

The effect of inaccurate perspective on impression of paintings - the protocol analysis of observers' free talking

Yuko Ishisaka, Shin`ya Takahashi

Graduate School of Environmental Studies, Nagoya University, 1, Furo-cho, Chikusa-ku, Nagoya, 4648601, Japan

E-mail: s040305d@mbox.nagoya-u.ac.jp

This study examined the effect of inaccurate perspective on the impression of paintings by means of the protocol analysis of observers' free talking. Participants observed two paintings by renowned artists used as stimuli in two conditions, either simultaneously (Exp.1) or with 1-week interval (Exp.2). In the original condition, they were presented in their original form drawn in inaccurate perspective. In the modified condition, reproduced paintings in which some objects and lines were modified to fit accurate perspective were presented. Participants observed these paintings and were asked to talk freely what they felt and thought. The results showed that inaccuracy of perspective in paintings was difficult to be spontaneously noticed by general observers. Participants' talk was not limited to the objective description of the paintings, but ranged over subjective impression such as imagined time, place, and person. The qualitative and quantitative analysis of the protocol data suggested that there were certain objects to which participants commonly paid attention and certain processing of impression formation commonly held by participants.

Key words : *impression of paintings, inaccurate perspective, protocol analysis*

Introduction

A painting is one of interesting materials in Kansei studies which investigate the interaction between stimulus factors and individual factors. While the impression of a painting would be different among observers, there should also be some common features in it since the stimulus factors are essentially identical. In another viewpoint, it is natural to expect that painters could communicate with innumerable observers through what they expressed on a canvas. For instance, Takahashi (1995) has experimentally confirmed that a drawer could communicate with the viewer through touch and texture in nonrepresentational drawings. Then, how is it in the case of paintings which have much more information than simple line drawings?

The information carried by paintings is not only "what painters drew", but "how they drew", so-called drawing techniques, is also important for painters to communicate with observers. For example, linear perspective is one of typical drawing techniques, and is used to express three-dimensional depth in paintings. However, some paintings by renowned artists are known to be drawn in

inaccurate perspective. Although the psychological effects of such a technique on the impression of paintings were pointed out by some researchers (e.g., Nakaya, 1993; Solso, 1994; Miura, 2003), the experimental study of this effect has not been conducted so far. Consequently, this study examined the effect of inaccurate perspective on the impression of paintings by means of the protocol analysis of observers' free talking in two experiments. In addition, relative frequencies of categorized talking contents were analyzed to investigate the general characteristics of impression-formation processing in painting observation.

Methods

Participants Twenty undergraduates (7 males and 13 females) participated in Exp.1. Their mean age was 23.30 ($SD=5.72$), and the mean of their art training scores judged by themselves (1: low - 9: high) was 3.15 ($SD=1.90$). And, twenty four undergraduates (7 males and 17 females) participated in Exp.2. Their mean age was 18.83 ($SD=0.80$), and the mean of their art training scores was 3.04 ($SD=1.49$). All of them did not have

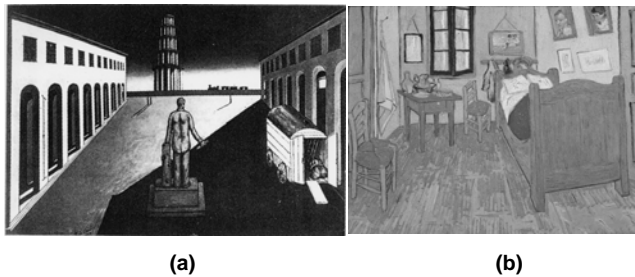


Figure 1. Original condition of the paintings used as stimuli. (a) was painted by de Chirico, (b) was by van Gogh.

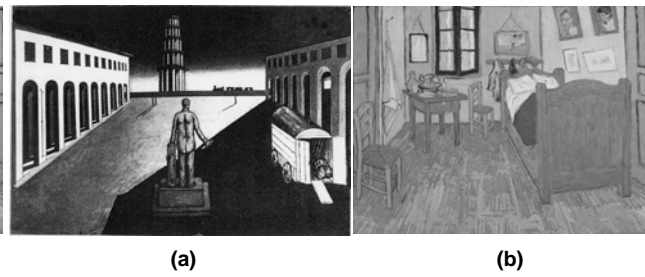


Figure 2. Modified condition of the paintings used as stimuli.

formal education and training of visual arts.

Stimuli In both experiments, two paintings, one drawn by de Chirico and another by van Gogh, were used as stimuli in two conditions. In the original condition (Figure 1a, 1b), they were presented in their original form (but in monochrome) drawn in inaccurate perspective. In the modified condition (Figure 2a, 2b), reproduced paintings in which some objects and lines were modified by using Paint Shop Pro8 (Jasc software) to fit accurate perspective were presented. The difference between two conditions was just the inaccuracy/accuracy of perspective. Thus, it was supposed that, if participants noticed inaccuracy of perspective in the original condition, such notice would be reflected in their talking. All paintings were printed in monochrome on A4 papers.

Procedure Participants observed the paintings in two conditions, either simultaneously (Exp.1) or with 1-week interval (Exp.2). Consequently, it was expected that the participants in Exp.1 would notice the difference between two conditions easily than participants in Exp.2. In Exp.2, the order of presentation of paintings in two conditions was randomized between participants. They were asked to talk everything they felt and thought during watching the painting(s). Participants were not informed of any differences between two conditions. Their talks were recorded with informed consent.

Results

The transcribed sentences were first separated into meaning units. The total number of units obtained that in Exp.1 was 278 for Chirico and 304 for Gogh, and that in Exp.2 was 211 for original Chirico, 193 for modified Chirico and 232 for original Gogh, 194 for modified Gogh. Then, they were classified into eight categories; 1) drawing technique, 2) drawing touch, 3) represented objects, 4) school of art, 5) informational impression, 6)

emotional impression, 7) imagined scene, and 8) strangeness. The units that didn't apply to any categories were classified as "others". Two persons, one of the authors and a research assistant, did this categorization, and more than 93% of their results agreed with each other for all paintings in both experiments. Figure 3 shows the relative frequencies of these categories in each condition and each painting. Table 1 shows the examples of participants' talk in each experiment.

Discussion

First, in both experiments, less than half of the participants talked about inaccurate perspective in the original condition of paintings. Especially, in Exp.2, none of participants referred directly to differences of perspective between original and modified paintings. Relative frequency of *drawing technique*, a category in which "inaccurate perspective" was included, as shown Figure 3, was only about 5% in Chirico, about 15% in Gogh, in all of the results. As noted, participants in the present study did not have formal education or training in visual arts, and their self-judged art training scores were low. Thus, these results would indicate that inaccuracy of perspective in paintings was difficult to be spontaneously noticed by general observers.

Then, as shown in Figure 3, the most frequent category in participants' talk was *represented objects*, and the second was *emotional impression* in all cases of analyzed data sets. Moreover, in Exp.2, participants tended to talk about *represented objects* more frequency in the original condition than in the modified condition of both paintings. It is not easy to give a valid explanation for this difference, since, as mentioned above, participants in Exp.2 seemed to be unable to make a distinction between original and modified paintings. It might be possible to suppose that some effects, or

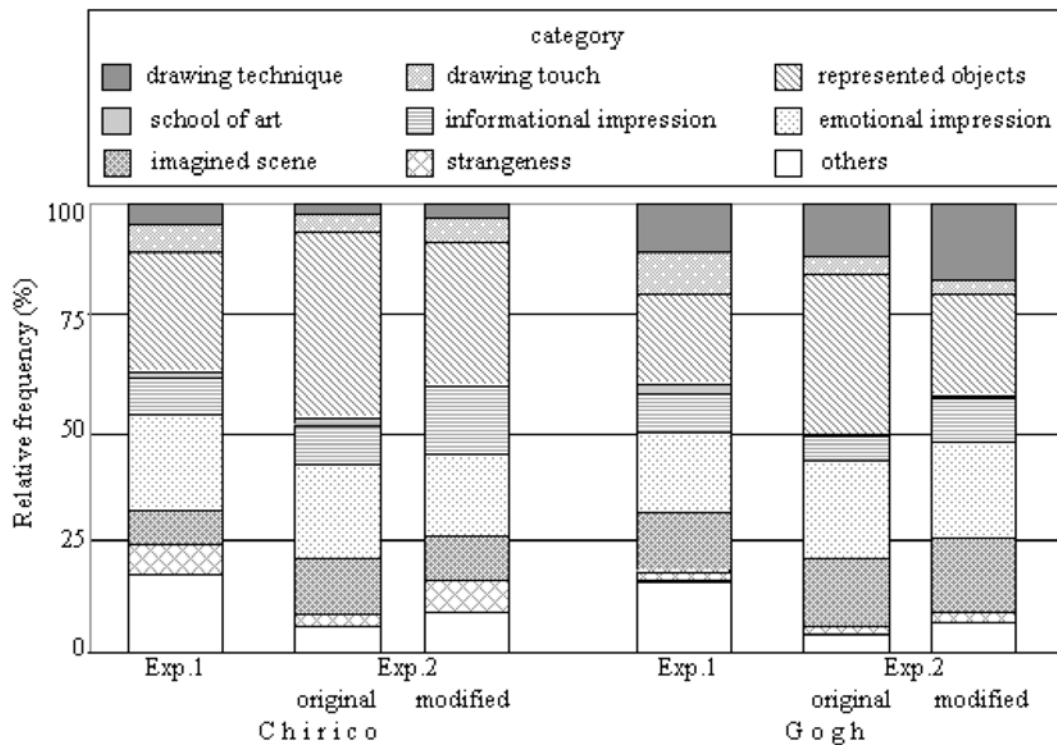


Figure 3. The relative frequency of meaning units in each category.

superiority of a work, only the originals have made participants pay more attention to each object in the original condition than in the modified condition. In fact, for example, Solso (1994) claimed that the original painting by Gogh, drawn in inaccurate perspective, is “more interesting” than the modified one with accurate perspective. However, further investigation is necessary to discuss this issue.

Not only as the totally frequent categories, *represented objects* and *emotional impression* were also the most frequent in participants’ first talk. These results would suggest that observers first looked at some conspicuous objects in paintings, and then formed relevant emotional impression. It has been argued that naïve observers tended to pay more attention to objects than composition of paintings (Nodine, Locher & Krupinski, 1993). Also it has been confirmed that, when naïve viewers judged similarity/difference between pairs of paintings, the differences of “subject matter” (what is depicted) was easier to be judged than the difference of “style” (Cupchik, Winston & Herz, 1992). Together with these findings, the results of the present study show the important role of concrete objects in the impression-formation processing during painting observation. Thus, it could be concluded that common features, specifically common objects represented in paintings, in original and

modified conditions were more likely to be noticed by observers and more likely to have greater effects on the impression-formation processing than the manipulated difference, accuracy of perspective, between them.

Next, as shown in Table 1, participants talked about imagined time and period (“time”), country and place (“place”), and the character and job of the person in the painting (“person”). These imaginative contents of talk were commonly obtained for both paintings. It would be supposed that observers first looked at some objects, and then formed a kind of scene perception based on those objects, and finally made free imagination about “a story” of the painting with emotional impression.

As for the difference between Chirico and Gogh, *strangeness* was more frequent in Chirico, whereas *imagined scene* and *drawing technique* were more frequent in Gogh. One possible reason for this result would be difference of represented scene between two paintings; there are more daily objects represented in Gogh than in Chirico. Furthermore, it would be supposed that participants talked about more *drawing technique* in Gogh because of more represented objects in the painting which could be cues to indicate inaccurate perspective.

Finally, some common properties in the impression of two paintings were clarified in the protocol data (see Table 1). In Chirico, “building” (*represented object*) and

Table 1. The examples of contents of free talking for paintings in each category (except others).

category	painting	
	Chirico	Gogh
drawing technique	(accurate) perspective “with perspective” composition “well-balanced”, “interesting”	inaccurate perspective “distorted”
drawing touch	color “in monochrome” contrast	color “in monochrome” contrast drawing line “curved”, “rough” texture “oil painting”, “touch is rough”
represented objects	statue(person) buildings carriol	bed chairs table
school of art	“looks like a Dali’s work”, “Chirico’s work”	“looks like a Gogh’s work”
informational impression	well-organized appearance of solidity geometric depth, width “depth feel”, “road is wide”	clutter appearance of solidity depth, width “widly”, “nallow”
emotional impression	loneliness darkness anxiety, eerily, scary coldness	loneliness darkness warmth feeling someone’s life
imagined scene	place “in Rome”, “in Europe” time “at morning”, “at evening” person “he seems to go to anywhere”	place “foreign”, “in forest” time “at morning”, “in the 1970s” person “cheerful”, “painter”
strangeness	strangeness unreality feeling unnaturalness	strangeness

“loneliness” (*emotional impression*) appeared frequently in both experiments. In Gogh, on the other hand, “inaccurate perspective” (*drawing technique*; especially in Exp.1), “chairs” (*represented objects*), and descriptions about *imagined scene* appeared frequently. As shown in Table 1, there were common descriptions in each painting (e.g., “loneliness” in Chirico, and “clutter” in Gogh). Takahashi (1995) confirmed that line drawings could convey common impression to observers. The result of the present study showed that observers could have common impression of paintings which have much more information than simple line drawings.

Conclusions

This study examined the effect of inaccurate perspective on the impression of paintings by means of the protocol analysis of observers’ free talking. The results showed that inaccuracy of perspective in paintings was difficult to be spontaneously noticed by general observers. The qualitative and quantitative analysis of the protocol data suggested that general observers first tended to look at represented objects, and that there were certain objects to which observers commonly paid attention and certain processing of

impression formation commonly held by participants. In order to clarify the nature of the common processing suggested by the present data, further studies using greater variety of paintings as stimuli are needed.

References

- Cupchik, G. C., Winston, A. S., & Herz, R. S. (1992). Judgments of similarity and difference between paintings. *Visual Arts Research*, **18**, 37-50.
- Miura, K. (2003). Kansei inshou no chikakuteki ninchiteki kiban. *Vision*, **15**, 143-149. (In Japanese.)
- Nakaya, Y. (1993). Zoukei no tame no chikakuron (II). Nakaya, Y. & Fujimoto, K. (Eds.), *Bi to zoukei no shinrigaku*. Kitaohji Shobo, pp.28-45. (In Japanese.)
- Nodine, C. F., Locher, P. J., & Krupinski, E. A. (1993). The role of format art training on perception and aesthetic judgment of art compositions. *Leonardo*, **26**, 219-227.
- Solso, R. (1994). *Cognition and the Visual Arts*. Cambridge, MA: MIT Press.
- Takahashi, S. (1995). Aesthetic properties of pictorial perception. *Psychological Review*, **102**, 671-683.
- If you have any questions, please feel free to contact us on: S040305d@mbox.nagoya-u.ac.jp