

# Discussion on Fashion Color Forecasting Researches for Textile and Fashion Industries

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**Abstract:** Overview of researches on fashion color forecasting. Concern the important contributions and achievements on fashion color forecasting researches. Divide the current researches into two main types: systematic analysis system and historical color data analysis in terms of the objectivities. Propose the common methodologies applied in the researches: personal color preference investigation (systematic analysis), rough set, grey theory, statistical analysis etc. Discuss the deficiencies, including data collection and prediction model problems that existed in the current forecasting researches.

**Keywords:** Color forecasting, color palettes, color preference, grey theory, forecasting accuracy.

## 1. Introduction

Color forecasting is considered as one of the significant driving forces for the fashion and textile industries, however little information exist about its methodology and even lesser in-depth information is currently available about this complex and intuitive process. Scholars and research teams attempt to demystify and clarify the process of fashion color forecasting and then forecast the colors accurately, that consumers will purchase in the near future approximately two years ahead. This article made a review on current fashion color forecasting researches. The forecasting models were introduced and discussed, which probably can provide the costumers and researchers some valuable references in this aspect.

In this paper, researches were classified into two main types in terms of the methodologies and analysis objectivities. They are systematic methodology and historical data analysis methodology. Each type's purpose and detailed information are demonstrated as following:

(1) Systematic methodology-namely subjective or qualitative analysis method is a typical method, widely used by authoritative color forecasting associations or agencies, such as *International Commission for Color in Fashion and Textiles* (IC), *International Color Authority* and so on. In this method, a forecasting model is required and the analysis items are complicated, involving all the connected factors like vogue, social life style, global

economy, customers' color preferences, military affairs and so on. The decision on the future fashion color is mostly dependent on color experts and forecastors' intuitions.

(2) Historical data analysis methodology-namely quantitative methodology, aims to investigate potential changing rules existing in fashion color trends. This method was originally put forward by *Japan Fashion Color Association* (FAFCA). This method emphasized on the past fashion color trends data analysis combined with market's statistic survey.

## 2. First Contributions to Color Forecasting

Color forecasting is the significant product of the latter half of the twentieth century. In written sources, Harold Linton, professor, chairman of the department of art and visual technology at GMU (George Mason Universtiy), firstly contributed to the systematic demonstration of color forecasting and its application. In his book: *Color Forecasting: A Survey of International Color Marketing* (1994) [1], the forecasting way, the mystery and technology of color forecasting were described, which undo the puzzles that troubled the customers and the businessmen for a long time. These documents played considerably important roles in latter researches.

Then, Dr. Tracy Diane Cassidy (TD McLuckie), freelance designer and color consultant, lecturer of manchester metropolitan university, carried on such

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task. In her book: *Color Forecasting* (2005) much information was conveyed, such as when color forecasting began and how it was developed. Color terminology and some of the more subjective tools used by color forecasters were explained. The strengths and weaknesses of the current forecast model were compared [2]. In her follow up work: *Personal color analysis, consumer color preferences and color forecasting for the fashion and textile industries* (2007), an improved model was put forward, which was mainly due to the inaccuracy and inefficiency of the current forecast model. In her study personal color analysis systems and color data had been taken as the foundation. Compared with the current model, the improved model adds a market research stage in order to collect consumer color preference data rather than only anticipate consumer acceptance [3].

In China, color forecasting researches could be dated back to the end of 1980's. China fashion color association (CFCA) contributes mostly to this research. Experienced color experts and pioneers like Huang Nengfu, professor of Tsinghua University, Color consultant of CFCA, Zhang Wencai, chief secretary of Jiangsu Textile and Fashion Color Association, Wu Zhengbao etc., firstly delivered the newly international trends and fashion color forecasting mythologies to Chinese. The relevant information and achievements could be seen in their latter works on color science and color application [4,8]. Meanwhile with the development of color marketing and customers' emphasis on fashion color, color forecasting enterprises are gradually booming under the efforts of enormous color researchers and experts, such as Liang Yong, Cui Wei, Zhao Jianming, Yang Dongqi etc. The fresh achievements promote efficiently the Chinese textile industries' competitive capacity and status in the international textile markets.

### 3. Research on Systematic Methodology

Systematic methodology is the most common method broadly applied in the color forecasting process. Many scholars and research teams engaged great efforts in the discussion of efficient models' building and provided their distinguished research ideas besides the pioneer research and contribution from Linton, Tracy and other Chinese color experts. The typical methods applied into the model's building are statistical theory, EPV method and rough set theory.

#### 3.1 Statistical Theory Method

Deng Qingzeng, professor from Beijing University, firstly probed into this field. In his article: *Discussion on statistical theory of fashion color* (1989) [9], he considered fashion color as a certain social phase exchange. The fashion colors were analyzed statistically by Fokker-Planck equation, conducted according to synergetic principle. Finally numerically calculated results and explanation on whether color is popular or not in the future was given.

#### 3.2 FPV Method

In 1991, Chen Linlong pointed out a new measurement unit: FPV (Fashion preference value) to judge whether the color is popular or not. In his article: *Taking FPV method to forecast fashion color* (1991), he mentioned that the value of FPV could reflect the colors that people preferred. FPV is decided by the relative factors like: individual's culture, economic condition, social life style, psychology, local folk and customs and his social status. The relation between each factor can be seen in equation (1)

$$FPV=f(C, E, L, H, P, T) \quad FPV \in [0,1] \quad (1)$$

Where C stands for individual's culture and education; E, economic condition; L, life style, H, psychology; T, local folk and customs,

In this method the condition to judge whether the color is popular or not lies in the following statements: Supposing the setting of various people (forecaster) as

Set of People= (P1, P2, P3....., Pn)

Each people's (forecaster)FPV toward certain color as

Set of FPV= (FP1, FP2, FP3....., FPn)

If the majority of people's FPV value is close to 1, then this color is popular [10].

FPV method focused greatly on the psychological factors of individuals and the customers. It was conducted based on the quantitative analyses which is different from the popular qualitative method and exerts significant influence on the latter study in China, such as Yu Ping's: *The application of computer in the forecasting and analyzing of fashion color* (2002), Cui Xiaomin's: *Research and application of mobile phone's fashion color forecasting* (2005) [11,12] etc.