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Quality and food total quality: A Mini Review

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Abstract

The goal of this paper was to discuss different ideas about quality in general and food quality in particular. The first part presents the concepts of Quality and Total Quality. Nowaday, because the manufacturers are always trying to provide super quality, there is a tendency to diminish the differences between the quality and total quality concepts. The second part presents the dimensions of the food quality, according with different researchers' opinions, and highlights the main differences between Food Safety and Food Security. In our opinion, sensory quality, food safety and food security are the three main dimensions of food quality. Also, none of them is more important than the other for food quality.

Keywords: hedonic, nourishing, quality, food, humans

1.Introduction

The demand for high quality food has constantly increased during recent years, as has the interest in the food quality issue both in response to market pressure and also as a reaction to other factors (health and environmental concerns) [1].

Despite its common use, the term "quality" is not easy to define because the general term "quality" is subjective. In the most generic sense, quality refers to the combination of characteristics that establish a product's acceptability [2].

Many people think Food Safety and Food Security is the same thing. Also, the difeferences between the Food Quality and Food Safety are not very clear for a lot of people. Although closely related, there is a differences between these notions. Therefore, this study tried to make things clearly. After critically reviewing the current literature the research objectives were established. The key objectives of the present research are: to understand the concepts of Quality and Total Quality; to present the dimensions of food quality and to highlight the main differences between food Safety and Food Security.

2. Material and Methods

A large number of bibliographic references were analyzed (approximately 70). The materials corresponding to the main purpose of the paper were analyzed and the opinions of the authors were presented

3. Results and discussions

3.1. Quality and total quality concepts

The traditional concept of quality is associated with the notion of providing a product or service which is distinctive and special and which confers status on the owner or use. This category is a dynamic concept is associated with an important emotional and moral force, which makes it difficult to define. This is why: "Quality is a slippery concept", there are several meanings, and the term "quality" implies different things for different people [3]. This could be the reason why quality has a very large number of definitions (Table 1).

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Table 1. Definitions of quality by different authors

Authors	**The quality means:**
Cicerone	" way of being" (qualis - *modus essendi*)
Juran și Gryna, 1973 [4]	the ability to meet the needs or the extent to which the product successfully meets the expectations of consumers
Crosby, 1979 [5]	meeting specifications
Japanese industry standard JIS 78101: 1981 [6]	the totality of the characteristics or performances of a good/service, which determines its ability to correspond, to match the destination given by the client, with the intention of using the client.
Grönroos, 1984 [7]	fully meeting consumer expectations
Ball, 1985; Reynolds, 1986; Crawford, 1991 [8-10]	fitness for purpose
Walsh, 1991 [11]	conformance to a specification or standard
Zink, 1994 [12]	meeting the requirements for long-term customer satisfaction
Abby și Peter, 1994 [13]	the degree to which a product or service matches its use or use
Ilieș, 2003 [14]	customer satisfaction
SR EN ISO 9000:2006 [15]	the extent to which a set of intrinsic characteristics meets the requirements

A. Feigenbaum (1961) states: "Quality does not mean the best product/service in the absolute sense, but the best product/service under the conditions imposed by the customer, conditions arising from the use and the selling price"[16].

In our opinion, quality is the ability of a product or service to meet the needs (requirements, needs) of the consumer, the final beneficiary, both the explicit needs - expressed by quality requirements and the implicit needs - potential needs that the consumer does not know or not can express them. It is similary with the definition of ISO 9000:2000 terminology, where quality means "the set of properties and characteristics of a good or service that gives it the ability to meet the needs expressed or implied" [17].

A company builds its product specifications and label requirements around customer preferences. This is why, he is the management's guide to quality [18].

There are authors who define quality in terms of exceeding customer expectations and needs [14]. Stanciu, 2002: quality means meeting and exceeding consumer expectations [19].

But extremely high standards of production, delivery and presentation are set which can only be achieved at great expense, or with the use of scarce resources, thus putting them out of reach of the majority of the population. The notion of exclusivity is implied [3].

Our opinion is that we live in a new era, that of super quality, with the specification that special attention must be paid to the expectations and potential needs of customers.

Quality and total quality are two different notions. When we say quality we refer strictly to the quality of the product for the consumer. The total quality brings, in addition, the quality of the producer/consumer relationship, compliance with the requirements for all stakeholders, etc. It follows two definitions of quality, definitions that emphasize these differences.

Kélada, 1991, defines total quality as "meeting the needs of the customers in terms of the quality of the product or service, delivering the required quantity, at the desired time and place, at the lowest possible cost to the customer, in effective cordial relations, with an error-free administrative system, from the elaboration of the order and until the payment of the invoice"[20].

Also, *Șraum (2000)* shown that quality is "the expression of the degree of social utility of the product, the extent to which, through all its technical-functional, psycho-sensory and economic parameters, it satisfies the needs for which it was created and respects the restrictions imposed by the general interests of society on economic efficiency, protection of the natural and social environment" [21].

3.2. The dimensions of food quality

There is a tendency of experts as to give, to some components of quality, a greater or lesser importance depending on the field in which they operate. *Peri, 2006*, (figure 1) noticed the opinions of such categories of experts, each of them considering his field as having a crucial role in achieving the quality of the products [22].

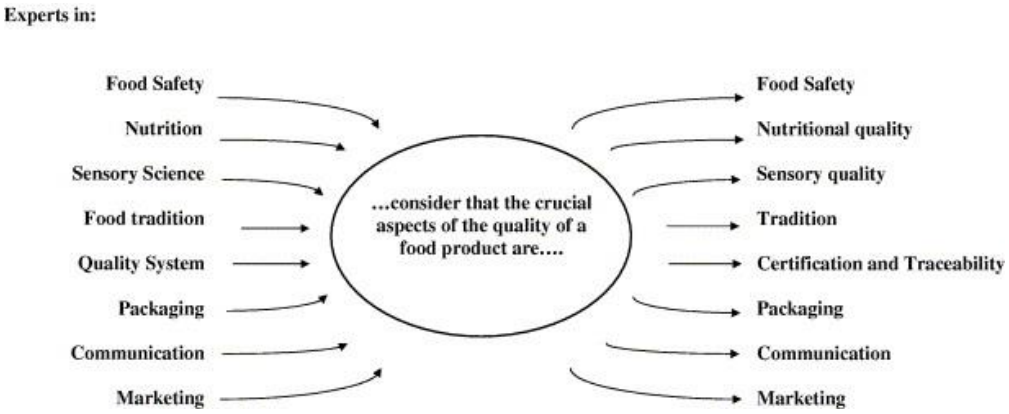

Figure 1. The opinions of such categories of experts about quality

Food quality is a central issue in today's food economics [23], and the last few decades testify that consumers' concerns for healthier lifestyles and environment care are driving forces for reshaping food buying intentions and their perspectives on food quality.

Molnar (1995), food quality is the assemblage of attributes (such as physical properties, chemical composition, sensory attributes, microbiological and toxicological contaminants, shelf-life, packaging, and labeling) that determine the product's performance, are in dynamic interrelation, and influence the consumer in accepting or rejecting the product [24]. Giovannucci and Satin, 2007, define food quality, in the food industry, as an integrated measure of purity, flavor, texture, color, appearance and workmanship [2].

The dimensions, which cover the major aspects of food quality found from numerous focus group studies [25], appear to be universal, and there are taste and appearance, health, convenience, and process.

Druga, 2007, defines the quality of food products intended for human food consumption through three aspects: sensory quality, salubrity and trophic-biological value [26].

Sensory quality - food should be established, prepared and presented in such a way as to please and satisfy the psychosensory requirements of the consumer. ***The sensorial quality***, which is represented by the hedonic characteristics of food (taste, appearance and smell) constitute a central dimension of quality for consumers. This requires the marketing of products with a pleasing appearance, color, consistency, odor and taste.

As simple as the following market rule may sound, if consumers don't like the appearance, flavour or texture of a given food product, they won't buy it. [27].

Health is a quality dimension that has become very important to many consumers, and a number of studies indicate that, today, health is as important as taste, and that consumers form preferences based on this dimension motivated by expectations of both a longer life and one of higher quality [28].

A proper health could be ensured only with healthy food, which means safe and complete food. Therefore, ***food safety*** and nourishing value (***food security*** for individuals) are other main dimensions of food quality.

Food safety involves foods that do not cause disease or some disorder of the body's functions. According to the Codex Alimentarius Commission (CAC), "food safety is the assurance that food will not cause harm to the consumer when it isprepared and/or eaten according to its intended use". An understanding of food safety is improved by defining two other concepts — toxicity and hazard [29]. *Toxicity* is the capacity of a substance to produce harm or injury of any kind under any conditions. *Hazard* is the relative probability that harm or injury will result when substance is not used in a prescribed manner and quantity.

Food safety is the absence, or safe acceptable levels, of hazards in food that may harm the health of consumers. Foodborne hazards can be microbiological, chemical or physical in nature and are often invisible to the plain eye; bacteria, viruses or pesticide residues are some examples [30].

The main tool for food safety ensuring is HACCP. This is a systematic set of activities used to control food production in order to ensure food safety and prevent changes in foodstuffs. The system is based upon the use of control practices in given production steps where there is a greater probability of occurrence of health hazards [31]. Hazard represent a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect [29]. HACCP plan is not a standalone program. To provide a good base for a strong HACCP program Good Manufacturing Practices, Sanitation Control Procedures and other pre-requisite programs are needed (Figure 2) [32].

Figure 2. Food Safety Pyramid

GMP and SSOP programs involve aspects of the food industry, such as physical structure and maintenance, water supply, personal hygiene, pest control, sanitization techniques and equipment, calibration of instruments, and quality control of raw material and ingredients [33]. GMP are based upon four points: exclusion, removal of undesirable and foreign matter, inhibition, and destruction of undesirable microorganisms. The elements that make up GMP are: the facility and its surroundings, the staff, cleaning and sanitization processes; equipment and utensils; processes and controls; and storage and distribution [31]. SSOP are written procedures developed and implemented in a facility to prevent direct contamination or adulteration of the products. SSOP include a complete description of the specific activities required to maintain utensils and equipment free of pathogenic microorganisms and minimal deteriorating microbiota, preventing the contamination of foodstuffs that get in contact with these utensils and equipment [34].

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern [35]. The trophic-biological value - is ensured only when the quantity, quality and proportion of the nutritional components of the food satisfy, at an optimal level, the plastic and energetic needs of the organism. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity [36].

4.Conclusions

This research started with the basic concepts for products quality. The explanations for the total quality followed, highlighting the similarities, but especially the differences between the two concepts. Due to the fierce competition between the manufacturers, there is a tendency, on the one hand, to offer products of a higher quality than the customers' expectations, and on the other hand to involve the social environment in the product life cycle. The result is a reduction in the difference between the concept of quality and that of total quality.

Although different categories of experts in food quality give higher weights to some dimensions of quality corresponding to their areas of activity, the interrelationships between these dimensions make them equally important. Food safety, as well as food security, are two components of food quality, wich are very well defined in the research literature.

Compliance with Ethics Requirements. Authors declare that they respect the journal's ethics requirements. Authors declare that they have no conflict of interest and all procedures involving human or animal subjects (if exist) respect the specific regulation and standards.

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