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Do Massed Presentations Make People Like Paintings More Than Spaced Presentations?

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Abstract

This study investigated how spacing and massing affected the extent to which the photographs of paintings are favoured. In this study, 50 individuals participated in one of two conditions. We used a survey to conduct this experiment. In the survey, images of paintings were displayed in groups of six on a web page. One massed set presented paintings by one artist. The other spaced set presented six images of paintings, each by a different artist, shown one directly after another. All sets of six images were featured on a single survey page. Based on many past studies, familiarity boosts preferences toward a certain object, in our case, paintings. When many paintings by the same artist are grouped together, familiarity encourages higher favourability ratings. The spacing effect, which delays exposure to consecutive objects, helps participants remember the paintings more, encouraging higher favourability scores at the last phase, when thumbprint galleries are shown, than at the initial rating. The study gathered inconclusive evidence about the impact of spacing.

Keywords: preference, spacing, massing, paintings

1. Introduction

The spacing effect describes improved recall over time when objects are studied once and then revisited after a delay (Cepeda et al., 2006; Dempster, 1996; Glenberg, 1979; Hintzman, 1974; Kornell & Bjork, 2008; Melton, 1970; Namaziandost et al., 2018). Massing describes a repeated study of items in one session with no delay in the study between items. In this experiment, we explored how spacing and massing affect viewers' favour of images of paintings. Presentations of images of paintings were set up with 72 trials and alternated between the massed and spaced paintings; six paintings were presented at once. Each massing set of six paintings was by the same artist, while the spacing set of six paintings had different artists. Thus, paintings by half of the artists were presented all in a row (massed), and for the other half of the artists, paintings were displayed in sets of six images, each by a different artist, in a spaced presentation. Participants rated the paintings on a scale of one to five (one being least liked and five being most liked). Although spacing is shown to improve memory, it is unclear whether it influences how much people favour the paintings.

Museums frequently display paintings by showcasing the work of a single artist in each room. Observing artwork by one artist makes the displayed body of work easier to observe and evaluate, though it may make individual artworks more difficult to remember (Koriat, 2008; Soderstrom & Bjork, 2015). Observers become familiar with a painter's style by viewing multiple paintings with similar characteristics. Robert Zajonc described an exposure effect in which viewers favour familiar pictures or works of art (1968, 2001). Zajonc hypothesized that exposure to an object would be enough for people to prefer it (1968). He had subjects read words such as "Jandara" and "Herburi" repeatedly, varying how often the participants read each (1968). Zajonc found that participants favoured the word seen more frequently (1968).

Due to the object's familiarity, it becomes "fluent" or easier to recognize and for the mind to process or understand (Miele et al., 2011). If observers easily recognize the object, they favour it more. We hypothesized that when paintings are massed, the paintings should be more fluent and, as a result, more well-liked. Another proposed hypothesis is that participants in the last phase, where thumbprint galleries are shown, will like the spaced paintings more. Due to the spacing effect, the participants should be able to remember the spaced paintings better than the massed paintings. Hence, the spaced art should be recalled more easily.

This study compares how much viewers favour spaced paintings over massed paintings. We provided two Google Forms with 72 images of individual paintings by 12 artists, followed by 12 thumbprint galleries of paintings from each artist. Participants rated their preference or appreciation of paintings on a scale of one to five, with five being the best. After analyzing the rating results, we examined the effect of spacing and massing on how much observers liked the paintings.

2. Methods

2.1 Participants

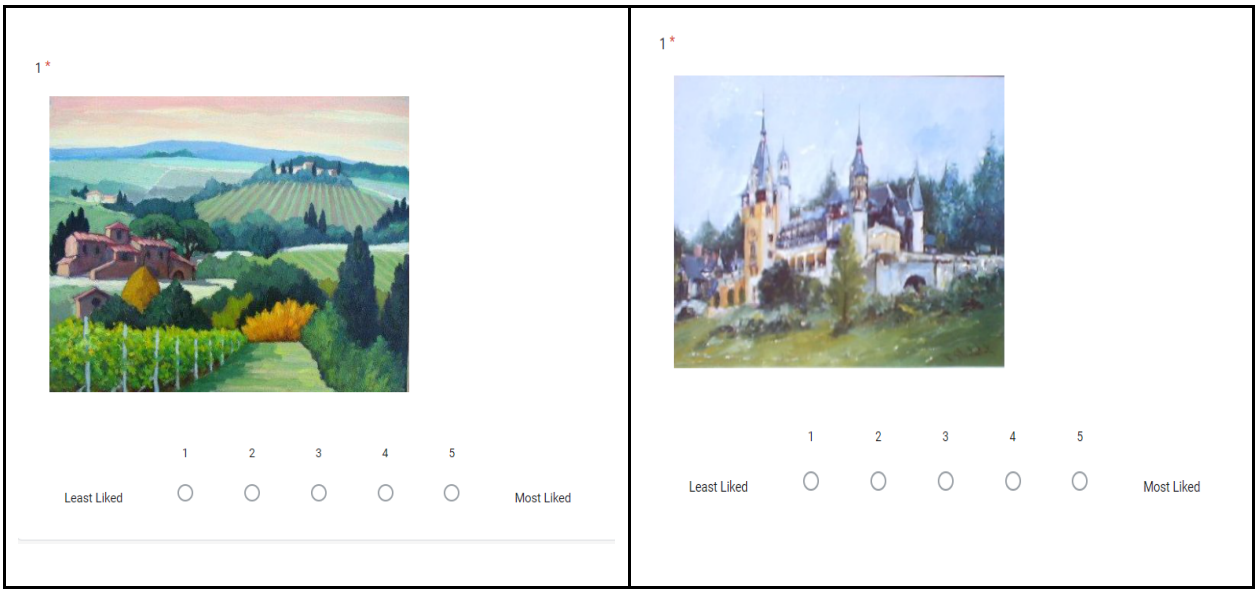
Participants were randomly selected from Prolific, a website on which participants take part in surveys for pay. Each was paid $2 by Prolific to complete the surveys presented via Google Forms. Participants were assigned either Form A or Form B. Fifty individuals finished the forms—25 completed Form A, and 25 completed Form B. One participant in the Form B group was excluded from the final result because the individual did not want us to use the information from their survey, so this study gathered and evaluated data from 49 individuals. The average age of these 49 participants was 35.2; 28 were females, 17 were males, and four described themselves as "other."

2.2 Materials

The materials were 72 online images of 72 paintings by 12 artists; six paintings from each artist were presented. Each of the 12 thumbprint galleries presented images of the same six paintings. The paintings and galleries were the same in Form A and Form B. The experiment displayed art by Ciprian Stratulat, George Wexler, Georges Braque, Georges Seurat, Henri-Edmond Cross, Judy Hawkins, Bruno Pessani, Ron Schlorff, Ryan Lewis, Marilyn Mylrea, Philip Juras, and Yie Mei. Each form included 14 pages—two pages of text and questions and 12 pages of images and questions.

2.3 Procedure and Design

We presented images and questionnaires through Google Forms, an online survey administration tool. The study phase alternated between six massed paintings by one artist and six spaced paintings by six different artists (see Figure 1). Table 1 shows the itinerary of all the sets and how it is laid out. This table does not include the thumbprint gallery phase.



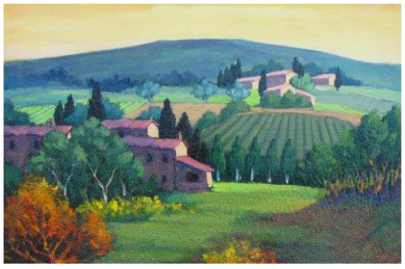
2 *

	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

3 *

	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

4 *



	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

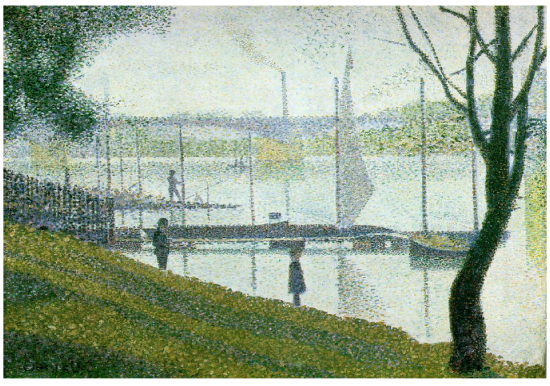
2 *

	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

3 *

	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

4 *



	1	2	3	4	5	
Least Liked	○	○	○	○	○	Most Liked

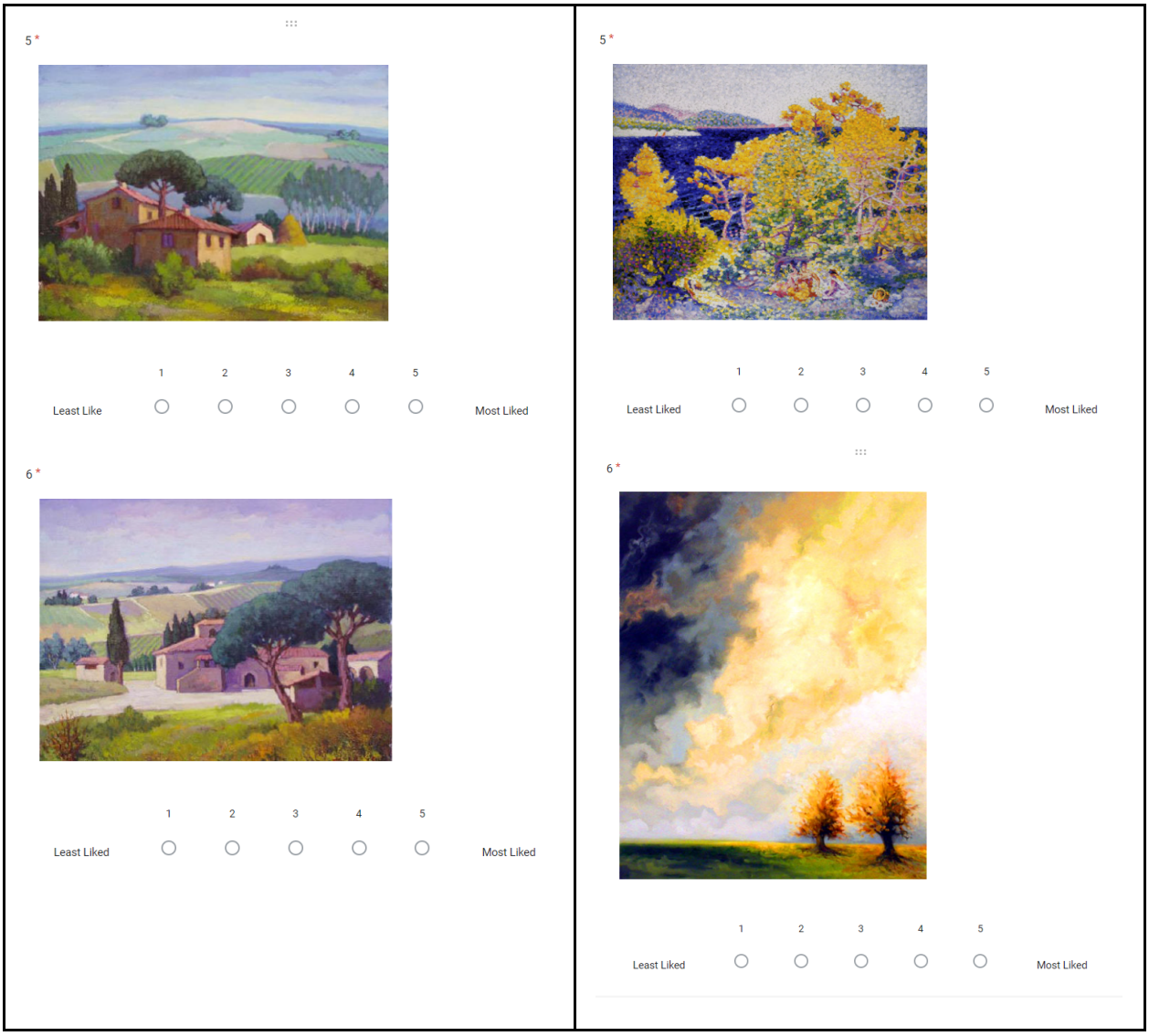


Figure 1. Set 1 of Massing Photos and Set 1 of Spaced Photos in Form B

Note. The study phase presented six massed images of paintings from six different artists and six spaced images of paintings from six individual artists. The first column (left) shows the massed images, all from one artist. The second column (right) shows the spaced images, all from different artists.

Table 1. Table of Image Sets

	Image Sets
Set 1	Six paintings by Artist A
Set 2	One painting from Artists B, C, D, E, F, and G, respectively
Set 3	Six paintings from Artists H
Set 4	One painting from Artists B, C, D, E, F, and G, respectively
Set 5	Six paintings from Artist I
Set 6	One painting from Artists B, C, D, E, F, and G, respectively
Set 7	Six paintings from Artist J
Set 8	One painting from Artists B, C, D, E, F, and G, respectively
Set 9	Six paintings from Artist K
Set 10	One painting from Artists B, C, D, E, F, and G, respectively
Set 11	Six paintings from Artist L
Set 12	One painting from Artists B, C, D, E, F, and G, respectively

Participants were asked to rate how much they liked each displayed painting image on a scale from one to five, with one being least liked and five being most liked. In all, there would be six painting images and six ratings per page for each of the 12 pages of images.

Form B presented images of paintings massed and spaced in a different sequence. In both surveys, the same art was presented, but if an artist's work was spaced in Form A, the artist's work would be massed in Form B; this was done for each artist. This presentation format attempted to limit favouritism toward the work of individual artists.

Following the study phase, the gallery phase presented all 12 thumbprint galleries on a single page. These galleries grouped images of six paintings from each page presented in the study phase (see Figure 2). Participants were asked to rate these galleries from one to five (with one being least liked and five being most liked). The rating scale was displayed under each grouping. For both forms, the galleries were given in the same order.

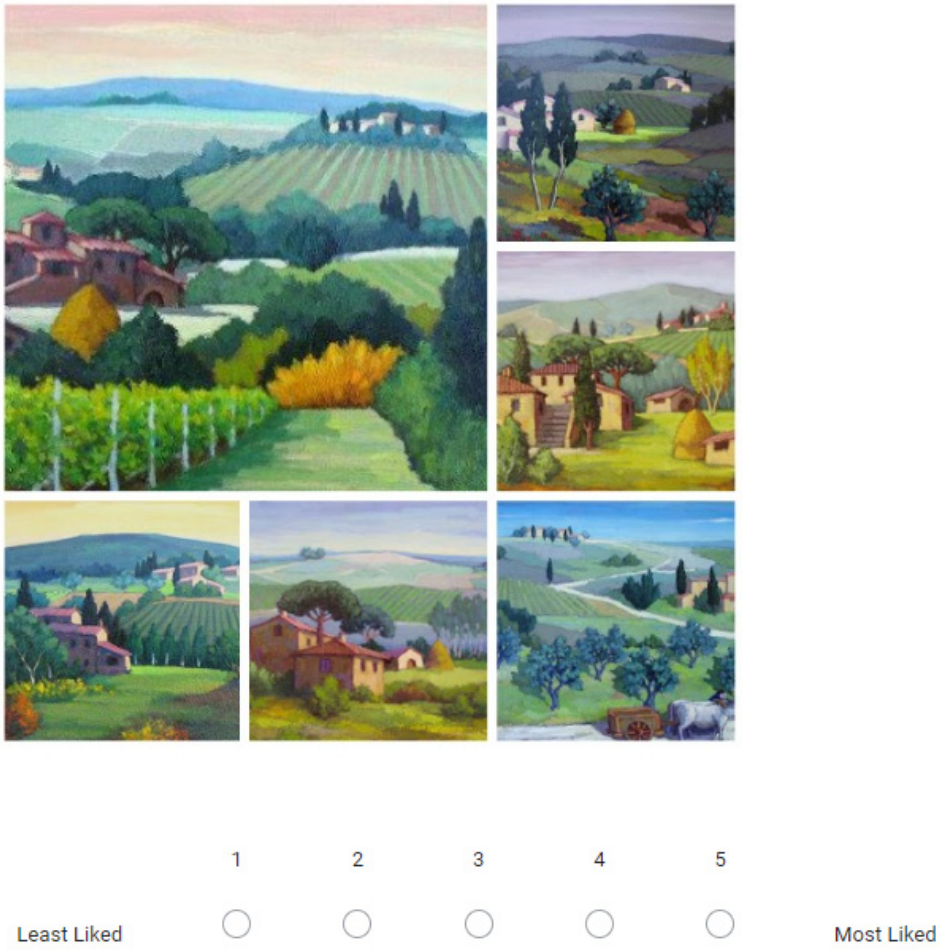


Figure 2. Gallery

Note. This was a massed collection from one artist in Form A (an artist with a spaced collection from Form B). This is one of the 12 galleries presented in the survey.

3. Results

Table 2 shows a minimal difference in the mean and no real contrast in the standard deviation for how the paintings were placed (spaced or massed).

Table 2. Descriptives from Form A and B

Descriptives

	N	Mean	Median	SD	SE
massed study phase	49	2.89	2.92	0.543	0.0775
spaced study phase	49	2.78	2.78	0.589	0.0841
massed collage phase	49	3.02	3.17	0.635	0.0907
spaced collage phase	49	2.89	2.83	0.565	0.0807

Note. This table shows the demographics from both forms. It is meant to show the minute difference in rating data.

In the study phase, the spacing effect proved insignificant, $F(1, 47) = 2.10$, $p = 0.154$, meaning there was no perceptible variance compared to massing; p-values above 0.05 indicate an insignificant effect. Moreover, spacing also produced a significant interaction with the counterbalancing condition $F(1, 47) = 85.56$, $p < 0.001$. Counterbalancing is the splitting of the participant group into two groups. One group does one order, while the

other does it in reverse order. In Counterbalance 1, the artists with spaced images of artwork were artists 1 through 6, and the artists with massed images of artwork were 7 through 12. In Counterbalance 2, the artists that had spaced images of artwork and massed images of artwork were 7 through 12 and 1 through 6, respectively. The interaction means that participants preferred artists 1 through 6 over artists 7 through 12. Finally, $F(1,47) = 0.13$, $p = 0.72$ shows that the impact of the counterbalancing condition was statistically insignificant (i.e., the group assigned to the first counterbalancing condition did not show any disparity with the group assigned to the second counterbalancing condition).

There was no discernible influence of spacing on the art preferences of participants during the thumbprint gallery phase $F(1,47) = 1.38$ $p = 0.245$. Similar to the study phase, there was a significant $F(1,47) = 43.56$, $p < 0.001$ interaction between spacing and the counterbalance condition. The counterbalancing condition also failed to be significant $F(1,47) = 1.81$, $p = 0.185$.

These results show that spacing had no significant impact on favourability ratings for participants in any of the phases—study or gallery. We found that the counterbalance condition seemed to have some influence; counterbalancing indicated that participants liked some artists more than others, but it did not indicate that spacing or massing affected favourability ratings.

4. Discussion

The purpose of the research was to determine how participant favourability ratings, indicating how much participants liked specific images of paintings, were influenced by the spacing or massing of these images. Data showed the insignificance of spacing images of paintings. Ratings seemed to vary with how highly an artist's work was rated in both stages. The images of the paintings by six artists whose work was massed in Form A ranked higher than the images of the paintings by the other six artists whose work was spaced.

If repeated with a greater number of participants, results may provide more definitive evidence of a spacing effect. The style of the imaged paintings and the ways in which images may have contrasted one another in terms of colour, style, and other characteristics may have influenced the participants' rankings. In the Form A spacing study, each artwork's style contrasted with the others, which may have affected how much participants enjoyed each artwork and the corresponding artist. The participants appeared to find similar mediums and colour schemes used in paintings imaged in the study to be more visually enjoyable.

5. Conclusion

Results demonstrated that the paintings imaged and the identity of the artists that created the imaged paintings themselves had a more significant influence on favourability than whether painting images were spaced or massed. Although we hypothesized that favourability ratings would depend on how familiar the art was to participants, we found no significant effect from spacing digital images, so the results did not support this hypothesis.

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