. Through advertising, companies try to create a certain impression or perception of their products among consumers. More specifically, the goal is to differentiate their product from competing ones. The basic idea is to convince the consumer that the attributes of a particular product are different from and better than those of the competitors' products with the ultimate goal of fostering brand loyalty to a product. Successful advertising may create product differentiation when there are, in fact, no substantive differences between products.

Advertisers use a variety of media to communicate product benefits to a target audience. For example, television commercials may be used for product demonstration, print advertisement may be used to communicate more detailed information and to establish brand image, and product packaging may be used to attract consumers at the point of sale. The use of these media is often co-ordinated into a single integrated communications campaign. One essence of using different media is that they serve different functions, they involve consumers in different ways, and they have varying levels of credibility (Maziz and Raymond, 1997).

In this study, it was realized that marketers had not altogether achieved their objectives for advertising. Consumers regarded product advertisement more as sources of entertainment instead of as a means of communicating product benefits. This could have been largely due to

the perceived credibility of these messages. There was a general perception among consumers that advertisement messages were usually untrue and over exaggerated.

It was realized from the results of the study that even though 42.5% of consumers stated that advertisement influenced their purchasing decisions, this was not obvious in their actual purchasing patterns. None of the consumers sampled during the purchase intercept survey mentioned product advertising as a reason for purchasing a product. Most first time shoppers of products stated that new products were introduced to them by friends and other users of the product. In the few cases where advertisements did influence the consumers' perception of quality, these advertisements merely served to attract consumers to products but could not sustain this interest possibly due to inadequacies in other product attributes. The argument put forward by Ofori (1996) that advertisements with particular emphasis on promotional sales are effective in improving sales volume can therefore not be supported by findings of this study.

Advertising can only have the right impact on consumers if products are projected in such a manner as to communicate strongly felt consumer needs. According to Hawkins *et al.*, (1995), this can only be achieved if the advertisement;

- physically reaches the consumers by selecting advertising media that are heard, read, or seen by the target consumers;
- catches the consumer's attention;
- is properly interpreted by the consumer
- is stored in the consumer's memory in a manner that will allow easy retrieval under the proper circumstances.

5.4 Influence of demographic characteristics on consumer purchase decisions and perception and evaluation of quality

Consumer perception of quality and purchase decisions were not segmented along demographic characteristics of consumers except in some isolated cases, where it was realized that the consumer's attitude to specific aspects of quality was influenced by the consumers' personal characteristics. Among the demographic characteristics of consumers that impacted on their perception and evaluation of quality and purchase decisions were sex, age, marital status, educational and income levels.

Differences in how men and women perceive quality have been reported by Senauer *et al.*, (1991). In their paper, they stressed that even though the basic expectations of quality are the same for both men and women, there continues to exist subtle differences in purchasing behaviour due to sex. The identification of these differences by industry could be very useful in creating market niches to ensure a marketing lead over other competitors.

With regards to educational level, the exposure of the more elite in society could have accounted for their greater quality expectations and thus higher standards for quality. This group of consumers will not accept mediocrity from industry and are relatively more difficult to satisfy. However, this group of consumers are described as the most lucrative markets by Hawkins *et al.*, (1995) since they have greater purchasing power and can therefore not be disregarded if industry intends to attain optimum market success. To address this issue, industry would need to conduct more consumer studies geared towards this group of consumers to clearly identify their needs and quality expectations.

The influences of age, marital status, and income level can best be discussed in the context of the changing consumer needs, desires, and disposable income throughout the family life cycle (see

2.12). The family or household life cycle is the classification of the family or household into stages through which it passes over time. Household and family change over time at relatively predictable intervals, based largely on demographics and thus readily measurable variables such as age, marital status and presence and age of dependants (Hawkins *et al.*, 1995). This change is accompanied by a change in consumer needs and desires as well as purchasing power (McCarthy and Perreault, 1993). This family life cycle is therefore a very valuable marketing tool because its stages provide marketers with segments that face similar consumption problems and accords marketers the opportunity to develop effective marketing strategies to increase their market shares.

The general lack of segmentation of quality perception based on consumer demographics with regards to most aspects of quality in this study could be partly due to the relatively small sample size but could also be an indication that consumers have independent attitudes towards quality issues. If this second situation is true, then there will be potential difficulties in predicting consumers' perception of quality, their purchase choices, and their general consumer behaviour.

This finding stresses the need for manufacturers to clearly identify their target market, and identify potential customers before moving ahead to identify the specific needs and attitudes of these customers towards well-defined aspects of product quality in order to render consumer studies cost effective. It would also be imperative that marketers clearly define their objectives to enable them obtain useful information, otherwise the misuse of consumer data would be inevitable (Schutz, 1999) and such consumer surveys will be both misleading and non-profitable to industry.

5.5 Weighing of quality dimensions in the evaluation of product quality

Quality is a single entity in the mind of the consumer who integrates several quality dimensions through the use of his senses to arrive at a perceived quality (Molnar, 1995). In evaluating the quality of a product, consumers in this study weighed all the different dimensions of quality which each played a significant role in the final purchase decision of the consumer. The relative importance consumers attached to each of these individual dimension however depended on the product being evaluated, the intended use of the product, the dimension being considered, the individual making the assessment and how familiar the consumer was with the product.

Despite the unique manner by which consumers evaluated quality, this evaluation process to followed certain trends. Packaging, performance, reliability, nutritional and sensory qualities seem to occupy a top position in the minds of most consumers in the evaluation process. The great importance consumers attach to these quality dimensions suggest that a deficiency in the provision of any of these attributes could result in a big dent in the quality of the product and therefore have grave consequences on consumers' willingness to purchase the product.

Price, brand name, convenience, and country of origin on the other hand, were generally considered relatively less important in the quality assessment process. The notion that Ghanaian consumers are attracted to foreign products was not clearly brought out in this study. In the weighing of quality dimensions, the country of origin did not seem to influence consumers' purchase decision tremendously. This observed trend could be partly due to the fact that Ghanaian consumers considered country of origin secondary to other attributes such as product performance, wholesomeness, safety and sensory attributes. Another explanation for the seemingly little attention paid to the country of origin was the category of products under consideration. Hawkins *et al.*, (1995) noted that the level of seriousness consumers attached to the purchase of products depended to a large extent on the nature of the product. They noted that

in the purchase of durable goods such as electrical appliances, consumers were more careful and critical in their assessment as compared to other routinely purchased products such as food products.

In conclusion, Karnes *et al.*, (1995) cautioned that even though some quality dimensions are considered more important than others in the evaluation of quality of a product, all attributes are relevant to consumers and the interaction of characteristics may be as important as any individual characteristic. Tradeoffs in characteristics may affect overall quality and consumer willingness to purchase the product. Manufacturers can therefore only achieve maximum consumer satisfaction and profitability if there are able to integrate all the identified consumer dimensions into products.

5.6 Methods employed by manufacturers in identifying and satisfying the consumer's quality demands

Rapid technological development, fast changing consumer needs and tastes, shortened product life cycles, and intense market competition among several other factors have made the adoption of corporate growth strategies more pertinent today (Ilori *et al.*, 2000). In this continued quest to meet the ever-changing quality demands of today's sophisticated consumers, the manufacturer is currently faced with the challenge of implementing effective quality management programmes and marketing strategies to maintain a competitive market lead. These strategies embody the clear identification of potential markets and the needs of the consumers within these markets, translation of these identified needs into tangible products that meet customer specifications and satisfaction, consistent monitoring of product performance at the marketplace, and the provision of readily accessible communication channels permitting the consumer to seek redress when dissatisfied with the quality of products and services provided to them.

In the current study, industry made a number of attempts to meet consumer quality demands in a bid to achieve maximum customer satisfaction. The level of commitment to quality however appeared to be closely associated with the size of the industry, the manufacturer's concept of quality and his perception of the customer. The number of times industries compromised on quality because of cost, the type of methods used to identify consumer quality needs and the use of quality specifications and quality management systems were all good measurements of a industry's commitment to quality. Other indices of this level of commitment to quality were frequency of consumer complaints, industry's attitude to these complaints, and the levels of consumer satisfaction recorded by industry.

5.6.1 Identification of the needs of the consumer

The identification of the needs and expectations of the consumer is the first step in understanding what the consumer wants from a product. In this study, consumers' needs were identified by industry primarily using 7 main methods, which were either used in combination with other methods but most often used singly. Among the list of identified methods was the use of observation of consumers, market surveillance, consumer complaints, long years of experience, and suggestion boxes. Perception studies which has been described by Hashim *et al.*, (1996) as the most efficient method to identify consumer needs and an indispensable marketing tool in the survival of any industry was also employed by 6.5% of industries sampled.

The value of well designed and well-executed consumer research lies in its ability to obtain detailed information about consumer attitudes, opinions, purchasing behaviour, habits and practices as well as profiling consumers and identifying target consumers in the general market. These perception studies also anticipate future opportunities and most importantly help prevent the costly errors of providing and marketing products to a phantom target group that did not exist (Mc Dermott, 1990).

Unfortunately however, findings of the study suggest that the use of consumer perception studies has not yet caught on too well with the Ghanaian manufacturers despite the manifold advantages associated with them. This could be partly due to the high cost involved. Another possible reason for the low patronage of perception studies could be the low level of competition on the Ghanaian market. Since product competition was relatively low, most manufacturers were not challenged enough to see the need for an extensive consumer perception survey to better understand their customers. The 6.8% of small-scale who conducted perception studies were probably fairly young industries which were still in the process of acquainting themselves with the market and therefore needed to identify their target market through perception studies. The situation may not be the same with medium-scale companies. These medium-scale industries might perhaps have established themselves and possessed a fair share of the market. They therefore did not see the need to employ costly perception studies when they believed that the marketing information they required could be obtained using less expensive methods. The use of perception studies by large-scale industries could be explained by the fact that these firms were multinational companies who conducted perception studies as an integral part of their quality assurance programmes.

One other reason for the low patronage of perception studies is the issue of ignorance and lack of technical know how on the part of manufacturers. Whereas most respondents saw the need to better identify consumer needs and expectations in order to achieve higher customer satisfaction and patronage, very few manufacturers were aware of the use and benefits of perception studies as a means to achieving this goal. The use of less reliable methods such as consumer complaints, long years of experience and observing the customer at the expense of well structured consumer studies to objectively identify consumer needs and quality expectations could have resulted in most manufacturers spending countless effort improving product quality based on product

attributes most irrelevant to the consumer and thus rendering these manufacturing processes costly and non-profitable.

5.6.2 The use of product specifications and quality management systems to attain quality

Documentation of consumer needs into product specifications and the use of quality management systems are the steps after the identification of consumer needs. Different product specifications and quality systems are used by industry to control and monitor manufacturing processes, with the ultimate aim of producing goods that meet consumer demands and satisfaction. The usefulness of these quality tools is supported by the findings that manufacturers in this study who employed neither of these quality tools in their manufacturing processes registered relatively lower levels of satisfaction among their customers. The greatest problem however, that industry must continue to tackle, is how to effectively utilize these quality tools to achieve a commensurate increase in customer satisfaction.

The use of different types of product specifications notably company specifications, customer specifications, and national specifications, drafted by the company, customer, and regulatory agency respectively, have shown that specifications based on consumer quality demands and needs, and which are constantly revised to reflect the changing needs of the consumer were most efficient. Manufacturers using customer specifications, precisely documenting the requirements of the customer registered higher levels of customer satisfaction than their counterparts using other types of specifications. Assuming that there were no defects in how manufacturers used these different specifications, it could be concluded that unless company and national standards can truly represent the interests and the needs of the consumer, customer satisfaction would continue to elude the manufacturer. To address this situation, it will be necessary to co-opt consumers into the technical committees responsible for the development of product

specifications to ensure that these documents are relevant and serve the purpose of producing quality products which meet the satisfaction of the consumer.

The use of quality systems as simple as quality control programmes and as complex as Total Quality Management (TQM) programmes was prevalent among manufacturers. The type of quality system implemented depended on the size of the industry. The effective use of these systems could best be assessed by the level of customer satisfaction recorded, and the skills of personnel implementing these quality programmes. The relatively higher levels of customer satisfaction recorded by manufacturers who had quality systems in place suggest that these systems play an important role in ensuring quality, however, the high levels of consumer dissatisfaction reported by consumers sampled in this study gives the perception that these systems are yet to fully understood and implemented by personnel in industry to harness the maximum benefits associated with the use of these systems. Lack of proper documentation of these systems could have also attributed to the relatively low success rates of these systems in augmenting consumer satisfaction.

5.6.3 Training of staff in quality management programmes

One yardstick for measuring a company's commitment to quality is by assessing the level of quality awareness among its staff. According to Besterfield (1994), quality can only be achieved if a culture of quality is inculcated into the activities of industry and every staff member is considered a member of this quality team and adequately equipped to play his role in this quality chain. To achieve this level of quality awareness among personnel of a company, there must be a training policy for employees of all companies. The lack of commitment to training personnel in quality management programmes suggests that most industries failed to acknowledge training of staff an integral part of quality management programmes. As such, even though industries

took steps to implement elaborate quality systems, most of these programmes could not be effectively supervised by their personnel, thus, rendering these quality tools ineffective.

5.7 The role of consumer groups in quality assurance

The role of consumer groups in conveying the sentiments of consumers on the quality of food products has been extensively deliberated on by an FAO Committee of Experts (FAO, 1993). In the Committee's report, consumer groups were described as an integral part of the attainment of quality in today's food industry as they serve as the most effective link between industry and the consuming public. In a related article, McNutt (1988) noted that industrialists could better understand the consumer's perception of quality if they closely collaborate with the media and consumer groups.

Most consumers and more than half of the manufacturers recognize the importance of consumers in ensuring quality of product sold on the market and are of the opinion that providing quality should be the collective responsibility of regulatory agencies, consumers and manufacturers. This finding is encouraging and suggests that the majority of manufacturers have regard for consumer concerns and would be more disposed to listening to the sentiments of consumers. This is especially important since quality service includes consumer accessibility to company management. Consumers expect manufacturers listening to them, being sensitive to their complaints and taking action to resolve them. Consumers consider the prompt attention of industry to their complaints an integral component of quality service.

In spite of the approval for the establishment of consumer groups expressed by some manufacturers, the disapproval expressed by 38.2% of the manufacturers cannot be simply overlooked if the maximum benefits are to be derived from these consumer groups. One possible way to dispel manufacturers perception that these consumers groups are both non

relevant and antagonistic to the activities of industry is to create greater awareness by extensively educating manufacturers and consumers alike on their rights, roles and responsibilities as well as enlightening them on the enormous benefits associated with a healthy consumer-manufacturer association.

McNutt (1988) has noted that the consumer movement is rapidly growing stronger around the world. A positive relation between a company and consumers in one part of the globe is therefore bound to benefit sales thousands of miles away in as much as a lack of sensitivity to consumers in one country can damage business performance elsewhere as the message spreads through the increasingly effective communication channels of consumers. It would therefore be advantageous if Ghanaian manufacturers could cultivate good relationships with consumer groups and harness the benefits associated with these relations to guarantee better market success and consumer satisfaction.

6.0 CONCLUSION AND RECOMMENDATIONS

Quality has been recognized from this study and others as a watchword among both manufacturers and consumers. Despite this universal recognition of quality as a strategic business variable, its definition, understanding, delivery and assurance continue to remain elusive among manufacturers and consumers. People also tend to differ considerably in their conceptual definitions of the concept and how they operationalize it. Findings of this study provided a better insight into the various perceptions of quality among Ghanaian consumers and manufacturers resident in Accra and identified some industrial practices being used in a bid to achieve quality.

Understanding of quality

- Ghanaian consumers and manufacturers have an understanding of quality and provided different definitions of quality according to how they perceived quality. Whereas some respondents defined quality as the degree of excellence, others considered quality in the light of conformance to a set of specifications or requirements. The majority of manufacturers and consumers adopted the consumer-oriented approach to quality and perceived quality in terms of customer satisfaction.

- The views and perception of quality expressed by respondents in this study confirm the following four crucial points;
 - (1) quality is considered a bundle of attributes;
 - (2) the consumer is used as the referent;
 - (3) the consumer should be the ultimate judge of quality and manufacturers should focus on acceptance as a yardstick;
 - (4) quality judgement is relative.

- Manufacturers did admit that quality ought to be defined as consumer satisfaction, however findings of the survey revealed that a big gap exists between industry's delivery of quality and the level of customer satisfaction. More than half of consumers sampled were dissatisfied with quality of products sold on the Ghanaian markets. The inability of industry to adequately and efficiently identify consumers' expectations of quality, coupled with the absence of appropriate quality practices and systems and ineffective usage of these systems where present, to translate consumer expectations into tangible quality products contributed to the high level of customer dissatisfaction. Product unwholesomeness, product adulteration, poorly packaged and labelled products were some of the common consumer complaints among others.

Expectations

- Expectations of quality were closely associated with individual needs and also reflected their safety and health concerns. These expectations also greatly influenced how consumers perceived quality and served as their criteria for evaluating product quality. The majority of consumer expectations of quality were expressed in terms of safety concerns (i.e. absence of preservatives and additives, etc.), wholesomeness, labelling, sensory attributes, price, performance, and nutritional quality (i.e. low levels of food components such as fat, cholesterol, sugar and salt associated with diabetes and cardiovascular diseases). Consumers considered product reliability or consistency in product quality as one of the key elements of quality and expected the quality of products sold on the markets to be consistent in quality with each purchase. However, respondents of this study were of the view that this high demand for quality was not always evident in the average Ghanaian consumer's actual purchasing behaviour because of financial constraints.

Dimensions of quality

- Quality dimensions used in evaluating products were usually attributes that could be easily assessed by consumers. Sensory attributes, performance, wholesomeness, price, product packaging and labelling were some of the common dimensions of quality used by consumers in the evaluation of the quality of a food product and were derived from the consumers' expectations of quality. Taste was the single most important dimension used by consumers in repeat purchase situations. With regards to packaging, consumers associated the package of a product with the quality of the product and were ready to pay more for an improved package. The expiry date was the most important and reliable indicator used by the consumer to assess the wholesomeness of pre-packaged foods and was therefore the most important labelling information sought after in actual purchase situations. Hygienic environmental (hygienic) conditions at the point of sales, package integrity, texture, odour, and colour of product of a product were other indicators of wholesomeness used by consumers to assess food products. Nevertheless, during the evaluation and decision making processes, priorities were rearranged and the relative importance attributed to each dimension varied with product type, consumer knowledge as well as purchasing situations.

Actual purchase situations

- The purchase intercept survey and sensory evaluation of cocoa beverages indicated that the impact of labelling on consumers' perceptions and evaluation of food quality was significant. Even though survey findings showed that consumers did not always pay particular attention to product labels in habitual purchases, consumers admitted that product labelling was very crucial and useful in forming an opinion of a product. The more familiar a consumer was with a product, the less importance he attached to labelling information. Labelling information most relevant to the majority of consumers was expiry date, list of ingredients, health, safety and nutritional information. Of less significance were the country of origin, net

content, name of manufacturer, and pictorial representation of the product on the label. Even though consumers associated the price of a product with its quality and considered it a suitable indicator of quality, price was not an important determinant in their purchase decisions. Most consumers in this study were not deterred from buying good quality products because of price and hardly compromised quality for cost suggesting that consumer purchase decisions were hardly based on price only. The price to quality ratio as reported by Sloan *et al.*, (1984) therefore factored significantly in the purchase decisions in the Accra survey.

Influence of demographics

- Demographic characteristics of consumers had significant influence on consumers' needs, expectations, and evaluation of quality and thus on the general consumer behaviour. Sex, age, marital status, income level, and educational background all influenced how a consumer perceived quality. The influence of religion could however not be assessed in this study due to the lack of religious diversity of the consumer sample.

Quality implementation

- Ghanaian food industries were making some attempts to manufacture products to meet customer satisfaction. These efforts included the identification of consumer expectations using different methods comprising of market surveillance, suggestion boxes, consumer complaints, experience acquired over long years of experience, customer specifications and perception studies. Other steps taken by industry to ensure maximum customer satisfaction involved the use of documented product specifications and the implementation of quality systems such as ISO, HACCP, QC and TQM quality systems. Some industries also engaged in quality management training programmes of their staff. The use and types of industrial

practices were dependent on the size of the industries, their understanding of quality and their perception of their customers with regards to quality.

- Consumers acknowledged that quality assurance is the collective responsibility of industry, regulatory agencies and consumers and even though most of them admitted having adopted a passive attitude towards quality assurance activities, they supported the establishment of consumers groups to drive home their concerns. The establishment of consumer groups was however rejected by some manufacturers who were of the view that these groups were unnecessary and sometimes antagonistic to the activities of industry.
- Judging from the responses of consumers in this study, consumers are quality conscious and industry can hardly attain great success unless they foster stronger and collaborative partnership with the consuming public. Such a relationship would encourage trust, understanding and above all the desired business profitability and consumer satisfaction.

Recommendations

The changing consumer trends compounded by the complexity of the quality concept would always make the attainment of quality a challenging task. To stand up to this challenge and remain a step ahead, manufacturers would need to step up their efforts and show greater commitment to quality. Only then can they make customer satisfaction and business success a reality.

To this end, manufacturers need to develop a systematic approach to resolving quality problems and this should include among other things a clear identification of target markets. Well-structured and consumer studies can then be conducted and findings carefully interpreted to identify the needs and quality expectations of these segment markets. Consequently, industry

would need to translate their research findings into tangible products using documented specifications and effectively monitored quality systems and procedures. This can only be achieved if industry begins to nurture a culture of quality among their personnel. Lastly, industry would need to support these activities with an assessment of product performance on the market and provide accessible channels for the consumer to seek redress when dissatisfied with products and services being offered them.

REFERENCES

- Aaker, D. A., Kumar, V. and Day, G. S. (1995). *Marketing Research*. 5th edition. John Wiley and Sons, Inc. New York, USA. 782pp.
- Agbeve, S. K. (1996). The Effect of quality production on the growth of the manufacturing industry in Ghana. B.Sc. Thesis. School of Administration, University of Ghana, Legon, Ghana. 107pp.
- Auerswald, H., Peters, P., Bruckner, B., Krumbein, A., and Kuchenbuch, R. (1999). Sensory analysis and instrumental measurements of short-term stored tomatoes (*Lycopersicon esculentum* Mill). *Postharvest Biology and Technology* 15: 323-334.
- Barr, A. (1990). Consumer motivational forces affecting the sale of light dairy products. *Food Technology* 44: 97-98.
- Beard III, T. D. (1991). HACCP and the home: The need for consumer education. *Food Technology* 45: 123-124.
- Besterfield, D. A. (1994). *Quality Control*. Fourth Edition. Prentice Hall Englewoods Cliff, New Jersey, USA. 501pp.
- Bone, B. (1987). The importance of consumer language in developing product concepts. *Food Technology* 41: 58-86.
- Bosley, G. C. and Hardinge, M. G. (1992). Seventh-day adventists dietary standards and concerns. *Food Technology* 46: 112-113.
- Bowerman, B. L. and O'Connell, R. T. (1997). *Applied statistics. Improving business processes*. Irwin Series, USA. 525pp.
- Bruhn, C. M.; Cotter, A.; Diaz-knauf, K.; Sutherlin, J., West, E.; Wightman, N., Williamson, E. and Yaffee, M. (1992). Consumer attitudes and market potential for foods using fat substitutes. *Food Technology* 46: 81-86.

- Burton, S. and Andrews, J. C. (1996). Age, product nutrition, and label format effects on consumer perceptions and product evaluations. *The Journal of Consumer Affairs* 30: 68-89.
- Cardello, A. V. (1995). Food quality: Relativity, context and consumer expectations. *Food Quality and Preference* 6: 163-170.
- Carpenter, R. P., Lyon, D. H. and Hasdell, T. A. (2000). Guidelines for sensory analysis in food product development and quality control. 2nd edition. An Aspen Publication, Maryland, USA. 210pp.
- Chambers, E. and Bowere, J. R (1993). Consumer perception of sensory qualities in muscle foods. *Food Technology* 47: 116-120.
- Chaudry, M. M. (1992). Islamic food laws: Philosophical basis and practical implications. *Food Technology* 46: 92-93.
- Creyer, E. H. and Ross, W. T. (1997). Tradeoffs between price and quality: How a value index affects preference formation. *The Journal on Consumer Affairs* 31: 280-301.
- Crosby, P. B. (1989). Let's talk quality. McGraw-Hill, New York, USA. 135pp
- Dale, B. and Oakland, J. (1994). Quality improvements through standards. 2nd edition. Stanley Thornes Ltd., Cheltenham, UK. 374pp.
- Dalen, G. A. (1996). Assuring eating quality of meat. *Meat Science* 43: 21-33.
- Elsner, R. J. F., Resurreccion, A. V. A and McWatters, K. H. (1997). Consumer acceptance of ground chicken. *Journal of Muscle Foods* 8: 213-235.
- FAO (1993). Integration of consumer interests in food control. Report of an FAO Expert Consultation, Rome, Italy. 40pp.
- Fawzi, F. (1998). The Modern concept of quality control. 8th International Course on Food Processing. Quality assurance and marketing in food processing enterprises.

International Agricultural Centre, Wageningen, The Netherlands. August 16
November 21, 1998. 37pp.

Feigenbaum, A. W. (1986). Total Quality Control, 3rd Edition. McGraw-Hill, New York. USA.
245pp.

Filiatrault, P., Harvey, J. and Chebat, J. C. (1996). Service quality and service productivity
management practices. *Industrial Marketing Management* 25: 243-255.

Fox, M. J. (1994). Quality assurance management. Chapman and Hall, London, UK. 379pp.

Francis, F.J. (1995). Quality as influenced by colour. *Food Quality and Preference* 6:
149-155.

Fletcher, S. M., Resurreccion, A. V. A. and Misra, S. K. (1993). Measuring and modeling
consumer acceptance. Postharvest Handling: A systems approach. Academic Press Inc.,
USA. 149-165.

Giese, J. (1999). Fran's Indulgences vs Don's. *Food Technology* 53: 62.

Giffit, H. H., Washbon, M. B. and Harrison, G. G. (1972). Nutrition, behaviour, and
change. Prentice-hall, Inc.,UK. 392pp.

Gretz, K. F.; Drozdeck, S. R., and Wiesenhutter, W. J. (1996). Professional selling: A
consultative approach. Irwin, USA. 469pp.

Grijspaardt-Vink, C. (1996). Convenience outshines health at Anuga '95. *Food
Technology* 50: 38.

Grunert, K. G. (1995). Food quality: A means-end perspective. *Food Quality and Preference* 6:
171-176.

GS 100 (1980). Ghana standards on pre-packaged foods. Ghana StandardsBoard, Ghana. 25pp.

- Hardinge, F. and Hardinge, M. (1992). The vegetarian perspective and the food industry. *Food Technology* 46: 114-115.
- Hashim, I. B.; Resurreccion, A. V. A. and McWatters, K. H. (1996). Consumer attitude toward irradiated poultry. *Food Technology* 50: 77-80.
- Hawkins, D.; Best, R. J. and Coney, K. A. (1995). Consumer behaviour: Implications for marketing strategy. 6th Edition. Irwin, Chicago, USA. 649pp.
- Heid, J. L. and Joslyn, M. A. (1981). Fundamentals of food processing operations: Ingredients, methods and packaging. The Avi Publishing Company, Inc., Westport, USA. 730pp.
- Hoban, J. T. (1996). How Japanese consumers view biotechnology. *Food Technology* 50: 85-88.
- Hoban, T. J. (1999). Consumer acceptance of biotechnology in the United States and Japan. *Food Technology* 53: 50-53.
- Hollingsworth, P. (1994). The perils of product development. *Food Technology* 48: 80-88
- Hollingsworth, P. (1996). Packaging trend watch- The world's largest hologram and more. *Food Technology* 50: 34.
- Hollingsworth, P. (1998). Sensory testing rediscovered as key to new Pproduct success. *Food Technology* 52: 26-27.
- Hollingsworth, P. (1999). Self-indulgence trends. *Food Technology* 53: 64-67.
- Hollingsworth, P. (2000). Developing the right specs. *Food Technology* 54: 24-25.
- Holm, L and Kildevang, H. (1996). Consumers' views on food quality: A qualitative interview study. *Appetite* 27: 1-14.
- Huang, Y. W. and Ang, C. W. Y. (1992). Vegetarian foods for Chinese buddists *Food Technology* 46: 105-108.

- Humbert, R. (2001). Gaps in food allergen problems. *Food Technology* 55: 24
- Ilori, M. D.; Oke, J. S. and Sanni, S. A. (2000). Management of new product development in selected food companies in Nigeria. *Technovation* 20: 333-342.
- ISO 8402 (1994). Quality management and quality assurance vocabulary. pp. 9-56. In: *ISO 9000, Quality management. International Standards Organization Standards Compendium*. 17th edition, (1998). Geneva, Switzerland. 433pp.
- Juran, J. M., and Gryna, F. M, (1974). Juran's quality control handbook. 4th edition. McGraw-Hill, Inc., New York, USA. 1564pp.
- Juran, J. M., and Gryna, F. M. (1993). Quality planning and analysis: from product development through use. 3rd edition. McGraw-Hill, Inc., New York, USA. 634pp.
- Karnes, C. L.; Sridharan, S. V. and Kanet, J. J. (1995). Measuring quality from the consumer's perspective: A methodology and its application. *International Journal of Production Economics* 39: 215-225.
- Katz, F. (1999a). "How nutritious?" meets "How convenient?". *Food Technology* 53 : 44-50.
- Katz, F. (1999b). Top product development trends in Europe. *Food Technology* 53: 38-42.
- Katz, F. (1999c). Fran's indulgences. *Food Technology* 53: 48-54.
- Kilara, A. and Iya, K. K. (1992). Food and dietary habits of the Hindu. *Food Technology* 46: 94-104.
- Kramer, A. and Twigg, B. A. (1970). Quality control for the food industry (Fundamentals). 3rd edition. Volume 1. The Avi Publishing Company, Inc., Westport, Connecticut, USA. 556pp.
- Lange, C., Rousseau, F., and Issanchou S. (1999). Expectation, liking and purchase behaviour under economical constraint. *Food Quality and Preference* 10: 31-39.

- Lawless, H. (1995). Dimensions of sensory quality: A critique. *Food Quality Preference* 6: 191-199.
- Lawless, H. T. and Heyman, H. (1999). Sensory evaluation of food: principles and practices. Aspen Publishers, Inc., Maryland, USA. 827pp.
- Letarte, A. Dube, L. and Troche, V (1997). Similarities and differences in affective and cognitive origins of food likings and dislikes. *Appetite* 28:115-129.
- Light, A. Heyman, H. and Holt, D. L. (1992). Hedonic responses to dairy products: Effects of fat levels, label information, and risk perception. *Food Technology* 46: 54-57.
- Mac Donald, E. K. and Sharp, B. M. (2000). Brand awareness effects on consumer decision making for a common, repeat purchase product: A Replication. *Journal of Business Research* 48: 5-15.
- Martin, R. (1988). Contaminants in relation to the quality of seafoods . *Food Technology* 42: 104 & 108.
- Malundo, T. M. M., Shewfelt, R. L., McWatters, K. H. and Hung, Y. C. (1997). Quality Enhancement. In: M.C. Erickson and Y. C. Hung, (Editors). *Quality in Frozen Food*. Chapman& Hall, New York , pp 460-477.
- Mazis, M. B. and Raymond, M. A. (1997). Consumer perceptions of health claims in advertisements and on food labels. *The Journal of Consumer Affaires* 31: 10-25.
- Mc Carthy, E. J. and Perreault, W. D. (1993). Basic marketing, a Global-managerial approach. 11th edition. Irwin Inc., Illinois. U.S.A. 760pp.
- McDermott, B. J. (1990). Identifying consumers and consumer test subjects. *Food Technology* 44: 154-158.
- Mc Nutt, K. (1988). Consumer attitudes and quality control function. *Food Technology* 42: 97-108.

- Meilgaard, M., Civille, G. V., and Carr, B. T. (1991). Sensory evaluation techniques. 2 nd edition. CRC Press, Inc., London, UK 354pp..
- Misra, S. K., Fletcher, M. S. and McWatters, K. H.1996. Consumer acceptance of a new fast food: The case study of *Akara*. *Journal of Food Products Marketing* 3: 25-35.
- Molnar, P. J. (1995). A model for overall description of food quality. *Food Quality Preference* 6: 185-190.
- Naaeder, A. (2000). A survey on the perception of quality among Ghanaian consumers. B.Sc. Thesis. Department of Nutrition and Food Science, University of Ghana, Legon, Ghana. 87pp.
- Ofori, J. (1996). The impact of sales promotion on sales and its consequences on consumers. BSc. Thesis. School of Administration, University of Ghana, Legon, Ghana. 95pp.
- O'Mahony, M. (1986). Sensory evaluation of food: Statistical methods and procedures. Marcel Dekker Inc., New York, USA. 487pp.
- Oude Ophuis, P. A. M. and Van Trijp, H. C. M. (1995). Perceived quality: A market driven and consumer oriented approach. *Food Quality and Preference* 6: 177-183.
- Peter, P. J. and Olson J. C. (1996). Consumer behaviour and marketing strategy. 4th edition. Irwin McGraw-Hill, USA. 738pp.
- Pike, O. A. (1992). The church of Jesus Christ of latter-day saints: Dietary practices and health. *Food Technology* 46: 118-126.
- Pszczola, D. (1999). Don's indulgences. *Food Technology* 53: 54-60.
- Resurreccion, A. V. A. and Galvez, C. F. (1999). Will consumers buy irradiated beef? *Food Technology* 53: 52-55.
- Saguy, S. and Moskowitz, H. R. (1999). Integrating the consumer into new product development. *Food Technology* 53: 68-73.

- Schonberger J. R and Knod, E. M. (1997). Operations management : Customer-focused principles. 6th edition. Irwin/McGraw-Hill, U.S.A 721pp..
- Schutz, H. G. (1998). Evolution of the sensory science discipline. *Food Technology* 52: 42-46.
- Schutz, H. G., (1999). Consumer Data: Sense and nonsense . *Food Quality and Preference* 10: 245-251.
- Schutz, H. G., Diaz-Knauf, K., and Zeidler, G. (1988). Consumer use and attitude toward luncheon/sliced meats *Food Technology* 42: 166.
- Shewfelt, R. L. (1999). What is quality? *Postharvest Biology and Technology* 15: 197-200.
- Shewfelt, R. L.; Erickson M. C.; Hung, Y. C and T. M. M Malundo, (1997). Applying quality concepts in frozen food development. *Food Technology* 51: (2): 56-59.
- Shewfelt, R. L. and Prussia, S. E. (1993). Systems approach to postharvest handling. In: Shewfelt, R. L. and Prussia, S. E. (Editors), *Postharvest Handling: A Systems Approach*. Academic Press, San Diego, USA, pp. 43-74.
- Sloan, E. A. (1993a). Taste reclaims center stage. *Food Technology* 47: 46-48.
- Sloan, E. A. (1993b). Consumers, the environment and the food industry. *Food Technology* 47: 72-91.
- Sloan, E. A. (1994a). Beyond quality *Food Technology* 48: 38.
- Sloan, E. A. (1994b). How food shoppers make decisions. *Food Technology* 48: 34.
- Sloan, E. A. (1996). America's appetite '96. The top ten trends to watch and work on. *Food Technology* 50: 40-58.
- Sloan, E. A. (1998a). Manufactures must address the "front end". *Food Technology* 52: 26.

- Sloan, E. A. (1998b). Dine on, dine up. *Food Technology* 52: 30.
- Sloan, A. E. (1998c). Food industry forecast: consumer trends to 2020 and beyond.. *Food Technology* 52: 37-44.
- Sloan, A. E. (1998d). Lessons from labels. *Food Technology* 52: 24.
- Sloan, E. A. (1999a). It's entertainment! *Food Technology* 53 (5): 22.
- Sloan, E. A. (1999b). Bite-size goes big-time. *Food Technology* 53: 30.
- Sloan, E. A. (1999c). Top ten trends to watch and work on for the millennium. *Food Technology* 53: 40-58.
- Sloan, E. A. (1999d). Tasty, tempting and healthy. *Food Technology* 53: 32.
- Sloan, E. A. (1999e). Lunch no longer traditional. *Food Technology* 53: 22.
- Sloan, E. A. (2000a). Adding value in 2000+ . *Food Technology* 54: 22.
- Sloan, E. A. (2000b). Say Cheese! *Food Technology* 54: 19-20.
- Sloan, E. A. (2000c). The top ten functional food trends. *Food Technology* 54: 33-62.
- Sloan, E. A. (2000d). At the fresh. cutting edge *Food Technology* 54: 22-23.
- Sloan, E. A.; Leone, L. C.; Powers, M. and McNutt, K. W. (1984). Changing consumer lifestyles. *Food Technology* 38: 99-102.
- Sloof, M., Tijssens, L. M. M. and Wilkinson, E. C. (1996). Concepts for modelling the quality of perishable products. *Trends in Food Science and Technology* 7: 165-171.
- SPSS Inc. (1999). Statistical Package for Social Sciences, SPSS Base 10. SPSS Incorporated, Chicago, USA.

- Stone, H., McDermott, B. J and Sidel, J. L. (1991). The importance of sensory analysis for the evaluation of quality. *Food Technology* 45: 88-95.
- Stone, H. and Sidel, J. L. (1993). Sensory evaluation practices. 2nd edition. Academic Press, .California, USA. 338pp.
- Torjusen, H., Lieblein, G., Wandel, M and. Francis, C. A. (2001). Food system orientation and quality perception among consumers and producers of organic food in Hedmark County, Norway. *Food Quality and Preference* 12: 207-216.
- Watts, B. M., Ylimaki, G. L., Jeffery, L. E. and Elias, L. G. (1989). Basic sensory methods for food evaluation. International Development Research Centre, Ottawa, Ontario, Canada. 105pp.
- Wrick, K. L., Friedman, L. J., Brewda, J. K and Caroll, J. J (1993). Consumer viewpoints on 'designer foods'. *Food Technology* 47: 94-104.
- Zeithaml, V. A. and Bitner, M. J. (2000). Services marketing: Integrating customer focus across the firm. 2nd edition. Irwin McGraw-Hill, USA. 620pp.

APPENDICES

Appendix 1:

NUTRITION AND FOOD SCIENCE DEPARTMENT
UNIVERSITY OF GHANA, LEGON

QUALITY PERCEPTION AMONG GHANAIAAN CONSUMERS

The findings of this survey are intended to help provide the Ghanaian consumer with quality products that consistently meet the consumer's satisfaction. Thank you for helping make this possible.

Please answer all questions by putting a tick () in the box that most closely matches your views, or alternatively please write in the space provided.

Demographics

Name: Sex: Male [] Female []

Age: 18-29 [] 50-59 []

30-39 [] 60-69 []

40-49 [] Above 69 []

Marital Status:

Single [] Married [] Divorced [] Separated [] Widowed []

Occupation:

Number of dependents:

Ethnic group..... Religion:.....

Present area of residence:

Level of education: Nil [] Basic [] Secondary [] Tertiary []

Net monthly income:

Below ₵300,000.00 []

₵300,000.00 -₵800,000.00 []

₵800000.00- ₵1,500,000.00 []

Above ₵1,500,000.00 []

Quality perception

1. What do you consider to be a good 'quality 'product?

.....
.....
.....

2. What definition best suits your opinion of quality?
1. 'Degree of excellence' []
 2. 'Adhering or conforming to a set of requirements' []
 3. 'Ability to satisfy needs of consumers' []

3. Do you think the Ghanaian consumer is quality conscious?
- Yes [] No []

4. Please explain reason for answer given to question 3.

.....

.....

.....

5. If answer to question 3 is 'No', what do you think is the cause of this?

.....

.....

.....

6. What attributes would you expect from a good quality consumable product?

.....

.....

.....

.....

Factors influencing quality perception

7. What factors influence your decision to purchase a product?

- | | | | |
|-------------------|-----|-------------------------|-----|
| 1. Advertisements | [] | 5. Peers | [] |
| 2. Fashionability | [] | 6. Curiosity | [] |
| 3. Price | [] | 7. Packaging | [] |
| 4. Status symbol | [] | 8. Labeling information | [] |

8. To what extent is your perception of the quality of a product influenced by the advertisements associated with the product?

- | | | | |
|------------------------|-----|---------------------|-----|
| 1. A very large extent | [] | 3. A small extent | [] |
| 2. A large extent | [] | 4. Has no influence | [] |

9. Are you often influenced by promotional sales such as raffles, price reduction to patronize product or service ?

Yes []

No []

10. To what extent do you associate the price of a product with the quality of the product?

1. A very large extent []

3. A small extent []

2. A large extent []

4. Has no influence []

11. Are you discouraged to purchase a good quality product because of the price?

Yes []

No []

12. How often do you have to compromise on the quality of the product because of price?

1. Very often [] 2. Often [] 3. Scarcely [] 4 Never []

13. When purchasing a product for the first time, do you seek in -depth knowledge of the quality of the product before you purchase the product?

Yes []

No []

14. If answer to question 13 is 'Yes', from whom do you seek the advice?

.....
.....

15. Do you avoid some food products for religious reasons?

Yes []

No []

16. Please explain and give examples to answer given to question 15.

.....
.....
.....

17. Do you avoid some products for health reasons?

Yes []

No []

18. Please explain and give examples to answer given to question 17.

.....

19. Please check your level of agreement with each of the following statements.

The following factors influence one's perception of quality of a product.

Factors	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
Upbringing					
Education					
Social status					
Income					
Religion					
Urbanization					
Age					
Marital Status					

Quality Assurance

20. Are you satisfied with the quality of products on the Ghanaian market?

Yes []

No []

21. How often do the products meet your expectations?

1. Always []

2. Sometimes []

3. Scarcely []

4. Never []

22. If answer to question 21 is 'No', what are the problems you have with the quality of the products on the Ghanaian market?

.....

28. Do you have confidence in Ghana Standards Board and the roles it has played so far in ensuring quality goods in the country?

Yes []

No []

29. Please explain your answer given in question 28.

.....
.....
.....

30. Would you want a regulatory body to oversee the prices of goods to check over exploitation of consumers?

Yes []

No []

Appendix 2:

NUTRITION AND FOOD SCIENCE DEPARTMENT
UNIVERSITY OF GHANA, LEGON

QUALITY PERCEPTION AMONG GHANAIAAN CONSUMERS

The findings of this survey are intended to help provide the Ghanaian consumer with quality products that consistently meet the consumer's satisfaction. Thank you for helping make this possible.

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Demographics

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Ethnic group..... Religion:.....

Present area of residence:

Level of education: Nil [] Basic [] Secondary [] Tertiary []

Net monthly income:

Below ₵300,000.00 []

₵300,000.00 -₵800,000.00 []

₵800000.00- ₵1,500,000.00 []

Above ₵1,500,000.00 []

Quality perception of consumable products

1. What attributes would you expect from a good quality consumable (food) product?

.....
.....

- A. Nature of package material (e.g. glass, plastic etc.) []
- B. Colour of package []
- C. Type of seal/closure []
- F. Size/convenience of package []
- G. Strength of package material []
- H. Disposability of package after use []

6. Please consider the following two products in each set. Indicate your preference in each set by ticking against it.

- e.g. Iced water in sachet [] Iced water in bottle [x]
- 1. Canned coke [] Bottled coke []
 - 2. Canned pineapple juice [] Bottled pineapple juice []
 - 3. Bottled orange juice [] Orange juice in tetra pak []
 - 4. Milo in sachet [] Milo in can []
 - 5. Frytol oil in sachets [] Frytol oil in plastic bottles []

7. Does seeing the contents of the package influence your decision to purchase the product?

1. Yes [] 2. No [] 3. Sometimes []

8. To what extent does the presence of rust on a can influence your judgment of the quality of the canned product ?

- 1. Extremely large extent [] 4. Indifferent []
- 2. Very large extent [] 5. Absolutely no extent []
- 3. An extent []

9. To what extent does the distortion of a can influence your judgment of the quality of the canned product ?

- 1. Extremely large extent [] 4. Indifferent []
- 2. Very large extent [] 5. Absolutely no extent []
- 3. An extent []

10. Would you agree to pay more for a better quality packaging?

- Yes [] No []

11. Are you aware of what an environmentally friendly product package is?

Yes []

No []

12. Which of the following packages would you prefer?

1. A biodegradable package []

2. A non-biodegradable package []

3. A recyclable package []

4. A non- recyclable package []

13. How important is the labelling of a product to you?

1. Extremely important [] 4. Indifferent []

2. Very important [] 5. Not very important []

3. Important [] 6. Absolutely not important []

14. Do you always read the labels on the product before you purchase it?

1. Always [] 2. Sometimes [] 3. Never []

15. How useful is the information provided in the label of a new product to you in your decision making to purchase the product?

1. Extremely useful [] 4. Indifferent []

2. Very useful [] 5. Not very useful []

3. useful [] 6. Absolutely not useful []

16. Do you doubt the nutritional and health claims made on food labels?

Yes []

No []

Sometimes []

17. How important is a pictorial representation of the product on the label to you?

1. Extremely important [] 4. Indifferent []

2. Very important [] 5. Not very important []

3. Important [] 6. Absolutely not important []

18. What do you do when the commodity you want to purchase has expired?

.....
.....
.....

- H. Canned garden eggs []
- I. Irradiated chicken []
- J. Irradiated yam tubers []
- k. Canned garden eggs []
- l. Canned fresh pepper []
- m. Sliced uncooked yam chips []
- n. Packaged frozen spinach []

32. What information do you look for on a product label? Rank in order of importance the information you look out for when purchasing a consumable product using the following scale.

- | | |
|------------------------|-----------------------------|
| 1- Extremely important | 5- Slightly important |
| 2- Very important | 6- Not very important |
| 3- Important | 7- Not important |
| 4- Indifferent | 8- Absolutely not important |

- A. Country of origin []
- B. Name of manufacturer []
- C. Net content []
- D. Expiry date []
- E. Preparation and serving information []
- F. Nutritional information []
- G. Health and safety information []
- H. List of ingredients and additives []

33. Using the quality dimensions definitions as a guide and the scale provided please rank the quality dimensions in order of importance where applicable that you would consider in deciding on the use of each of the following consumable and non-consumable products and services.

Definitions of quality dimensions

- (a) Performance: Primary product characteristics such as the sweetness, sourness and saltiness of the product.
- (b) Aesthetics: Sensory characteristics such as exterior finish.
- (c) Reliability: Consistence of brand over time

Scale

- 1- Extremely important
- 2- Very important
- 3- Important
- 4- Indifferent
- 5- Slightly important
- 6- Not very important
- 7- Absolutely not important

Ignore quality dimensions that do not apply to a product.

Quality Dimensions	Canned evaporated milk	Infant powdered milk	Canned tomato paste	Peanut butter	Biscuits
Mode of packaging					
Performance					
Reliability					
Price					
Country of origin					
Brand name					
Convenience (for use)					
Aesthetics					
Nutritional quality (e.g. vitamins, minerals)					
Sensory quality (taste, aroma, texture)					

Scale

- 1- Extremely important
- 2- Very important
- 3- Important
- 4- Indifferent
- 5- Slightly important
- 6- Not very important
- 7- Absolutely not important

Ignore quality dimensions that do not apply to a product.

Consumable Products

Quality Dimensions	Rice	Flour	Yam	Maize	Gari
Mode of packaging					
Wholesomeness					
Performance					
Reliability					
Price					
Country of origin					
Brand name					
Convenience (for use)					
Aesthetics					
Nutritional quality (e.g. vitamins, minerals)					
Sensory quality (taste, aroma, texture)					

Scale

- 1- Extremely important
- 2- Very important
- 3- Important
- 4- Indifferent
- 5- Slightly important
- 6- Not very important
- 7- Absolutely not important

Ignore quality dimensions that do not apply to a product.

Consumable Products

Quality Dimensions	Iced water	Alcoholic beverages	Soft drinks	Fruit juices	Squashes
Mode of packaging					
Performance					
Reliability					
Price					
Country of origin					
Brand name					
Convenience (for use)					
Aesthetics					
Nutritional quality (e.g. vitamins, minerals)					
Sensory quality (taste, aroma, texture)					

Appendix 3:

NUTRITION AND FOOD SCIENCE DEPARTMENT
UNIVERSITY OF GHANA. LEGON

QUALITY PERCEPTION AMONG GHANAIAN MANUFACTURERS

Please answer all questions by putting a tick () in the box that most closely matches your views, or alternatively please write in the space provided.

Name: Sex: Male [] Female []

Age: 18-29 [] 50-59 []

30-39 [] 60-69 []

40-49 [] Above 69 []

Marital Status:

Single [] Married [] Divorced [] Separated [] Widowed []

Occupation/Rank:

Number of dependents:

Ethnic group..... Religion:.....

Present area of residence:

Level of education: Nil [] Basic [] Secondary [] Tertiary []

Telephone number:

Business Details

1. What is the name of your organisation/business?

.....
.....

2. What is the nature of your business?

.....
.....
.....

3. Who constitute the bulk of your customers?

.....
.....
.....
.....

Quality perception

4. What does the word 'quality' mean to you?

.....
.....
.....

5. What definition best suits your opinion of quality?

- 1. 'Degree of excellence' []
- 2. 'Adhering or conforming to a set of requirements' []
- 3. 'Ability to satisfy needs of consumer' []

6. Do you think the Ghanaian consumer is quality conscious?

Yes [] No []

7. Please explain reason for answer given to question 6.

.....
.....
.....

8. If answer to question 6 is 'No', what do you think is the cause of this?

.....
.....
.....

9. What attributes do your customers expect from a good quality consumable product?

.....
.....
.....
.....
.....

10. To what extent do you associate the cost of a product to the quality of the product?

- 1. A very large extent [] 3. A small extent []
- 2. A large extent [] 4. Has no influence []

11. Are you discouraged to deliver a good quality product because of the cost involved?

Yes [] No []

12. As a manufacturer how often do you have to compromise on the quality of the product because of cost?

- | | | | |
|---------------|-----|-------------|-----|
| 1. Very often | [] | 3. Scarcely | [] |
| 2. Often | [] | 4. Never | [] |

Customer satisfaction

13. How do you ensure that the consumer always obtains your product in the best state?

.....
.....
.....
.....

14. How satisfied are your customers?

- | | |
|--------------------------------------|-----|
| 1. Totally satisfied | [] |
| 2. Satisfied | [] |
| 3. Neither satisfied or dissatisfied | [] |
| 4. Dissatisfied | [] |
| 5. Totally dissatisfied | [] |

15. Do you receive complaints from your customers?

- | | |
|---------|--------|
| Yes [] | No [] |
|---------|--------|

16. How often do you receive complaints from your customers?

- | | |
|----------------------|-----|
| 1. Once a week | [] |
| 2. Once in two weeks | [] |
| 3. Once a month | [] |
| 4. Once a year | [] |
- (specify)

17. What are the nature of the complaints? Please tick () as many as are applicable.

- | | |
|---|-----|
| 1. Dissatisfied with quality of product purchased | [] |
| 2. Dissatisfied with attitude of personnel | [] |
| 3. Dissatisfied with cumbersome nature of process | [] |
| 4. Dissatisfied with duration to obtain product/service | [] |
| 5. Others (specify) | |

18. Are these complaints recorded?

- | | |
|--------------|-----|
| 1. Yes | [] |
| 2. No | [] |
| 3. Sometimes | [] |

19. How are these complaints resolved?

- 1. With an apology []
- 2. By a replacement []
- 3. By a refund []
- 4. Ignored []
- 5. Others (specify)

20. How often did you have to effect a change in your product or service in the past one year in response to satisfying the need of your customers?

.....
.....

21. With reference to question 21, what type of change did you have to effect to meet the satisfaction of your customer?

.....
.....

22. How are you able to determine what your customer expects from you?.

- 1. Through observation []
- 2. Through experience []
- 3. Through the use of suggestion boxes []
- 4. Through customer complaints []
- 5. Through market surveillance []
- 6. Through customer perception studies []
- 7. Others (specify)

23. Do you have any quality system/programme in place to ensure that you consistently meet the satisfaction of your customers?

Yes [] No []

24. If answer to question 23 is 'Yes', what quality system/programme do you have in place?

.....
.....
.....

25. Do you have any product quality specifications in place to ensure that you produce to consistently meet the satisfaction of your customers?

Yes [] No []

26. If answer to question 25 is 'Yes', what quality specifications do you have in place?

.....
.....
.....

27. Do you believe there is a need for the formation of consumer groups?

Yes []

No []

28. If answer to question 27 is 'yes', in what way do you think this consumer group would benefit your industry?

.....
.....
.....

29. If answer to question 27 is 'no', do you believe that the consumer group would antagonize your industry?

Yes []

No []

Staff

30. What calibre of staff do you have?

- 1. Low (no education - primary education) []
- 2. Medium (secondary education) []
- 3. High (tertiary education) []

31. Have the staff undergone any form of training programme in quality management on the job?

Yes []

No []

32. If answer to question 30. is Yes, what was the nature of training programme?

.....
.....
.....

33. How often are these training programmes carried out?

- 1. Once a week []
- 2. Once a month []
- 3. Once in 6 months []
- 4. When the need arises []
- 5. Others (specify)

34. What category of staff attend the training programmes?

- 1. Junior staff []
- 2. Senior staff []
- 3. Managerial staff []
- 4. All categories of staff []

35. Do you have any training for the staff that teaches them how to provide quality service to the customers and maintain good customer relationship?

Yes []

No []

The findings of this survey are intended to help provide the Ghanaian consumer with quality products that consistently meet the consumers' satisfaction. Thank you for helping make this possible.

Appendix 4:

PURCHASE INTERCEPT SURVEY
NUTRITION AND FOOD SCIENCE DEPARTMENT
UNIVERSITY OF GHANA, LEGON

Demographics

Name:..... Sex: Male [] Female []
Age: 18-29 [] 40-49 [] 60-69 []
30-39 [] 50-59 [] Above 69 []

Marital Status:

Single [] Married [] Divorced [] Separated [] Widowed []

Number of dependents: Ethnic group:

Occupation:

Present area of residence:

Level of education: Nil [] Basic [] Secondary [] Tertiary []

Survey details

1. Shop/market visited.....
2. Frequency of visits.....
3. Product purchased.....
4. How often do you purchase the product?.....
5. Why do you decide to purchase this product over others?
-
6. Do you read the label on the product before purchasing it?
Yes [] No []
7. What information is most important to you?
.....
8. Is the brand name important in your decision making to purchase a product?
Yes [] No []
9. Has the advertisement of the product affected your decision to purchase the product?
Yes [] No []

Appendix 5: Coding of samples

Codes used for the various products are as follows:

Sample A (Milo) 119, 637, 979

Sample B (Chocolim) 128, 316, 618

Sample C (Richoco) 228, 383, 824

Sample D (Bournvita) 242, 967, 643

Appendix 6: Order of presentation of samples to panelists

- | | | | |
|-----|-----------|-----|-----------|
| 1. | ABCD BCDA | 19. | ABCD DCBA |
| 2. | ABDC BDCA | 20. | ABDC DCAB |
| 3. | ACDB BACD | 21. | ACDB DBCA |
| 4. | ACBD BADC | 22. | ACBD DBAC |
| 5. | ADCB BDAC | 23. | ADCB DABC |
| 6. | ADBC BCAD | 24. | ADBC DACB |
| 7. | CDAB DCBA | 25. | ABCD CDAB |
| 8. | CDBA DCAB | 26. | ABDC CDBA |
| 9. | CABD DBCA | 27. | ACDB CABD |
| 10. | CBAD DBAC | 28. | ACBD CBAD |
| 11. | CBDA DABC | 29. | ADCB CBDA |
| 12. | CADB DACB | 30. | ADBC CADB |
| 13. | BCDA CDAB | 31. | BCDA DCBA |
| 14. | BDCA CDBA | 32. | BDCA DCAB |
| 15. | BACD CABD | 33. | BACD DBCA |
| 16. | BADC CBAD | 34. | BADC DBAC |
| 17. | BDAC CBDA | 35. | BDAC DABC |
| 18. | BCAD CADB | 36. | BCAD DACB |

- | | | | |
|-----|-----------|-----|-----------|
| 37. | ABCD BCDA | 55. | ABCD DCBA |
| 38. | ABDC BDCA | 56. | ABDC DCAB |
| 39. | ACDB BACD | 57. | ACDB DBCA |
| 40. | ACBD BADC | 58. | ACBD DBAC |
| 41. | ADCB BDAC | 59. | ADCB DABC |
| 42. | ADBC BCAD | 60. | ADBC DACB |
| 43. | CDAB DCBA | 61. | ABCD CDAB |
| 44. | CDBA DCAB | 62. | ABDC CDBA |
| 45. | CABD DBCA | 63. | ACDB CABD |
| 46. | CBAD DBAC | 64. | ACBD CBAD |
| 47. | CBDA DABC | 65. | ADCB CBDA |
| 48. | CADB DACB | 66. | ADBC CADB |
| 49. | BCDA CDAB | 67. | BCDA DCBA |
| 50. | BDCA CDBA | 68. | BDCA DCAB |
| 51. | BACD CABD | 69. | BACD DBCA |
| 52. | BADC CBAD | 70. | BADC DBAC |
| 53. | BDAC CBDA | 71. | BDAC DABC |
| 54. | BCAD CADB | 72. | BCAD DACB |

Appendix 7: Ballot sheet for the evaluation of cocoa beverages

Name or initials Date.....

Taster number

You have been provided with 4 coded samples for evaluation.

Please rinse your mouth before starting and in between tastings.

(1) Consider all characteristics (appearance, taste, and consistency) and indicate your **overall opinion** for each sample by checking the box that represents your response []. Please taste the coded samples in the following order.

Coded samples

.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely

(2) For each sample, please retaste the sample as needed and indicate your response for both questions (liking and intensity level) for each characteristic (i.e. taste, consistency, and willingness to purchase) by checking the box that represents your response []..

Please taste the coded samples in the following order.

(a) Taste

Liking

Coded samples

.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike extremely				Like nor dislike				Like extremely

Intensity

Coded samples

.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No sweetness								High sweetness
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No sweetness								High sweetness
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No sweetness								High sweetness
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No sweetness								High sweetness

(b) Consistency

Please taste the coded samples in the following order.

Liking

Coded samples

.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike				Like nor				Like
	extremely				dislike				extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike				Like nor				Like
	extremely				dislike				extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike				Like nor				Like
	extremely				dislike				extremely
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dislike				Like nor				Like
	extremely				dislike				extremely

Intensity

Coded samples

.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Thin								Thick
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Thin								Thick
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Thin								Thick
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Thin								Thick

(c) Willingness to purchase product

Please taste the coded samples in the following order.

Coded samples

.....	<input type="checkbox"/> Dislike extremely to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like nor dislike to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like extremely to purchase
.....	<input type="checkbox"/> Dislike extremely to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like nor dislike to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like extremely to purchase
.....	<input type="checkbox"/> Dislike extremely to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like nor dislike to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like extremely to purchase
.....	<input type="checkbox"/> Dislike extremely to purchase extremely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like nor dislike to purchase Dislike	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Like extremely to purchase extremely

Appendix 8 Labelling information for cocoa beverages

Bournvita

Name of product:	Bournvita
Net content:	440 g
Price:	¢ 10,500
List of ingredients:	(1) malt extract (2) sugar (3) glucose (4) cocoa powder (5) skimmed milk powder (6) eggs (7) vitamins per 100 g vitamin A - 6000 IU vitamin B1 - 2.0 mg vitamin B2 - 2.0 mg vitamin B6 - 2.5 mg vitamin D - 500 IU niacin - 25.0mg pantothenate - 12.0 mg (8) Mineral salts per 100 g iron - 15.0 mg calcium - 300.0 mg magnesium - 190.0 mg phosphorus - 250.0 mg
Manufacturer:	Cadbury Ghana Limited
Country of origin:	Ghana

Milo food drink

Name of product:	Milo Food Drink
Net content:	200 g
Price:	¢ 5,000
List of ingredients:	(1) malt extract (2) sugar (3) cocoa powder (4) milk solids (5) vanillin (6) vitamins per 100 g vitamin B1 1.6 mg vitamin D - 1130 IU (7) Mineral salts per 100 g iron - 15.0 mg calcium - 520.0 mg magnesium - 240.0 mg phosphorus - 680.0 mg
Manufacturer:	Nestle Ghana Limited
Country of origin:	Ghana

Chocolim

Name of product:	Chocolim
Net content:	500 g
Price:	¢ 6,300
List of ingredients:	(1) vanillin (2) sugar (3) milk solids (4) cocoa powder (5) vegetable oil (6) mineral salts
Manufacturer:	Nestle Ghana Limited
Country of origin:	Ghana

Richoco

Name of product:	Richoco
Net content:	1 kg
Price:	¢ 14,200
List of ingredients:	(1) sugar (2) milk (3) cocoa (4) mineral salts
Manufacturer:	Cadbury Ghana Limited
Country of origin:	Ghana

Appendix 9: Questionnaire on panelist demographics and consumption pattern and behaviour.

Demographics

Name: Sex: Male [] Female []

Age: 18-29 [] 50-59 []

30-39 [] 60-69 []

40-49 [] Above 69 []

Marital Status:

Single [] Married [] Divorced [] Separated [] Widowed []

Ethnic group.....

Level of education: Nil [] Basic [] Secondary [] Tertiary []

Net monthly income:

Below ₺300,000.00 []

₺300,000.00 -₺800,000.00 []

₺800000.00- ₺1,500,000.00 []

Above ₺1,500,000.00 []

Consumption Pattern and Behaviour

(1) Which cocoa beverage do you buy?

(2) How often do you consume cocoa beverages?

(3) Does nutritional quality of the product influence your decision to purchase the product?

Yes [] No []

(4) Does the brand of the product influence your decision to purchase the product?

Yes [] No []

(5) Does the price of the product influence your decision to purchase the product?

Yes [] No []

Thank you for your participation.

Appendix 10: Chi-square analysis of consumer expectations of the consistency of product quality across the sexes ^a. (Expected frequency for each cell in parenthesis)

Sex	Number of times consumers expect product quality to be consistent with each purchase (frequency)		Row Total
	Every time	Most of the times	
Male	33 (33.8)	17 (16.2)	50
Female	42 (41.2)	19 (19.8)	61
Column Total	75	36	111

Summary statistics of Fisher's exact test.

Pearson Chi-Square = 0.102, df = 1, p = 0.839.

^aNumber of respondents being 111.

Appendix 11: Chi-square analysis of consumer expectations of the consistency of product quality across marital status of consumers ^a. (Expected frequency for each cell in parenthesis).

Marital status	Number of times consumers expect product quality to be consistent with each purchase (frequency)		Row Total
	Every time	Most of the times	
Single	19 (22.9)	15 (11.1)	34
Married	55 (51.1)	21 (24.9)	76
Column Total	74	36	110

Summary statistics of Fisher's exact test.

Pearson Chi-Square = 2.900, df = 1, p = 0.123.

^a Number of respondents being 110.

Appendix 12: Chi-square analysis of consumer expectations of the consistency of product quality across educational levels of consumers ^a. (Expected frequency for each cell in parenthesis).

Educational level	Number of times consumers expect product quality to be consistent with each purchase (frequency)		Row Total
	Every time	Most of the times	
Secondary	19 (18.3)	8 (8.8)	27
Tertiary	54 (54.8)	27 (26.3)	81
Column Total	73	35	108

Summary statistics of Fisher's exact test.

Pearson Chi-Square = 0.127, df = 1, p = 0.722.

^aNumber of respondents being 108.

Appendix 13: Chi-square analysis of consumer expectations of the consistency of product quality across different income levels of consumers ^a. (Expected frequency for each cell in parenthesis).

Income levels (¢)	Number of times consumers expect product quality to be consistent with each purchase (frequency)		Row Total
	Every time	Most of the times	
Below 300,000.00	6	5	11
300,000.00 - 800,000.00	38	16	54
Above 800000.00	31	15	46
Column Total	75	36	111

Summary statistics.

Pearson Chi-Square = 1.045, df = 2, p = 0.593

^aNumber of respondents being 108.

Appendix 14: Chi-square analysis of quality definition by caliber (department) of personnel providing definition ^a. (Expected frequency for each cell in parenthesis).

Department of personnel or personnel defining quality	Quality definition (frequency)			Row Total
	Degree of excellence	Conformance to specifications	Customer satisfaction	
General manager	20 (20.9)	18 (14.7)	24 (26.5)	62
Production department	6 (7.1)	1 (5.0)	14 (9.0)	21
Quality Assurance department	11 (9.1)	7 (6.4)	9 (11.5)	27
Column Total	37	26	47	110

Summary statistics

Pearson Chi-Square = 8.198, df = 4, p = 0.085.

^a Number of respondents being 110.

Appendix 15: Chi-square analysis of ‘impression manufacturer had about quality awareness of consumer’ by ‘willingness of manufacturers to produce quality products’^a. (Expected frequency for each cell in parenthesis).

Manufacturer attitude towards the production of quality products	Manufacturer’s impression of customer (frequency)		Row Total
	Consumer is not quality conscious	Consumer is quality conscious	
Not discouraged to produce quality product because of cost involved	20 (21.0)	46 (45.0)	66
Discouraged to produce quality product because of cost involved	15 (14.0)	29 (30.0)	44
Column Total	35	75	110

Summary statistics of Fisher’s exact test.

Pearson Chi-Square = 0.175, df = 1, p = 0.682

^aNumber of respondents being 110.

Appendix 16: Chi-square analysis of 'number of precautionary measures taken by manufacturer to ensure quality of his product' by 'extent to which manufacturer associates cost with quality' ^a. (Expected frequency for each cell in parenthesis).

Number of precautionary measures taken by manufacturer to ensure quality of his product	Extent to which manufacturer associates cost with quality (frequency)		Row Total
	Very large extent	Large extent	
0	7 (6.3)	16 (16.7)	23
1	18 (16.50)	42 (43.5)	60
2 or more	3 (5.2)	16 (13.8)	19
Column Total	28	74	102

Summary statistics

Pearson Chi-Square = 1.596, df = 2, p = 0.450.

^aNumber of respondents being 110.

Appendix 17: Chi-square analysis of 'number of precautionary measures taken by manufacturer to ensure quality of his product' by 'impression manufacturer had about quality awareness of consumer' ^a. (Expected frequency for each cell in parenthesis).

Number of precautionary measures taken by manufacturer to ensure quality of his product	Manufacturer's impression of customer (frequency)		Row Total
	Consumer is not quality conscious	Consumer is quality conscious	
0	7 (7.3)	16 (15.7)	23
1	20 (21.0)	46 (45.0)	66
2 or more	8 (6.7)	13 (14.3)	21
Column Total	35	75	110

Summary statistics

Pearson Chi-Square = 0.472, df = 2, p = 0.790.

^a Number of respondents being 110.

Appendix 18 A- G: Analysis of variance for sensory attributes and purchase likelihood for cocoa beverages.

(A) Dependent variable: Overall liking

Source of variation	Type III Sum of Squares	df	Mean Square	f-value	p-value
Corrected Model	532.583 ^a	74	7.197	1.388	0.037
Intercept	8234.722	1	8234.722	1587.766	< 0.001
Sample	180.806	3	60.269	11.621	< 0.001
Taster	351.778	71	4.955	0.955	0.580
Error	1104.694	213	5.186		
Total	9872.000	288			
Corrected Total	1637.278	287			

^a R Squared = .325 (Adjusted R Squared = .091).

Duncan's Multiple Range post-hoc test ^a

Sample presented	N	Subset for alpha = .05	
		1	2
Bournvita	72	4.32	
Milo	72	4.83	
Chocolim	72		6.08
Richoco	72		6.15
Sig.		0.176	0.855

^a Means for groups in homogeneous subsets are displayed.

(B) Dependent variable: Taste

Source of variation	Type III Sum of Squares	df	Mean Square	f	Sig.
Corrected Model	564.618 ^a	74	7.630	1.550	0.008
Intercept	9441.670	1	9441.670	1917.663	0.000
Sample	307.538	3	102.513	20.821	0.000
Taster	257.080	71	3.621	0.735	0.934
Error	1048.712	213	4.924		
Total	11055.000	288			
Corrected Total	1613.330	287			

^a R Squared = .350 (Adjusted R Squared = .124)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05		
		1	2	3
Bournvita	72	4.10		
Milo	72		5.57	
Richoco	72			6.58
Chocolim	72			6.65
Sig.		1.000	1.000	0.851

^a Means for groups in homogeneous subsets are displayed

(C) Dependent variable: Consistency

Source of variation	Type III Sum of Squares	Df	Mean Square	f	Sig.
Corrected Model	493.583 ^a	74	6.670	1.248	0.113
Intercept	8668.056	1	8668.056	1621.889	0.000
Sample	166.639	3	55.546	10.393	0.000
Taster	326.944	71	4.605	0.862	0.766
Error	1138.361	213	5.344		
Total	10300.000	288			
Corrected Total	1631.944	287			

^a R Squared = .302 (Adjusted R Squared = .060)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05		
		1	2	3
Bournvita	72	4.33		
Milo	72		5.35	
Richoco	72		5.88	5.88
Chocolim	72			6.39
Sig.		1.000	.171	0.182

^a Means for groups in homogeneous subsets are displayed

(D) Dependent variable: Taste intensity

Source of variation	Type III Sum of Squares	Df	Mean Square	f-value	p-value
Corrected Model	946.861 ^a	74	12.795	3.187	< 0.001
Intercept	6050.000	1	6050.000	1506.948	< 0.001
Sample	677.861	3	225.954	56.281	< 0.001
Taster	269.000	71	3.789	0.944	0.604
Error	855.139	213	4.015		
Total	7852.000	288			
Corrected Total	1802.000	287			

^a R Squared = 0.525 (Adjusted R Squared = 0.361)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05	
		1	2
Milo	72	2.79	
Bournvita	72	3.33	
Richoco	72		6.01
Chocolim	72		6.19
Sig.		0.105	0.589

^a Means for groups in homogeneous subsets are displayed

(E) Dependent variable: Consistency intensity

Source of variation	Type III Sum of Squares	Df	Mean Square	f	Sig.
Corrected Model	542.278 ^a	74	7.328	1.576	0.006
Intercept	6903.125	1	6903.125	1484.322	0.000
Sample	159.903	3	53.301	11.461	0.000
Taster	382.375	71	5.386	1.158	0.213
Error	990.597	213	4.651		
Total	8436.000	288			
Corrected Total	1532.875	287			

^a R Squared = 0.354 (Adjusted R Squared = 0.129)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05	
		1	2
Bournvita	72	4.10	
Milo	72	4.21	
Richoco	72		5.58
Chocolim	72		5.69
Sig.		0.757	0.757

^a Means for groups in homogeneous subsets are displayed.

(F) Dependent variable: Purchase likelihood before reading of product labels

Source of variation	Type III Sum of Squares	Df	Mean Square	f	Sig.
Corrected Model	579.500 ^a	74	7.831	1.402	0.033
Intercept	7959.014	1	7959.014	1425.212	0.000
Sample	289.014	3	96.338	17.251	0.000
Taster	290.486	71	4.091	0.733	0.937
Error	1189.486	213	5.584		
Total	9728.000	288			
Corrected Total	1768.986	287			

^a R Squared = 0.328 (Adjusted R Squared = 0.094)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05		
		1	2	3
Bournvita	72	3.89		
Milo	72		4.71	
Richoco	72			6.17
Chocolim	72			6.26
Sig.		1.000	1.000	0.805

^a Means for groups in homogeneous subsets are displayed.

(G) Dependent variable: Purchase likelihood after reading product labels

Source of variation	Type III Sum of Squares	Df	Mean Square	f	Sig.
Corrected Model	349.201 ^a	74	4.719	0.954	0.584
Intercept	10212.587	1	10212.587	2065.378	0.000
Sample	138.538	3	46.179	9.339	0.000
Taster	210.663	71	2.967	.600	0.993
Error	1053.212	213	4.945		
Total	11615.000	288			
Corrected Total	1402.413	287			

^a R Squared = 0.249 (Adjusted R Squared = -0.012)

Duncan's Multiple Range post-hoc test^a

Sample presented	N	Subset for alpha = .05		
		1	2	3
Bournvita	72	4.86		
Milo	72		5.89	
Richoco	72		6.37	6.37
Chocolim	72			6.69
Sig.		1.000	0.190	0.389

^a Means for groups in homogeneous subsets are displayed.

Appendix 19 A-C: Analysis of variance of regression models.

(A) Dependent variable: Overall liking

Source of variation	Type III Sum of Squares	Df	Mean Square	f-value	p-value
Regression	780.543	2	390.272	129.827	< 0.001
Residual	856.734	285	3.006		
Total	1637.278	287			

(B) Dependent variable: Purchase likelihood before reading of product label

Source of variation	Type III Sum of Squares	Df	Mean Square	f-value	p-value
Regression	1017.438	3	339.146	128.159	< 0.001
Residual	751.548	284	2.646		
Total	1768.986	287			

(C) Dependent variable: Purchase likelihood after reading of product label

Source of variation	Type III Sum of Squares	Df	Mean Square	f-value	p-value
Regression	164.410	2	82.205	18.924	< 0.001
Residual	1238.003	285	4.344		
Total	1402.413	287			

Appendix 20: Analysis of variance for sensory attributes of consumers of different socio-economic background for cocoa beverages.

Dependent variable	Source of variation	Type III Sum of Squares	df	Mean Square	f	Sig.
Overall liking	Sex	21.984	1	21.984	3.892	0.049
	Residual	1615.294	286	5.648		
	Total	1637.278	287			
Overall liking	Education	36.212	2	18.106	3.223	.041
	Residual	1601.065	285	5.618		
	Total	1637.278	287			
Consistency intensity	Sex	34.413	1	34.413	6.568	.011
	Residual	1498.462	286	5.239		
	Total	1532.875	287			

Duncan's Multiple Range post-hoc test for overall acceptance mean scores for panellist of different educational levels ^a

Educational level of panelists	N	Subset for alpha = .05	
		1	2
Basic	20	4.05	
Secondary	228		5.44
Tertiary	40		5.48
Sig.		1.000	.947

^a Means for groups in homogeneous subsets are displayed.