





Brand Experience and Brand Image Building Based on Virtual Reality Technology

Shaobo Huang¹  and Haoxing Zheng²³ 

¹School of Culture and Communication, Guangxi Science & Technology Normal University, Laibin, Guangxi 546100, China, 201906009@gxstnu.edu.cn

²School of Culture and Communication, Guangxi Science & Technology Normal University, Laibin, Guangxi 546100, China, zhenghaoxing@gxstnu.edu.cn

³Department of Media & Communication, Yeungnam University, Gyeongsan 38541, South Korea, zhenghaoxing@gxstnu.edu.cn

Corresponding author: Haoxing Zheng, zhenghaoxing@gxstnu.edu.cn

Abstract. The research on brand experience and brand image shaping based on virtual reality technology is an emerging research field, which mainly includes brand experience, virtual reality technology, user experience, virtual reality experience, and other aspects. This study aims to explore how to use virtual reality technology to enhance brand experience and image, thereby enhancing the competitiveness of enterprises. The brand experience in virtual reality has broken time and space constraints, attracted user participation, and played an important role in deepening users' brand personality impression. This article starts from the characteristics of brand experience under virtual reality technology, analyzes the impact of brand experience on brand personality communication in virtual reality, and proposes a brand personality communication and design strategy based on virtual reality technology in the sensory dimension. The evaluation of brand impact identification is affected by the positioning of the enterprise brand, resulting in poor evaluation effect of brand image identification. To improve the effectiveness of brand image recognition evaluation, a brand image recognition evaluation system design based on regional visual division is proposed. The test results indicate that the brand image recognition evaluation system based on regional visual division, regardless of whether it is disturbed by noise environment or not, results in higher brand image recognition, thereby improving the evaluation effect of brand image recognition and contributing to brand experience and brand image shaping.

Keywords: Virtual Reality; Brand Experience; Brand Image; Brand Identification

DOI: <https://doi.org/10.14733/cadaps.2023.S13.49-60>

1 INTRODUCTION

In terms of brand experience, virtual reality technology can provide a more realistic and realistic experience by simulating real-world environments and scenes. For example, enterprises can use

virtual reality technology to construct indoor landscapes, allowing customers to experience an immersive shopping experience in shopping centers or at home. In addition, enterprises can also use virtual reality technology to simulate customer usage scenarios, including product usage scenarios, allowing customers to have a deeper understanding of product performance and usage methods. Ashraf and Nagy [1] focus on the use of virtual technology and improve brand quality by implementing augmented reality mobile applications. With the rapid progress of market economy and social productivity, the Chinese market has also entered the era of globalization. The influx of a large number of international brands has led to the intensification of product competition, and the competition between enterprises has gradually evolved into brand competition. Especially requiring potential job seekers to experience the brand experience process of virtual reality. Bialkova et al. [2] have enhanced the experience level of employer brands through high-tech platforms. In this social and cultural context, in order to improve their competitiveness and overcome the negative impact of product homogenization, various enterprises are planning how to better improve their brand visual image and recognition. Coelho et al. [3] conducted brand experience and personality shaping, and conducted quality innovation through key functional brands. Its research delves into the characteristics of how companies generate their quotes, in order to establish brands that consumers believe can generate valuable brand experiences and personalities.

In the non-digital era, advertising and marketing research is as rich and useful as it is today, but with much lower density. Ford's [4] research covers a wide range of topics, from purchasable live advertisements to advertisements created by AI. It explores the maturity of local advertising formats and their comparison with anthropomorphic virtual brands. There is a lack of guidance on selecting or combining these technologies. Heller et al. [5] found that AR is more effective than VR in stimulating purchase intention, as it can support customers with a smooth product centric psychological image. The purpose of Huertas and Gonzalo's [6] research is to identify which factors can lead to AR producing a satisfactory travel experience for applications. Provided AR's experience in building destination brands and its relationship with the tourism industry.

This article proposes a brand visual image enhancement method based on virtual reality technology, and conducts research on brand image recognition, which has important significance for improving brand experience and shaping. The full text is mainly divided into 5 chapters, and Chapter 1 mainly introduces the role and significance of brands; Chapter 2 introduces the role of brand in the connotation of brand image, analyzes the importance of brand experience and brand shaping in virtual environments; Chapter 3 mainly designed a brand visual image enhancement method based on virtual reality technology, and conducted research on brand image recognition; Chapter 4 mainly conducts experimental verification of the method designed in this article. Chapter 5 mainly summarizes the work of the entire article.

2 STATE OF THE ART

With the further development of economic globalization, many enterprises are paying more and more attention to the role of brand image in product display and sales in order to promote their products in the international market, establish their own brand culture and corporate image. Husain et al. [7] conducted experiential resonance across different brands. By using virtual reality technology to provide a more realistic and rich user experience, we aim to enhance user loyalty and satisfaction with the brand. Enterprises can use virtual reality technology to design and construct various interactive scenarios, allowing customers to participate and improving their sense of participation and satisfaction. Contemporary brands are generated in complex technological and media environments, and their key background characteristics are still largely unexplainable. Kozinets [8] used brand service platforms and algorithms for digital strategy marketing. Its purpose is to analyze and match user data, accurately push advertisements, and improve investment returns. The use of brand service platforms and algorithms is an important digital marketing strategy. It can help companies better understand their audience and market trends, and thus develop more precise marketing strategies. Kshetri [9] focused on studying the

impact of these developments on organizational brand and product strategy. Lo et al. [10] used virtual reality technology to test the mediating effect of existence on consumers' response to tourism promotions. It analyzes consumer feedback in virtual reality scenarios. For example, whether to complete the task, whether you are interested in promotional activities, etc. The impact of brand experience and brand image on brand loyalty through brand trust testing is a meaningful research topic. Lou and Xie [11] mainly explored the impact of brand experience and brand image on brand loyalty in brand trust testing. In brand trust testing, brand experience and brand image are important measurement indicators. Brand experience includes the quality of products and services, user experience, service attitude, brand image, including brand awareness, brand reputation, brand association, etc. Brand image includes visual image, auditory image, tactile image, etc. Marliawati et al. [12] found that both brand experience and brand image have a significant impact on brand loyalty. Specifically, brand experience has a greater impact on brand loyalty, with aspects such as product and service quality, user experience, and service attitude having a significant positive impact on the improvement of brand loyalty. Figure 1 shows the process of brand formation. The brand image is mainly composed of three factors, namely cognitive factors, emotional factors, and positioning factors. Cognitive factors refer to various factors that can be directly perceived through the sensory organs of the human body, such as color, shape, packaging, name, trademark, building, etc. These factors can help cognitive objects create a first impression, forming favorable or unfavorable feelings; Emotional factors refer to various factors that can stimulate people to generate a certain emotion or emotional experience, with positive or negative properties, such as style, demeanor, etc. These factors play a transformative role in the cognitive process, making the cognitive object close to or away from something; Positioning factors refer to factors that can create a unique sense of value and form independent concepts and status in the cognitive object's psychology, such as product benefits, product functions, class symbols, reverse thinking, entertainment, and other factors that create a sense of value. These factors act on the audience's psychology and leave behind a unique psychological experience. A good brand image is inseparable from the comprehensive effect of these three factors.

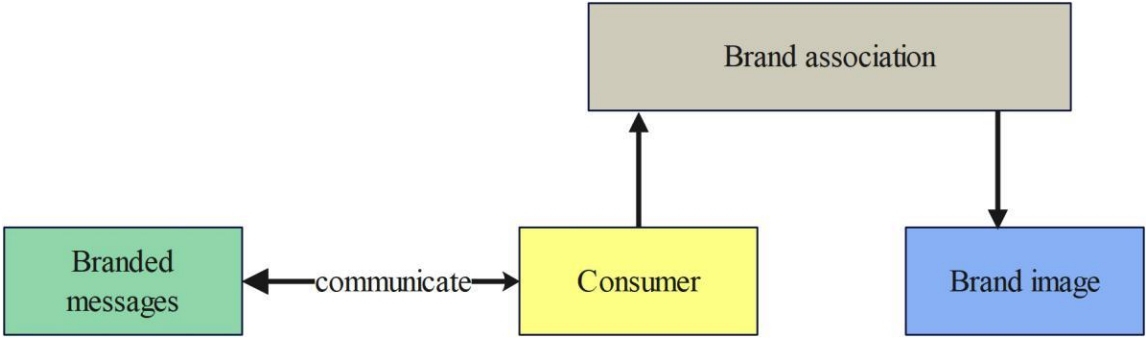


Figure 1: Brand image formation process.

One of the important conditions for shaping brand image is brand communication, and without good brand communication, it is impossible to create a unique brand experience. Brand communication is divided into internal communication and external communication, which correspond to the internal and external marketing of the enterprise. In the process of brand management, brand differentiation is the essential element of brand image and brand experience. The greater the brand difference, the stronger the customer's brand experience; On the contrary, the smaller the brand difference, the weaker the customer's brand experience. Both external and internal marketing should pay attention to the formation of brand differentiation. Virtual billboards and consumers' choices of virtual clothing can also affect brand awareness. In the past decade, the

global use of smartphones has had significant social, environmental, and economic impacts, and has continued to grow. It is crucial to understand customers' purchasing behavior and understand the driving forces behind their choice of a specific brand among various competitors. Mao et al. [13] focused on studying the strategic implications of managing various brand characteristics, aiming to coordinate economic, social, and environmental sustainability. Nalbant and Aydin [14] analyzed a large amount of data through artificial intelligence technology to identify consumer preferences and behavioral patterns, thereby achieving precise personalized marketing. Enterprises can make personalized recommendations based on consumers' interests, hobbies, lifestyle habits, etc., to improve consumer satisfaction and loyalty. Pamuksuz et al. [15] conducted personalized data analysis on brand consumption. It has developed a new hybrid machine learning algorithm design that provides an adaptive and scalable tool for automated and scalable data analysis that can be used in a range of management research. Its approach enhances the theoretical understanding of channelization and perceived brand personality. Ramesh et al. [16] conducted a structured questionnaire survey. Artificial intelligence technology can achieve precise customer relationship management by analyzing user data, identifying the needs and behaviors of different consumers. Enterprises can improve customer satisfaction and loyalty through intelligent customer service, intelligent recommendations, and other methods, while also reducing waste of human resources. Ruangkanjanases et al. [17] believe that customer experience and AR marketing activities are inseparable. Customer experience refers to the satisfaction and comfort that customers experience during the use of a product or service. AR marketing activities refer to the integration of products or services into real life through AR technology, allowing customers to more intuitively feel the value and advantages of products or services. Sanjaya et al. [18] analyzed the impact of brand image on user purchase intention and conducted quantitative analysis using multivariate statistical tools. The actual brand experience plays an important role in sales share.

3 METHODOLOGY

A good brand image design can transcend language, cultural and other differences, allowing consumers to receive the connotation of the brand image visually. A good brand image should have strong recognition. In the process of establishing a brand image, recognition is an important factor that reflects the status of the brand image. Due to the lack of research on brand image recognition in academia, the size of brand image recognition is evaluated from the perspective of consumers. Whether it is from the connotation and essence of brand image recognition, or the actual requirements of the consumer market, it is necessary to choose to evaluate brand image recognition from the perspective of consumers. Due to the vastly different macro and micro environments in which domestic brand image recognition occurs, especially due to the influence of objective factors in brand image, there are still certain limitations in evaluating brand image recognition.

This article focuses more on the research of brand sensory experience, and Figure 2 shows the brand experience mechanism under virtual reality conditions.

Figure 3 shows the mechanism of brand image shaping under virtual reality conditions. Through virtual reality art, a more personalized and unique brand image can be created, making the brand more recognizable and attractive. The visual image of the brand also places greater emphasis on the presentation of three-dimensional space, in order to better convey the brand's image and value. Virtual reality technology can help brands shape a more long-term and in-depth brand image, thereby enhancing their long-term competitiveness. For example, the brand cultural space created through virtual reality technology can enable brands to better convey their values and concepts, enhance their cultural heritage, and enhance the sustainability of their brand image.

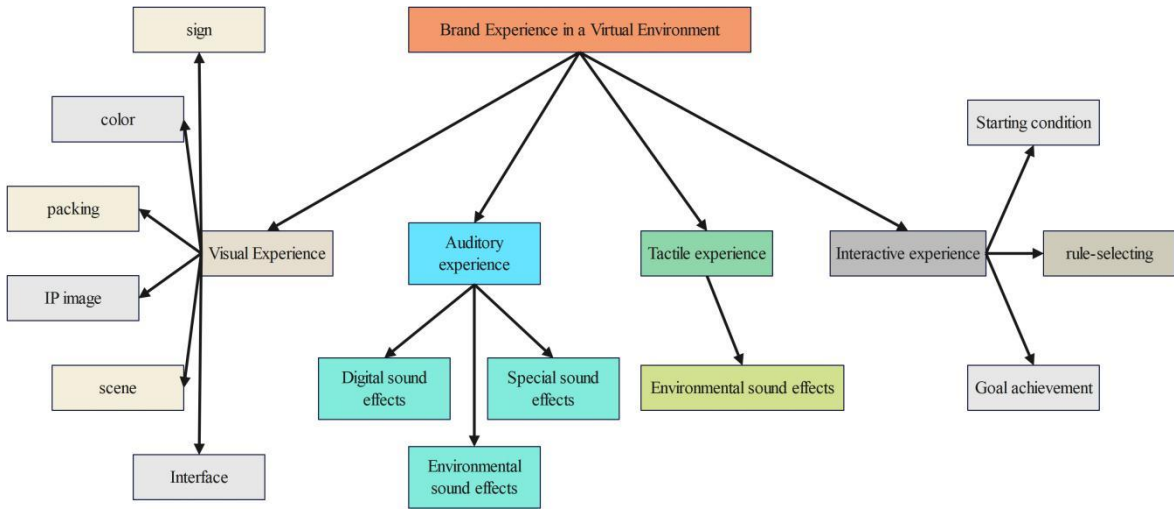


Figure 2: Brand experience mechanism under virtual reality technology.

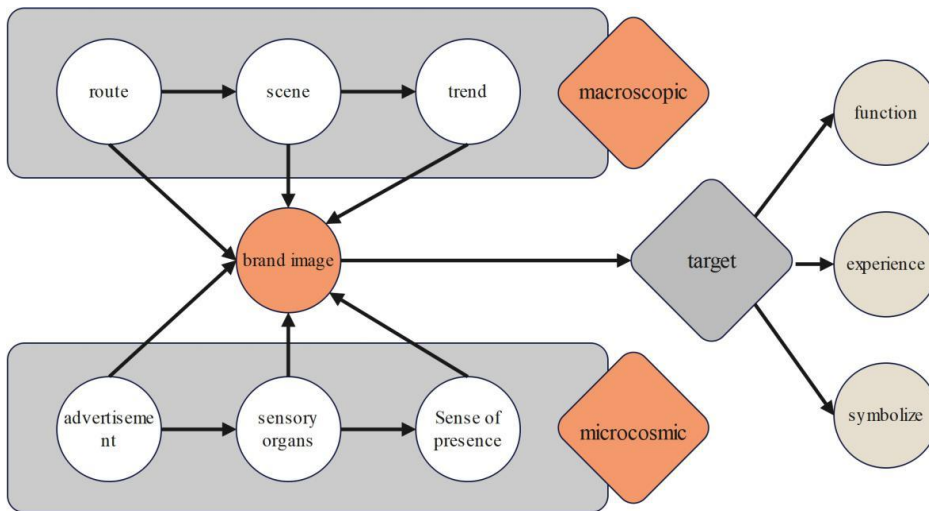


Figure 3: Brand image shaping mechanism under virtual reality technology.

3.1 Brand Visual Image Enhancement Methods

Whether the brand image can infect consumers in the first place, causing them to yearn and purchase interest, can determine the future development direction of the brand. Image quality determines visual effects, and high-quality images can enhance the human eye's ability to distinguish information. Visual enhancement methods such as histogram equalization and multi-scale enhancement have the defect of amplifying noise, and cannot obtain good visual effect. Practice has proven that consumers primarily obtain the information they need through visual means, with visual acquisition accounting for up to 85% of all information.

The process of using nonlinear mapping to achieve dynamic range and dark area enhancement based on the brightness level of the image is the global brightness adjustment process. Using $I(x, y)$ to represent the brightness component of a color image, the formula is as follows:

$$I(x, y) = \max\{I_R(x, y), I_G(x, y), I_B(x, y)\} \quad (1)$$

In the formula, R, G, and B are the values of the R, G, and B components of the pixels in the RGB space of the image design color image. The brightness image brightness coefficient is obtained through the cumulative distribution function of the image using the following formula:

$$\lambda = \begin{cases} 0 & K \leq 50 \\ (K - 50) / 120 & 50 < K \leq 170 \\ 1 & K > 170 \end{cases} \quad (2)$$

In the formula, K represents the corresponding gray scale of the brightness image when the grayscale cumulative distribution function is 0.1. The formula for implementing adaptive brightness adjustment using nonlinear mapping is as follows:

$$I_g(x, y) = [I_n(x, y)]^{\frac{1}{3}\lambda + \frac{1}{3}} \quad (3)$$

In the formula: $I_g(x, y)$ and λ Respectively refer to the brightness adjustment of the image and the brightness coefficient of the original image; $I_n(x, y) = I(x, y) / 255$ is used to normalize the brightness information of the original image. By achieving non-linear adjustment of the overall brightness of visual image design images through the above, it provides convenience for human eye observation.

After enhancing the brightness of the image, linear operations are used to restore the color of the image. After completing the operation, the proportion relationship between the R, G, and B components of the pixel points is fixed, and the color information in the original image is fully preserved. The formula for restoring color information after image enhancement in visual image design is as follows:

$$I'_j(x, y) = \lambda(x, y)I_j(x, y), j = r, g, b \quad (4)$$

In the equation: λ the proportion enhancement factor at points (x, y) and the three primary color components R, G, and B of the original image are respectively used; $I'_j(x, y)$ is the ternary color component of the design that has been visually enhanced.

3.2 Method for Brand Image Recognition Based on Regional Visual Division

The brand image recognition collector is mainly responsible for persistence processing of brand image recognition information. Using regional visual segmentation to process brand image recognition information, a clustering node path scheduling model for brand image recognition evaluation is constructed, and $NInter_i(n)$ is used to represent the clustering node path scheduling model.

$$NInter'_i(n) = NInter_i(n) + 1, j \neq N_i \cup t_{ij} \geq T_h \quad (5)$$

Where, $NInter_i(n)$ represents the maximum Transmission delay of the brand image recognition evaluation node i, then the balanced scheduling output of the brand image recognition evaluation center is:

$$NInter'_i(n) = \frac{NInter_i(n)}{T} \quad (6)$$

In the formula, T represents the total transmission time of brand image recognition evaluation node i. At the brand image recognition evaluation center, the output brand image recognition of node i at time t is:

$$X_i(t) = [x_{i1}(t), x_{i2}(t), \dots, x_{iD}(t)] \quad (7)$$

Based on regional visual division, the distribution density of brand image recognition evaluation node i at time t is obtained as

$$V_i(t) = [v_{i1}(t), v_{i2}(t), \dots, v_{iD}(t)] \quad (8)$$

The shortest path optimization for brand image recognition evaluation using drivers is:

$$P_i = (p_{i1}, p_{i2}, \dots, p_{iD}) \quad (9)$$

In the process of searching for the evaluation path of brand image recognition, the location pheromone is represented by 0. In combination with the regional visual division, each brand image recognition evaluation path is automatically weighted, and the dynamic control equation of brand image recognition evaluation is established, which is expressed as:

$$f(i) = d_s(i) + d_T(i) \quad (10)$$

In the formula: $d_s(i)$ represents the equivalent constraint for evaluating brand image recognition; $d_T(i)$ represents the equivalent duration of brand image recognition evaluation.

4 RESULT ANALYSIS AND DISCUSSION

4.1 Analysis of Brand Image Visual Experience Design

In order to test the effectiveness of the system in this paper, we selected a Congee store brand in a certain region as the analysis object, and set more than 30 Congee dishes considering multiple dietary needs. The graphic elements with high user preference are selected as the main design elements, and the brand image of Congee store is designed by taking full advantage of the design theme with seafood features such as crabs and shrimps.

Select 100 users of different age groups and professions to observe the brand image designed using this method, and calculate their gaze time on the design results. To visually demonstrate the effectiveness of the method design in this article, regional cultural methods and graphic design methods are selected as comparative methods. The statistical results of average fixation time for the image design results of three methods by different age groups are shown in Figure 4. The average fixation time statistical results of three brand image design results for different professions are shown in Figure 5.

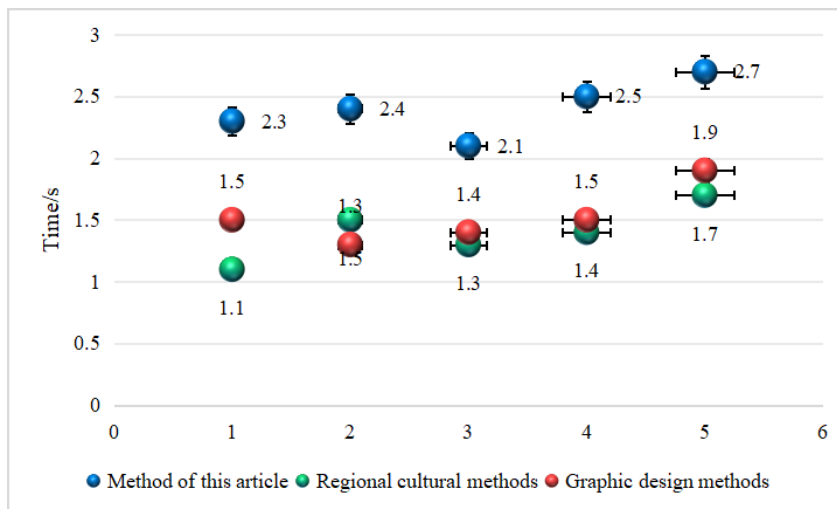


Figure 4: Fixation time of different age groups.

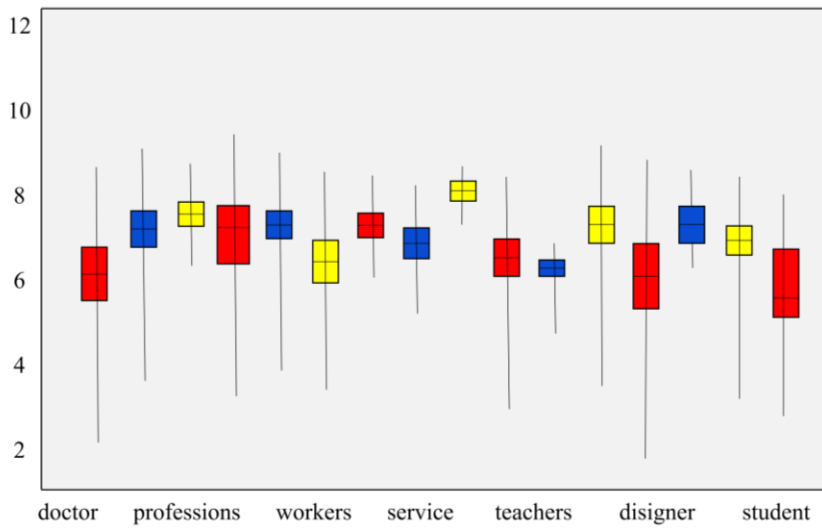


Figure 5: Fixation time for different professions.

From the figure, it can be seen that users of different age groups and professions have a fixation time of more than 2 seconds for the visual brand image design method in this article. The method proposed in this article can enhance users' willingness to gaze, and the enhancement of gaze time indicates that users have a high degree of satisfaction with the design results of this article. To further test the visual brand image design effect of the method proposed in this article, a web survey questionnaire was launched using the internet to collect 100 internet users. A 10 point scoring system was used to assess the satisfaction level of different indicators for the design image results of the three methods. The scoring results are shown in Figure 6.

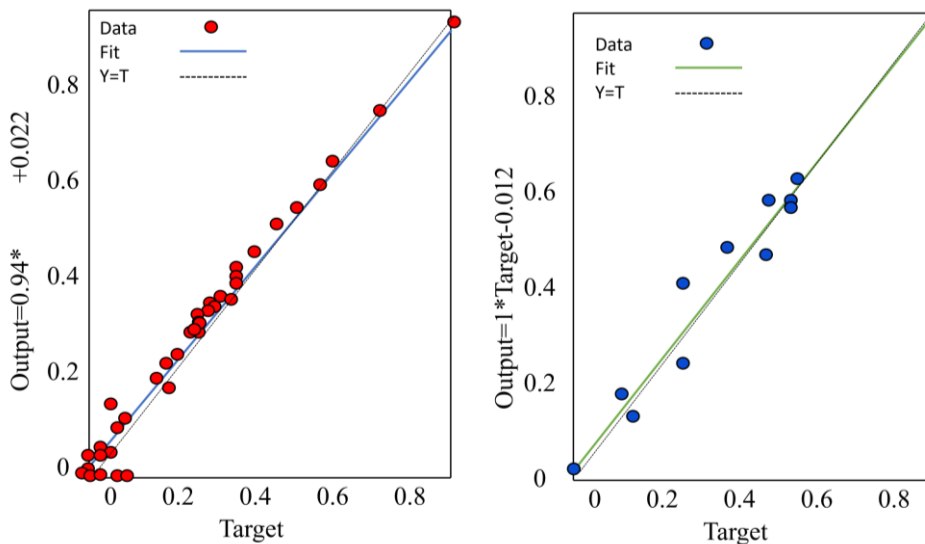


Figure 6: Fixation time for different professions.

From the above results, it can be seen that the respondents rated the affinity, satisfaction, and other evaluation indicators of the brand image design results using this method at least 8.5 points, with an average score of 9.1 points for the eight indicators; The average scores for the eight indicators of image design for the other two methods are 7.3 and 7.1. The survey results show that the brand image designed using this method can satisfy more users and have better design effects.

4.2 Analysis of Brand Image Recognition

In order to verify the effectiveness of the brand image recognition evaluation system based on regional visual division, the probability of brand image recognition evaluation caused by regional feature factors, the uncertainty of brand image recognition evaluation conditions within the cluster, the probability of brand image promoters not being able to invest funds in accordance with contract provisions, the probability of the appearance of the same type of brand image, and the probability of unexpected termination of cooperation with other brands are sequentially analyzed. The probability of establishing online marketing by brand image competitors, the probability of path dependence, and the probability that the evaluation cycle of brand image recognition may occur.

In noisy and noiseless environments, the brand image recognition evaluation system based on regional visual division, neural network brand image recognition evaluation system, and polynomial fitting brand image recognition evaluation system were used to evaluate the brand image recognition. The comparison results of brand image recognition in noisy and noiseless environments were obtained, as shown in Figure 7 and Figure 8.

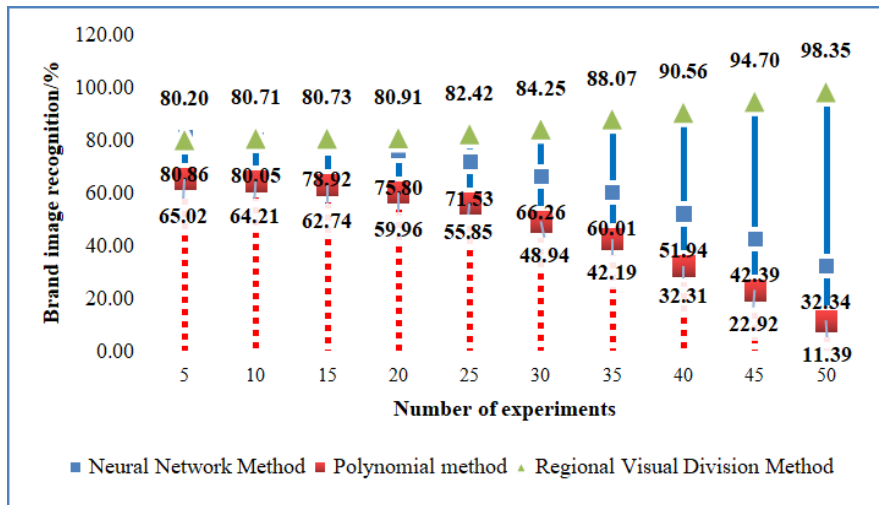


Figure 7: Comparison results of brand image recognition in noisy environments.

From the experimental test results in Figure 7, it can be seen that in the first 10 experimental tests, the brand image recognition evaluated by the three-brand image recognition evaluation systems remained unchanged. The brand image recognition evaluation system of the neural network is significantly lower than the other two evaluation systems at the beginning of the experiment. As the number of experiments increases, the optimization of the transfer function is affected, resulting in a decrease in brand image recognition; The polynomial fitting brand image recognition evaluation system has a brand image recognition degree of 80% in the first 10 experimental tests. However, as the number of experiments increases, the response of the brand

image recognition evaluation algorithm slows down, resulting in a stepwise decrease in brand image recognition degree; The brand image recognition evaluation system based on regional visual division has been increasing since the 11th experimental test. The reason is that before evaluating the brand image recognition, the brand image recognition information is processed, eliminating redundant parts of the recognition information and increasing the brand image recognition.

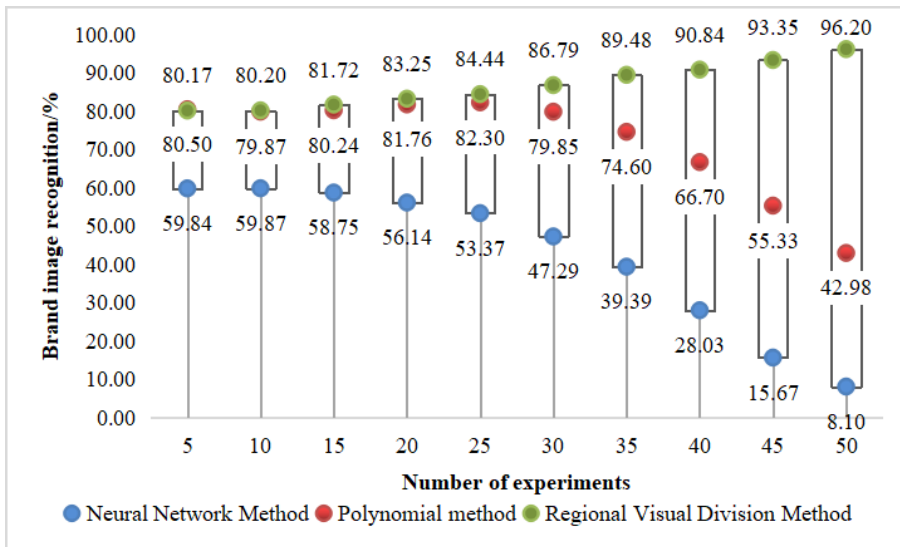


Figure 8: Comparison results of brand image recognition in a noiseless environment.

From the experimental results in Figure 8, it can be seen that the brand image recognition evaluation system based on regional visual division and the brand image recognition evaluation system based on neural networks have increased with the increase of experimental testing times in the first 25 experimental tests. However, when the number of experimental tests exceeds 25, the information collector and circuit of the brand image recognition evaluation system based on regional visual division can ensure the stability of the system's power demand, resulting in higher and higher brand image recognition. However, the brand image recognition evaluation system of neural networks cannot meet the stability requirements of the system in terms of hardware configuration, Make the evaluation of brand image recognition worse. The polynomial fitting brand image recognition evaluation system has shown a slow decline in brand image recognition in the first 25 experimental tests, but it is relatively stable; When the number of experimental tests exceeds 25, the brand image recognition begins to rapidly decline, and the final brand image recognition is only 7.9%.

From the above experimental results, it can be seen that the brand image recognition evaluation system based on regional visual division can improve the brand image recognition regardless of whether there is noise interference, thereby improving the evaluation effect of brand image recognition.

5 CONCLUSION

In a sense, brand image is the stepping stone for a company to occupy the market. At present, users' more memorable points for a company lie in its visual image design. Therefore, studying the visual design of brand image and improving the attractiveness and shaping of brand image is of great significance.

The widespread application of virtual reality technology and its devices has provided new avenues for the stagnant brand image. Virtual reality technology has high interactivity, strong immersion, and new communication, providing new ideas for brand image development from both online and offline levels, and deeply exploring the potential of brand image development. This technology has a profound impact on the precise adjustment and upgrading of brand image centered on consumers. The innovative application of virtual reality technology in brand image not only brings economic benefits to the brand, but also makes new attempts for the application of virtual reality technology in other industries.

6 ACKNOWLEDGEMENTS

This work was supported by the second batch of new liberal arts research and practice projects of Guangxi Science & Technology Normal University, "Cross border" and "accommodation": Exploration and practice of the construction of network and new media major in local undergraduate colleges and Universities (No.: 2022GKSYWK03).

Shaobo Huang, <https://orcid.org/0009-0007-5315-4176>

Haoxing Zheng, <https://orcid.org/0009-0000-0189-8965>

REFERENCES

- [1] Ashraf, F.; Nagy, G.: HBIM as a tool for branding historical Egyptian sites by utilizing augmented reality, In IOP Conference Series: Earth and Environmental Science, 397(1), 2019, 012012. <https://doi.org/10.1088/1755-1315/397/1/012012>
- [2] Bialkova, S.; Ros, E.: Enhancing Employer Branding via High-Tech Platforms: VR and Digital, What Works Better and How?, *mrev management revue*, 32(2), 2021, 128-145. <https://doi.org/10.5771/0935-9915-2021-2>
- [3] Coelho, F.-J.; Bairrada, C.-M.; de Matos Coelho, A.-F.: Functional brand qualities and perceived value: The mediating role of brand experience and brand personality, *Psychology & Marketing*, 37(1), 2020, 41-55. <https://doi.org/10.1002/mar.21279>
- [4] Ford, J.-B.: How Cutting-Edge research on advertising and branding builds customer engagement, *Journal of Advertising Research*, 61(2), 2021, 127-128. <https://doi.org/10.2501/JAR-2021-007>
- [5] Heller, J.; Hilken, T.; Chylinski, M.; Keeling, D.-I.; Mahr, D.; Ruyter, K.: How to strategically choose or combine augmented and virtual reality for improved online experiential retailing, *Psychology and Marketing*, 39(3), 2022, 495-507. <https://doi.org/10.1002/mar.21600>
- [6] Huertas, A.; Gonzalo, J.: The role of augmented reality in destination branding, *Tourism and Hospitality Management*, 26(2), 2020, 419-436. <https://doi.org/10.20867/thm.26.2.8>
- [7] Husain, R.; Paul, J.; Koles, B.: The role of brand experience, brand resonance and brand trust in luxury consumption, *Journal of Retailing and Consumer Services*, 66(2), 2022, 102895. <https://doi.org/10.1016/j.jretconser.2021.102895>
- [8] Kozinets, R.-V.: Algorithmic branding through platform assemblages: core conceptions and research directions for a new era of marketing and service management, *Journal of Service Management*, 33(3), 2022, 437-452. <https://doi.org/10.1108/JOSM-07-2021-0263>
- [9] Kshetri, N.: Web 3.0 and the metaverse shaping organizations' brand and product strategies, *IT Professional*, 24(02), 2023, 11-15. <https://doi.org/10.1109/MITP.2022.3157206>
- [10] Lo, W.-H.; Cheng, K.-L.-B.: Does virtual reality attract visitors? The mediating effect of presence on consumer response in virtual reality tourism advertising, *Information Technology & Tourism*, 22(4), 2020, 537-562. <https://doi.org/10.1007/s40558-020-00190-2>
- [11] Lou, C.; Xie, Q.: Something social, something entertaining? How digital content marketing augments consumer experience and brand loyalty, *International Journal of Advertising*, 40(3), 2021, 376-402. <https://doi.org/10.1080/02650487.2020.1788311>

- [12] Marliawati, A.; Cahyaningdyah, D.: Impacts the brand of experience and brand image on brand loyalty: mediators brand of trust, *Management Analysis Journal*, 9(2), 2020, 140-151. <https://doi.org/10.15294/maj.v9i2.36945>
- [13] Mao, Y.; Lai, Y.; Luo, Y.; Liu, S.; Du, Y.; Zhou, J.; Bonaiuto, M.: Apple or Huawei: Understanding flow, brand image, brand identity, brand personality and purchase intention of smartphone, *Sustainability*, 12(8), 2020, 3391. <https://doi.org/10.3390/su12083391>
- [14] Nalbant, K.-G.; Aydin, S.: Development and Transformation in Digital Marketing and Branding with Artificial Intelligence and Digital Technologies Dynamics in the Metaverse Universe, *Journal of Metaverse*, 3(1), 2023, 9-18. <https://doi.org/10.57019/jmv.1148015>
- [15] Pamuksuz, U.; Yun, J.-T.; Humphreys, A.: A brand-new look at you: predicting brand personality in social media networks with machine learning, *Journal of Interactive Marketing*, 56(1), 2021, 1-15. <https://doi.org/10.1016/j.intmar.2021.05.001>
- [16] Ramesh, K.; Saha, R.; Goswami, S.; Dahiya, R.: Consumer's response to CSR activities: Mediating role of brand image and brand attitude, *Corporate Social Responsibility and Environmental Management*, 26(2), 2019, 377-387. <https://doi.org/10.1002/csr.1689>
- [17] Ruangkanjanases, A.; Chou, T.-H.; Kittikowit, S.; Lee, T.-C.; Chen, S.-C.; Hongsuchon, T.: The mediation effect of marketing activities toward augmented reality: the perspective of extended customer experience, *Journal of Hospitality and Tourism Technology*, 13(3), 2022, 461-480. <https://doi.org/10.1108/JHTT-03-2021-0093>
- [18] Sanjaya, W.; Asdar, M.; Munir, A.-R.: The effect of brand image, brand experience and brand loyalty towards purchase intention on apple smartphone in makassar, *Hasanuddin Journal of Business Strategy*, 2(3), 2020, 74-82. <https://doi.org/10.26487/hjbs.v2i3.350>