

Research on Aesthetic Image Design Based on Embedded Network

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Abstract:

With the continuous development of poster aesthetic image design, multidimensionality is not only related to visual and spatial aesthetics, but also involves the process of constructing human comprehensive thinking. Promote the development of spatial dimensions, element diversity, means diversity, and innovative thinking in the field of design. The three-dimensional representation method demonstrates high efficiency in multi-dimensional dynamic element design. In the aesthetic image design of embedded networks, the multidimensional presentation of dynamic elements mainly depends on design psychology, the development of new materials and processes, and the application of digital technology. This article takes the Qingming dynamic poster art design as an example to create a dynamic poster with Qingming culture as the theme. The main purpose of aesthetic image design software is to complete the design of the entire dynamic plane by creating framework concepts. Fully consider the dynamic elements and their proportional relationship with static elements in dynamic aesthetic image design, and control the time and rhythm of the entire screen. Ensure the balance of its related elements to design posters that are well-known, interesting, and in line with the concept of dynamic poster art design.

Keywords: Embedded Network; Art Image Design; Dynamic Elements; Poster Graphics

1 INTRODUCTION

The introduction of multidimensionality in aesthetic image design is firstly a profound transformation of visual and spatial aesthetics. Traditional aesthetic image design is often limited to two-dimensional space, conveying information through elements such as lines, colors, and shapes. However, with the increasing demand for visual experience, two-dimensional space is no longer able to meet the increasingly diverse design needs [1]. The introduction of multidimensionality enables design works to present three-dimensional or even more dimensional visual effects on a two-dimensional plane, greatly enriching the expressive power and sense of hierarchy of the design. As an important component of multidimensional design, the importance of dynamic elements is self-evident. In the aesthetic image design of embedded networks, dynamic elements not only enhance the visual effect and attractiveness of the design, but also convey more complex and rich information through their dynamic changes [2].

These dynamic elements may include fluttering willow branches, dancing paper kites, slowly flowing river water, etc. They work together to construct a vibrant and lively Qingming world through different ways of movement and rhythm changes. The application of dynamic elements in multidimensional design can also promote the diversity of design elements and methods. Designers can flexibly use various dynamic elements and expression techniques, such as animation, video, interactive technology, etc., according to design needs to create more unique and creative design works [3]. These works not only meet the aesthetic needs of the audience, but also stimulate their imagination and creativity through their unique creative and expressive forms, promoting continuous innovation and development in the field of design.

The rapid development of digital technology provides powerful technical support for multi-dimensional dynamic element design. Through digital means such as aesthetic image design software, animation production software, and interaction design tools, designers can create various complex and creative dynamic graphics more conveniently and quickly. These software not only provide rich design tools and material libraries, but also help designers achieve more precise and delicate dynamic control. In the aesthetic image design of embedded networks, the multidimensional presentation of dynamic elements has pushed this transformation to new heights [4]. By adjusting the proportional relationship between dynamic and static elements, controlling the time and rhythm of the entire screen, and ensuring the balance of related elements, designers can create poster works that are both in line with the concept of dynamic poster design and widely known and interesting. Meanwhile, with the support of digital technology, designers can also adapt and optimize posters on different devices and platforms, ensuring that they can present the best visual effects in various environments [5].

2 RELATED DISCUSSIONS

The way of aesthetic image design expression and the aesthetic feeling it brings to people is determined by the three basic compositions, namely, planar composition, color composition, and spatial composition. Corral-Acero J gives a detailed explanation and design direction from the way of thinking to the form and expression. It can provide a suitable carrier for aesthetic image design art systems. The role of the geometry of aesthetic image design in the picture can be interpreted through aesthetic image design, and it can also allow the relationship between the artistic characteristics of aesthetic image design and the morphological composition of aesthetic image design to be developed in reaction. Khajavi S H [7] explains very comprehensively the meaning of abstraction and the significance of the thought of abstractionism for art, which helps the understanding of the concept of abstraction to a great extent. Murchie K J [8] is the most authoritative source of theories and ideas in the study of the characteristics of aesthetic image design art. It contains not only his life's creative experience and the ideas he advocated, but also a detailed record of his philosophical and religious influences. It provides an important theoretical basis for understanding the "content" and "soul" of the characteristics of aesthetic image design art.

Li J, Yang J [9] has explained the definition of aesthetic image design: "Aesthetic image design, ultimately, is a communication with the viewer, and since the goal involved is to be persuasive, or at least to convey information, the designer has to face at least two problems: to anticipate the viewer's reflection and to conform to the aesthetic quest of the self." Based on the complexity of aesthetic image design its concepts, categories, and theoretical frameworks. Meron Y [10] elaborates on the concept of "aesthetic image design": "The so-called aesthetic image design refers to the design activities in the plane space, which mainly involves the design of the elements in the two-dimensional space and the layout design of the combination of these elements, including type design, layout design The core of all these elements is to convey information, guidance, persuasion, etc., while its expression is achieved with modern printing skills. Dwiputri A [11] defines graphic space design as the holistic and creative solution to a specific interior environment, which includes conceptual design, and the use of aesthetic and technical approaches to achieve the desired effect. A "specific interior environment" is a special, shaped space with a specific purpose and use, such as a living space, an exhibition space, etc., that functions to accommodate human behavior.

Karaata E [12] has expressed: that the three-dimensional space or depth of aesthetic image design must take the reading process into account, for example, in the display form of book design, a book at the beginning of the design are from a single flat page, after the completion of the three-dimensional state when people read, the book is really between the two hands and two eyes, the distance between the hands and eyes is the best display distance of the book, hand-eye cooperation, and The hand-eye cooperation and the book produce a special space, and excellent book design is based on the understanding and grasp of this space. In addition, with the development of human beings, the expression of aesthetic image design is constantly changing. Oladumiye E B [13] has elaborated that "the overall perceptive power of graphics is not replaced by the linear perceptive power of words and discourse." Aesthetic image design often achieves the communication of design information with the help of graphic content, which can be roughly divided into figurative and abstract graphics. Among them, abstract graphics are more essential and associative, which deconstruct figurative things based on points, lines, and surfaces, and then reorganize and gives imagery after abstraction and generalization to give a concise and impactful visual impression [14]. The world is full of brands, which have been integrated into our daily life and play an important role in our economic life," says Kanat S [15]. People not only recognize brands by their visual images, but also by the distinctive brand visual images that create a liking and preference for the specific brand." According to Dewi R [16], "the process of dynamization becomes a new starting point and a driving force for the development of the brand image in the image and concept of a brand." Moreno O M [17] mentions that "in dynamic brand identity design, the use of graphics, text, color, sound and other design elements can create infinitely extended forms of application, and the design can change temporally according to the brand in the change of space and time, and even generate interactive multi-sensory experience with the viewer.

3 MULTI-DIMENSIONAL PRESENTATION OF DYNAMIC ELEMENTS IN AESTHETIC IMAGE DESIGN IN THE DIGITAL FIELD OF VISION

3.1 Aesthetic image design in the Digital Perspective

The aesthetic image design produces and communicates individual design concepts with the help of mass media technology. The communication of art is a required spiritual or material production activity of human communication [18], and a natural or living act aimed at knowing and grasping the world. Contemporary designers complete the fit between time, space, territory, and subject through images, symbols, and artistic language. 3D space is one of the elements of designers' artistic expression [19], and through the visual composition and spatial illusion of 3D, new visual expression is constantly explored, and the 3D visual expression created by using aesthetic experience influences the viewer's psychology to a great extent and can awaken the viewer's inner emotion and perception [20].

Aesthetic image design through communication not only enables the meaning implied by the work, as well as the artistic concept the author wants to express and the desire to communicate and exchange with people but also enables the audience to subjectively reinterpret the visual form of aesthetic image design and create new meanings. In today's world, mass communication [21], with its rich media, expands communication channels, advances the communication of aesthetic image design, and accelerates the formation of visual culture. Its formula principle is:

$$A = \sum_{i=1}^n X_A^2 + \frac{1}{n} \cdot \frac{x - \mu}{\sigma} \quad (1)$$

In today's increasingly digitized and networked world, embedded networks, as one of the core technologies, have laid a solid foundation for the innovative construction of 3D visual forms in aesthetic image design. Through the integration of computer Internet and advanced media display technology, the embedded network enables artistic expression to shuttle freely between the physical world and virtual space [22], greatly enriching the transmission dimension and experience level of artistic information. The media, as the core bridge connecting various corners of society, is not only a keen catcher and active experimenter of new technologies, but also a key force driving change. With the continuous advancement and integration of embedded network technology, the forms and boundaries of traditional media have been redefined and expanded, giving birth to new media forms that support the innovative development of contemporary aesthetic image design. This process is a vivid manifestation of art's self adaptation and continuous evolution in the digital age.

$$M = \frac{dy}{dx} \cdot \frac{\partial^2 \Omega}{\partial v^2} \quad (2)$$

Aesthetic image design is the most susceptible of all disciplines to digital media technologies and mediums. Unlike architecture and film, it does not have a strong theoretical structure and tends to be more pragmatic. In the digital age, software technology has become an expressive tool for innovative design of visual forms, taking advantage of the ease of modern technology. The creation of aesthetic image design also depends on the designer's linguistic expression of visual elements, as well as their own experience in design creation, and will also be influenced by the development of trends in the social environment and the viewer's cultural literacy from the visual [24], psychological and emotional aspects. Creativity is the essence of aesthetic image design, imagination is the means of creation of aesthetic image design, designers use computer software to draw graphics, typeface arrangement, typographic construction of visual elements, and then use the contrast of color. Multi-dimensional dynamic virtual scenes commercial aesthetic image design can be influenced by different senses together, such as vision, touch, hearing, etc., united to perceive the visual effects of aesthetic image design, creative themes, virtual scenes, and even emotional expression beyond the boundaries of space and time [25]. The aesthetic image design that fully interacts with the audience by using multiple senses gives the aesthetic image design an emotional meaning. The diagram of the human perceptual process is shown in Figure 1.

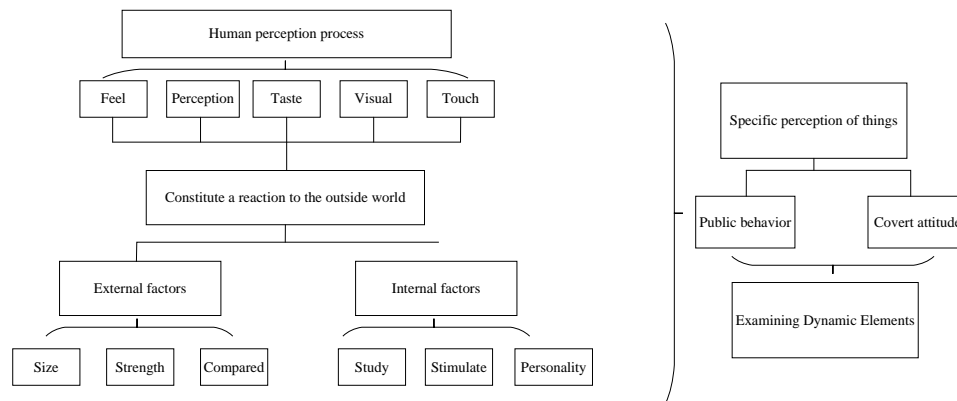


Figure 1. The diagram of the human perceptual process

Visual focus and visual guidance in aesthetic image design are both psychological activities. By focusing and pointing at specific objects, users can perceive and determine the focus or emphasis in aesthetic image design or other works of art based on their interests, experience and knowledge. The visual focus in aesthetic image design can well guide the vision to the designated area and achieve the purpose of quickly disseminating information. When a dot appears in a flat design, it can quickly grab the user's eye. When two dots appear at the same time, it distracts the user from viewing the picture. When two points of different sizes appear at the same time, for the left image, the user will focus on the smallest point first, followed by the larger point; for the right image, the user will focus on the largest point first, followed by the smaller point. Points are relative here, elements that appear as a whole can be seen as points. The principle of visual focus requires that there be a focal point in the aesthetic image design to attract the user's attention, and the focal point is the element that catches the eye first. The visual focus combined graphic is shown in Figure 2.:

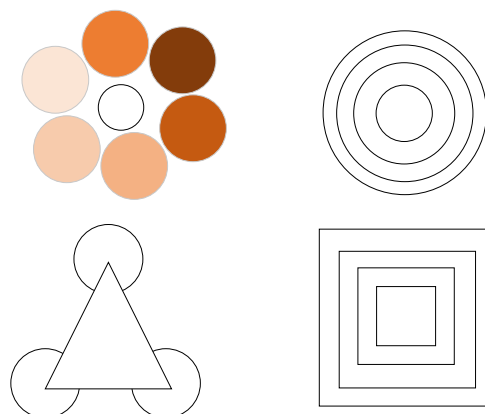


Figure 2. Visual focus combination of graphics

3.2 Multi-dimensional presentation of dynamic elements

The multi-dimensional presentation of dynamic elements is mainly presented in a three-dimensional way. The design of dynamic graphic elements should break through the conventional habitual content, break the habitual way of thinking, consider how to make users receive comfortable and novel information from the user's point of view, and bring users an experience full of novelty, which is the success of the creative strategy. Dynamic aesthetic image design creative images should also be simple and clear, including text composition and the entire process should be simple and clear, simple has a great tension of beauty, this simple and clear can make the dissemination of more smooth, simple can make the audience quickly seize the dynamic aesthetic image design to show the essence of the creative appeal to be as simple and single, good ideas are often very simple, but can convey the most impressed users and Can accept the information, consumers to each dynamic publicity aesthetic image design time is limited, contact often careless, the initial input attention is often very weak if the creative is too complex, the amount of information brought to the user is too large, people can not be in a limited period to accept an infinite number of tedious information, which requires a single on the creative, so that

consumers in the extreme time very clear grasp This dynamic aesthetic image design to show the content.

Dynamic aesthetic image design differs from traditional aesthetic image design in that it is "moving", and we can consider it dynamic aesthetic image design. It is the abbreviation of motion aesthetic image design, also called dynamic design. Motion aesthetic image design follows the standards of aesthetic image design and audio-visual language design, and is an art form created through animation or video as a moving image. It can be said that motion aesthetic image design in dynamic aesthetic image design is a branch of kinetic design, which has many artistic expressions, so the design research of kinetic graphics in dynamic aesthetic image design can be classified as the research of kinetic effect.

Graphics, text, and color as the basic design elements, they coordinate and interact with each other to form a unified picture style. As the most special existence of dynamic aesthetic image design, it can act on text, graphics, color, or both, and the choice of this dynamic effect is based on the style of the picture. As an important carrier of information, text occupies an important position in the layout of the picture. The task of typography is to parse and convey the text. The tone, rhythm, logical structure, and size of the text all determine the possibility of how the typeface is expressed in the layout. In traditional aesthetic image design, type is also visual material, and each type element is visually involved in the representation of the composition in the picture. In the picture, we can not only change the form of the typeface and carry out type design to show the visual effect but also make the typeface become graphic and dominate the picture by separating and reconstructing the typeface with the matching of color.

Typography in the new media environment can be expressed in a variety of ways and has new creativity in the design of text to make it appear in motion in the picture. In the past, it may be difficult to achieve, nowadays, it is feasible to use dynamic design to make the text present movement. The visual effect of text is expressed in the change of font design and character size, the distinction in color scheme, and the more obvious the visual contrast, the more profound the effect of the audience's visual information. And then through the dynamic design of the text movement in the performance of the subdivision, in time, a reasonable arrangement of the text of the appearance of time, stay length, dynamic display of time and other dynamic aesthetic image design itself the basic dynamic effect is reflected in the screen is divided into three forms, one is the dynamic display of fonts, the second is the dynamic display of graphics, the third is the font and graphics are dynamic display, these three graphic These three forms of graphic change, all have their regularity and direction of movement, in the whole process of information transmission, including not only the tone, style and brand information, but also make the information expressed in the graphics more clear, but also more readable. The dynamic elements in dynamic aesthetic image design are shown in Figure 3.

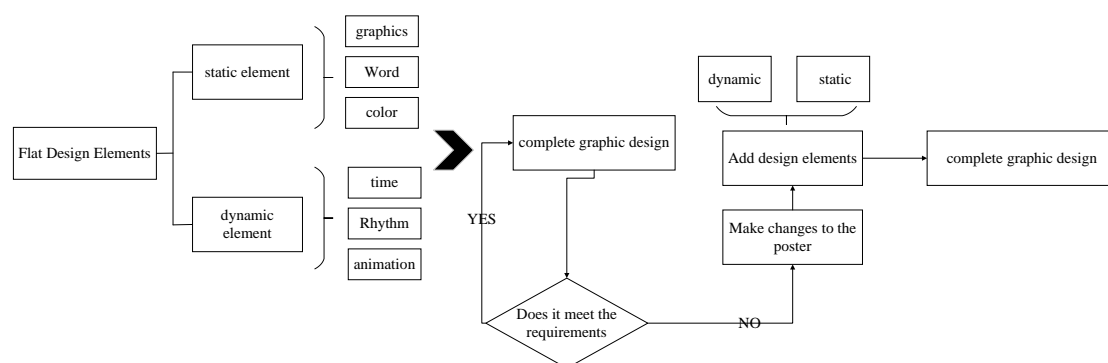


Figure 3. Dynamic aesthetic image design visual design elements

4. EXPERIMENTAL DESIGN

Dynamic aesthetic image design is evolved based on traditional aesthetic image design, it is different from the traditional two-dimensional static aesthetic image design in its fun, interactive features, this interactive display form is relying on the development of new media platforms, so the dynamic aesthetic image design display range is more extensive, its design form can increase the fun, interactive features.

The basis of experimental production of dynamic aesthetic image design is still to consider the interrelationship

between graphics, text, and color, on this basis, to fully consider the dynamic elements of dynamic aesthetic image design and its proportional relationship with the static elements, but also to control the time and rhythm of the whole picture, to ensure the balance of its relevant elements to design good propaganda, interesting and meet the design concept of Dynamic poster. In this section, I will take the Qingming dynamic poster as an example, to create a dynamic poster with the theme of Qingming culture. The main use of aesthetic image design software is by making the frame concept to complete the design of the entire dynamic plane.

5 ANALYSIS OF EXPERIMENTAL RESULTS

5.1 Analysis of elements in dynamic aesthetic image design

The excellent aesthetic image design shows its powerful visual effect while allowing the audience to access the information. Dynamic design in the new media environment develops and extends based on aesthetic image design, follows the principles of aesthetic image design and innovates in the design method, and uses dynamic effect presentation to meet the psychological needs of users so that they can have a design experience. By definition, satisfying the user's psychological needs and enhancing the user experience of the product are the two main goals of dynamic design. However, the production of dynamic elements is also efficient, and the efficiency of the production of dynamic aesthetic image design elements and static aesthetic image design elements is shown in Figure 4.

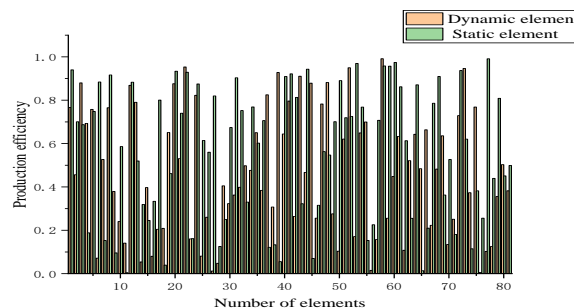


Figure 4. Production efficiency of dynamic and static aesthetic image design elements

People can feel various emotional expressions through the recognition of colors, and their appearance is accompanied by graphics explaining the meaning of various meanings. Color is an extremely important communication carrier, and its collocation method also has a certain theoretical basis. Dynamic aesthetic image design elements and static aesthetic image design elements also have significant differences in the impact of color matching. After experimenting with it, it is found that the application of color is different in different states, and the results are shown in Figure 5.

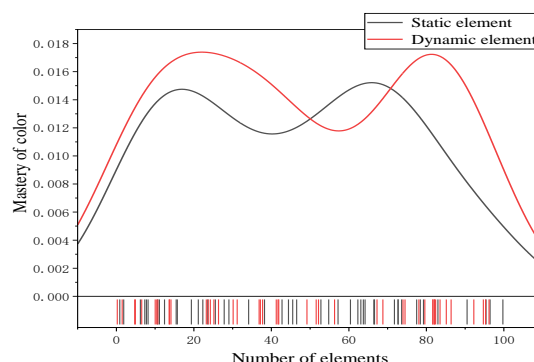


Figure 5. Different states of aesthetic image design on the efficiency of the use of color

5.2 Analysis of the effect of multi-dimensional display of design elements

The main multidimensional aesthetic image design is increasingly inclined towards a content oriented design philosophy: content-based multidimensional design, delving into the essence of text and script, using the data

analysis capabilities of embedded networks to accurately match design elements, ensuring a unified style and abundant emotions. Taking PepsiCo's annual Chinese New Year advertisement as an example, the design not only tells a heartwarming family story, but also cleverly uses embedded networks to track audience preferences, adjust clothing colors and other details to trigger deep psychological resonance among the audience. At the visual level, multidimensional aesthetic image design extensively covers visual elements such as graphics, text, color, lighting, images, and photos. With the help of embedded networks, these elements can be combined and presented more accurately. Surface visual elements provide intuitive sensations, while deep visual design utilizes intelligent algorithms of embedded networks to reduce cognitive barriers, directly and profoundly articulate themes, and enhance the efficiency and depth of information transmission.

As an important component of multidimensional aesthetic image design, spatiality requires the full utilization of various expression techniques of aesthetic image design elements in design, combined with embedded network technology, to create a rich sense of spatial hierarchy. For example, in spatial layout, embedded networks can assist in planning the distribution of points to enhance spatial depth, optimize functional areas through intelligent division of lines, and change the openness and atmosphere of the space through precise control of surface materials and light and shadow changes. In display design, a single space may not leave a deep impression if only briefly introduced with text; But if combined with embedded network controlled spotlights, automatically adjusting the temperature of light according to scene changes, and paired with multimedia video displays, it can significantly enhance the audience's sense of participation and memory points, achieving a perfect integration of aesthetic image design and display space.

With the continuous development of aesthetic image design, "mise-en-scène" design is more cleverly applied to brand design, of which "mise-en-scène" is the most popular way among designers in the past years. The formation of paradoxical space is usually the use of point of view conversion and alternation, in the two-dimensional plane of the three-dimensional form, but the three-dimensional shape of the visual effect of ambiguity, resulting in spatial confusion, the formation of the space between two-dimensional and three-dimensional. Paradoxical space exists only in the two-dimensional plane and does not exist in real life. The "perspective designation illusion" is a kind of visual phenomenon that transforms from space to plane, thus showing three-dimensional space on the plane. But the design elements for different dimensions of the display effect are not the same, in a two-dimensional plane or three-dimensional aspects of the display effect are different, the effect of the comparison chart is shown in Figure 6.

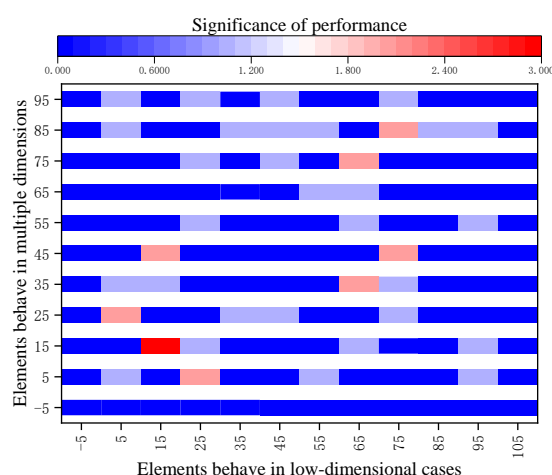


Figure 6. The effective performance of design elements in different dimensions

The expression of graphic visual language from a multi-dimensional perspective is based on the open environment medium, and the design environment is integrated into the overall design process as an important link. Emphasis on the audience's experience in the environment, the formation of a variety of design spaces with characteristics and aesthetic interest in the form of mobilizing the audience other than the visual senses, so that they are in the environment, leaving a deep impression of the entire space, maximize the visual communication

effect of the work, and create an emotional exchange with the audience.

In addition to building "visual and spatial" aesthetics and interactive experiences, multidimensionality has a deeper meaning, building "thinking", which can be understood as "multidimensionality" is the process of developing human thinking toward a comprehensive concept. The process of developing a comprehensive concept, using "multidimensionality" to build a creative and creative mind. In the field of design, the definition and boundary of multidimensionality are blurred and open, and it can be elaborated that "multidimensionality" is a development momentum toward spatial dimension, element diversification, means diversification, and innovative thinking. The multi-dimensional dynamic element design is presented in a three-dimensional way, and its presentation efficiency is shown in Figure 7.

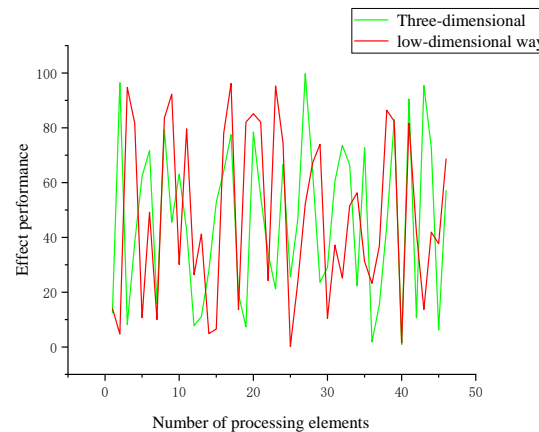


Figure 7. Comparison of the efficiency of the presentation using the 3D approach with the rest of the approach

6. CONCLUSION

In the field of aesthetic image design, exhibition space design is leading a trend, and our understanding of it is becoming increasingly profound. Starting from traditional two-dimensional aesthetic image design, today's design has deeply integrated cutting-edge technologies such as sound, light, electricity, multimedia, virtual reality, and even artificial intelligence, weaving together a multi-dimensional display space experience. This transformation not only strengthens the humanistic care and cultural connotation of design, but also cleverly applies science and technology, selects suitable materials, and puts forward higher requirements for architectural design on the basis of functional implementation, striving for seamless integration and sublimation of aesthetic image design language and display design. Embedded networks, as an important driving force for this transformation, provide unlimited possibilities for the multidimensional expansion of aesthetic image design languages due to their powerful connectivity, data processing capabilities, and real-time interaction characteristics. It promotes aesthetic image design to transcend traditional two-dimensional boundaries, achieve comprehensive and in-depth presentation of information, and form a unique design language. This trend of multidimensional aesthetic image design is profoundly influencing the appearance of brand design, making it no longer limited to a single visual expression of posters, logos, or album production.

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