

A Study on the Illusory Correlation Effect of Clothing Style(I)

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Abstract

Illusory Correlation Effect(ICE) is a cognitive error that arises from overestimating particular stimulus of an individual or a group. This may cause formation of stereotypes of the individual or the group and may also lead to generating various biased judgments. This study investigated the Illusory Correlation Effect of clothing style and considered the effect of previous information. The results provided evidence for the existence of an illusory correlation between a wearer and clothing style. Also, an illusory correlation was influenced information of stimuli attributes. This implies subjects perceived stimuli more distinctively when previous information was provided.

Key words : clothing cognition, illusory correlation, cognitive error, previous information.

I. Introduction

A person's appearance provides information on him or her in the perception. Clothing style of a wearer reveals not only his or her gender, age, social class and economic state but also even psychological traits.

Many clothing scholars have been researching the role of clothing as an information communication for a long time but they have overlooked the process of communicated information. Especially, a cognitive phenomenon has even more failed to notice its importance in clothing cognition.

Illusory Correlation Effect (ICE) is a cognitive error that arises from overestimating a particular stimuli of an individual or group in social perception. Illusory correlation has been known to occur usually in information process such as social behaviors but recently illusory correlation has turned out to occur also in information process on various stimuli.

Especially, illusory correlation has occurred even in the cognition of product, geometric symbols and letters, not social stimuli. Furthermore, this cognitive error has influenced subsequent judgment which affects products preference or the choice of a brand.

Accordingly, we examined in this study whether illusory correlation would occur in visual stimuli, such as clothing style.

II. Theoretical Background

Illusory Correlation Effect (ICE) refers to the observation of correlation between two classes of events that, in reality, are not correlated or are correlated to a less extent than reported. The illusory correlation shown in Chapman's experiment¹⁾ is a cognitive error of information process by *paired distinctiveness* and *associative meaning* among stimuli.

Hamilton and Gifford²⁾ based on Chapman's experiment, have proved that the illusory correlation becomes the source of formation and

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maintenance of a stereotype. They assumed that cognitive prejudice which overestimates the frequency of co-occurrence distinctiveness in Chapman's variables, that is, paired distinctiveness would also occur in group perception.

According to Hamilton and Gifford³⁾, co-occurrence of two distinctive stimuli is specialized to a viewer which leads much more attention and also they are encoded more effectively leading increase of subjective belief on correlation of the two stimuli. The less frequency, a factor of stimulus distinctiveness is recognized as salience, which generates illusory correlation.

Salient targets are often evaluated more extremely than non-salient targets. That's because salient targets are encoded by receiving more selected attention than non-salient targets, which are stored more in memory. For that reason, the information obtained and firm belief bring extreme evaluation. On the other hand, information on non-salient targets receives relatively less attention and thus, the related evaluation results in moderate evaluation due to uncertainty and less known distinctiveness. The salience of a stimulus affects on illusory correlation and at the same time, the evaluation of stimulus by association⁴⁾.

According to the study of Sanbonmatsu and his fellows⁵⁾, illusory correlation on a salient

target occurs both to individuals and to groups. However, in case of groups, they overestimate the association between a salient target and minority behaviors. Individuals overestimate the association between a salient target and majority behaviors.

Most experiments on illusory correlation, have represented stimuli composed of a word or short sentences. In most experiments, sentences describing social behaviors of individuals and groups are used as stimuli. These descriptions are desirable or non-desirable behaviors of individuals or groups.

But subsequent studies on illusory correlation have verified that it could occur not only in the cognition of individuals and groups, but also of impersonal objects. Sanbonmatsu and his fellows conducted experiments on illusory correlation of apartments or pens. Stimulus of those experiments included not only human behaviors but also attributes of things, such as apartments⁶⁾ or pens⁷⁾ as stimulus sentences in order to show that illusory correlation occurs not only in the personal perception but also in much broader boundary.

Illusory correlation was verified to occur even in the studies of corporations⁸⁾, geometric symbols and alphabets⁹⁾, and drawings¹⁰⁾. Therefore, this study expected the occurrence of

¹ L. J. Chapman, "Illusory Correlation in Observational Report", *Journal of Verbal Learning and Verbal Behavior* 6(1967) : 151-55.

² D. L. Hamilton and R. K. Gifford, "Illusory Correlation in Interpersonal Perception: A Cognitive Basis of Stereotypic Judgements", *Journal of Personality and Social Psychology* 12(1976) : 392-407.

³ Hamilton and Gifford, 393.

⁴ D. M. Sanbonmatsu, S. Shavitt, and B. D. Gibson, "Salience, Set Size, and Illusory Correlation: Making Moderate Assumptions about Extreme Targets", *Journal of Personality and Social Psychology* 66 no.6 (1994) : 1020-33.

⁵ D. M. Sanbonmatsu, S. J. Sherman, and D. L. Hamilton, "Illusory Correlation in the Perception of Individuals and Groups", *Social Cognition* 5 no.1(1987) : 1-25.

⁶ Sanbonmatsu, Shavitt, & Gibson.

⁷ D. M. Sanbonmatsu, S. Shavitt, and S. J. Sherman, "The Role of Personal Relevance in the Formation of Distinctiveness-Based Illusory Correlation", *Personality and Social Psychology Bulletin* 17 no.2(1991):124-32.

⁸ Chun, Woo-young. *Effects of the Amount of Information and Motivated Factors on Group Evaluations*, (Ph. D. diss., Yon-sei University, 1998).

illusory correlation in the perception of clothing style.

III. Research Method

1. Subjects and Stimulus Materials

294 undergraduates of Han-yang university participated in this study. We took pictures of clothing styles of female students for stimuli. Then we selected 16 styles through pilot test of which 12 styles were ordinary(not new) and the others were new. Stimulus groups were presented as group A and group B. Total 8 styles including 6 ordinary styles and 2 new styles were appointed in these two groups. The average newness of each group's style was made similar.

The style pictures appointed were full-length photographs except faces and were prepared as color slides in order to present them to the subjects as stimulus materials

2. Procedure

We directed the subjects to give more attention to group B in order to designate the group as the more salient group of the two. As we told the subjects nothing about group A, they would pay more attention to group B.

Subjects were randomly assigned to one of the two experimental conditions(information condition/no-information condition). The subjects of information condition listened to information on ordinary styles of female college students and new styles along with experiment explanation. But the subjects of no-information condition listened to just brief explanation about experiment without any information of styles. And then, stimulus materials produced as slides were presented to subjects every 7 seconds.

The style frequency of each group presented to subjects was as <Table 1>.

<Table 1> Frequency of Stimuli in Each Group

Style	Group		
	Group A	Group B	Total
Ordinary style	6	6	12
New style	2	2	4
Total	8	8	16

After all 16 slides were presented, dependent variables were measured through the questionnaire.

1) Recognition Task

previously shown styles were presented again in different order every 5 seconds without group marking. And then, participants were asked to indicate group membership of the styles.

2) Trait Evaluation Task

Participants were asked to evaluate group A and group B on 5-point rating scales: "not new at all(1)"-"very new(5)".

3) Frequency Estimates Task

Participants were informed that 9 styles were from each groups. And participants were asked to estimate how many numbers was ordinary styles and new styles in each group after informing numbers of stimulus in two groups.

IV. Result and Discussion

1. Recognition Task

<Table 2> shows the mean concerning the recognition of ordinary and new styles in the two groups, for each condition. In two conditions the new styles in group B were overestimated.

In order to test for illusory correlation, a phi coefficient was computed from each subject $2 \times$

⁹ K. Fiedler and T. Armbruster, "Two Halfs May Be More Than One Whole : Category-Split Effects on Frequency Illusions", *Journal of Personality and Social Psychology* 66 no.4(1994) : 633-45.

¹⁰ A. M. Meehan and L. M. Janik, "Illusory Correlation and the Maintenance of Sex Role Stereotypes in Children", *Sex Roles* 22 no.1/2(1990) : 83-95.

<Table 2> The Mean of Recognition in Each Condition

Information condition				No-information condition			
Style \ Group	A	B	Total	Style \ Group	A	B	Total
Ordinary style	6.05	5.95	12.00	Ordinary style	5.99	6.01	12.00
New style	1.69	2.30	3.99	New style	1.81	2.19	4.00
Total	7.74	8.25	15.99	Total	7.80	8.20	16.00

2 contingency table derived from the responses on the result. The phi coefficients were converted into Fisher's Z-score. A t-test was conducted to determine whether the mean Z-score of the phi coefficients was significantly different from zero. The mean Z-score of phi coefficient and t-test result according to each condition, were in <Table 3>.

The mean Z-score of phi coefficient in information condition was minus. This result showed overestimation of ordinary styles in group A and new styles in group B.

T-test result indicating illusory correlation occurred in case of co-occurrence of distinctiveness. In information condition, subjects showed a cognitive error which group B with salience related more to new than group A.

2. Trait Evaluation Task

The mean of trait(newness) evaluations of group A and group B based on each condition is in the following <Table 4>.

In each condition, the trait evaluations of B was similar to one another but the trait evaluat-

<Table 3> The Mean Z-score of Phi Coefficient and t-value according to Each Condition in Recognition Task

	Information condition	No-information condition
Mean Z-score of phi coefficient	-7.79	-4.86E-02
t Value	t(147)=3.560**	t(145)=2.059

**p<0.01.

<Table 4> The Mean of Trait Evaluation in Each Condition

	Information condition	No-information condition
Group A	2.1892	2.4384
Group B	2.6486	2.6164

ions of group A were different from one another. In the information condition, the trait of group A was evaluated less new than in the no-information condition.

We performed t-test after calculating the mean of the trait evaluations of group A and group B in the conditions given in order to test for illusory correlation in which the trait evaluations of group A and group B appeared significantly different. The result is in <Table 5>.

According to the result above, subjects evaluated significant difference between the traits of two groups in information condition. In other words, cognitive error occurred that the traits of group A was less new and those of group B

<Table 5> The Mean of the Trait Evaluations and t Value in Each Condition

	Information condition	No-information condition
Group A	2.1892	2.4384
Group B	2.6486	2.6164
t Value	t(148)= -5.633**	t(146)= -1.817

**p<0.01.

<Table 6> The Mean of Frequency Estimate in Each Condition

Information condition				No-information condition			
Group Style	A	B	Total	Group Style	A	B	Total
Ordinary style	6.29	5.68	11.97	Ordinary style	6.15	5.84	11.99
New style	1.71	2.32	4.03	New style	1.85	2.16	4.01
Total	8.00	8.00	16.00	Total	8.00	8.00	16.00

was newer in information condition.

3. Frequency estimate task

In the experimental conditions, the mean frequency estimate of ordinary styles and new ones on group A and group B is in the following <Table 6>.

The subjects overestimated ordinary styles of group A and new styles of group B more than real numbers of the styles in both conditions and new styles of group A and ordinary styles of group B less than real numbers of the styles.

In order to test for illusory correlation in frequency estimate phi coefficient was computed. The phi coefficients were converted into Fisher's Z scores and compared to zero. In <Table 7> the result can seen.

The mean Z-score of phi coefficient in information condition was minus. This result showed overestimation of ordinary styles in group A and new styles in group B. In information condi-

<Table 7> The Mean Z-score of phi-coefficient and t-test according to Each Condition in Frequency Estimate Task

	Information condition	No-information condition
Mean Z-score of phi-coefficient	-0.1068	-4.14E-02
t Value	t(143)=5.614***	t(133)=2.024

***p<0.001.

tion, subjects showed a cognitive error which group B with salience related more to new styles than group A.

V. Conclusion

This research attempted to test for illusory correlation in clothing perception. This study provides evidence for the existence of illusory correlation between wearer and clothing style. These results support the previous theory that illusory correlation occurred not only in the perception of individuals and groups, but in impersonal objects.

Also the result of this study supports Sanbonmatsu and his fellows¹¹⁾ in whose study illusory correlation of a salient individual, the association with high frequency stimulus is overestimated but in case of a salient group, the association with low frequency stimulus is overestimated.

This means that salience can be formed only by selective attention regardless of the size of targets. Thus, the view that illusory correlation could form prejudice on social minority should be extended to the view that illusory correlation could form distorted recognition on groups which receive socially selective attention.

In this experiment, subjects in recognition task and frequency estimate task overestimated on major stimuli of non-salient targets and a minor stimuli of salient targets. This led erroneous evaluation which perceived that two groups had different traits from each other in group trait evaluations.

¹¹⁾ Sanbonmatsu, Sherman, & Hamilton.

The result that illusory correlation also occurred in clothing perception, provides explanation on cognition which forms stereotypes on groups through a clothing style. For instance, as less frequently worn styles in a group are more easily distinguished than more frequently worn styles in clothing perception, the group receiving selective attention could form prejudice which associates distinctiveness of the group and less frequent clothing style.

This research attempted to see if providing information on clothing styles in advance or not would make any difference cognition of subjects. The result showed that previous information affects the occurrence of illusory correlation. It is considered that previous information of styles has much influence on evaluation of the non-salient group. It implies that previous information comes to accentuate salience of target group respectively. Therefore subjects evaluated group traits with firm belief when they were provided with previous information supporting their cognitive judgement.

In further research of a sequential study we will discuss how much a subject's stereotype and previous information will affect illusory correlation and feedbacks will be formed by the two factors.

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