



Visual Application of Fitness Concept Infused in Cigarette Package

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Abstract. Based on the summary of fitness concept and package fitness design, this paper attempts to extract the functional value of fitness concept and use it in cigarette package. Through theoretical combing and case analysis research, a fit packaging design system consisting of 4 main stages is constructed. From the angle of structural fitness and visual fitness, the fitness concept is integrated as a part of cigarette package design. And the scheme is comprehensively evaluated by fuzzy model. The design can attain the end of creating value added for package, confer utility, emotional experience and aesthetic function to the cigarette package, enhance the market competitiveness of the product, and improve the branding awareness of the cigarette with personalized product.

Keywords: Visual application, Fitness concept, Fuzzy model

1 Introduction

Over the years, The overall size of the cigarette market has increased year by year, but the growth rate has dropped significantly (Fig.1).Cigarette package design has captured extensive attention and many brand owners have considered it as one of the critical factors enhancing brand competitiveness. Because cigarette packaging involves an integrated use of history, psychology, philosophy, linguistics, and sociology, designers are advised to know the religious background, customs and local social and cultural implication of cigarette brand, then make creative design, boost the development of local culture, and carry forward the history and culture [1]. The majority of cigarette packages available on the market are long paper box structures, which are deficient in single form and lack of innovation. In the era featuring the fast-paced consumption, a single form of packaging structure lags behind the consumer needs. Designers are advised to solve the pains of consumers and design more creative packages. With the utility function retained, designers are advised to design personalized and representative cigarette packages. The infusion of fitness concept in cigarette packaging can enhance the visual art feature of packages, and deliver good emotional experience to consumers, which in turn attain the end of selling products.

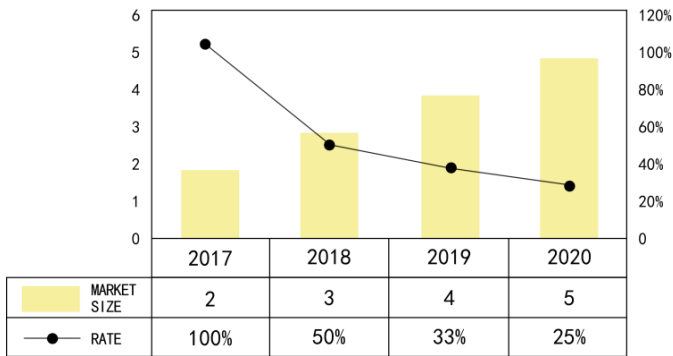


Fig. 1. Cigarette market size and growth rate

2 Fitness Concept and Package Fitness Design

2.1 Fitness concept

Fitness, also referred to as “conformity” or “agreement”, means a state of harmonious entity achieved by infusing several things craftily. This state can be reflected in “jigsaw puzzle”, a puzzle game invented as early as 4,000 years ago. In this puzzle toy, a piece of square thin board is divided in seven small pieces which can be freely combined to assorted geometric shapes such as flowers, birds and insects, and animated figures. Its highly flexible changes and crafted design can lead to active thinking and improve imagination [2]. This form of fitness not only delivers good aesthetic feeling to consumers, but also creates a comfortable emotional experience. From the perspective of design theory, fitness infuses a plurality of associated components to a unit and thus attains a certain purpose. Alternatively, it divides a unit into several components and each would fulfill its own function and role.

2.2 Package fitness design

The grand industrial production has boosted the thriving of assorted commodities, and package design has captured extensive attention. Undoubtedly, the thriving commodity economy has fueled on the great leap of package industry. At present, package is playing a greater part in product selling, which constitutes an integral part of daily life and brings great convenience to our living. For package design, the fitness of form and structure is an important criterion for beauty in form, which reconciles our design works until a sort of equilibrium is reached, thus delivering an “aesthetic” visual perception. For commodity package, individual elements are associated each other, fitness can group them into an integral unit and confer a new form of expression and utility function to commodities. Emotional fitness design enhances the emotional tie between product and consumers and confers emotional elements to the package, which in turn makes the product more acceptable to consumers and boosts sales.

3 Functional value of package fitness

A product cannot come without package which not just serves the single purpose of containing articles. A good package should appear to be nice and ornamental while protecting the product. Package design results from combining certain factors such as purpose of packaging, elements, and functional requirements. Package fitness has function and utility and different fitness modes can improve the aesthetics of viewers and make consumers more interactive with the product, which in turn creates functional value added for package fitness [3]. Through theoretical combing and case analysis and research, combined with perceptual intuition and rational logic, a fit packaging design system consisting of 4 main stages is constructed (Fig.2).

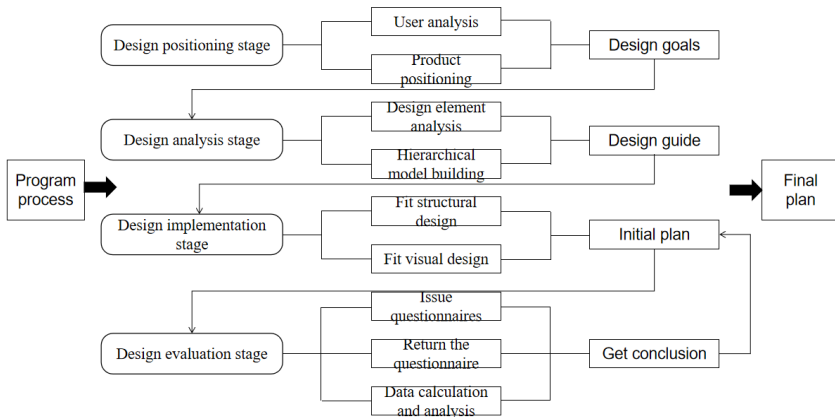


Fig. 2. Design system model

3.1 Utility function

The high degree of function and form infusion is considered as one of the important characteristics of good design. Package fitness design features distinctive form and model. However, the essential package functions cannot be ignored in that function always speaks louder than form. A package should have the function that meets the requirements under a plurality of scenarios such as transportation, storage and selling. A successful product package should not only maintain a good ornamental appearance, but also stand out for its crafted function and utility. For cigarette package, the fitness design should be innovative with respect to utility function. From the angle of consumers, the package structure should be creatively used with the inherent attributes of the product, until the brand package features are highlighted and the selling activity is facilitated.

3.2 Emotional experience

Over the years, with extensive attention shifted to psychological development, consumers have been seeking psychological and emotional satisfaction at the time of

consumption. Every design is loaded with the designer's emotional feeling. The use of innovative design method in package design can stimulate some emotional experiences of consumers, which in turn motivates the consumption desire of specific consumer groups. The infusion of fitness concept in package fitness design would enhance its functionality and utility and cater to the spiritual needs of modern people. The emotional fitness design can enrich the emotional elements of product package and enhance the emotional tie between consumers and the product. Distinctive conception and innovation can function as the package design language to bring the product closer to consumers. The interesting design as part of package fitness serves the interactive function between the package and consumers, and also makes the package individualized. When certain human emotional factors are added to a design, the package will be conferred with new features in respect of emotional function [4].

3.3 Aesthetic function

The aesthetic function of package can in turn make the product beautified. Different packaging materials and forms of representation transmit a sense of rhythm and contrast that influence the aesthetic feelings of consumers. An appropriate form of aesthetic expression can enhance the service level of production and marketing. Of the human five senses, vision is the preconceived one, in which color is the immediate representation. [5] Color design with intense visual impact is an integral part of good design, which would influence the emotion and action of consumers. If the fitness concept can be properly used in package design, the material and spiritual needs of consumers will be catered. If the beautify in artistic conception and form as part of design fitness elements can be conveyed by the package vision and structure, the artistic and aesthetic functions of package fitness design can be enhanced.

4 Infusion of fitness concept to cigarette package

The design of cigarette package is intended to prevent cigarettes from mold, moisture and pollution, maintain the shape of cigarettes and protect them against squeezing in transit, make the package look nice, communicate the brand culture, and enhance the elements of brand design. Infusing fitness concept to cigarette package, the author conducts research through structural fitness design and visual fitness design, to the extent that the packaging form leads to a new visual semantics and boosts the design of cigarette package.

4.1 Structural fitness design

The eight diagrams and mortise and the tenon structure show how marvelous the fitness concept is. In modern society, there are many examples featuring the infusion of fitness concept to specific design, which contain the essentials of human wisdom [6]. Designers are advised to probe into the core design concept of cigarette package, and use some techniques such as deconstruction, reorganization and space to optimize the

package design of products. In the light of the human-based design concept, the fresh feelings can be intensified by changing the opening and closing process of paper box in the cigarette package infused with structural fitness design. And this special manner of opening and closing can display the cigarettes well, and bring the product and consumers to positive interaction, which not only highlights the features of brand packaging, but also creates good brand awareness.

Fig.1 shows a cigarette package designed by the author (Fig.3). This package is framed in a sort of paper structure, which can reduce cost and make it convenient for transportation. The pull-draw type of paper box is airtight and can protect the product well. For the opening and closing design, when a consumer pushes up the box, the cover will draw out, which greatly enhances the user experience and fun. Cigarettes are packed in a partition structure, a pack of cigarettes are separated in two partitions, which can protect the products from moisture, contribute to health and suppress the intention of smoking. The openings of two partition bins are disposed at the upper and lower ends of the cigarette pack that are joined by a bond. When one opening is opened, the other opening will not draw out. The opening and closing of cigarette pack is an interesting experience for consumer and reveals the fitness rhythm. This can serve the utility needs of user and enormously enhances the user experience. The interactive package design brings the product closer to consumers and even brings different consumers closer (Fig.4).

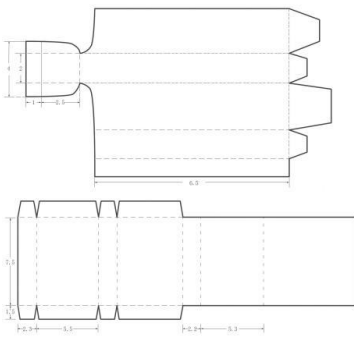


Fig. 3.1. The structure of the packaging Box (author's own drawing)



Fig 3.2 Cigarette packaging structure design (author's own drawing)



Fig. 4. Comparison of test results designed by the author

4.2 Visual fitness design

Structural fitness design is undoubtedly important in package design. However, the effect of visual expression is also one of the critical factors attaining the value of cigarettes. Good vision would further enhance the overall brand form. Color assortment is a critical factor of visual fitness. The package color can reflect that the objective product is aligned with the design idea.

Fig.4 is the outer package of cigarettes designed by the author (Fig.5), the picture is composed of the sun and the moon, the visual color is represented in the form of blue and orange contrast, the visual style is flat that intensely impacts the viewers. Inspired by the upper and lower openings of cigarette pack, the author wants to infuse the sun and the moon. When a cigarette pack is opened, it looks like the rising moon or sun, which attains the visual fitness. The design of cigarette package should not only consider form and vision, but also confer emotional and cultural elements to the product. In the new age, consumers prefer a sort of packages that express personal emotion in order to meet the needs of cultural consumption.



Fig. 5. Cigarette packaging visual

Design (author's own drawing)

5 Comprehensive Evaluation of Fuzzy Models

Fuzzy mathematical models provide a solution to the quantitative evaluation of subjective fuzzy concepts such as beauty and ugliness, fast and slow, large and small. It mainly consists of 4 vectors (C , V , R , W). Among them, C is a set of evaluation vectors, V is a set of evaluation semantics, R is a fuzzy matrix, W is a set of weighting coefficients, and an evaluation matrix $R = (R_1, R_2, \dots, R_n)^T$, R_i is the single-factor evaluation result of the evaluation factor C_i , $R_i = (r_{i1}, r_{i2}, \dots, r_{im})$. The decision matrix R can be thought of as a C -to- V process that represents a C -to- V fuzzy relationship. Assuming that u is a member function of the fuzzy model and $0 \leq u \leq 1$, then the set of judgment semantics and the set of evaluation vectors are combined, to construct a survey scale (Fig.6).

W	C	V_1	V_2	V_3	V_4
ω_1	C_1	u_{11}
ω_2	C_2	...	u_{22}
...
ω_9	C_9	u_{94}

Fig. 6. Questionnaire survey scale

This fuzzy evaluation takes 50 users of different age groups as the evaluation subjects, with $V=\{V_1, V_2, V_3, V_4\}=\{\text{outstanding, excellent, good, qualified}\}$ as the comment set, with $\beta=(90,80,70,60)$ T is assigned to the comment set. After comprehensively collecting the rating scale, the data is normalized to construct a membership matrix as follows:

$$R_1 = \begin{bmatrix} 0.35 & 0.4 & 0.6 & 0 \\ 0.25 & 0.45 & 0.4 & 0 \\ 0.3 & 0.5 & 0.2 & 0 \end{bmatrix} \quad R_2 = \begin{bmatrix} 0.25 & 0.4 & 0.35 & 0 \\ 0.15 & 0.25 & 0.6 & 0 \\ 0.15 & 0.85 & 0 & 0 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0.35 & 0.6 & 0.05 & 0 \\ 0.5 & 0.4 & 0.1 & 0 \\ 0.3 & 0.45 & 0.25 & 0 \end{bmatrix}$$

After further calculating the fuzzy comprehensive evaluation results, it was converted into a percentile evaluation index of 79.8 points. Judging from the evaluation results of the percentile system, the program belongs to a good level.

6 Conclusion

Form can confer perceptual beauty, while structure can confer rational beauty. The perfect fit of perceptual beauty and rational beauty will in turn enhance the form and structure of package design. The design of product package not only protects the product, but also enhances the brand awareness. Proper package fitness can unveil the cultural elements in product through design. Fitness concept is one of the vital means shaping package form. Designers are advised to flexibly use the fitness concept as an alternative method and principle of design package structure, improve the user loyalty of cigarette product, and bring the cigarette brand characteristics under the spotlight.

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