

Retraction

Retracted: Application of Computer-Aided Graphic Design in Enterprise Image

Security and Communication Networks

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.


The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] S. Zhang, "Application of Computer-Aided Graphic Design in Enterprise Image," *Security and Communication Networks*, vol. 2022, Article ID 6206434, 7 pages, 2022.

Research Article

Application of Computer-Aided Graphic Design in Enterprise Image

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In order to study the role of computer-aided graphic design on corporate image, improve the internal management efficiency and market management effect of enterprises, and improve the business process of corporate image design (visual identity, VI), according to the relationship between corporate image design investment and internal management, this paper studies and analyzes the factors that affect corporate market management, including employee exchange rate, unit labor value, market share, team ratio, and passive order rate. Finally, it was found that the amount of investment in VI related work was confidently and negatively correlated with the employee exchange rate.

1. Introduction

Visual identity (VI) comes from the advertising design work of the enterprise front-end image in marketing, but in recent years, the VI work has been fully integrated with the internal management and the overall market management of the enterprise, forming a corporate culture system. Therefore, early studies tend to study the performance characteristics of VI in marketing and market ecology, while recent research prefers to study VI on the overall management efficiency of enterprises. Relevant research pointed out that VI plays a more important role in the collective cognitive psychology part in the overall visual identity.

Preeti and Gupta pointed out in the research that there is a significant correlation between the VI project of the scenic spot and the operating income of the scenic spot. The VI of the scenic spot needs to build a balanced correlation with the natural ecological landscape. If the ecological scenic spot cannot do enough in the enterprise VI, it will directly affect the passenger flow of the scenic spot [1]. Clemente et al. studied the public psychology of enterprise visual communication and pointed out that the VI system of enterprises does not need to be market-oriented but needs to realize the social public identity of the overall image of enterprises. The agreed VI system will be formed among

enterprises and industries in some European countries to form a large-scale public identity [2]. Diehl et al. analyzed the psychological expression of enterprise VI from the perspective of negative psychology and pointed out that the design defects of VI have a certain probability to have a negative impact on the enterprise [3]. Claudiu et al. studied the promotion of VI system in colleges and universities on teaching and scientific research [4].

Starting from the actual process of enterprise VI work, this research analyzes the application process of enterprises to various versions of computer-aided graphic design software and then studies the impact of the application investment in these computer-aided graphics software on the enterprise internal and external management efficiency from the perspective of auditing [5].

2. Enterprise Image VI System Construction Based on Computer-Aided Graphic Design

Enterprise image design (visual identity, VI) mainly includes three basic design tasks and several practical design tasks; basic design includes enterprise logo, publicity basic color and official border, official font, and binding scheme; practical design includes documents and new seals, doors, door card, business card, uniforms, product packaging,

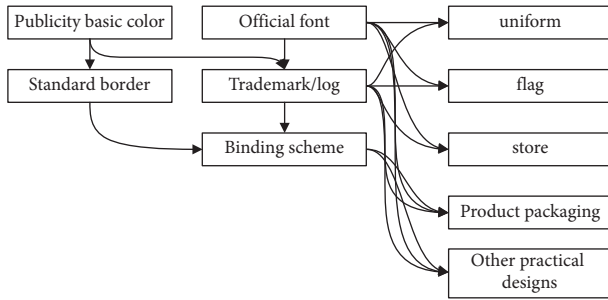


FIGURE 1: Visual recognition is a static, concrete, and visual communication.

booth, stores, and so on [6]. The working architecture of the relevant design is shown in Figure 1.

2.1. Logical Association of Computer-Aided Graphic Design Software and Enterprise Image VI System. According to Figure 1, there are three main colors for graphic colors, which are called primary, secondary, and tertiary, respectively; official font refers to the typesetting information such as the font, size, and line spacing of the enterprise; trademarks/logos refer to corporate logos formed through certain composition principles and are generally designed in the form of text or vector graphics, which are the core design tasks in the corporate VI system; the standard frame is an auxiliary graphic designed for VI applications such as advertising materials, copywriting, documents, and business cards, as a supplementary graphic for trademarks/logos.

An excellent VI can transform the boring language through interesting artistic visual symbols, make the whole design vivid, and make it have strong visual impact, perfect form, strong decoration, and unique creativity, which is pleasing to the eye and makes the public remember their brand concept in pleasure. The basic color of enterprise publicity is the color used to express the enterprise concept and applied to all media in visual identification design. The official fonts of the enterprise include Chinese, English, or other text fonts, which are designed according to the enterprise name, brand name, and address. The official font and enterprise basic color determine the main tone of the whole design. Other trademarks/logos, envelopes, house plates, business cards, uniforms, product packaging, booths, and stores are designed around these two main tones [7].

However, the name of the Latin language system has no other meaning, and the Chinese name has its own meaning and extended meaning. Therefore, Chinese enterprises in the VI design need to combine Chinese characters with graphics, eliminate ambiguity, and highlight the theme of corporate publicity. That is, the VI design of Chinese enterprises cannot directly follow the western VI concept. In terms of actual research and development investment, the VI system of Chinese enterprises is also more complex.

2.2. The VI Work Status of Using Computer-Aided Graphic Design in Enterprises. The essence of VI system is graphic design, and the graphic design workflow includes concept

design, type selection design, finalized design, supplementary design, and many other aspects, involving the vector concept map and application bitmap design, so in the actual VI design project, it is necessary to apply a variety of computer-aided graphic design software to operate. Computer-aided graphic design software used for enterprise image design in general enterprises includes MS Visio, Autodesk CAD, Adobe Photoshop, Adobe Illustrator, CorelDRAW, etc.

According to Table 1, it can be seen that the vector design requires the design around the graphic type with directional attributes; the bitmap design requires the design around the graphic type formed by using equidistant two-dimensional points; convenience designs emphasize designing with integrated control and packaging; complex designs emphasize designing with complex instruction sets.

In Table 1, different software programs show different application difficulties while realizing the design work of different stages and different objectives. For example, MS Visio and Autodesk CAD software have internal applications in the 80 enterprises surveyed, that is, the application of these two software programs is less difficult. Adobe Illustrator and CorelDRAW, which are used for complex vector graphic design, are highly professional and need to be operated by professional art designers. Therefore, in this survey, the self-consumption of enterprises is low, 31.3% and 17.5%, respectively. Most enterprises will outsource the design process of such software to professional art design institutions. Because of the differences of cost accounting modes, the cost of design links provided by internal employees is low and the cost of outsourcing links is high. Therefore, the application ability of computer-aided software is also directly related to the cost of enterprise VI project [8].

In Figure 2, from the perspective of enterprise management, the landmark subject of the application of enterprise related computer-assisted design software in VI in the financial audit survey is the total investment of VI project. Therefore, the follow-up research will discuss the data correlation from the total investment of VI project in other available results.

2.3. Statistical Methods Used in the Study. Interview 80 production-oriented enterprises with independent brands, investigate the investment of enterprises in VI system, and obtain the financial control data of relevant indicators. It is found that among the 80 enterprises, the VI investment is at least 13,000 yuan (RMB) per year and at most 624,000 yuan (RMB) per year. All products and technologies of enterprises have no inherent monopoly, and there are no unilateral monopoly enterprises in the market, and their markets are in a state of free competition. The statistical objective is to analyze the correlation between VI construction investment and operation financial control data of 80 related enterprises [9].

To validate the role of the above VI system in the enterprise operation, the R_2 values were obtained using the linear regression method under the SPSS, and the t -values and the P values were obtained using the bivariate t -calibration.

The R^2 values were counted as the ratio of the regression residue to the mean residue, as shown in the following formula:

TABLE 1: Application survey of computer-aided graphic design software ($n = 80$) (data source: self-statistics of the study).

Software	Features	Outsource	Self-use
MS Visio	Convenient vector design	12 (15.0)	80 (100)
Autodesk CAD	Complex vector design	35 (43.8)	80 (100)
Adobe Photoshop	Bitmap graphic design	37 (46.3)	62 (77.5)
Adobe Illustrator	Vector graphic design	65 (81.3)	25 (31.3)
CorelDRAW	Layout	72 (90.0)	14 (17.5)

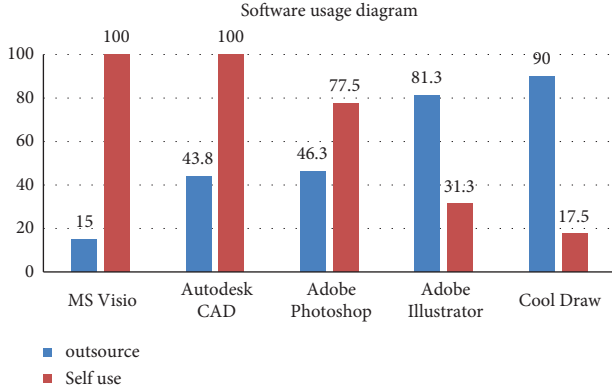


FIGURE 2: Comparison of enterprise software use (the meanings of relevant parameters in the figure are the same as those in Table 1).

$$R^2 = \frac{\sum_i (x_i - \bar{x})}{\sum_i (x_i - \tilde{x}_i)} \quad (1)$$

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

Among them, \bar{x} : represents the arithmetic mean of the sample sequence under investigation; \tilde{x}_i represents the i th regression value in the sequence; x_i is the i th input value in the sequence; n represents the number of test samples.

The T value and P value of bivariate t -check come from the bivariate t -check process, where t value is the value of the output result. When $t > 10.000$, it is considered that there is a statistical difference between the two columns of data, and the greater the T value, the greater the statistical difference; P value is the log value of the output result. When $P < 0.05$, it is considered that the result data are within the confidence space. When $P < 0.01$, it is considered that the result data have significant statistical significance. The smaller the P value, the higher the degree of confidence. Subject to the length, only the calculation algorithm of T value (value) is explained here, as shown in the following formula:

$$t_{\text{Value}} = \frac{\bar{x} - \mu}{\sigma_x / \sqrt{n-1}}, \quad (2)$$

$$\bar{x}, \mu = \frac{1}{n, m} \sum_{i=1}^{n, m} x_i,$$

$$\sigma_x = \frac{1}{n-1} \sqrt{\sum_{i=1}^n (x_i - \bar{x})^2}.$$

Among them, \bar{x} represents the arithmetic mean of the sample sequence under investigation; μ represents the

average value of the reference sample sequence; n represents the number of nodes in the survey sample sequence; m represents the number of nodes in the reference sample sequence; m : Number of nodes in the reference sample sequence; σ_x represents the standard deviation rate of the survey sample sequence.

3. Data Analysis of the Correlation Degree of Enterprise VI Investment and Enterprise Internal Management

Employee training cost is an important financial subject of enterprise internal management cost. For production-oriented enterprises, the cost of employee training accounts for a large proportion of the cost of human resources. In the early rough processing enterprises, the turnover rate of employees was high [10]. Especially after the Chinese Lunar New Year, most industrial workers were used to looking for jobs again, which led to the microproduction enterprises gradually becoming "free technical schools." Because relevant studies widely agree that corporate image design can improve enterprise cohesion and increase employees' sense of belonging and team responsibility, this study took the lead in investigating the relationship between the average annual investment amount of VI and the employee exchange rate of 80 target enterprises. Here, the employee exchange rate refers to the ratio of the number of new employees still in the training period to the total number of employees. The statistical results of employee exchange rate are shown in Figure 2.

In Figure 3, VI annual investment amount refers to the amount of VI and employee exchange rate refers to the number of employees lost every year.

It can be seen from Figure 2 that with the increase of VI investment, the exchange rate of employees decreases significantly, and the two are negatively correlated. In the VI investment of less than 90,000 yuan per year, the employee exchange rate first fell sharply and then slowed down; in the annual VI investment of more than 290,000 yuan, the employee exchange rate first fell and then slowed down. It can be seen that for ordinary enterprises, if they want to invest in VI design to control the exchange rate of employees, the control efficiency will gradually decrease after reaching a certain height [11]. The labor value of the unit is the average total sales amount of the enterprise associated with each contract worker on each working day. The labor value of different countries is different greatly. In 2020, the Ministry of Labor and Social Security counted the labor value of Chinese urban enterprises as 515.9 yuan (RMB). The statistical results of the labor value of the relevant units are shown in Figure 3.

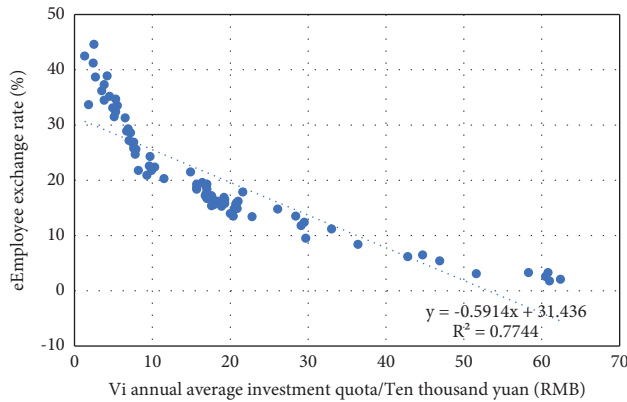


FIGURE 3: Correlation analysis of enterprise VI investment and employee exchange rate (data source: self-statistics of the study).

In Figure 4, annual investment amount of VI refers to the amount invested by the enterprise in VI and unit labor value refers to the total sales produced by enterprise employees every working day.

In Figure 3, with the increase of the average annual investment in VI, the labor value generated by employees gradually increases, and the two are positively related. When the average annual investment amount of VI is less than 90,000, the labor enthusiasm of employees is not high, the labor value is low, and the labor value changes little. When the average annual investment amount of VI increases to 290,000, the labor enthusiasm of employees increases sharply, and the labor value increases significantly. For ordinary enterprises, if we want to control the value generated by labor through the annual average investment amount of investment VI, the efficiency of generating labor value every year is low at RMB 0~90,000, and then the efficiency increases.

Based on the statistical results of Figures 2 and 3, the investment in VI corporate image is negatively related with the employee exchange rate of the enterprise and positively related with the unit labor value of the enterprise employees. That is, the investment in enterprise image can effectively reduce the resignation of employees, can effectively stimulate the enthusiasm of employees, and achieve a more harmonious and efficient internal enterprise management [12].

4. Data Analysis of the Correlation between Enterprise VI Investment and Enterprise Market Management

Because the original origin of the corporate image design belongs to the advertising design, the direct service object of the advertising design is the marketing management system. Therefore, the logical correlation between enterprise investment in VI investment and market management-related data is stronger. First of all, investigate the market share of the enterprise products, that is, the proportion of the products and services of the enterprise in all the statistical market. Statistical results on the market share are shown in Figure 4.

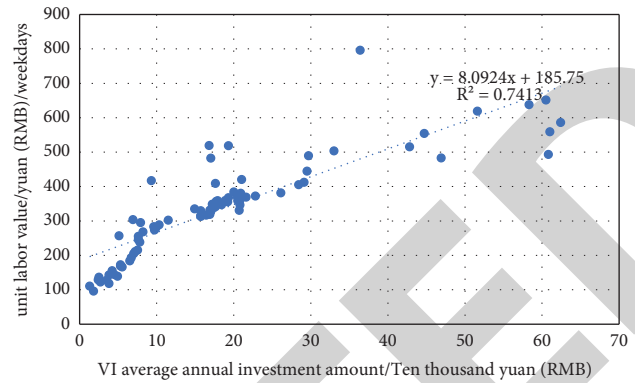


FIGURE 4: Association analysis of enterprise VI investment and unit labor value (data source: self-statistics of the study).

In Figure 5, VI annual investment amount in VI refers to the amount of VI and market share refers to the share of enterprise products or services in similar products.

In Figure 4, with the increase of investment quota in VI, the market share increases significantly, and the two are in positive correlation. When the annual investment of VI is 90,000 yuan, the market share is small, and then with the decrease of VI investment, the market share is infinitely close to 0. When the investment in VI is more than 290,000/year, the market share will gradually increase. For ordinary enterprises, if they want to control the market share through the investment in VI, the labor value will be generated every year at RMB 0~90,000, the efficiency is low, and then the market share will increase.

Most enterprises sign agents for specific market operations. The ratio of agent contract employees registered in the enterprise to enterprise market managers is calculated in multiples, which is called the ratio of internal and external teams. The larger the proportion of internal and external teams, the more stable the investment amount, and the higher the market management efficiency of the enterprise. The statistical results of internal and external team ratio are shown in Figure 5.

In Figure 6, VI annual investment amount refers to the amount of annual enterprise invests in VI; the ratio of internal and external teams refers to the ratio of agency contract employees to corporate marketing managers, usually calculated in multiples.

In Figure 6, with the increase of the annual investment amount of enterprise VI investment, the ratio of internal and external teams becomes greater, and the two are positively related. When the annual investment of VI is 90,000 yuan, the teams inside and outside the city are relatively small, and then with the decrease of VI investment, the ratio of internal and external groups is infinitely reduced. When the investment in VI is more than 290,000/year, the ratio of internal and external teams increases sharply. For ordinary enterprises, if they want to control the internal and external team ratio through the investment in VI, the labor value will be generated every year at RMB 0~90,000, and the efficiency is low, and then the internal and external team ratio will increase.

Passive order rate refers to the proportion of the order amount obtained in the total sales revenue not through

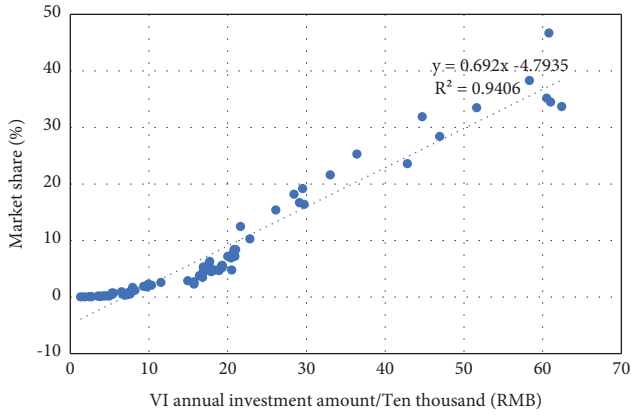


FIGURE 5: Correlation analysis of enterprise VI investment and market share (data source: self-statistics of the study).

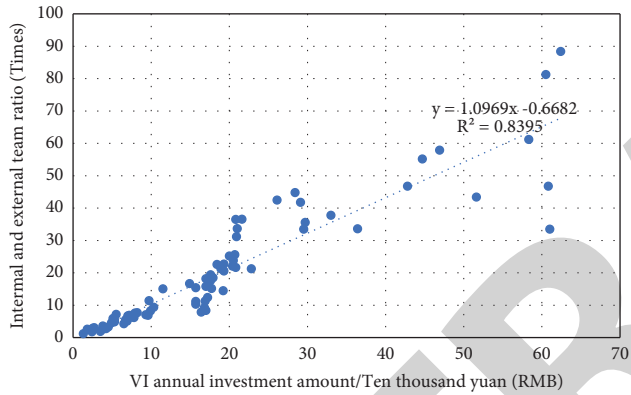


FIGURE 6: Association analysis of the ratio between enterprise VI investment and internal and external teams (data source: self-statistics of the study).

active sales and one-to-one negotiation, that is, the proportion of the order amount voluntarily provided by the customer in the total sales revenue [13]. It can be considered that the essence of corporate image design can replace sales work, from “marketing service sales” to “marketing replacing sales.” Statistical results for the passive order rates are shown in Figure 5.

In Figure 7, VI annual investment amount refers to the amount of VI and passive order rate refers to the proportion of order amount obtained without active sales, one-to-one negotiation, and one-to-one sales revenue.

In Figure 7, with the increase of the annual investment amount of enterprise VI investment, the proportion of passive orders is larger, and the two are in a positive relationship. When the annual investment of VI is 90,000 yuan, the proportion of passive orders is relatively small. With the reduction of the annual investment amount of VI, the proportion of passive orders is less. When the investment in VI is greater than 190,000/year, the proportion of passive orders increases sharply. For ordinary enterprises, if they want to control the proportion of passive order rate through investment in VI, the labor value will be generated every year at RMB 0~90,000, which

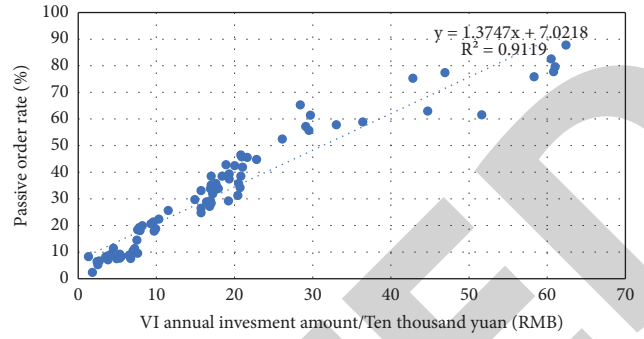


FIGURE 7: Association analysis of enterprise VI investment and passive order rate (data source: self-statistics of the study).

is inefficient, and then the proportion of passive order rate will increase.

Based on the above statistical results in Figures 4–6, the investment volume of enterprises in VI corporate image shows a positive correlation with market share, internal and external team ratio, and passive order rate. Increasing corporate image investment can effectively improve the marketing level of enterprises and make the marketing work of enterprises more competitive.

5. Statistics Summary

According to the statistical results in Figures 2–6, summarize the correlation mode, correlation degree, and R^2 value, compare the binary t -validation results with the reference of VI investment quota data, count the t value and p value, and draw the statistics of the above data as Table 2.

In Table 2, correlation mode refers to the expression of the relationship between the two; negative correlation refers to the correlation mode between the rise of independent variable and the decline of dependent variable; positive correlation refers to the correlation mode between the rise of independent variable and the rise of dependent variable; and correlation degree refers to the expression of strong and weak relationship between the two. The weak correlation is the correlation degree of $R^2 < 0.800$ or $0.01 \leq P < 0.05$, the strong correlation is the correlation degree of $R^2 > 0.800$ and $P < 0.01$, and the non-correlation refers to the correlation mode of $R^2 < 0.600$ or $P \geq 0.05$.

In Table 2, VI investment has a negative correlation with the employee exchange rate and is not highly related to the investment in VI. Based on the internal management and working environment of the enterprise, it has a great impact on the employee exchange rate. Although the investment amount in VI will play an obvious role in improving the cohesion of employees, it has a positive impact on the employee exchange rate, but it is not a direct role. There is a positive correlation between the unit labor value and the investment quota in VI, and the correlation with the investment in VI is not high. Based on internal management, working environment, and other factors, personnel quality and mechanization affect the labor output. Blindly using the investment quota in VI to improve the labor value is not practical.

TABLE 2: The association between corporate image design investment and related observation indicators (data source: self-statistics of the study).

Comparison items	Association mode	Correlation degree	R^2	t	P
Employee exchange rate	Negative	Weak	0.7744	15.287	0.017
Unit labor value	Positive	Weak	0.7413	12.436	0.022
Market share	Positive	Strong	0.9406	79.305	0.008
Internal and external team ratio	Positive	Strong	0.8395	64.336	0.007
Passive order rate	Positive	Strong	0.9119	88.694	0.007

The market share, the ratio of internal and external teams, the passive order rate, and the investment amount in VI are positively correlated. These four items are highly correlated with the investment in VI. The popularity of your company in the market through the investment in VI will be more accepted by the public, or it will be easier to be searched on the Internet. You can actively consume through the recognition of the public and improve the market share; with the increase of investment quota in VI, the proportion of these three items will also increase.

The first two are the internal factors of the enterprise. The enterprise environment, the degree of mechanization, and the quality of employees can all affect the employee exchange rate and unit labor value. Although the investment amount in year VI can improve the enthusiasm of employees, it is not a direct effect, so the impact is small. The latter three are external factors, which are entirely through the investment in VI to improve the communication channels and popularity of the enterprise, so as to improve the enterprise's familiarity with the public, so as to achieve the purpose of improving the market share of the enterprise [14].

6. Summary

This study compares the data of the impact of enterprise internal management and external market share through enterprise image design (visual identity, VI), so as to obtain that corporate image design can enhance employees' cohesion internally, improve work enthusiasm, and enable employees to have a sense of belonging and identity in spirit. But at the same time, corporate image design can not directly improve labor productivity, but will also reduce the exchange rate of employees. The influence of internal factors will bring visual fatigue to employees and produce a slack effect. It has a significant positive effect on these external factors such as market share. Through the improvement of enterprise popularity and acceptance by the public, it is demonstrated that the investment amount in VI is significantly positively correlated with market share, internal and external team ratio, and passive order rate.

In today's society, excellent corporate image design cannot be used as a weapon to conquer the public. In this changing era, the transmission speed of information is fast and changes with each passing day. Perhaps there will be more advanced computer-aided graphic design concept to replace the existing VI design.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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