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Semiotic Interpretation of Beauty Camera App Interface Design Elements: Centered on Roland Barthes' Semiotics

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Abstract

This study utilizes Roland Barthes' semiotic theory to explore how interface design elements of beauty camera apps, such as filters and stickers, icons and buttons, layout and structure, function as symbols of self-expression, and their impact on users' social identity and personal image. Through in-depth analysis of applications like BeautyPlus, Ulike, MeituPic, and Faceu, this research found that these apps emphasize usability, visual appeal, and social interactivity in their design. These elements not only enhance user experience and operational efficiency but also reflect popular cultural trends and aesthetic preferences. From Barthes' perspective, these interface elements have become "myths" with specific social meanings, which are naturalized in daily use and promote the widespread acceptance of particular aesthetic standards. These interface design elements are not just tools for self-expression; they are also powerful cultural symbols that shape modern social interactions and visual culture. This research offers a new perspective to understand the interactions between individuals and society in the digital age, emphasizing the role of technology, culture, and social interaction in shaping contemporary human behavior and social relationships.

Keywords: Beauty Camera App, Interface Design, Self-Expression, Semiotics.

1. INTRODUCTION

1.1. Research Background and Purpose

With the rise of social media and rapid development of digital technology, beauty camera applications have become an indispensable part of modern Chinese society, especially popular among young people. In the Chinese market, four beauty camera apps−BeautyPlus, Ulike, MeituPic, and Faceu−rank among the top preferences for users due to their unique interface designs and functionalities [1]. These apps not only provide technological beautification effects but also profoundly influence users' modes of self-expression and social interaction. This study aims to apply Roland Barthes' semiotic theory to conduct an in-depth analysis of the interface design elements of these four beauty camera apps, such as filters, skin beautification, facial adjustments, and their social functions, exploring how they function as symbolic systems at the cultural level, shaping and reflecting users' identities and societal expectations. Against this research

backdrop, we will investigate how these design elements not only respond to mainstream aesthetics but also potentially shape a new social identity and cultural myth, further understanding the deep societal significance and cultural dynamics behind these popular cultural phenomena.

1.2.Research Methods and Scope

This study focuses on the top four beauty camera apps as of April 20, 2024, according to statistics from the DianDian Data website, including BeautyPlus, Ulike, MeituPic, and Faceu. The research method employs Roland Barthes' semiotic theory framework, using qualitative analysis to explore how elements such as filters and stickers, icons and buttons, color, layout and structure, text and language, social sharing features, AI functionalities, and portrait beautification functions in these apps act as cultural symbols affecting users' self-expression.

2. THEORETICAL INVESTIGATION

2.1 The Significance of Roland Barthes' Semiotics and Denotation vs. Connotation

Roland Barthes' semiotic theory provides a profound perspective for understanding and analyzing symbols in everyday life. Within his theoretical framework, Barthes inherits and expands upon Ferdinand de Saussure's linguistic theories, applying them to a broader cultural semiotics research. Barthes' semiotics specifically focuses on two levels of signification: denotation and connotation, both of which together constitute the complete process of conveying meaning through symbols [2].

Denotation is the most direct and fundamental level of meaning for a symbol, referring to the object or concept that the symbol directly represents. From Barthes' perspective, denotation is equivalent to what Saussure called the "signified" of a "sign," representing the meaning directly expressed within language or a symbolic system. Connotation, on the other hand, constitutes the second level of meaning for a symbol, involving more complex and deeper cultural, social, and emotional associations. Connotation is not fixed but varies according to different cultural backgrounds and individual experiences. It forms the core of Barthes' semiotic theory, reflecting how symbols acquire specific additional meanings from culture. In his work "Mythologies," Barthes further elaborates on the concept of connotation, viewing everyday cultural phenomena as "myths" that convey specific social ideologies and cultural values through the connotative level of language and symbols. Barthes believes that by analyzing the connotations of symbols, one can uncover the ideologies and cultural biases hidden behind everyday cultural symbols [3].
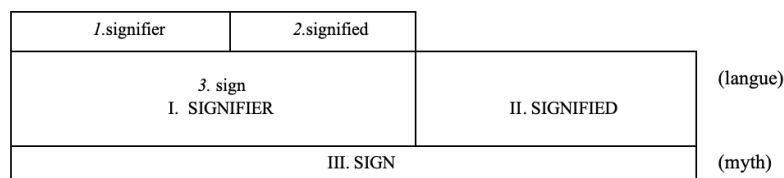
1.signifier	*2*.signified		(langue)
3. sign I. SIGNIFIER		II. SIGNIFIED	
III. SIGN			(myth)

Figure 1 . The semantic action system diagram of Roland Bart

2.2 Self-Expression and Semiotics

In "SINCERITY VERSUS SELF-EXPRESSION," Wilf and Eitan argue that symbols, such as language and gestures, serve both as tools for self-expression and as carriers of cultural and social meanings, underpinning individual freedom and moral autonomy. Elisabetta Adami, in "Styling the self online," examines how digital platforms like WordPress influence self-expression through semiotic resources, highlighting their normative impact on self-styling. [4]

Bille Pettersson and Aino Vauhkonen, in their analysis of deleted Instagram photos, reveal the platform's influence on female self-expression, arguing that Instagram's actions reflect subjective views on female sexuality and stereotypes, restricting women's self-expression [5]. Meijin Hsiao and Hongjun Ou explore the semiotics of Rukai pattern decoration in Taiwan, showing how symbols in decoration reflect social status and cultural background, serving as key tools for emotional and self-expression [6].

This paper explores how symbols facilitate self-expression in modern society, emphasizing their role not

only in communication but also in conveying cultural and social meanings. Through semiotic analysis, it highlights how digital tools like beauty cameras alter users' appearances, helping construct and convey social identity while reinforcing societal beauty standards and deepening social interaction.

2.3 Semiotic Analysis of App Interface Design for Beauty Camera

The importance of considering cultural factors when developing user interfaces cannot be overstated. Specifically, by employing cultural dimension models and cultural markers, designers can more effectively create user interfaces that align with specific cultural backgrounds, thereby enhancing the quality of user interaction and satisfaction. [7] Considering semiotic perception in user interface design is crucial for enhancing the intuitiveness of interface symbols and improving users' accuracy in interpreting these symbols. This approach can assist designers in creating interfaces that are more intuitive and user-friendly, thereby enhancing users' overall experience and the usability of the application [8].

Therefore, the interface design of beauty camera apps not only reflects the integration of technology and aesthetics but also reveals deeper cultural and social significance. Interface elements such as filters, beauty enhancement buttons, skin adjustment tools, etc., carry direct functionality (denotative meaning) while also conveying complex information about beauty and societal ideals (connotative meaning).

How these interface design elements naturally transform into cultural symbols in users' daily usage reflects the complex relationship between individuals and society. By selecting specific filters or beauty settings, users are not only adjusting the visual effects of their personal photos but also inadvertently expressing and shaping their social identities.

2.4 Main Components of Beauty Camera app InterFace Design

The 2022 Insight Report on the Marketing Value of Beauty Camera Apps in China [9] highlights key interface components like filters, stickers, portrait beautification, and AI beauty features. The report notes that users often share edited photos on social media, enhancing the app's social value, with platforms like live streaming and short video apps boosting beauty camera app activity.

Andreas Lügger in 'Measuring Visual User Interface Complexity of Mobile Applications With Metrics' mentions that interface design is crucial for user experience, especially in mobile applications, as it directly influences users' perception of the app's usability and complexity [10]. Li Deng in 'How do app icon color and border shape influence visual search efficiency and user experience? Evidence from an eye-tracking study' mentions the separate and combined effects of icon border shape and color saturation on interface interaction. They are two crucial factors influencing the user's visual experience and search performance [11]. Halimatus Saadiah A. Latiff in 'User Interface Design Guidelines for Children Mobile Learning Applications' mentions the design requirements for text in applications. Firstly, the text should be easy to read and contrast with the background, but it should not use overly prominent colors [12].

In summary, beauty camera app interface design analysis should include filters, stickers, icons, buttons, colors, layout, text, social sharing, AI features, and portrait beautification.

2.5 Beauty Camera App Interface Design Analysis Model

Using Roland Barthes' semiotic theory as a framework, this analysis organizes the design elements of beauty camera apps, which include filters and stickers, icons and buttons, color, layout and structure, text and language, social sharing features, AI functionalities, and portrait beautification. This framework will analyze how these elements serve as cultural symbols impacting users' self-expression.

Table 1. Beauty Camera App Interface Design Analysis Model

Name of App	Interface screenshot	
	sr	sd
Preliminary investigation (external)	Filters and stickers Icons and buttons Colors Layout and structure	

	sr	sd
	Text	
	Social sharing functions	
	AI functions	
	Portrait beautification	
Second round of surveys (formulas and myths)	sr	sd
	Filters and stickers	
	Icons and buttons	
	Colors	
	Layout and structure	
	Text	
	Social sharing functions	
	AI functions	
	Portrait beautification	

3. CASE STUDY

3.1 Beauty Plus

Beauty Plus is a mobile photography and photo editing application created by the Chinese mobile internet company Meitu Inc. This application is specifically developed for users outside mainland China. Currently, Beauty Plus has exceeded 300 million overseas users [13].

The analysis of the Beauty Plus interface design elements in the preliminary investigation phase revealed the following: Filters and stickers are presented in a list format for style selection, such as black and white, vintage, providing intuitive choices. The color scheme adopts light purple and light gray as the main tones, adding visual appeal; Text design is clear and easy to read, social sharing buttons and AI icons enhance operational intuitiveness. The portrait beautification function provides features such as softening skin, adding gloss, and adjusting facial features to meet individual requirements.

The referential analysis highlights how these design elements enhance user efficiency and experience. Filters and stickers allow easy customization, while intuitive icons and buttons reduce the learning curve. The color scheme and layout enhance visual appeal and operational logic, making them user-friendly. Readable text and integrated social sharing functions promote content sharing and social interaction. The beautification features refine user appearance.

Further investigation shows that the design reflects and influences cultural trends. Filters and stickers express popular aesthetics and self-expression, while icons and buttons attract specific user groups. The layout and text focus on user experience, enhancing accessibility. The beautification features reflect cultural values like youthfulness and social acceptance.

The deeper significance lies in how these design elements shape user behavior and social interaction. Filter and sticker choices encourage self-expression, while ease of use and social features boost social connectivity. The color scheme and layout increase emotional engagement, and AI functions simplify creativity. The beautification features foster personalized expression and creativity.

Table 2. Beauty Plus App Interface Design Analysis

Beauty Plus			
Preliminary investigation (external)	sr		sd
	Filters and	Filter selection is displayed in a list, including black and white, retro, girly and other options, as well as different	Provides a variety of filters and stickers to choose from, allowing users to change the photo style according to

	stickers	styles of stickers	personal preferences.
	Icons and buttons	The icons and buttons are designed concisely and clearly, and include icons and buttons for various functions such as picture refinement, video refinement, and AI photo editing.	Provides intuitive operation portals, such as picture/video refinement, AI photo taking, etc.
	Colors	The application color combination is mainly lavender and light gray, with light pink and black.	The main color setting affects the overall visual effect of the application, attracts users and enhances the user experience.
	Layout and structure	The interface layout is simple and clear, with operation buttons concentrated in the middle and bottom of the screen.	Determine the application's operational flow and navigation logic for the user interface to make features easy to find and use.
	Text	The application interface adopts sans serif font, and the text is concise and clear.	The interface text size and font are designed to be highly readable, allowing users to quickly understand and operate each function.
	Social sharing functions	The social sharing button is located at the bottom of the interface, providing sharing options on social platforms such as Facebook and WeChat.	The sharing function supports multiple platforms, covers a wide range of social networks, and expands the scope of user interaction.
	AI functions	AI portrait, AI painting, elimination of passers-by, etc. demonstrate intelligent processing, and the one-click operation button design is intuitive and simple.	Provides intelligent beautification functions to simplify the user's editing process.
	Portrait beautification	Soften skin, enhance radiance, adjust facial features and other different functions	Adjust the photo to your own standards.
	sr		sd
Second round of surveys (formulas and myths)	Filters and stickers	Filter and sticker options reflect aesthetic trends in pop culture.	Allow users to select filters based on personal preferences, thereby supporting individual self-expression and emotional expression.
	Icons and buttons	The simple design reflects modern interface trends, and the rich functionality reflects technological versatility.	Promote the popularization of technology and user participation.
	Colors	Color choices reflect a soft, modern design style.	Unintentionally reinforces color preferences and affects users' emotional connection to the application and expression of identity.
	Layout and structure	Clear layout reflects user-friendly design.	Helps build user trust and dependence on the application
	Text	Modern fonts and simple language enhance the accessibility and aesthetics of the interface.	The clarity and accessibility of text improves user convenience.
	Social sharing functions	The social sharing function emphasizes the integration and importance of social Internet.	The integration of social sharing functions strengthens users' social interactions and promotes cultural understanding and connection.
	AI functions	The popularization of AI functions symbolizes the cutting-edge of science and technology and smart life.	It promotes the display of user creativity and the diversity of personalized expression.
	Portrait	Cultural associations related to	The power, standard and identity of

beautifica tion	youthful vitality, social recognition, social success, etc.	beauty

3.2 Ulike

Ulike is a beauty photography software launched in May 2018. Launched by Shenzhen Face Meng Technology Co., Ltd., it has a variety of special effects for beautifying pictures [14].
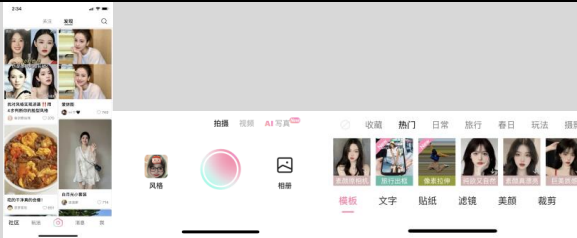
During the preliminary investigation phase, we focused on the presentation of interface design elements. Filters and stickers were provided in a diverse range of styles through intuitive list formats, while icons and buttons were designed with simplicity, covering functions like community interaction and content editing. The color scheme featured a gradient of light green to enhance visual appeal, and the layout structure optimized user interaction experience. Sans-serif fonts ensured clarity and readability. Portrait beautification tools were offered as part of the beauty editing functions.

In the denoted analysis, these design elements directly enhanced the aesthetics and user-friendliness of the interface. The minimalist and intuitive icons and buttons expedited user access to functions, while the color scheme and layout improved visual enjoyment and comfort. Community buttons and AI features facilitated social sharing and content creation.

During the second investigation phase, we delved into the connotative and deeper meanings of the design elements. Filters and stickers reflected popular aesthetic trends, while the design of icons and buttons emphasized modern interface trends. The light green gradient attracted younger users, and the portrait beautification function underscored the importance of fashion.

In terms of deeper significance, these design elements facilitated personalized and culturally diverse expression. The community sharing button strengthened the platform's position on social media, AI features simplified technical operations, and the portrait beautification function enhanced confidence and creativity in self-expression.

Table 3. Ulike App Interface Design Analysis

		sr		sd
Ulike				
Preliminary investigatio n (external)	Filters and stickers	Rich filters displayed in list form, as well as stickers of various styles.		Allows users to choose from a variety of filters and stickers to change the style of their photos.
	Icons and buttons	The icons and buttons in the interface adopt a simple design, including community, follow, play, and other functional buttons.		Simple icons and buttons in the interface provide quick access to functions such as community, following, and more.
	Colors	The main color is pink and green gradient		Improve the aesthetics of the user interface.
	Layout and structure	The layout structure is simple and clear, with operation buttons arranged at the top and bottom of the screen.		Improve user operation efficiency and convenience.
	Text	App interface uses sans serif font		Improve the clarity and legibility of information.
	Social sharing	The community button in the interface is eye-catchingly designed, and		Users can post photos to social networks such as TikTok with one click.

	functions	photos can be saved and published simultaneously with Douyin.	
	AI functions	There is an AI photo button on the shooting page, including AI photos of different styles.	The AI photo button provides smart shooting options in various styles and automatically optimizes photo effects.
	Portrait beautification	Types and Features of Beauty Editing Tools	Provides various makeup effects to make users look more refined
	sr		sd
Second round of surveys (formulas and myths)	Filters and stickers	Rich filters and stickers to choose from.	Users are encouraged to explore different ways of self-expression, thereby enhancing personal creativity and uniqueness.
	Icons and buttons	Emphasis on efficiency and intuitiveness.	Improved the versatility of the interface and made the technology more accessible.
	Colors	A symbol of youth, attracting a specific user group.	Provide visual pleasure and enhance users' positive emotions when using the application.
	Layout and structure	Emphasize the intuitiveness and efficiency of user experience.	Improves user experience and promotes the production of higher quality and more personalized content.
	Text	Emphasis on clear communication of information and modernity of the interface.	Supports quick understanding and operation.
	Social sharing functions	Showing the centrality of sharing and social interaction in the digital age.	Highlighting the central role of social media.
	AI functions	It reflects the penetration of technological innovation into daily life.	This not only improves the quality of one's work, but also enables individuals to express themselves more confidently
	Portrait beautification	The importance of pursuing fashionable and personalized appearance in contemporary society	The use of beauty features is associated with personal, group or cultural identity.

3.3 MeituPic

MeituPic is an image processing software produced by Xiamen Meitu Technology Co., Ltd. in 2008. The software is equipped with picture special effects, beauty, puzzle and other functions, plus selected materials updated every day [15].

During the preliminary investigation phase, the presentation of interface elements included the rich display of filters and stickers, the minimalist and orderly design of icons and buttons, flexible color variations, and centralized and concise layout structures. These design features directly impact users' visual experience and operational convenience. For example, the filter selector presents options in a list format, offering diverse choices for users to customize photo styles based on personal preferences. Clear icon and button layouts make main functions easily accessible, while changing color themes provide freshness for different scenes. The use of sans-serif fonts enhances text readability, and the design of portrait beautification functions facilitates user operations.

In terms of denotation, these design elements enhance user navigation and application usage efficiency. For example, AI portrait functions simplify the editing process, while social sharing functions promote interaction among users. These functions not only improve user experience but also increase the application's daily usage.

During the second investigation phase, we explored the connotative and deeper meanings. Connotation focuses on how these design elements reflect cultural trends and social values. The rich selection of filters and stickers reflects users' demand for personalization and self-expression, while the minimalist design of icons and buttons embodies modern interface trends, emphasizing efficiency and intuitiveness. The flexible

use of colors and centralized layout simplifies displays according to modern design principles, emphasizing the intuitiveness and efficiency of user experience.

The deeper meanings reveal the role of these design elements in the social and cultural context. Filters with natural and vintage styles enhance users' identification with nostalgia and natural beauty, while the integration of community sharing buttons and AI functions reflects the fusion of technological advancement and intelligent living, promoting communication among users and the establishment of community bonds.

Table 4. MeituPic App Interface Design Analysis

MeituPic			
	sr		sd
Preliminary investigation (external)	Filters and stickers	The filter selector is displayed in list form, with different styles of filters and stickers.	Choose from different visual styles.
	Icons and buttons	The icons and buttons in the interface are arranged in an orderly manner with clear priorities. Picture beautification is more prominent.	Easy for users to identify and operate.
	Colors	The main color of the application is not fixed, but can be flexibly changed according to different themes.	Provide visual variety.
	Layout and structure	The operation buttons of the interface layout are concentrated in the middle and bottom of the screen.	Simplify operational procedures.
	Text	The application interface uses sans serif font.	Improve the clarity and readability of the interface.
	Social sharing functions	Applications often include a dedicated log function through which users can share their daily lives.	Increase social interaction.
	AI functions	The AI photo function provides smart beautification buttons	Automatically adjust photo quality.
	Portrait beautification	It takes the form of beauty editing tools, including dermabrasion, face slimming, whitening, etc.	For retouching selfies or portrait photos
	sr		sd
Second round of surveys (formulas and myths)	Filters and stickers	Added fun and elements of modern pop culture.	Shape and display a personalized social identity according to contemporary beauty standards.
	Icons and buttons	It reflects the importance of function and highlights the central position of beautification function.	The emphasis on user experience enables all users to experience the joy of creation.
	Colors	Flexibility and innovation in interface design.	Changeable color strategies can stimulate users' creativity.
	Layout and structure	Pay attention to user convenience.	Optimize user experience and improve efficiency.
	Text	Emphasis on clear communication of information and modernity of the interface.	Improved text clarity and modern feel

	Social sharing functions	The importance of socialization and digital recording of personal life is emphasized.	Promote emotional connections and a sense of community among users.
	AI functions	Symbolizing the combination of technological progress and smart life	Users appear more engaging on social media, increasing personal confidence and the likelihood of social interaction.
	Portrait beautification	Emphasizing the importance of appearance is closely related to cultural symbols such as success, happiness, and self-confidence.	It reflects the great concern and emphasis placed on personal image and appearance in today's society.

3.4 Faceu

Faceu is a photo camera app produced by Toutiao's Faceu team. The Faceu team started developing Faceu at the end of 2014. Faceu integrates stickers, filters, and other functions to provide young users with photo-taking, Video recording experience [16].

During the initial investigation, filters and stickers were offered in a list format with options like black and white, vintage, and lively, enabling users to customize photos easily. Icons and buttons were designed to be clear and intuitive, featuring popular stickers and cartoon faces. The main color scheme was green with accents of orange, yellow, and purple, enhancing visual appeal. The layout was clear, with a sans-serif font for better usability, and social sharing buttons were conveniently placed at the bottom. The absence of AI indicated a focus on manual editing flexibility.

These design elements directly impacted user interaction. The variety of filters and stickers, along with portrait beautification features, allowed for personalized editing. The simple design of icons and buttons made the app easy to use, while the color scheme and layout improved the user experience. Clear text and accessible social sharing functions further enhanced the app's social capabilities.

In the second phase, we explored the cultural significance of these design elements. The filters and stickers reflected a blend of traditional and modern aesthetics, supporting cultural diversity and individual expression. The minimalist icons and buttons aligned with modern design trends, focusing on efficiency. The vibrant color palette appealed to young users, highlighting a youthful, trendy design. The clean layout and modern typography emphasized clarity and ease of use.

On a deeper level, these interface design elements influence users' social identities and cultural affiliations. By offering diverse filters, social sharing, and beautification features, the app facilitates creative expression and enhances social interactions, helping users build personal brands and cultural identities in a globalized social media environment.

Table 5. Faceu App Interface Design Analysis

Faceu	sr		sd
Preliminary investigation (external)	Filters and stickers	Filter selector is displayed in list form	Use different styles of filters and stickers to decorate your photos
	Icons and buttons	The icons and buttons are simple and clear in design, including popular stickers and comic faces.	Simplify user operations.
	Colors	The main color is green, supplemented by orange, yellow	Increase visual appeal.

		and purple	
	Layout and structure	The operation buttons are arranged in the middle and bottom of the screen, and the functions are clearly divided.	Center and bottom layout of function buttons provides ease of use.
	Text	The application interface uses a sans-serif font, with a slight shadow underneath the font in the main interface.	Use sans serif font with shadow underneath to enhance readability.
	Social sharing functions	Provides sharing options on social platforms such as WeChat, Sina Weibo, and QQ	It is convenient for users to share content to social platforms such as WeChat and Weibo.
	AI functions	No AI related functions provided	No AI related functions provided
	Portrait beautification	Provides beauty editing tools including dermabrasion, face slimming, whitening, etc.	Directly points to users' needs to improve and modify their appearance
	sr		sd
Second round of surveys (formulas and myths)	Filters and stickers	Filter styles such as black and white and retro reflect the fusion of nostalgia for past visual styles and modern aesthetics.	Shaping one's visual identity on social media based on personal taste highlights one's freedom of self-expression.
	Icons and buttons	Interface friendliness and accessibility of technology.	Easier to use, allowing more people to enjoy the fun of creating and sharing.
	Colors	The use of color reflects cultural values of vitality and youth.	It can adapt to the aesthetic needs of different users, thereby enhancing user experience.
	Layout and structure	The simple and clear layout reflects the efficiency-first principles of modern design.	Improved effectiveness and enhanced product affinity.
	Text	Modern typeface design reflects the clarity and intuitiveness of information delivery.	Ensure the effective communication of information.
	Social sharing functions	The social sharing feature emphasizes the importance of social networks in contemporary life.	Promotes interpersonal connection and understanding, and strengthens a sense of community and belonging.
	AI functions	The lack of AI capabilities may indicate technical limitations of the application or a difference in development focus.	Although AI functionality is not available in the current version, the app focuses on manual creative work to promote learning and skill improvement.
	Portrait beautification	Emphasize the importance of appearance to success, happiness, and confidence.	Contemporary society attaches great importance to appearance beauty, which has shaped an aesthetic culture dominated by appearance beauty.

4. COMPREHENSIVE ANALYSIS AND CONCLUSION

4.1. The Significance of Comprehensive Analysis and Research

A semiotic interpretation of interface design elements in beauty camera applications as a study delves deeply into the realm of beauty apps. By analyzing the design features of four applications (BeautyPlus, Ulike, MeituPic and Faceu), we found differences in filters, icons, colors, and other aspects, but all emphasized usability, visual appeal, and social interaction. These design elements not only enhance user efficiency and experience but also reflect current cultural trends and aesthetic preferences.

In today's society, beauty camera applications have significantly transformed the way photos are edited through advanced artificial intelligence technology, making the editing process more convenient while

offering a wide range of personalized options. These applications allow users to easily achieve professional-level beautification effects through various filters, thereby enhancing their creativity and self-expression capabilities. More importantly, features such as filter selection and social sharing not only provide users with platforms to showcase themselves but also profoundly influence their social behaviors and cultural identities, becoming important drivers of modern cultural interaction and social media development. Therefore, studying the relationship between interface design elements of beauty camera applications and user self-expression from a semiotic perspective can not only help us better understand how these technologies shape social habits and cultural identities but also provide theoretical and empirical foundations for exploring social media and cultural communication in the digital age. Such research is of great significance for understanding and guiding the development direction of modern social media.

4.2 Research Significance and Limitations

In this study, exploring the semiotic interpretation of beauty camera design elements and self-expression holds significant theoretical and practical significance. Drawing upon Roland Barthes' semiotic theory, we have advanced our understanding of how digital media influences individual and collective identities, as well as how these media are encoded and decoded in modern society. This research demonstrates the application of semiotics in analyzing everyday technological products, emphasizing the role of design elements in shaping user behavior and cultural trends. Additionally, our analysis provides insights into how to consciously design technological products to promote positive social and cultural impacts. In terms of limitations, it should be noted that this study relies primarily on theoretical analysis and lacks extensive empirical data to support its conclusions, which may limit the universality and depth of the research.

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