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Brief Analysis of the Application of Abstract Language in Animation Special Effects Production

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Abstract: This article mainly elaborates on the research and exploration of geometric abstract elements in design works, traces their development and expressive characteristics, and further studies the practical development and significance of geometric abstract elements in design. It analyzes the influence of the use and expressive power of geometric elements in animation works.

Keywords: Abstract language; Geometric design elements; Anime production methods

1. Introduction

As a visual art, the use of visual language symbols in anime special effects is crucial for the expression of works. This article will be described from the following five aspects: the first part is the introduction; The design of abstract language in the second part; The third part is about the characteristics and methods of abstract language in animation production; The fourth part is a classic application case of abstract language in anime works; The fifth part is the application and research of abstract language and special effects design software.

2. Design of Geometric Abstract Language

2.1 Abstract

Abstract animation originated in Western countries at the beginning of the 20th century. It constructs storylines through abstract characters and symbolic design elements, combined with unique music and colors, emphasizing emotional expression rather than concrete storytelling. This design language has a wide range of applications in animation, graphic design, architecture, and other visual arts fields. Abstract "refers to the process of discarding non essential features from numerous things or experiences and extracting common essential features. Originating in the early 20th century, Dutch painter Mondrian, a geometric abstract style artist, founded the magazine" Style "in 1917, advocating for the abstraction and simplification of art and design language, limiting the color of his works to the three colors of primary color, black, and white, and controlling the form to a horizontal and vertical rhythm and rhythm. Later, the Bauhaus Academy of Art in Germany applied and promoted this design language, placing it in industrial and architectural design, which had a significant impact on the development history of modern art worldwide. In 1926, Kandinsky explored in his published book "Point, Line, and Surface" (published by China Social Sciences Press). In this book, Kandinsky believed that "relying on the spiritual examination of individual art, this elemental analysis is the bridge to the inner rhythm of the work." [2] The original meaning of the term abstraction was to extract, refine, and remove. It refers to extracting the most basic image shape from complex things and experiences.

2.2 Abstract Language

Starting from intuitive understanding, specific organization and analysis are carried out to purify commonalities, remove differences and correlations, and thus obtain a comprehensive, systematic, and prescribed lengthy process. Comparison and analysis are the foundation of abstract language.

Without such a process, it is impossible to find the differences in things, and in the process of condensation, it is also easy to encounter vast differences. It can be roughly divided into three steps; The first step is to separate the overall composition of the image; Step two, extract the form of the main content; The third step is to simplify and omit the "dross", and all three steps are indispensable. Geometric abstract elements are highly summarized and extracted in refined language based on the original abstract language, such as the simplest black and white lines. Through the distinct characteristics of each design work, long and short lines are used to summarize and organize them, and lines can also be used to express their flowing trends. For example, shape, by combining surfaces with blocks, expresses the outline of the main object. There is also color, which visually gives people emotional tendencies, including the selection of multiple colors, and finally presents a refined effect of atmospheric generalization. The visual experience brought by the shapes created in design has different or multiple meanings. Of course, the expression of painting texture can also make spatial changes, incorporating a sense of hierarchy with three-dimensional effects.

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3. The Characteristics and Methods of Abstract Language in Animation Production

3.1 The characteristics of geometric abstract elements in animation application

The characteristics of geometric abstract elements in animation application are: firstly, visual simplicity: geometric abstract elements are usually presented in a concise and clear form, which is easy for the audience to recognize and understand. Secondly, diversity of forms: Geometric shapes can be basic geometric shapes such as circles, squares, triangles, as well as very complex combinations and creative transformations. Thirdly, overall structure: Geometric abstract elements can be used to construct organized structures in animation, such as grids, symmetrical patterns, etc. Fourth, real-time dynamism: Geometric elements in animation can be static or dynamically changing, such as rotation, scaling, movement, etc. Fifth, metaphorical symbolism: Geometric abstract elements can symbolize specific concepts or emotions, such as circles representing completeness or infinity. Sixth, color generalization: It can completely detach from the specific image of the real world and convey meaning through the combination of shape and color. Seventh, interactive communication: Geometric elements in animation can increase the sense of participation according to the audience's viewing changes. Designers use their imagination in animation, accurately control the details of the visuals, and use geometric language to summarize the expression of complex emotions. Its decorative geometric design language can also add beautiful effects to the picture, allowing designers to have good control over the picture and free will when creating. The work will be completed with quality and quantity guaranteed.

3.2 Method of using geometric abstract language to create animated short films:

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4. Classic application cases of abstract language in anime works

Abstract language in anime works often creates unique visual styles and narrative styles by simplifying or reinterpreting the shapes and structures of the real world. The following is an analysis of several classic cases, exploring how they utilize geometric abstract language to enhance the artistic expression of animation works.

In 1940, Disney's classic animated work "Fantasia" combined abstract art with classical music to create a series of visual geometric patterns and forms. The artistic expression of the work is that the geometric shapes and lines in the animation change with the rhythm and emotions of the music, providing the audience with a new audio-visual experience.

The 1968 animated film "Yellow Submarine" is known for its vibrant colors and simplified geometric design, inspired by popular art and psychedelic art. Through simplified geometric shapes and vivid color contrasts, the animation conveys the themes of peace and love, while creating a dreamlike visual style.

In the 1981 animated series "The Smurfs," the circular bodies and white hats of the Smurfs, as well as the village environment where they reside, all adopt simplified geometric shapes. This simplified geometric design makes character design easy to identify, while also creating a warm and friendly atmosphere.

In the 2012 work "Invincible Wreck King", the game world in the animation uses different geometric shapes and patterns to distinguish different game environments. Through the changes in geometric shapes, the animation showcases the evolution from retro pixel games to modern 3D games. Pixel blocks themselves are a highly summarized geometric language, and the work also enhances the uniqueness of each game world. The geometric shapes and lines in the animation not only enhance the dynamic sense of the action scene, but also convey the inner world of the characters through visual narrative.

The 2015 animated series "Mind Corps", although not a geometric abstraction in the traditional sense, expresses different emotions through simplified character design and color coding. The design of each emotional character has its own unique geometric shape and color, allowing the audience to intuitively recognize and understand the emotional state represented by the character.

The 2022 animated film 'Deep Sea' explores the application of personification techniques in animated character design. Personification can be seen as an abstract language that enhances character expressiveness by imbuing non-human characteristics with human emotions and behaviors. [4]

5. The Application and Research of Abstract Language and Special Effects Design Software

5.1 Abstract Language in After Effects Software

In animation special effects production, Adobe After Effects software has become the preferred tool for many animators and designers due to its powerful functionality and flexibility. The application of abstract language in AE software is mainly reflected in the abstraction of visual elements. AE software allows animators to create abstract visual elements through tools such as layers, shape layers, and masks. These elements can be geometric shapes, lines, points, or color blocks, combined and transformed to create a unique visual effect. By utilizing the animation and expression features in AE, animators can add dynamic effects to abstract elements, such as rotation, scaling, movement, and deformation. These dynamic effects not only enhance visual impact, but also convey specific emotions or atmospheres. The color palette and lighting effects tools in AE software enable animators to create abstract effects with rich layers and depth through changes in color and lighting. The contrast and gradient of colors, as well as the projection and reflection of light and shadow, can enhance the expressive power of abstract language. The particle system in AE is an important tool for achieving abstract effects. Through the setting of particle emitters and particle behavior, animators can generate abstract effects such as stardust, smoke, flames, etc., which have strong visual appeal and expressiveness. The synthesis and layer blending functions in AE software enable animators to combine and blend multiple abstract elements and effects to create complex visual effects. By adjusting the blending mode and transparency of layers, it is possible to achieve fusion and contrast between elements. Provides rich presets and plugins that can help animators quickly achieve abstract effects. For example, using preset animation effects or third-party plugins can quickly generate complex abstract animations and special effects. AE software also supports the production of interactive animations, where animators can interact with user input or other animation elements through scripts and expressions.

5.2 Geometric Abstraction of 3D Modeling in Animation

The geometric abstraction of 3D modeling in animation is an artistic and technical means of transforming abstract concepts and forms into visualized 3D objects and scenes. This method not only creates unique visual effects, but also offers new possibilities in narrative and emotional expression. The application in animation is in the construction of basic shapes, using basic geometric shapes such as spheres, cubes, cylinders, etc. as the starting point for modeling, to build the basic form of characters or objects. The creation of abstract forms involves combining, deforming, and distorting basic geometric shapes to create abstract three-dimensional forms that may not directly correspond to any objects in the real world. In animation, the representation of geometric abstract forms can be achieved through dynamic changes such as rotation, expansion, and deformation to convey inner energy and emotions. The application of textures and materials adds different visual effects to geometric abstract models to enhance visual details and realism, or create specific atmospheres and styles. 3D software uses color to emphasize the characteristics of geometric shapes, or expresses different emotions and themes through color changes. For the processing of light and shadow, it is crucial to demonstrate the volume and spatial relationships of geometric abstract models, which can enhance the three-dimensional sense of abstract forms. Explore the depth, hierarchy, and dynamic relationships of space through the arrangement and combination of geometric abstract elements in space. In animation, geometrically abstract characters can be combined with similarly abstract environmental designs to create a coordinated visual world, which can create complex and unpredictable forms and textures. The application of geometric abstraction in 3D modeling and animation is a combination of artistic creativity and technological implementation, which drives the boundaries of animation art.

5.3 MG animation Geometric Abstraction in Animation

Geometric elements also play a central role in MG animation, typically referring to basic geometric shapes such as circles, squares, triangles, rectangles, and polygons, which form the visual foundation of MG animation. The geometric elements in Motion Graphics (MG animation) are an art form that combines graphic design, animation techniques, and film language. It is commonly used in video production, advertising, movie opening, television packaging, application programming interfaces, and online media. With its concise and easily recognizable features, it helps the audience quickly understand the information and concepts in the animation. Geometric elements in MG animation can undergo dynamic changes such as movement, rotation, scaling, and deformation, which increase the attractiveness and expressiveness of the animation. In terms of visual rhythm, the repetition and sequential arrangement of geometric elements can create a visual sense of rhythm that is coordinated with the rhythm of music or narration.

Kandinsky published the abstract manifesto theoretical work "On the Spirit of Art" in 1912. The book systematically expounds the theory of abstract painting for the first time. He declared from the beginning that the changing times require corresponding innovations in art forms, and that it is impossible for 20th century art to restore ancient Greek art, otherwise the works would be lifeless due to the changing times. He said in the first line of the book, 'Artworks of any era are children of their own era.'. [5] The application of abstract language in AE software greatly enriches the creative methods and forms of animation special effects, enabling animators to explore and express the infinite possibilities of abstract art in a more free and innovative way.

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