Validation of Development Process of Point-of -Purchase Display - A Comparative Study of the Handwritten POP Effect

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Abstract

The point-of-purchase (POP) display is an effective tool used to increase the customer's desire to purchase. Well-designed POP displays can impel more sales. Moreover, creating a high-quality POP display requires the clear sense and experience of its generator and there is a high demand for standardization to stably create quality POP displays that match consumers' sensitivities.

The purpose of this paper is to summarize the requirements of creating POP displays that are alluring to the consumer's mind and to standardize stably-generating, high-quality POP displays by reducing factors that are dependent on individual skills in POP creation in order to meet market expectations.

Experimental designs using handmade POPs were displayed with the cooperation of a supermarket to examine their effect on customer behavior and the effectiveness of the POP-creation template provided. The results indicate that such displays have a positive effect and likewise demonstrate the effectiveness of our templates.

Keywords: Point-of-Purchase display, sensitivity information, purchasing motivation, handwritten

1. Introduction

1.1 Background

The point-of-purchase (POP) display is an effective tool used to increase the customer's desire to purchase. POP is the area where products are displayed for sale and POP displays are created to appeal to customers. Well-designed POP displays can impel more sales. They also provide more exposure to products that translates into greater sales. According to the Purchase Advertising Institute, more than 70% of all purchase decisions by customers are made while in a store. Therefore, a well-designed POP display is expected to lead to the customer's decision to target certain goods and services.

Nevertheless, creating high-quality POP displays requires the clear sense and experience of their producers. In retail stores, part-time workers comprise the majority of employees, and those part-time workers are replaced frequently. Therefore, even if a specific individual has the required skills to create a high-quality POP display, improvements in sales through continuous creation of POP display cannot be expected due to the turnover of such individuals. For the foregoing reasons, a high demand exists for some level of standardization to stably create quality POP displays that match consumers' sensitivities.

The purpose of this paper is to summarize the requirements of creating alluring POP displays and to standardize stably-generated, high-quality POP by reducing factors that are dependent on individual

skillsets in their creation in order to meet market expectations.

1.2 Related works

(1) Research on Consumer Behavior

Many researchers have introduced research on customer buying behavior (e.g., S. Bellini et al., 2017; Kimura and Ishihara, 2009). Kosaka (2010, 2011) suggested that "information" sent to consumers through media such as the POP display is one of the factors impelling purchasing intention in consumers and he insisted that when a distributor tries to increase such purchase intention, they should target the feelings of consumers. Kosaka describes such causality phenomenon and its effect on buying behavior. He focused on the information taken in through the five senses and processed within the brain, causing a positive effect, and he referred to it as "Kansei Information," from which he developed the "Kansei information/buying behavior model." The term "Kansei" is a Japanese word that covers the meanings of sensibility, impression, and emotion. It is related to a customer's physiological and psychological feelings and refers to the cognitive processes of human perception (Chou, 2015).

Regarding the relationship between a seller's activity to transmit emotional information and the sales achieved by influencing a consumer's purchasing behavior caused by that activity, Kosaka (2010) noted the role of "the number of people receiving emotional information" and

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“the ability to increase purchasing motivation of sensitivity information” as factors that influence the number of people enhancing buying motivation. He organized those relationships and represented that the most important factor is “*Kansei* information to enhance purchases,” and he suggested the importance of the design power of sensitivity information (i.e., the degree of the design containing *Kansei* information), which influences this purchasing motivation power. The degree of design of *Kansei* information is influenced by the skill level of the person who transmits the sensitivity information and the amount of transmission activity itself, along with the degree of this sensitivity information design, may be improved by the generator’s skill level.

As shown in the existing research reviews, a mechanism was described whereby a POP display increases purchasing motivation of consumers to make buying decisions, leading to greater sales. In addition, it is indicated that the degree of sensitivity touched by information design crucially impacts the magnitude of purchasing motivation, which is influenced by subordinate factors such as the proficiency of the provider of emotional information.

From these existing studies, it is clear that POP promotes sales, but it is not clear what kind of high-quality POP is “more thought-provoking.” Also, regarding how information is designed, only “the degree of design of sensitivity information is important” as has been previously stated, and there is no description about concrete contents.

(2) Research on required factors for POP display

Many researchers have introduced guidelines for POP displays (e.g., POPAI, 2014; Path to Purchase Institute, 2016) and, generally, 3S policy is represented as the important factor for designing proper POP displays. The first S is “simple,” the second is “straight,” and the third is “strong.” A POP’s message needs to be clear, straightforward, and provide high-impact; yet one with too much information will be ignored.

Moreover, there are two types of fonts used in POP displays: handwriting and typing. There are various existing studies on each factor (Longcamp et al, 2008; Oshiki et al, 2010; Miyashiro and Harada, 2016). Existing researches pointed out that an important difference exists between handwritten and typed characters. The former generally more effectively convey sensitive information for communication than the latter and handwritten characters include four factors, “transmission of sincerity,” “transmission of emotional impressions,” “recognition of the effect of coordinating,” and “something that takes time and trouble.” Existing researches suggest that feelings are transmitted more to recipients via analog characters, i.e., handwritten one as compared to the characters of digital output as is the general trend.

Through the aforementioned research, it has been demonstrated that consumers’ willingness to purchase increased when it entailed high-*Kansei* information,

wherein it is possible to expect sales improvements. Also, it was shown that the notation of such information is more thoughtfully transmitted if it is written with analog characters.

However, no studies evaluate whether combining the dual effects of POP display and notation impels greater purchasing disposition. Therefore, in this study, as a method to raise consumers’ motivation to buy, we use POP displays in storefronts as an example, creating two POPs with handwritten and typed characters and verify the utility of the former as being considered to be more thought-transmitting.

1.3 Construction of Hypothesis

According to the existing literature, the effect of POP displays assumes that (a) POP displays stimulate purchasing motivation of consumers to make purchase decisions and improve sales, (b) their purchasing motivational power greatly depends on the degree of the sensitivity in their information design, and (c) compared to typed characters, handwritten ones are considered to be more puissant in giving emotional data to recipients.

Therefore, the purpose of this research can be summed up as following: (1) recapping the requirements of making POP alluring to consumers and (2) testing the means of standardizing stably-generated, high-quality POP displays by reducing factors dependent on individual skills in their creation. Hence, the following three hypotheses are developed.

- (1) **Hypothesis 1:** A POP display created according to the standards defined by this research enhances consumers’ purchasing motivation and leads to augmenting purchase decisions and improved sales.
- (2) **Hypothesis 2:** In the foregoing POP displays, handwritten characters have increased potential to provide the recipient the required feeling data than typed ones.
- (3) **Hypothesis 3:** The stable quality of POP displays that are created according to the standard defined by this study will be secure regardless of its original creators’ presence in the shop.

As a verification method, typed POP displays are first prepared and then handwritten ones are used instead, wherein the layout, content of each sentence, figures, places, air traffic, etc. are identical. By comparing the trends in the sales of target products using these two types of POPs, we will conduct comparative verification to make clear which has a higher degree of sensitivity information design and more purchasing motivation.

2. Analytical Framework

2.1 Total Framework

Based on Kosaka (2010), this research assumes the following framework showing the relationship between “the number of people receiving sensitivity information” and “sensitivity information rousing consumer’s buying motivation.”

Fig. 1. Relationship between the Number of Consumer and Sensitivity Information.

Fig. 1 shows the relationship between the seller's activity in sending sensitivity information and sales by consumer's purchasing behavior that is generated by the activity, represented in the "Kansei information/buying behavior model" (Kosaka, 2010).

Volume of sales are the result of leads by consumer purchasing behavior, and decision-making is essential to attain the desired purchasing behavior. In other words, purchasing motivation must be enhanced. Therefore, as the factors influencing sales, the number of potential customers receiving emotive information and the number of customers who experienced increased motivation to purchase are important.

In this study, we attempt to compare and verify the differences in a POP display's potential to enhance purchasing motivation keeping the "number of potential customers receiving emotional information" as constant as possible.

2.2 Framework for creating a POP display

(1) Index of selection of target materials

The purpose of POP display creation can be categorized using the 2×2 matrix. In this matrix, "point or surface" and "attract attention or stimulate desire" are the vertical and horizontal axes respectively. (a) point: introduction of individual products, (b) surface: for the entire product or for the entire category, (c) attention: awareness or interest in a product, and (d) desire: the product's appeal and the action leading to its direct purchase. Those relations can be observed in Fig. 2.

In this analysis, we will create a POP display aimed at combining two axes: (1) introduction of individual products and (2) attention and interest, due to the limitations of experimental capacity.

As a product conforming to the purpose of this research, we targeted writing materials found in the stationery corner at a local market. In addition, the following three conditions were set for screening the experiment's objects;

- 1) Since the experiment's venue is a stationery and toy department, we targeted the stationery that has variety of types, e.g., color differences.
- 2) As new and singular materials will be influenced by trends and the like inevitably, stationery items that are constantly being sold, already penetrating the market by comparison and yet not receiving the effect of consumer preference trends should be selected.
- 3) Representative products selected from among manufacturers will be suitable for these aims.

Fig. 2. Four Axes of the Purpose of POP Creation.

(2) Manual for creating a POP display

We created the template shown in Fig. 3 as an index for the creation of a standard POP display. This template's constituent factors were derived from C. Ebster and M. Garaus (2015), Yamaguchi (2017) and Masuzawa (2011). The following factors were included as indispensable:

- “talking to consumers in sentences”
- “display price”
- “add not only the product name but also a detailed item description,”
- “always add a catch phrase”
- “visual stimulation, such as inserting figures or photos”

(A) Horizontal Writing

(B) Vertical Writing

- (1) Write most important message in large letter
- distinctive feature or call/question to consumer
- (2) Write item description - sentence (small letter) and the part which need to emphasis (large letter)

- In case (1) is feature: write call/question in (2)
 In case (1) is call/question: write feature in (2)
- (3) Write product name and manufacture in large letter
 - (4) Draw/paste picture of product
 - (5) Write feature/description along with picture
 - (6) Write call/question to customer

Fig. 3 Template of Horizontal and Vertical Writing on POP Display.

With regard to catch phrases and word selection used for templates, we defined the process of selecting ideas related to products according to brainstorming and the KJ method. Accordingly, we tried to standardize as much as possible those factors that depend on personal knowledge or experience such as a sense of word selection as well as a mechanism for ensuring the quality of the POP display.

Fig. 4 illustrates examples of handwriting POP displays and typed ones that were created using the POP-creation template in Fig. 3.

(A) Handwriting POP

(B) Typing POP

Fig. 4. Examples of Handwriting POP display and Typing POP display for experiments.

2.3 Process of evaluation

In addition to checking the effect of a POP display on a customer's behavior, we conducted an experiment work to observe performance of digital (e.g., printed output) and analog (e.g., handwritten) POP displays, respectively, and confirm which one had a higher degree of sensitivity into its information design carrying higher purchasing motivation power.

(1) Selection of target products

In order to confirm the effect of product unit price, we conducted experiments on the following three materials with different price ranges for those products satisfying the conditions for being selected as target products mentioned in the section "Index of selection of target

materials." The information related to each product is shown in **Table 1**.

Table 1 General Information of Target products

Manufacturer	brand name	Release date	Unit price
ZEBRA Co., Ltd.	SARASA	2000	95 JPY
PILOT Corp.	Dr.Grip	1991	481 JPY
PILOT Corp.	Juice up	2016	192 JPY

Source: Manufacture's official homepage.

(2) Location and condition setting

With the cooperation of a leading Japanese supermarket in the suburbs of Kanagawa, the following monitoring survey was conducted at the stationery corner of the store;

- 1) Create the following three corner patterns in the same sales place:
 - a) without a POP display,
 - b) by posting a typed POP display,
 - c) by posting a handwritten POP display.
- 2) Collect sales data for two weeks for each pattern.
- 3) Compare and verify the collected sales data.

For the purpose of eliminating as many differences as possible other than handwriting and typing, the following conditions are imposed:

- 1) create a POP display with the same layout, descriptive text, and figures,
- 2) implement it under circumstances wherein there are no special events or businesses activities,
- 3) implement it in the same place for the same period to make a minimum difference in the "number of potential customers receiving emotional information."

(3) Procedures

The experiments were conducted in the following procedures:

- 1) Validation of Hypothesis 1 and Hypothesis 2,

For SARASA and Dr. Grip, experiments were conducted under the conditions shown in the section "Location and conditions setting" and the sales of three patterns were aggregated, respectively. Based on the sales trends, we evaluated whether a particular POP display enhanced the purchasing motivation of consumers, leading to a purchase decision and improved sales. We also evaluated which type of POP display (e.g., typed or handwritten) was more appealing to recipients.

- 2) Verification of Hypothesis 3

With regard to Juice Up, experiments were conducted under the same conditions shown in the above procedure and the sales of three patterns were aggregated, respectively. In Experiment 3, a POP display was created by a person other than the creator of POPs of SARASA and Dr. Grip. This creator designed POP displays with the same procedure according to this research manual.

We evaluated not only the same topics represented in the SARASA and Dr. Grip experiments but also verified whether the same tendency found in SARASA and Dr. Grip was observed in Juice Up.

3. Verification of Hypothesis

3.1 Results of experiments

The period of the experiments and the obtained sales for each experiment are summarized in **Table 2**.

Table 2 Results of Three Experiments

Experiment 1 (product: SARASA)

Corner pattern	Duration	Number of units sold	Amount of sales (unit price: 95 JPY)
without POP	14 days	177	16,815 JPY
typed POP	14 days	218	20,710 JPY
handwritten POP	14 days	221	20,995 JPY

Experiment 2 (product: Dr. Grip)

Corner pattern	Duration	Number of units sold	Amount of sales (unit price: 481JPY)
without POP	14 days	7	3,367 JPY
typed POP	14 days	9	4,329 JPY
handwritten POP	14 days	17	8,177 JPY

Experiment 3 (product: Juice up)

Corner pattern	Duration	Number of units sold	Amount of sales (unit price: 192JPY)
without POP	14 days	8	1,536 JPY
typed POP	14 days	12	2,304 JPY
handwritten POP	14 days	35	6,720 JPY

As shown in Table 2, when comparing cases whether a POP display was posted or not, it was confirmed that the sales were larger when posting a POP display under each pattern's condition. Also, as far as compare the pattern of a typed POP display with a handwritten one, it was confirmed that the latter led to a higher sales volume. The ratio of increase for each one, based on the pattern of "without POP" is shown in **Fig. 5**.

Fig. 5. Comparison of the Increase Ratio in Sales between POP Type (without POP = 100).

Fig. 5 indicates the evident effects of POP display to enhance buying motivation of consumers, especially in patterns using handwritten POP displays. From the results described above, it was clear that a POP display has the potential to stimulate purchasing motivation and to shift consumers' purchasing behaviors (Hypothesis 1), and that handwritten POP displays have a higher purchasing motivation shifting consumers to purchasing behavior compared to a typed one (Hypothesis 2).

Furthermore, similar results as those found in Experiment 1 and Experiment 2 were observed for Experiment 3, in which a POP display was created according to the same procedure by a different creator than the one utilized in Experiment 1 and Experiment 2. This result denotes that a stable quality of POP displays that are created according to the standards defined by this research is secured regardless of its creators and, thus, Hypothesis 3 is supported.

3.2 Future topics for discussion

As described above, similar trends of these results were confirmed in each experiment. Specifically, compared to what occurred without posting a POP display, clear improvements were observed for the cases that posted POP displays in increasing sales volume. By comparison, the effect of typed or handwritten POP displays had mixed results, no significant difference was observed in Experiment 1 compared to the results of experiments 2 and 3.

This trend considered that the unit price of SARASA, which was the target product of Experiment 1, was relatively inexpensive compared to the other two products and that this price difference led to clear decision-making (with comparative ease) for SARASA customers and affected their purchasing behavior.

In case of inexpensive products, it is possible that relatively small stimulations are sufficient for enhancing the buying motivation of customers and can thus be effective. Therefore, in case of Experiment 1, while the effect of motivating purchasing by a POP display was observed, it is presumed that the differences in the effect of enhancing buying motivation between typed and handwritten POP displays was not expressed explicitly.

From the above discussion, further in-depth studies will be needed to yield any findings about the influence of product unit price.

In addition, the differences in the effects of POP displays in experiments 1, 2, and 3 suggest that along with a product's unit price, the creator's individual factors also influenced the result. Thus, the effects of individual factors remain in the POP display creation manual featured in this study. As for future research, further verification is required and quality improvements need to be made to the creation standard of POP displays with stable quality being assured regardless of the display's creator.

4. Conclusion

The purpose of this study was to summarize the requirements of POP display creations that attract consumer buying behavior and to examine the standardization of stably-created, high-quality POP displays by reducing the factors dependent on individual skills in the display's development.

As a result of verifying the hypotheses according to the framework of this research, sales improvements were observed in cases when a POP display was utilized compared to not doing so. Moreover, it was confirmed that a handwritten POP display impels higher purchasing motivation for wavering consumers to adopt purchasing behavior compared to a typed POP display. These results support the hypotheses of this research.

According to these results, this research can obtain certain implications related to the requirements of POP display creation that appeals to consumers and the standardization required to steadily create high-quality POP displays.

In the future, further in-depth studies will be required to yield more findings about the influence of product unit pricing in the experiment.

Appendix

A1. Handwriting POP display

Experiment 1 (Product: SARASA)

Experiment 2 (Product: Dr. Grip)

Experiment 3 (Product: Juice Up)

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