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SCIENTIFIC FOUNDATIONS OF ARTISTIC CONSTRUCTION OF TABLEWARE FOR CONTEMPORARY DINING ENVIRONMENTS

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Abstract

This article examines the scientific foundations of tableware design used in contemporary public and specialized dining systems. It analyzes the concept of the functional process, the adaptation of tableware form and construction to specific conditions of use, as well as ergonomic and hygienic requirements. Particular attention is paid to the significance of artistic construction methods in the design of porcelain tableware and to issues of integration with sculptural art. The study substantiates the potential for enhancing both the aesthetic and practical value of tableware through the harmonious integration of national artistic traditions with modern technologies.

Keywords

tableware design, artistic construction, functional process, porcelain tableware, ergonomics, sculptural art, public catering system, industrial design.

In recent years, the rapid development of the public catering system, its increasing organizational and technological complexity, and the emergence of new service formats have fundamentally transformed the conditions under which tableware is used. In contemporary dining environments: particularly in air transport, field conditions, self-service canteens, and fast-food and mobile catering outlets – tableware is now required to meet not only visual and decorative criteria but also strict functional, ergonomic, and technological requirements [3:27]. Under these conditions, tableware is regarded as an integral component of the consumption process, and its form, dimensions, weight, and structural design have a direct impact on the overall quality of service.

It is observed that traditional forms of porcelain tableware fail to provide sufficient convenience in many modern operating conditions, thereby reducing their functional efficiency. This limitation becomes especially evident in environments where space saving, ease of transportation, mechanical strength, and resistance to repeated washing are essential requirements. Consequently, the design of tableware can no longer rely solely on empirical experience; instead, the application of scientifically grounded approaches – specifically, artistic construction methods has become a pressing necessity [1:45]. Artistic construction enables the integration of a product's functional purpose, structural organization, and aesthetic appearance into a unified system and is therefore recognized as one of the key directions of industrial design.

Within tableware design, the concept of the "functional process" occupies a central position. The functional process encompasses the entire sequence of stages, from production and storage to transportation, use, and final exploitation of the object. Analyzing this process makes it possible to assess the appropriateness of the selected form and structural solution of tableware [3:63]. In particular, the convenience of placing food in the vessel and consuming it is closely interconnected with aesthetic solutions; these two factors should not hinder one another but

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rather manifest in a harmonious relationship. Furthermore, the ability of tableware to occupy minimal space during stacking, storage, and transportation constitutes one of the most important criteria in its structural design.

Hygienic requirements also form an integral part of the functional process. The smoothness of surfaces, the absence of micro-organism retention after washing, and the chemical neutrality of materials in contact with food are of critical importance from the standpoint of human health [1:78]. At the same time, issues of mechanical strength and durability are directly related to the quality of raw materials, wall thickness, and structural solutions, and they require particular attention under conditions of intensive and mass exploitation.

Every usage environment demands a specific functional process. Consequently, tableware that is optimal for one set of conditions may prove ineffective or entirely unsuitable in another. When working on a design, a designer must first thoroughly study who will use the item, in what context, and under what conditions. Existing analogues are analyzed before developing an original design solution [2:41]. In this process, incorporating national artistic values is also of significant importance, and the designer's key task is to harmonize these traditions with contemporary forms and technologies.

The characteristics of tableware design differ substantially across various dining environments. Tableware used in residential settings is typically categorized into kitchen utensils, everyday dining and tea sets, and festive or ceremonial tableware [4:56]. Festive tableware serves not only a practical function but also a decorative one, acting as a significant artistic element within the interior. Therefore, the harmony of form, color, and decorative solutions in this category of tableware is of particular importance.

Tableware used in public catering establishments is distinguished by its intensive operational demands. In restaurants where waitstaff provide service, traditional large and varied forms of tableware are retained, whereas in self-service systems, compactness, standardization, and compatibility with trays become primary considerations. Tableware designed to be used in conjunction with trays must be mutually compatible in size and shape, ensuring ease of transport and placement [3:91]. Specialized dining outlets, such as barbecue restaurants, tea houses, or fast-food establishments, require custom-designed tableware tailored to the specific characteristics of their menu offerings.

At present, the demand for tableware designed for transport and specialized conditions is also increasing. Tableware intended for airplanes, field environments, and long-distance truck drivers must meet criteria such as stackability, space efficiency, resistance to movement, and thermal stability [3:104]. In particular, airplane service dishes must be designed to fit precisely within cabinets, coolers, and folding tables.

The scientific foundations of artistic construction constitute the theoretical basis of industrial design. Applying this methodology in the design of porcelain tableware enhances the quality of mass-produced products, adapts them to operational requirements, and elevates their aesthetic level. In today's context, where the production volume of porcelain tableware is increasing due to new technological lines and factories, ensuring that each industrial sample is carefully designed holds significant economic and artistic value [1:112]. Products that are ergonomically convenient, durable, and aesthetically refined are also more competitive in the market.

The integration of sculptural art principles into tableware design represents a key qualitative aspect of contemporary design practice. The creation of porcelain and faience tableware, an important branch of applied art, relies on three-dimensional, sculptural thinking. Each piece is considered as a volumetric object in which mass, proportion, silhouette, plasticity, and rhythm

play a crucial artistic role [4:73]. The proportional relationship between the outer contour and the inner cavity of the vessel requires an approach akin to sculptural composition.

The expressive quality of form in sculpture holds as much significance in tableware design, where the shape must ensure both functional convenience and artistic impact [2:88]. In this regard, the principles of simplicity, unity, and balance fundamental in sculptural practice serve as essential methodological foundations in artistic construction.

In contemporary contexts, ergonomics has emerged as a distinct scientific direction in tableware design. An ergonomic approach ensures that the shape of the vessel, the placement of handles, the center of gravity, and volume ratios correspond to human physiological capabilities. Poorly designed tableware can not only cause discomfort during use but may also lead to muscle strain and inefficient movements over prolonged periods [1:96]. Therefore, ergonomic analysis is considered a mandatory stage in the artistic construction of tableware.

Material selection is another critical factor determining the operational qualities of tableware. The composition of porcelain and faience products, firing temperatures, and glaze coatings directly affect durability, heat retention, and hygienic performance. Modern production employs high-strength porcelain, allowing for thinner walls and lighter weight, which is particularly important for tableware intended for public catering and transport settings [3:118]. Technological factors impose constraints and provide opportunities in shaping tableware. Molding, pressing, and casting methods each set specific limits on shape and size. Designers must have an in-depth understanding of production capabilities to align their artistic vision with technological processes [1:134]. Failure to do so may result in visually appealing designs that are economically unfeasible for mass production.

Standardization and unification also play a significant role in tableware design, especially in public catering systems. Producing items within certain size and shape parameters facilitates storage, washing, and transport. However, standardization should not restrict artistic expression [3:142]. Designers are thus tasked with balancing technical requirements and aesthetic individuality.

Incorporating national artistic traditions into contemporary tableware design is increasingly important in the era of globalization. When traditional motifs, forms, and color harmonies are integrated with modern technologies, the product gains not only aesthetic value but also cultural identity [4:91; 12:164]. This approach elevates tableware from a mere household object to a cultural-artistic artifact.

Environmental considerations are also becoming a priority in modern tableware design. The use of recyclable materials, reducing waste during production, and ensuring long product lifespan are central principles of sustainable design [11:150]. This approach benefits both environmental protection and production efficiency.

In conclusion, the development of contemporary public and specialized catering systems necessitates a fundamental reconsideration of approaches to tableware design. Today, tableware is not merely an auxiliary object for food consumption but an integral component of complex functional processes, mediating the interaction between humans and their environment. Therefore, the design process must analyze functional, ergonomic, hygienic, technological, and aesthetic factors as a unified system. Research indicates that each dining environment residential, public catering, transport, and specialized settings has unique requirements. Tableware designed without accounting for these requirements is operationally inefficient. Only when the shape, size, weight, and structural design are adapted to specific usage conditions can high convenience and long service life be ensured, emphasizing the necessity of a thorough functional process analysis during design. Applying artistic construction methods establishes a scientifically grounded

approach to tableware design, balancing aesthetic appearance with operational performance. These methods harmonize the external form of the vessel with its internal functional essence, resulting in mass-produced porcelain and faience products that are technically sound and artistically compelling. As shown, the integration of sculptural principles in tableware design enriches its volumetric and plastic expression. The balance of mass and proportion, clarity of silhouette, and simplicity and unity of form enhance both visual appeal and practical usability. Applying the artistic laws of sculpture elevates tableware to items that are aesthetically refined and functionally justified. Furthermore, integrating national artistic traditions with modern technologies has become a strategic direction in tableware design. Scientifically grounded application of traditional shapes and decorative elements enhances the cultural significance of the product and strengthens its competitiveness in the international market. In this process, the designer assumes responsibility not only as a creator but also as a custodian of national culture. Overall, contemporary tableware design represents a complex creative-technological process that requires a multidisciplinary approach, integrating design, engineering, art, and manufacturing technologies. Thorough analysis of functional processes, the use of artistic construction methods, and a design approach harmonized with sculptural art increase the aesthetic, operational, and economic effectiveness of tableware. Such an approach may serve as a significant scientific and practical foundation for the future development of public catering systems and household tableware design.

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