Logo Trend Visualization: Logo Design Shape Element Trend and Pattern Analysis

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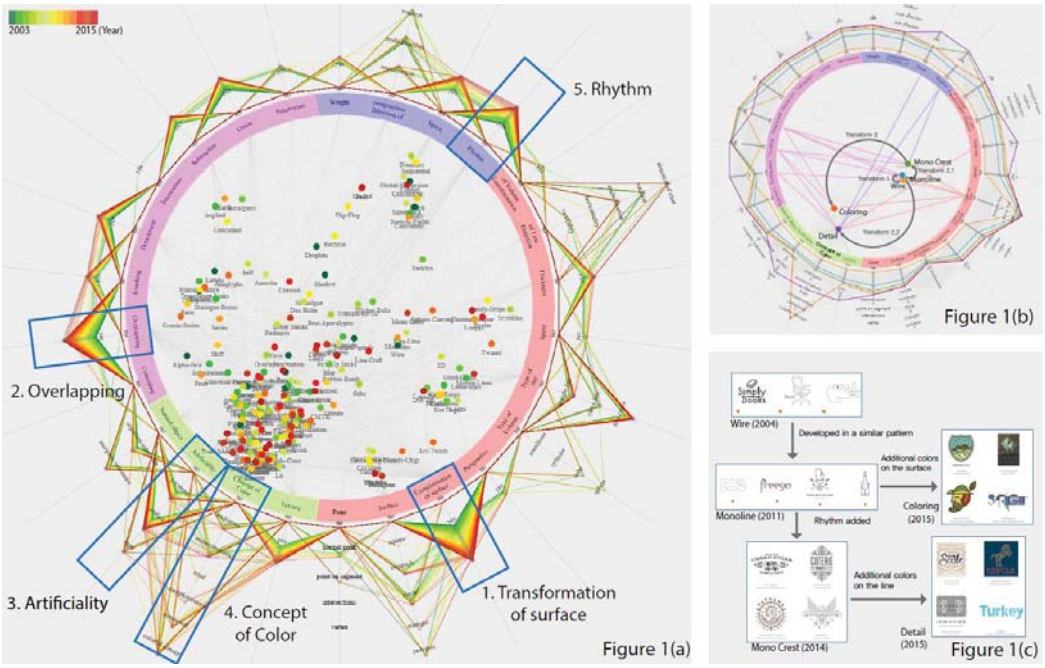

Figure 1. (a) 2003~ 2015 Logo Trend Visualization (b) Trend flow of 'Wire' in 2004, in a sequential order (c) Distribution map of actual examples of logo trend and the change of design factors described in figure 1 (b). (http://202.30.24.169:3001/projects/logonetwork/circularParellar)

ABSTRACT

Logo, as a way to represent the identity of a company brand, is an essential design to deliver the value and meaning of the company. A design shape trend is necessary to read and predict the fast-moving global market environment, in order to design a competitive logo. This study thus created 'Logo trend visualization', which is a combination of Radviz and Circle parallel coordinate to provide a guideline to design a competitive logo, based on such background. As a consequence, we suggest that design shape elements such as transformation to surface, overlapping, artificiality, concept of color and rhythm should be emphasized, and that logo trend visualization facilitates the understanding of the trend of a logo, based on the addition (or elimination) of various design shape elements which accordingly creates a new trend.

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D.2.10 [**Software Engineering**]: Design – *Methodologies.*

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Design, Standardization

Keywords

Symbol Mark, Design elements, Logo trend, Trend Forecasting

1. INTRODUCTION

This research aims to understand the general design shape elements of a trendy logo by classifying and visualizing the logo trend data with design characteristics, and to interpret the changing trend pattern. Logo trends annual report from 2003 to 2015 was thus analyzed with the data of 'Logolounge.com', and the criteria to classify the design characteristics of a logo were set based on principles of form and design [1], which enabled to classify and measure the logo trends. Moreover, we visualized the trend map of the measured logo design data, by combining Radviz and Circle parallel coordinate. Thereupon we figured out the most common design shape elements through Circle parallel coordinate while referring to the designed visualization, and discovered the logo trend changing pattern through interaction analysis of Radviz and Circle parallel coordinate.

2. MAIN PROPOSAL

2.1 Data Analysis Processing

We referred to the articles in *Logo Trend Annual Report* and design element from *Principles of form and Design* [1] , in order to classify and organize the design factors of logo trend. We also analyzed the visual factors which had been introduced in logo trend annual report by the relevant experts. We then quantified the data to indicate the identity of each trend, based on the design elements of principles of form and design. Design shape element model of principles of form and design consists of concept element, visual element, correlation element, the interrelationships of forms with its attributes, as the following Table 1. These trend data were applied to design 'Logo trend visualization'.

Table 1. Design shape element of the Logo trends

Basic element	Attribute
Concept element	Point, Line, Surface, Volume
Visual element	Shape (Natural object, Artificiality, Typo), Concept of color, Texture
Correlation element	Rhythm, Space, Weight, Direction
The Interrelationships of Forms	Detachment, Touching, Overlapping, Penetration, Union, Subtraction, Intersection, Coinciding

2.2 Visualization Method

Based upon the quantified logo trend data, this study further designed 'Logo trend visualization' which incorporates 'Radviz with logo trends as nodes' [2] and 'Circle parallel coordinate suggesting design shape element details of a specific logo trend'. This combination was made since it was difficult not only to understand the factors of one node, but also to compare one with surrounding nodes when trying to analyze the trend distribution solely with Radviz. We thus depicted circle parallel coordinators on the border of Radviz, to better analyze the details of design shape elements of a logo. Nodes inside Radviz visualization are affected by the focal points (ring-shaped belts outside Radviz) of each trend. We also put a weighted value according to the type of basic element among design shape element models (Table 1) in order to cluster the logo trend nodes with similar characteristics. Below is a formula to determine the position value of a node (P) and its weighted value (W).

$$P = \frac{\sum_{c=0}^{cn}\{\sum_{n=1}^{k(c)}(fp(c,n))\}+\sum_{n=1}^{k(f)}(fp(f,n)\times W)}{\sum_{c=0}^{cn}k(c)+W\times k(f)} \quad (1)$$

'c' is index of base element, 'n' is index of each logo. A function 'fp(arg1,arg2)' indicates the position value of the element affecting a node located in 'arg2' of 'arg1' basic element, function 'k()' returning the elements affecting the basic element of the node. 'cn' shows the number of basic elements, and f means a basic element that contains a weighted value of the node.

$$W = \sum k(f) \quad (2)$$

Weighted value *W* can also be expressed with the formula described above, and *k()* returns the elements affecting the Basic elements of the value. Weighted value is a summation of constant values affecting a node, within the basic element. Figure 1 indicates the logo trend visualization, as a result of the process described so far. Overall yearly logo trend pattern can be detected from Figure 1(a), referring to the flow of Circle parallel coordinate. The most common design shape element was *Transformation to surface, followed by Overlapping, Artificiality, Concept of color and Rhythm*. This flow of line in Parallel coordinate thus indicates that a variety of basic elements should be combined, rather than focusing on a specific basic element to design a trendy logo. Figure 1(b) and Figure 1(c) shows how the trend changes on a logo 'Wire' in 2004. For instance, Figure 1(b) reveals that a node called Wire (yellow) and Monoline (blue) are closely located, so are the shapes of parallel coordinate. In fact, Wire appeared in an article in Logo trend annual report in 2004, and Monoline was highlighted in the same source in 2011 stating that it was influenced by Wire. This also indicates that the nodes are located in close proximity if they share similar characteristics. Focusing on Monoline and MonoCrest (green), their nodes are placed in a similar area while the distance is relatively far, and Circle parallel coordinate reveals that they share a similar line flow while significantly different in axis representing the rhythm. Likewise, a relevant article in 2014 also showed that MonoCrest took a hint of Monoline while adding the sense of Rhythm. This suggests that circle parallel coordinate visualization helps analyze the difference between a certain node and its surrounding nodes more efficiently. As a final point, Coloring (orange) and Detail (purple) trend nodes are relatively far from the trend nodes such as Wire, Monoline and MonoCrest, nodes placing near 'Concept of color' among the focal points of design shape element models. Circle parallel coordinate also indicates that lines representing coloring and detail trends are significantly different from the lines representing the trends of Wire, Monoline, and MonoCrest, on the axis of 'Concept of color'. In other words, both Monoline and MonoCrest are new logo trends created due to the attribute changes within concept element type, on the basis of Wire. Whereas, Coloring and Monoline are new logo trends created since a new attribute ('Concept of color') was added within Visual element type, instead of concept element type. Therefore, a new trend can be created even though different Basic element types influenced its design shape elements.

3. CONCLUSION

This study aimed to understand and distinguish the essential design shape elements in order to design a trendy logo through 'Logo Trend Visualization' and to analyze the changing process that a certain logo goes through over time. Research accordingly revealed that various Basic elements should be combined for a trendy logo. Moreover, when a specific logo trend turns into a new trend in a sequential order, trend nodes in a similar changing pattern are located in close proximity and the nodes born from the changes with various design shape elements are remote from each other. Parallel coordinate also facilitated a better understanding of the detailed differences between surrounding nodes. This research is thus expected to help better analyze the changing logo trends, and to serve as a helpful method to devise a pattern model to forecast the future logo trend.

4. ACKNOWLEDGMENTS

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