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Cinemagraph Image Study for the Online Food Marketing

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Abstract The purpose of this study is to compare and analyze the product image produced by the cinemagraph image and the product image produced by the general image in the electronic trade. The cinemagraph refers to the image with a special characteristic that provides the motion clue by playing the part of the picture endlessly in the form of a video. For this study, we explored how the perceived monetary value, brand attitude, and perceived taste would influence on the purchase intention, and it was analyzed that all of the three factors significantly influenced on the purchase intention. However, it was investigated that the purchase intention of the group watching the image by the cinemagraph was significantly influenced by the perceived monetary value and the perceived taste, and the purchase intention of the other group watching the general image was significantly influenced by the brand attitude and the perceived taste; therefore, it was verified that there was a difference between the group watching the cinemagraph and the group watching the general image. In this result, it could be interpreted that when the people watching the cinemagraph purchase a product in the shopping mall, the price becomes the important requirement, and when the people watching the general image purchase a product in the shopping mall, the brand becomes the important requirement; therefore, these results could provide great implications to the food marketers.

Keywords Cinemagraph, Perceived Monetary Value, Brand Attitude, Perceived Taste, Purchase Intention.

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1 Introduction

This study was conducted to figure out how the perceived monetary value, brand attitude, and perceived taste between the products produced by the cinemagraph image and the general image influence on the purchase intention.

Here, the cinemagraph refers to the new type of image which can provide a motion cue by playing the part of the image endlessly as a video (Jiseob Park, 2014). Because the cinemagraph image is produced by the format of the GIF type in general, it is possible to apply to the websites or most shopping malls. Additionally, it is possible to provide a detailed product instruction to the consumers by producing the existing product image into a cinemagraph and providing a more dynamic advertisement than that of the existing general image. Therefore, although the cinemagraph image can be applied to various places and replace the existing image, there are few extant studies related to the cinemagraph. Through this study, we tried to explore the usefulness and effectiveness of the cinemagraph. Additionally, there are not many studies conducted regarding the food marketing online. The purpose of this study is to actively invigorate the food sales online; for this study, the foods consisted of the experimental sample. The foods were organized by the consideration of various product assortments from the low to high calories by selecting oyster, steak, champagne, and chocolate fudge as foods. The food samples were exposed by producing both the cinemagraph image version and the general image version.

2 Theoretical background

To achieve the purpose of this study, the preceding research was reviewed.

The cinemagraph concept was known to the public

1) This work was partially supported by the Ajou university research fund.

from the 'Daily Prophet' of the Harry Potter series for the first time, and it was known by Jamie Beck, a photographer, working in New York in 2011 and Kevin Burg, a graphic artist. The cinemagraph image could be interpreted as a complex meaning depending on each individual because there was a still picture frame, a video frame in which a part of the picture is moving, and a mixture of these two components (Kress and Van Leeuwen 1996, Niewland 2012).

Jiseob Park (2014) introduced the multi- research methodology proceeding the survey, eye-tracking, interview, and research about the differences between the cinemagraph image and general image at the same time and then he analyzed the above. As a result of the research, the people watching the cienemagraph image and the people watching the general image showed different attitudes; for example, in the research using the eye-tracking, it was verified that people showed a difference in the area and time in watching the cinemagraph image and the general image. It was investigated that when people saw the cinemagraph image, they paid attention to the price and the product area of the shopping mall, and when they saw the general image, they paid attention to the part of the detailed description for the product and the product area of the shopping mall. The results of the survey and interview supported this phenomenon. In other words, it was verified that when people saw the cinemagraph image and general image, they had different attitudes.

In this study, by continuing the preceding research, we tried to explore more concretely on how the attitudes of the people watching the cinemagraph image and the people watching the general image would be different.

2.1 Cinemagraph

The cinemagraph image is the manipulation technique that is the combination of the features of the picture and video and can provide the motion cue by playing the certain part of the image endlessly as a format of the video (Jiseob Park 2014, Niewland 2012). Because the video and the image were combined in the cinemagraph, the frame, a time concept of the video, is inserted; therefore, people watching the cinemagraph could interpret the complicated meanings differently because the still image frame, the video frame, and the frame combined with these two are mixed.

2.2 Brand Attitude

The brand attitude has been used as a factor to analyze a consumer's behavior such as the brand selection (Fishbein and Ajzen 1975). Mitchell (1986) said that the easily accepted brand attitude has a high possibility to be activated naturally right after it is exposed to the brand, and it was investigated that the advertisement transferred various types of information about the brand and influenced on the attitude as well as that the consumers connected the positive thought about the advertisement to the brand when they watched the advertisement (Mitchell and Olason 1981).

Additionally, the attitude towards the advertisement was interpreted as useful variables to explain the brand attitude and purchase intention (Jongwon Im and Ohyoung Gweon, 2000).

2.3 Perceived Monetary Value

Because it is difficult for consumers to know all of the prices about the various products in the shopping mall, there is a trend to set the price by encoding it as a meaningful price for them (Zeithaml 1982). Perceived monetary value refers to the subjective recognition or the perceived expression of the consumers when they see the price of a certain product (Jacoby and Olson 1977).

According to the study of Day (1990), it was presented that the price was a very important factor for the purchase intention of consumers. If there were two similar products perceived by consumers, they would select a product based on the influence of the factors such as the provided picture, video, product information, etc. based on the price.

2.4 Perceived Taste

RS Elder (2010) investigated that when the advertisement copy made about the food, the one stimulating the five senses of a human increases the human perception more than that of any other cases which do not.

In addition, the brand of food has a close relationship with the taste perceived by consumers. According to the study of Makens (1965), as the brand of beer became different, the perceived taste was different in spite of it being the same beer in reality.

The perceived taste in this way is influenced by the environment or can be sensed differently by each individual.

2.5 Purchase Intention

Purchase intention means the future action planned by the consumers in advance, and it can be the probability in which the belief and attitude are connected to the actual purchase (Till and Michael 2000).

Explaining the correlation between the reasonable intention of an action and the actual action, Fishbein and Ajzen (1975) mentioned that people judge in advance whether it is the experiment result of the certain action or not; if the result is positive, the probability to conduct the behavior could be actually high. Additionally, to perform this type of intention of action into the actual purchase action, it is necessary to draw a positive induction because the past experiences about the product or store are important.

In the study of Jiseob Park (2014), it was investigated

that the group watching the cinemagraph showed an 88% of a positive thought than that of the group watching the general image. The motion cue of the cinemagraph suggested by this study can draw a positive reaction from the consumers, and it is expected to have a close relationship with the purchase intention.

3 Research Model and Hypothesis

3.1 Research Model

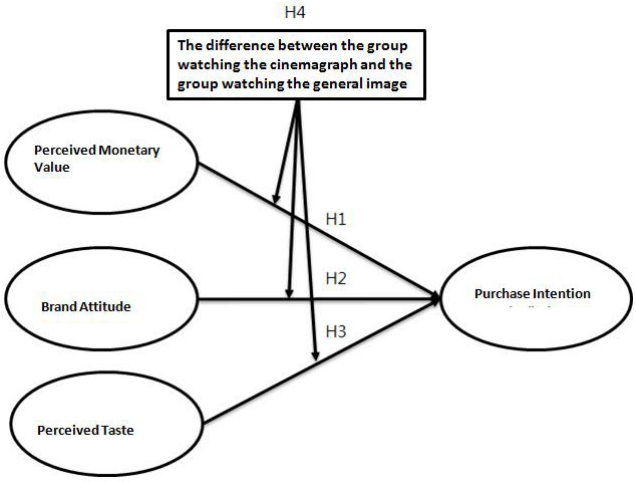


Fig. 1 Research model

<Fig. 1> shows the research model in this study. Using the research model in <Fig. 1>, it was analyzed that how the perceived monetary value, brand attitude, and perceived taste influence on the purchase intention. The perceived monetary value refers to the subjective value perceived by the people regarding the product based on the study of Sweeney and Soutar (2001); the survey questions were consisted by separating the brand attitude and the brand preference by Bergkvist and Rossiter (2007). For the perceived taste, the experiment was conducted by targeting the food based on the research on that the advertisement in which the information about the five senses of consumers is inserted is more effective according to the study of RS Elder (2010); introducing the level of the perceived taste, the survey questions consisted of a single question based on seven points on the Likert scale, representing 'it looks very bad in taste' with one point to 'it looks very good in taste' with seven points.

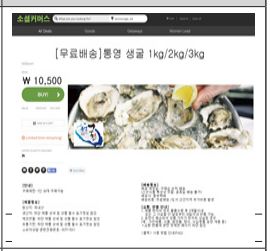
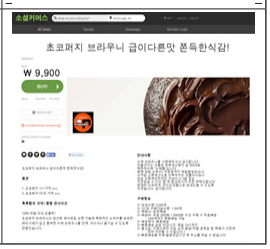
3.2 Research method

<Table 1> shows the measurement composing items of research for the survey of this study. The survey data was collected from 142 participants for about three months from March to June, 2014 in Yonsei University in Seoul and Ajou University in Suwon. For the survey, the sample website was made based on the format of Groupon, a global social commerce company; in the 19 inch 1280*1024 resolution screen, the experiment samples consisting of foods such as oyster, steak, champagne, cherry tomato, and chocolate fudge were exposed by separating them into the cinemagraph group and the general image group.

Table 1 Measurement composition items of the research

Factors	Measurement items	Related research
Brand Attitude	Evaluation about brand	Bergkvist and Rossiter (2007)
	Preference about the brand	
Perceived Monetary Value	Value about the product price	Sweeney and Soutar (2001)
Perceived Taste	Perceived taste about the product	RS Elder(2010)
Purchase Intention	Purchase intention about the product	Albarracin et al. 2005; Babin et al. (1999)

Table 2 Experiment sample

Product differen-tiation	Cinemagraph (The rectangle box is the moving area.)	General image
Oyster		
Steak		
Champ-agne		
Cherry tomato		
Chocol-ate fudge		

The group watching the cinemagraph was set by exposing the cinemagraph image to 70 out of 142 participants of the survey, and the other 72 people were assigned arbitrarily as the general image watching group by exposing the general images; there were not any differences in the demographic characteristics between these two groups.

3.3 Drawing the hypothesis

Based on the research model shown in <Fig. 1>, to understand if the three factors including the perceived monetary value, brand attitude, and perceived taste have a significant relationship with the purchase intention, the four hypotheses were suggested as the following:

H1. The perceived monetary value will influence the purchase intention positively.

H2. The brand attitude will influence the purchase intention positively.

H3 The perceived taste will influence the purchase intention positively.

H4 There will be a significant difference between the group watching the cinemagraph and the group watching the general images.

4 Result analysis

In this study, the reliability analysis, validity analysis, and descriptive statistical analysis were conducted using the SPSS 20.0 version; for the hypotheses testing, it was analyzed by using the SmartPLS 2.0 version. The PLS has been known for its excellence in the small sample sized research because it uses variance and is relatively less sensitive to the parameter number. Therefore, it has been known that the PLS is suitable in the early step of the theory development (Chin, 1998). The research regarding the cinemagraph image provided in this study is still in the beginning steps, and it is regarded as a research with a small number sample; therefore, it was analyzed by using the PLS.

4.1 Demographics analysis

For the empirical analysis of this research model, 142 questionnaires were collected and analyzed from March to June, 2014.

In the demographics characteristic of this study as shown in <Table 4> , it was investigated that 62.7% of the respondents were male and that 37.3% of the respondents were female; the age group between 21 and 25 took a portion of 59.9% so that this group occupied more than half of the total age groups; 79.6% of the education group consisted of college students. In addition, the social commerce was produced through the sample shopping mall built for the survey; for the questions about if there were any experiences of the product purchase through the social commerce, it was investigated that most people had experiences of the product purchase through the social commerce because 81.7% of them answered 'yes.' About the frequency of the social commerce use, it was revealed that 74.6% of the participants purchased 1 to 3 times a month. Additionally, for the questions about whether they think that the shopping mall image was important or not, 92.3% answered 'yes'; for the question about whether they think the detailed instruction of the shopping mall was important or not, 84.5% of them answered positively; therefore, it was investigated that most people using the shopping mall thought the information provided by the shopping mall was important.

Table 3 Group composition

Differentiation		Number of participant (person)
Group	Group watching the cinemagraph	70
	Group watching the general image	72
Total		142

Table 4 Demographics characteristic

Differentiation		Frequency	Composition ratio
Gender	Male	89	62.7%
	Female	53	37.3%
Age (year)	16~20	12	8.5%
	21 ~25	85	59.9%
	26 ~30	40	28.2%
	31 ~35	4	2.8%
	36 ~40	1	0.7%
Level of education	High school graduate	1	0.7%
	University attendance	113	79.6%
	University graduate	11	7.7%
	Graduate school above	17	12.0%
Whether they use the social commerce or not	Yes	116	81.7%
	No	26	18.3%
Frequency of the social commerce use	1~3 times	106	74.6%
	4~6 times	7	4.9%
	7 ~9 times	1	0.7%
	10 ~12 times	1	0.7%
	13 ~15 times	1	0.7%
	No	26	18.3%
Whether they think the shopping mall image was important or not	Yes	131	92.3%
	No	11	7.7%
Whether they think the detailed information of the shopping mall was important or not	Yes	120	84.5%
	No	22	15.5%

4.2 Measurement tool verification

4.2.1 Reliability and validity verification

The reliability refers to the probability that has the same result value repeatedly throughout the concept measured in this study; the validity is the concept related to the accuracy of the measurement. In this study, for the reliability analysis and validity verification, SPSS 20.0 was used, and the result was shown in <Table 4>. In the reliability analysis result, because all of the Cronbach's Alpha values were more than 0.8, it can be judged that the internal consistency was very high.

The validity analysis can be divided into the exploratory factor analysis and the determinative factor analysis. For the exploratory factor analysis, the main component analysis was conducted; using the Verimax Rotating Method, factors were rotated to a right angle. The total of eight factors explained in <Table 4> were arranged in the order of the perceived monetary value, purchase intention, brand attitude, and perceived taste; among these, one question related to the perceived monetary value was deleted because it did not fit in the theory structure.

In the result through the exploratory factor analysis, it was decided that there were no problems in the variable selection and model suitability; the validity among each factor was verified because the loading amount values of all of the factors were more than 0.7 and the values of the loading amount between the other factors were low.

The confirmatory factor analysis was conducted using SmartPLS 2.0 to analyze the internal consistency of the latent variable and distinction validity. The result of the confirmatory factor analysis is shown in <Table 5>. Because all of the combined reliability values were more than 0.9, it was verified that all of the scales had reliability. In addition, the acceptable validity was verified because the range of the Average Variance Extracted (AVE) values were between 0.8 and 1.0 and larger than 0.5, the standard point. For the distinction validity analysis, the square root analysis was conducted with the AVE values. When obtaining the square root value of the AVE values, if the square root value of each AVE is larger than that of the vertical and horizontal values of the other correlation coefficients, it can be considered that there is a distinction validity; therefore, as shown in the result of <Table 5>, it was analyzed that this study had a distinction validity.

Table 5 Reliability and composition validity

Factors	Components				Cronbachs Alpha
	1	2	3	4	
Val4	**.914**	.182	.131	.162	0.912
Val2	**.818**	.253	.327	.055	
Val3	**.809**	.240	.279	.229	
PPay2	.253	**.904**	.193	.184	0.930
PPay1	.274	**.829**	.338	.229	
Brand2	.274	.227	**.880**	.174	0.887
Brand1	.314	.333	**.758**	.308	
Taste1	.251	.337	.348	**.830**	1.000

Table 6 Complex reliability and distinction validity

	CR	Brand attitude	Perceived taste	Perceived monetary value	Purchase intention
Brand attitude	0.946	0.948			
Perceived taste	1.000	0.685	1.000		
Perceived monetary value	0.945	0.632	0.542	0.922	
Purchase intention	0.966	0.647	0.644	0.580	0.967

Footnote) Diagonal line value means the square root value of the AVE values

4.2.2 Research model verification

The analysis was conducted to verify on how the perceived monetary value, brand attitude, and perceived taste influence the purchase intention in both the group watching the cinemagraph product image and the group watching the general product image, using SmartPLS 2.0. As the results suggested by the hypothesis established in this study, <Fig.3> and <Fig. 4> represent the path coefficients and R^2 values of the group watching the cinemagraph and the group watching general image; <Table 7> represents the averages and the standard deviations of the group watching the cinemagraph and the group watching the general image.

Table 7 Average and standard deviation of the group watching the cinemagraph and the group watching the general image

Classification		Brand attitude		Perceived monetary value		Perceived taste		Purchase intention	
Group	N	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Group watching cinemagraph	70	4.52	0.715	4.29	0.709	5.16	0.774	4.47	0.949
Group watching general image	72	4.08	0.604	3.93	0.753	4.40	0.612	3.91	0.976

In the group watching the cinemagraph, except the brand attitude, the perceived monetary value and the perceived taste positively influenced on the purchase intention at the significant level of 0.001. As the factor influencing the purchase intention, it was analyzed that the perceived monetary value (0.399) was higher than the perceived taste (0.385). On the other hand, in the group watching the general image, it was analyzed that the brand attitude positively influenced on the purchase intention at the significant level of 0.001, and the perceived taste influenced on the purchase intension at the significant level of 0.01; as a factor influencing on the purchase intention, it was verified that the brand attitude (0.424) was higher than the perceived taste (0.234). In this result, except the brand attitude, the perceived monetary value and the perceived taste positively influenced on the purchase intention in the group watching the cinemagraph; however, it was investigated that there was a difference between the two groups because except the perceived monetary value, the brand attitude and the perceived taste positively influenced on the purchase intention in the group watching the general image. It was shown that for the perceived monetary value, brand attitude, and perceived taste, in the group watching the cinemagraph, the R^2 value explaining the purchase intention was 0.565 so that it explained at the level of 56.6%; in the group watching the general image, the R^2 value was 0.456 so that it explained at the level of 45.6%.

Next, the analysis about the path coefficient difference between the group watching the cinemagraph and the group watching the general image was conducted. Prior to the investigation, for these two groups, the Levene equal variance test was used; in the test result, the probability of the perceived monetary value of 0.345, brand attitude of 0.022, perceived value of 0.871, and purchase intention of 0.844 were investigated; except the brand attitude, it was verified that the Levene equal variance test was hypothesized at the significance of p.>0.05. Then, the difference of the path coefficient between the groups watching the cinemagraph and the group watching the general image was analyzed by the formula of <Figure 2> suggested by Chin (2000), and the results are shown in <Table 8>.

$$t = \frac{Path_{\text{sample_1}} - Path_{\text{sample_2}}}{\left[\sqrt{\frac{(m-1)^2}{(m+n-2)} * S.E.^2{}_{\text{sample1}} + \frac{(n-1)^2}{(m+n-2)} * S.E.^2{}_{\text{sample2}}}\right] * \left[\sqrt{\frac{1}{m}+\frac{1}{n}}\right]}$$

Fig. 2 Group path coefficient difference analysis formula of Chin

In the analysis results, the perceived monetary value showed a significant difference in the purchase intention (t=4.286); the brand attitude also showed a significant difference (t=-5.197) in the purchase intention; it was investigated that the perceived taste also showed a significant difference (t=2.855); therefore, it was analyzed that all of the perceived monetary value, brand attitude, and perceived taste showed significant differences between the groups.

Therefore, in both the group watching the cinemagraph and the group watching the general image, the perceived monetary value, brand attitude, and perceived taste influenced on the purchase intention.

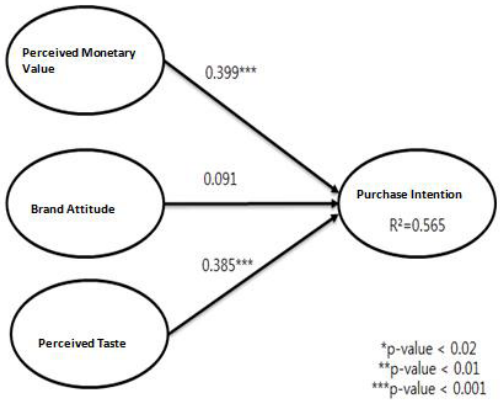


Fig. 3 Analysis result: the group watching cinemagraph

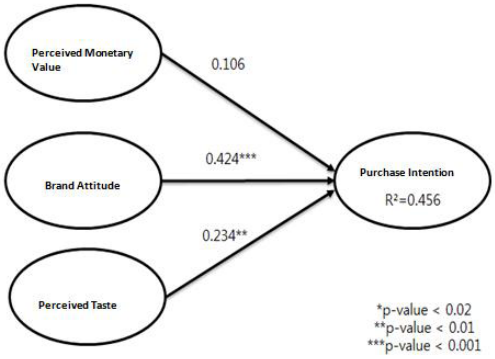


Fig. 4 Analysis result: the group watching general image

Table 8 Path coefficient comparison analysis among groups ***p<0.001

	Path	Cinemagraph	General image	t-value
H1	PVP -> PI	.399	.106	4.286***
H2	BA -> PI	.090	.424	-5.197***
H3	PT -> PI	.385	.234	2.855**

5 Results

In this study, we explored how the perceived monetary value, brand attitude, and perceived taste influenced on the purchase intention in the group watching the cinemagraph and the group watching the general image. In the analysis result, all of the hypotheses including H1, H2, and H3 were accepted, and the hypothesis, H4, was also accepted because there was a significant difference between the group watching the cinemagraph and the group watching the general image.

In comparing the group watching the cinemagraph image and the group watching the general image, it was investigated that the perceived monetary value influenced on the purchase intention more, and the perceived taste influenced on the purchase intention more strongly; however, it was analyzed that the influence was very low in the brand attitude of the group watching the cinemagraph compared to that of the group watching the general image. It can be interpreted that the cinemagraph image has the effect offsetting the influence of the brand attitude on the purchase intention.

From these results, it can be assumed that when people saw the cinemagraph image, they drew different interpretations by concentrating more on the moving clue. According to the eye tracking research of Jiseob Park (2014), the group watching the cinemagraph focused on the price area of the shopping mall product more and recorded more times of gazing compared to the group watching the general image. Therefore, when people watching the cinemagraph saw the still image picture area of the cinemagraph image, the video area of the motion cue, and the combination of these two component factors with their own interpretation (Kress and Van Leeuwen, 1996), they focused on the products and made a connection to the purchase intention; when they saw the general image, they made a connection to the purchase intention by looking at the brand of product.

The implications of the theoretical level and practical level of this study are as follows:

First, there is a meaning in preparing the foundation about the cinemagraph by introducing the study about the cinemagraph image to the academic world. If the cinemagraph image was used in the shopping mall as an advertisement, consumers would consider the price of the products primarily and form an attitude about the purchase. On the other hand, in the general image, consumers show an interest about the brand firstly, and then form an attitude about the purchase. Therefore, for a small-scale businesses, the cinemagraph image advertisement could be more effective. Because a lot of money and time are investigated relatively for the brand, it is very difficult for the many small-scale businesses with small-scale advertisement and capital to form a brand for their own products. Therefore, many small businesses without a brand can use the cinemagraph image advertisement strategy than the general image advertisement strategy when they enter to markets with their products in early.

Second, through the result of this study, it was verified that the perceived taste and the perceived monetary value influenced on the purchase intention significantly. Therefore, it means that the consumers watching the cinemagraph image showed more positive influence on the purchase intention as they feel that the food price is becoming more expensive and the taste is getting better; when the brand attitude is low, it means that the negative effect could be offset. This provides implications about how the online food marketers produce the food advertisement.

As a limitation of this study, the survey was conducted by targeting the average age group of the 20s rather than the age group of a high purchase online. In a future study, if the study is conducted by targeting the housewives with a high food purchasing power online, it could be expected to have more interesting results.

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