Advances in Computer Science Research, volume 83

8th International Conference on Social Network, Communication and Education (SNCE 2018)

On Virtual Packaging Design in the Internet + Era

Ying Luo[1]

[1]Wuhan Polytechnic, Wuhan 430000, China

Keywords: Internet + era; Information technology; Virtual products; Virtual packaging design

Abstract. This paper analyzes the premise, technical support and realistic foundation of virtual packaging design, proposes the definition of virtual products, elaborates on the connotations of virtual packaging design and summarizes the three major parts of virtual packaging design: visual, auditory and tactile. Besides, it compares the virtual packaging design and traditional physical packaging from three aspects: concept, technology and expression mode. Based on this, this paper summarizes the various features of virtual packaging design – digital, time reversibility, spatial freedom, interactivity, real-time and transcendence, etc.

Introduction

Packaging design reflects the characteristics of the era. Meanwhile, the progress of the Internet +era also promotes the replacement of packaging design. In the new era, with the rapid development of the information technology and the continuous improvement of virtual reality technology, the Internet is exerting a deeper influence on people's life, thus a new product – "virtual product" is born at the right moment. Correspondingly, the "virtual packaging design" has also brought unprecedented new opportunities and development space for the packaging design industry. To explore and summarize the rules of virtual packaging design is conducive to guide the design of virtual product packaging and keep pace with the time for the sales of goods, which reflects the packaging's commercial value and artistic value, so it is a topic worth in-depth discussion in the Internet + era.

Background of Virtual Packaging Design

The information technology in the Internet + era is the cornerstone of virtual product and virtual packaging design. At present, with the rapid development of the Internet technology, using the computer and the network to process information has infiltrated into various fields of human beings' production and living and has brought about a drastic change to people's production ways and lifestyles.

Virtual reality technology provides the necessary technical support for virtual packaging design. The so-called virtual reality technology refers to the vivid virtual environment integrating visual sense, auditory sense and touching that has been generated by modern high-tech with computer technologies as the core. In virtual reality, users interact with objects in the virtual world with mutual influence by virtue of necessary equipment and in a natural way so as to generate the feeling and experience of an authentic environment. This new technology has already been applied in various fields from simulation training, such as medical, aviation, education, arts, commerce, engineering and entertainment, etc.

The rise of the virtual world and the emergence of virtual products are the realistic basis for the advent of the virtual packaging design era. The Internet provides a virtual space that interacts in real time, i.e., the virtual world, and in the virtual world, a new product is created, i.e., virtual products. At present, the virtual world has been transformed from a multi-polar subject into a huge network infiltrated into every corner of the society, and its scope can be defined as a new space for human activities based on computer hardware and software as well as web-based media.

Connotations of Virtual Packaging Design

Virtual packaging design refers to design virtual products. In order to understand the connotations of virtual packaging design, the first step is to define virtual products. According to the author, virtual products refer to the objects that are designed and manufactured by means of virtual reality technologies with the computer as the carrier and the Internet as the platform. These objects are of the value of usage and exchange and can be used and circulate in the virtual space. They are essentially a series of binary data in the computer. The common online game props, e-components, e-cards and land, architecture and decorations in the virtual world can be included into virtual products.

In the Internet + era, the design and application of virtual packaging are still at the initial and exploring stage, and there is still no unified understanding of virtual packaging design. However, in this era when unprecedented importance is attached to individuals and emotions, it can be predicted that the development of virtual packaging design will become an irreversible trend. According to the definitions of product packaging and virtual products, virtual packaging design can be defined as the summary of digital containers and accessories to facilitate the management of use, enhance emotional exchanges and promote the sales of product during the circulation and use of virtual products. Virtual packaging is essentially a conscious packaging which carries more of the demands for communications of emotions in the man-machine interface environment. Virtual packaging design is essentially a digital model established based on binary codes, and it depends on the virtual space. Its digital feature determines the revolutionary difference between it and the physical packaging. The virtual packaging design in this study does not include the study of virtual products' protection functions. Therefore, the prevention of theft and the loss of information belong to the study of computer programming and are not the objects of studying art design. Virtual packaging design can truly realize global instant sharing and well serve for virtual product marketing. Virtual packaging design has become common in the Internet + era, and e-envelops, props package and virtual gift packaging are all virtual packaging design.

Three Major Parts of Virtual Packaging Design

Visual Elements

Vision is the most important way for people and animals to obtain outside information. The Internet + era is the era of the global economy. As a new and comprehensive category of packaging, virtual packaging design can convey very rich visual elements, which can be summarized into the several following categories:

Images. Images are the most key element that determines the subject of a virtual packaging design and its visual effect. The image symbol is an international visual language that is not limited and influenced by time, regions, languages and country.

Texts. Text messages are more accurate than graphic messages. In the virtual world, texts are used to describe the information, such as showing the title and describing the menu and the attributes of objects, and they can also be used for communication between users.

Dynamic images. Dynamic images include animations and videos. They have broken the static packaging of texts and graphics and play a role of explaining the changes of things with a strong visual impact. The opening and folding of virtual packaging design and the navigation buttons on the interface can all be animated.

Colors. Color is one of the most important parts of any design. The design of colors plays an important role in creating visual impact and attracting users' attention. Reasonable allocation of visual packaging design's colors can fully demonstrate the characteristics of virtual packaging design and evoke emotional resonance.

Auditory Elements

Auditory is a unique element of virtual packaging design and is demonstrated in the form of three-dimensional virtual voice. Three-dimensional virtual sound is to create a sound image with a sense of three-dimensional space and a sense of direction for the listener through the earphone or

the speaker array. In the virtual scene, the listener can accurately determine the location of the sound source, which is in line with the way of people's psychological hearing in the real world so that people can obtain the sound system similar to the auditory experience. The auditory elements of the virtual packaging design mainly include the following three categories:

Operation reminding sound. When working on a virtual packaging design, different reminding sounds help people make more accurate judgments. For example, the sound is sharp for wrong operations and soothing for right operation.

Background music. In the colorful world of virtual packaging design, music and melodies that fit the theme are also essential elements. Cheerful music can express a festival atmosphere in the virtual world, and in confrontational games, compact and rapid music can bring out an intense furious feeling.

Voice dialogue. Voice dialogues include not only man-machine dialogues, such as NPC, which guides players to accept and complete tasks in games, but also the voice exchanges between people in the virtual world. Voice dialogue enhances the immersion and interactivity of the virtual packaging design world and makes people enjoy the humanized virtual world.

Tactile Elements

Visual touch is an excellent result of the development of virtual reality technologies and brings people a more real virtual world. There are two tactile elements in the virtual packaging design:

Visual touch. Visual and tactile sense simulates different textures and materials on the virtual packaging design in the form of images. Through this simulation, materials of different textures, such as soft, hard, smooth and rough can be associated.

Real touch. Through the data glove, handle and other virtual devices, people can experience the feelings of real touch, which greatly enhances the virtual world's realism and affinity.

Virtual Packaging Design and Physical Packaging Design

Comparison of Virtual Packaging Design and Physical Packaging Design

Packaging Principles

Packaging concept changes depending on the development of the society. Overall, "practical, economic and beautiful" is the basic principle of physical packaging design. Compared with physical packaging, virtual packaging design's requirements for being economical and beautiful have not been weakened, but due to the specialty of the contents and packaging, virtual packaging design's principle of being "practical" is no longer subject to the limit of materials. For example, a tree can be packed in a candy box without being cramped, paper can be used to cover fire and designers can also create new visual effects that breaking material limits and human beings' imagination without causing the waste of materials. The freedom and flexibility of virtual packaging design have been increased unprecedentedly.

Packaging Technologies

There are a variety of material packaging technologies, which can be categorized into the following five sections: packaging materials and containers, packaging printing and performance, packaging dynamics and transport packaging, packaging machinery and packaging design, and it involves various subjects: mechanics, materials, biology, machinery, art, management and computer science, etc. Virtual packaging design mainly involves two major subjects: computer science and art design. The operation of virtual packaging depends on the design of computer programs, and its appearance is the manifestation of art design. Modeling rendering engine is the core of virtual packaging. Designers can used personal computers to design a vivid three-dimensional virtual packaging and provide audiences with natural and bright three-dimensional image feelings. Multi-media art is the blood and flesh of virtual packaging. It integrates various expression media with additional interaction feature, bringing people more humanistic virtual experience feelings.

Expression Modes

A variety of products determine the rich and colorful expression modes. In terms of material, shape and packaging, packaging can show information and convey the sense of beauty in numerous ways.

Virtual packaging design has richer expression modes than physical packaging design, which is mainly reflected in the following two points: one is to introduce sound into packaging design to make the packaging design integrate visual sense and auditory sense; and the other is to introduce animations and videos into packaging design. Physical packaging design demonstrates static beauty and complete virtual packaging design is a dynamic process expressing the dynamic beauty of packaging.

Features of Virtual Packaging Design

Digital. Digitization is the technical basis of virtual packaging design. Various information such as images, texts and sounds are represented in binary. Any virtual item can be generated by 0 and 1, and the virtual packaging design with different characteristics is described.

Time Reversibility. Realistic time is a dynamic process that moves forward forever, whereas time in the virtual world is reversible. In the virtual world, there are two kinds of time: one is the time for users to use the computer and this kind of time is irreversible; and the other is the development of various things in the virtual system, and this kind of time is reversible. Users can show the sound and videos of that time only by selecting the stored information in any disc.

Spatial Freedom. The virtual space provides infinite freedom for the design of the virtual packaging. The creation, promotion and access of the virtual packaging design are all very flexible. The space scale of the virtual packaging design itself is optional according to the needs of the packaging. The size of the product is no longer a necessary element that should be considered in packaging design.

Integration of Multi-perceptions. Virtual packaging design consists of three elements: vision, hearing and touch. In the future, virtual world can also bring more feelings and experiences including the sense of smell. Virtual packaging design integrates the above feelings, and it is a technology and art integrating multi-perceptions.

Interactivity. Virtual packaging design is not only a virtual object, but also includes the open and interactive interface with the common function of software and hardware. In this user-friendly interface, audiences not only passively receive information, but also independently gather and use things of their own interest to meet their individual requirements.

Real-Time. A virtual packaging design shows the role of protecting, decorating and publicizing products according to the preset program. During this process, the images that are seen and the sounds that are heard change according to the pre-set time.

Transcendence. Virtual packaging exceeds traditional physical packaging in terms of technical means and manifestations, but on the other hand, the transcendence of virtual packaging design over traditional physical packaging in terms of design concept is more exciting with the significance of changing the world. It transcends the limitations of material and physical space with the subject's transcendence and supernatural-ness. The emergence of virtual reality has created a highly disruptive revolution in the survival and order of mankind. It marks the arrival of a new era civilization and the formation of a new economic order.

Conclusion

In the Internet + era, the lifestyles of virtual survival are changing with each passing day. As an emerging and multi-dimensional packaging art, virtual packaging design is conducive to improving the contents of the virtual world, and it is a necessary means to promote the economic prosperity of virtual products. Objectively speaking, at present, the application and study of virtual packaging are still at the embryonic stage. Visible virtual packaging design is a relatively simple primary form. The role of virtual packaging design in virtual products has not been fully realized. For designers, grasping the rules of virtual packaging design, leading the development trend of virtual packaging design and providing people with humanized and user-friendly virtual packaging design will make people's virtual survival more convenient and colorful.

References

[1] Ningning Yang：Software Guide (Education Technology),Vol. 116 (2014) No.13, p.17-18.
[2] Huawen Xie：Decoration, Vol. 43(2017) No.3, p.8-9.
[3] Ting Zhang, Shuqing Gao：Higher Professional Education, Vol. 96 (2012) No.9, p.12-13.
[4] Huiting Chen：Art Observation, Vol. 136(2017) No.5, p.43-44.
[5] Yanbin Liu：Education Teaching BBS, Vol. 51 (2014) No.23, p.73-74.
[6] Song Wang：China Packaging Industry, Vol. 84 (2015) No.11, p.32-33.
[7] Jia Liu：Art Education, Vol. 121(2017) No.11, p.15-16.
[8] Xiaojuan Tong：Research on Virtual Surround Sound Technology（University of Architecture and Technology，2013）, p. 41-42.
[9] Xiangyang Guo：Chinese and Foreign Entrepreneurs, Vol. 68(2017) No.14, p.26-27.
[10] Wei Jie: Graphically creative (China building industry press, 2013), p. 38-49.