

# Research on the Application of Pixel Style in UI (User Interface) Design

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## ABSTRACT

This paper analyzes the trend, design fundamentals and design principles of contemporary UI design from user interface design (UI design). It discusses that even though the design styles of today's digital art era are flourishing with diverse thinking, the pixel style will never go out of style. A single element of pixel style is the basic element of artistic design, and it is favored by many designers, deriving many interesting design categories. In view of the current development prospects of pixel style, based on interactive user experience results of UI, and combined with the art style of current UI design, this paper adopts a new development strategy for the future development of pixel art style. The results show that even if full high definition 3D rendering images have become the mainstream of design, as a timeless tribute to the classics, the pixelated style still has an indelible influence. Pixelated design is now being applied to practice by more designers and artists, and it has gradually become a unique form of artistic visual expression.

**Keywords:** pixel style, UI design, retro elements, minimalist design

## I. INTRODUCTION

In recent years, the interactive design style of plane UI has gradually simplified itself by cutting out the superfluous, choosing a minimalist flattening style. Flattening is to express the overall shape of the object in simple single or multi-color, removing complex perspective, 3D effects, texture, quality, etc., reduce excessive decorative expression skills, and emphasize abstract, simple and symbolic design elements, and pixel style is the most representative one. Pixel art is not a single image, but a style with sharp outlines, pixel jagged, bright colors, and unconstrained style. Can human beings build countless fantasy worlds with unique features by using small monochromatic grid squares?

## II. DEMAND RESEARCH IN UI DESIGN

### A. The design of interface beautification — plane UI

UI is based on APP design. "The concept of plane UI is generally understood as interface beautification design — user's Interface", but the focus is on users. The most basic goal of UI design is to invent and create user experience, which is inseparable from the most basic user experience. UI design with excellent user experience is the best design.

"There is a level in the interaction between humans and machines, that is, the interface. From the

perspective of psychological meaning, the interface can be divided into two levels: perception (visual, touch, hearing, etc.) and emotion. " There are three basic principles for UI design: users' control over the interface; avoiding unnecessary user memory burden; and the overall consistency of the user interface. The user interface is designed based on the results of human-computer interaction and big data integrating information. The software's operating logic, overall design and beautiful interface are indispensable, and these combinations become a complete user interface design.

### B. The root of UI design — user experience

"User experience is a subjective feeling established by users in the process of using a product, but for a well-defined user group, their user experience commonality can be improved through well-designed experiments."

The UI design reflects the precise positioning of the software. For example, the APP Little Red Book for beauty makeup, its interfacial design is red, echoing its product name "red". The APP itself serves most women. The pronoun for women is red, and a beauty is like a woman. The software icon of Little Red Book, a software designed for women, is the three simplified Chinese characters "小红书" printed on a red background in a positive and negative manner, which is simple and clear, letting people understand its product positioning at a glance. And the other icon designs of Little Red

Book are composed of simple thin lines, with a few strokes, accompanied by Chinese characters, which are concise and practical. The first page is the notes shared by the major bloggers, and the second page is the shopping mall. With the beauty recommendation notes and online shopping mall, a new sales model is developed.

### III. THE BASIS OF DIGITAL ART — PIXEL

#### A. Pixel style and artistic design — a single element

The presentation form of pixelated design is inseparable from minimalism. First of all, minimalist design is to use simple pictures to create complex emotions. In general, "less is more". In recent years, the design trend of pixel style works has also advocated simplifying itself by cutting out the superfluous. It no longer pursues the strong visual experience of the picture, but uses simple objects composed of pixel color blocks to express the hazy beauty in the artistic conception. Pixel style does not portray the color and texture of the object itself, but only uses simple blocks to form the shape, portraying the object itself, so that people can't see the specific details, but can understand its meaning at a glance.

Pixel has a profound reflection on the real world. The modulization theory and pixels advocated by early art creators share a common source of consciousness and form basis. Early artistic creation also used geometric shapes for arrangement and combination, which also reflected the basic composition of the pixelated. Pixel art brings people more of a rich imaginary space, rather than a concrete image of the physical world.

#### B. Art design in the era of new media — pixel style

Pixel style can also exist in the three-dimensional world. Lego brick is the most typical example. It can be inserted into endlessly changing shapes, which makes people fondle admiringly, and is called "magic plastic building block". It is based on a single monochromatic block and arranged and combined in a fixed position to form a complete three-dimensional model, which is similar to pixel imaging.

Pixelated visual language is the painting choice in the mechanical age. Indeed, "pixelation" is a product of the times. It also represents the combination of rationality and sensibility, as well as digital media and artistic creation. Pixel style has emerged in painting art, graphic design art, game art, etc., portraying an interesting world of imagination for people.

Of course, now pixel art is also carried forward in the display design of architectural landscape. In the first issue of "Architectural Worlds" in 2016, there was a group of entries, and they used a large number of dishes

to arrange them on two huge squares. All the dishes were arranged according to the grid lines of the vertical and horizontal coordinates, just like the pixels that made up the image, which was a re-design and innovation based on pixel style.

### IV. THE COLLISION BETWEEN UI DESIGN AND PIXEL STYLE

Today, even if full high definition 3D rendering images have become the mainstream of design, as a timeless tribute to the classics, the pixelated style still has an indelible influence. Pixelated design, as an exploration between retro and trend, is also attracting the hearts of batches of young consumers with its unique charm. In the design, the pixel style is self-contained and penetrates into all aspects of people's lives. The magical small blocks are put together to abstractly show various forms, but they also have a unique beauty.

What is the reason why it has not been abandoned by the times, but has been liked by more and more people?

This paper summarizes 4 answers:

- Feelings: this is a feeling for retro, it represents people's cherishing the memory of Xiaobawang games and arcade games that were not allowed to be played in their childhood.
- The color saturation is high: the feature of pixel style is that it uses limited color blocks to build a relatively complete picture.
- The color matching is beautiful: the color matching of pixel paintings mostly adopts high-short direct-color and low-long direct-color, which has great visual impact and can present a visual effect completely different from realism.
- Being unique and unforgettable: although pixel style looks rough, in fact, it can make a lot of delicate things, using color combinations to outline the scene, and using transition and color matching to render the atmosphere, which can bring people a unique visual experience.

In fact, if people want retro rather than "archaeology", they need to find a balance between the new and the old, the simplicity and the gorgeous. The earliest icons used on mobile phones are pixel icons. Due to the limited screen display resolution more than ten years ago, the display accuracy is not as clear as today's smart phones. With the development of technology, the icon effect is getting better and better, the precision is getting higher and higher, and the pixel icon is beginning to fade out of the era.

Beginning in 2014, some popular mobile games began to take the retro pixel style and led the trend. This shows that "there are no outdated designs, only improperly used designs".

At the same time, banners, advertisements, subscriptions, posters, and art illustrations all adopt pixel design style in large quantities. Because this design has a low barrier to entry and is quickly to be learned, it is the preferred way to get started with UI design.

The children in the prevailing era of pixel style have grown up and may have their own children. However, pixel style has spawned many new APPs, including one called Unicorn. ("Fig. 1") Its theme icons are all pixel-style unicorns. It combines painting graffiti and pixel style, and evolves into a unique decompression painting APP, subdividing a picture into pixels, and labeling the pixel grids of the same color with the same number, and as long as the number and color are matched, just like a jigsaw, a pixel painting can be made.



Fig. 1. "Unicorn" APP.

## V. CONCLUSION

Pixel style is more in other art design fields, such as graphic abstract painting, film and television elements, games, etc. The most classic and famous is the game aspect. The pixel style itself is based on arcade games in the 1980s. However, the pixel style is not in line with the mainstream trend in UI design, only individual APP interfaces will use it, which is a niche design style. When it comes to pixel style, it is almost synonymous with retro. Therefore, it's needed to combine the characteristics of the new media era and pixel style to perfect the application of pixel style in the field of UI design.

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