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DEVELOPMENT OF A CUSTOMER AFFECTION SYSTEM AIMED AT INCREASING LOYALTY AMONG BOTH CUSTOMERS AND EMPLOYEES

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ABSTRACT

This research aimed to develop an information-sharing system between customers and employees and utilize it for practical purposes. We named it the "Caffe System (Customer Affection System)," a system for sharing customer service notes and feedback to improve their satisfaction and loyalty and facilitate the sharing of customer information among employees. As a non-mainstream service, "message to customers" has been used by some stores. For example, Starbucks coffee provides with a particular message service to impress customers: providing the drink with a message or illustration. However, we have no way to know its specific impact on customer satisfaction and loyalty. In this study, we launched the "cup message card," since we conducted the demonstration experiments in a dine-in coffee shop. One of the focuses was to investigate the satisfaction difference between the "cup message card" and "conversation with clerks," which had already become one of the most mainstream service.

Keywords: System, customer & employee, cup message card, demonstration experiment

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1   INTRODUCTION

Increasing customer loyalty by improving the experience value provided by overall services, such as customer service, is expected to increase customer satisfaction in the field of in-store product sales.

With the Caffe System in mind, we have been conducting demonstration experiments in actual coffee shops since 2018 to improve customer service and verify the system. Although, due to COVID-19, our experiments were suspended from 2020 to 2021, during which we made some improvements to the system's internal design. We restarted the experiment in a coffee shop from February to March 2022.

2   RELATED RESEARCH

The Ritz-Carlton has introduced an information sharing system, called "Preference Pad," as an initiative to improve the value of customers experience. By sharing customer information and preferences noticed by the employees, they can provide services to improve customer satisfaction next time (The Ritz-Carlton Leadership Center, 2019).

Noting that only information from the employee perspective was shared in The Ritz-Carlton, Sugiyama (2018) conducted an experiment, in which information from the customer's perspective was shared with employees in a coffee shop, and found that the customer's experience was improved. Fukuda (2019) aggregated further information from employees by improving the interface to allow them to enter information in a shorter time and surveyed employees regarding the loyalty they felt toward the experimental store and customer perspective.

Zhang (2020) considered that the new coronavirus infection (COVID-19), which has been spreading since 2020, has increased the demand for services with less contact between clerks and customers. A questionnaire survey was conducted to examine the factors important for customer service, which included non-face-to-face & face-to-face customer service. It was confirmed that customer impressions and satisfaction were increased for "conversation" during face-to-face interaction and "cup messages," which are performed for both face-to-face & non-face-to-face customer service. In addition, Zhang also investigated the differences in nationality, gender, and personality characteristics.

3   METHODS

3.1   Description of the experiment

We conducted a demonstration experiment using our Caffe system in an actual coffee shop. A total of 10 customers and two employees participated. They were asked to complete a questionnaire before, during, or after the experiment. The details are given below. (One customer was not included in the questionnaire analysis due to an employee's operational error.)

3.2   System Overview

Customers and the Store use easy-to-operate Web applications prepared for each in this Caffe system. Customers can provide feedback to the stores on their purchased products and their impressions of the products and customer service. The store, after having looked at the customer's purchase history and feedback, recommended products, provided customer service (conversation, cup message card, etc.) that lead to a favorable impression, and registered the new customer service details. In addition, employees could review individual customer service details and feedback.

This cycle of information sharing was expected to improve the "sense of being cared for," "product recommendations and customer service with high customer satisfaction on the customer side, and "more effective work" on the customer, store, and employee's sides, respectively.

In the system, four themes of conversation, "Small Talk, Product, Weather, and Special Greeting," were set, along with eight contents of the cup message card: "また来てね(Come back again)," "よろしくね(Nice to meet you)," "ありがとう(Thank you)," "元気でね(Be well)," "頑張ってね(Come on)," "今日もお疲れ(Good job today)," "Have a nice day!," and "Thank you!" In addition, two types of orders, "multiple orders" and "recommendation," and three types of reactions, "happy, normal, or dislike," were set. Furthermore, the same tone color scheme of PCCS on the screen design was utilized to provide employees with a consistent web application interface, which improved their comfort and convenience of information input and the registration speed and rate.

3.3   Service Flow after System Installation

1. Customers were asked to register with the web application on their cell phone and were then divided into "three groups of cup message cards" according to their customer IDs. When customers came to the store, they first had to provide their customer IDs.
2. Employees were asked to use tablets (with the in-store web application downloaded) to input customer IDs and check customer information, purchase history, product reviews, details of customer service provided during previous visits, and customer feedback.
3. Based on the information, employees provided recommendations and services that corresponded to the groups (according to customer preference).
4. After the customer service was completed, the employee completed the customer service information and added what they had noticed.
5. Customers were asked to respond to the store-visit feedback in the web application.

3.4   Experimental Procedure

To conduct the experiment, the in-store web application was used by employees in parallel with their normal work. Customers also used the web application on their cell phones to measure the frequency of their visits, preferred products, and improvements in evaluations.

Customer Side: First, we recruited experimental collaborators through the website and within Chuo University. Next, they were asked to register for the web application on their cell phone and

assigned an customer ID. They were further asked to complete the store-visit feedback on the prerequisite that they had to visit the store more than once. Finally, they were asked to respond to the customers' post-experimental questionnaire after the experiment.

Employee Side: Employees were asked to complete the pre and post questionnaires before and after the experiment. Based on the pre-assigned customer IDs, the customers were divided into three groups: "no message group," "uniform group (received the cup messages that always had the same content)," and "diverse group (received the cup messages with different content for each order)." During the experiment, employees gave the corresponding message cards to the three groups of customers.

3.5   Questionnaire Items

In this study, customers were asked to complete the store-visit feedback after each visit to the store during the experimental period. The store-visit feedback included: the product's photo, review comments, questions regarding their satisfaction, etc. As an evaluation criterion, satisfaction was out of 5, while other questions were out of 10.

In addition, with support from a previous study, customer loyalty was positioned as Cognitive, Affective, Conative, and Action Loyalties based on the Four-Stage Model of Loyalty (Oliver, 1999). After the experiment, customers' post-experimental questionnaire enquired for responses on these four stages, customer service satisfaction, the surrounding evaluation of the cooperating store, and personality trait. The Big Five personality trait survey was used, which suggested five broad dimensions commonly used in psychology to describe the human personality and psyche: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (to experience). We used the Japanese version of the 10-item Personality Inventory (TIPI-J) developed by psychologists Shingo Koshio, Shingo Abe, and Pino Cutroni (2012). All questions were evaluated on a scale of 7 using the SD method. (worst 1 - 7 best)

With the same evaluation criteria, employees were asked to complete a pre-questionnaire regarding their evaluation of the service and self-competence and a post-questionnaire with 10 more questions regarding the Caffe System in addition to the same questions.

4   RESULTS & DISCUSSION

4.1   The Customer Side

Responses to the store-visit feedback were obtained from 10 people. Among them , the "no message group," "uniform group," and "diverse group," contained four, three, and three people, respectively. Table 1 presents the means and standard deviations for the three groups of cup message cards.

Table 1. Summary of store-visit feedback

	no message group (Mean)	uniform group (Mean)	diverse group (Mean)	no message group (Std. Deviation)	uniform group (Std. Deviation)	diverse group (Std. Deviation)
Satisfaction	4.63	4.83	4.33	.518	.408	.816
Q1: Do you like what you ordered for today?	8.63	9.00	8.17	1.061	1.095	1.472
Q2: Would you recommend what you ordered today to friends?	8.38	8.17	7.33	1.302	1.602	1.506
Q3: Are you satisfied with the conversation you had with the clerk today?	9.25	7.67	7.17	.886	2.658	.753
Q4: Are you satisfied with the cup message card you received from the clerk today?	4.75	8.33	8.33	5.120	1.366	1.366
Q5: What is your impression of the experimental cooperative store?	9.00	9.17	9.00	1.069	1.329	.632
Q6: Would you come back to this store again?	8.50	8.50	9.17	1.512	1.225	.408
Valid N (listwise)	4	3	3	4	3	3

The "uniform group" had the highest satisfaction, and the deviation value was relatively small. Meanwhile, the "diverse group" had the lowest satisfaction, and the deviation value was the largest. Furthermore, we observed that customers who received the message cards all rated their satisfaction with the "cup message cards" slightly higher than "conversations with the clerk," and also had a slightly higher impression of the store.

After the experiment, nine of the 10 answered the questionnaire (three people in each group). Table 2 summarized the means of the results of the whole and three groups, respectively.

Table 2. Summary of the customers' post-experimental questionnaire

		Mean	no message group	uniform group	diverse group
Cognitive Loyalty	Q1: Do you have a good impression of the experimental cooperation stores?	6.11	6.33	6.33	5.67
	Q2: What are the good points of the experimental cooperation store?	5.56	5.67	5.67	5.33
Affective Loyalty	Q3: Do you have familiarity with the experimental cooperation stores?	6.11	6.33	6.33	5.67
Conative Loyalty	Q4: Do you want to introduce experimental cooperation stores to friends and acquaintances?	5.67	5.33	6.00	5.67
Action Loyalty	Q5: Do you want to continue to use the experimental cooperative store?	5.67	5.00	6.00	6.00
	Q6: If the price increases, by how much would you continue to choose the experimental cooperative store?	2.89	2.33	2.33	4.00
Satisfaction	Q7: Please indicate your current level of satisfaction with the level of customer service provided at the stores where the experiment was conducted.	6.11	6.33	6.33	5.67
Surrounding Evaluation	Q8: Please tell us what your friends and acquaintances say about the experimental cooperative store.	5.11	5.33	5.33	4.67
cup message card	Q9-1/9-2: Please comment on your level of satisfaction with the cup message card.	5.39	5.00	5.83	5.33
	Q9-3: Do you think cup messages can have a communication effect with staff now that they seek a means of service with less contact in the Covid19?	5.56	5.67	5.67	5.33

Judging from the customers' post-experimental questionnaire results, there was no significant difference between the "no message group" and " uniform group." Furthermore, the overall result of the "diverse group" was lower compared to that of the other two groups. However, it was significantly higher than the other two groups in Q6. Considering that the reclassification would yield more contrasting results, we performed a cluster analysis using the above data based on the Japanese version of the 10-item Personality Inventory (TIPI-J) [6] and obtained the following results.

Table 3. Cluster Analysis of the customers' post-experimental questionnaire

	Cluster 1	Cluster 2
Extraversion	3.17	4.83
Agreeableness	5.50	5.17
Conscientiousness	5.67	3.75
Neuroticism	2.83	3.75
Openness (to experience)	4.67	4.58
Cases in each Cluster (customer)	D, I, H	C, M, B, E, K, L
Valid N (listwise)	3	6

Two clusters had good scores for Agreeableness and Openness, and there were no significant differences. Moreover, Cluster 1 (three people) tended to have lower scores for Extraversion and Neuroticism than Cluster 2 (six people), while Conscientiousness was higher.

The two clusters of customers were described as follows：

Cluster 1: People who were more introverted and emotionally stable, had their own life rules, and were cautious but curious.

Cluster 2: People who were more outgoing, curious and sensual, lived a spontaneous life.

Based on the cluster analysis results of the customers' post-experimental questionnaire. The statistical results of store visit feedback are summarized in Table 4.

Table 4. Summary of store visit feedback by Cluster Analysis

	Cluster 1 Mean	Cluster 1 Std. Deviation	Cluster 2 Mean	Cluster 2 Std. Deviation
Satisfaction	4.83	.408	4.50	.650
Q1：Do you like what you ordered for today?	9.17	.983	8.36	1.216
Q2：Would you recommend what you ordered today to friends?	9.00	1.095	7.57	1.399
Q3：Are you satisfied with the conversation you had with the clerk today?	8.67	2.066	7.93	1.685
Q4：Are you satisfied with the cup message card you received from the clerk today?	9.17	1.329	5.93	4.028
Q5：What is your impression of the experimental cooperative store?	9.17	1.329	9.00	.877
Q6：Would you come back to this store again?	9.17	1.329	8.50	1.092
Valid N (listwise)	6	6	14	14

For satisfaction and all the questions, Cluster 1 had an average rating higher than Cluster 2, especially in Q4 (Cluster 1 = 9.17, Cluster 2 = 5.93). Satisfaction with the cup message cards was the largest discrimination between the two clusters. Compared to Cluster 1, people in Cluster 2 were significantly less satisfied with the cup message cards and conversation with the clerk. These findings foresaw that a personality trait survey would be an important tool for classifying customers and providing services accordingly.

In addition, both clusters had low standard deviations for satisfaction. However, Cluster 1 had Q3 (Are you satisfied with the conversation you had with the clerk today?), and Cluster 2 had Q4 (Are you satisfied with the cup message card you received from the clerk today?), with a higher

standard deviation (greater than 2). The high deviation for these two questions was mainly due to the limited number of people who participated in this experiment. In other words, the attitudes held by each person in a given scenario to a service that contained something specific (e.g., a cup message card with different content, a conversation on a different topic) varied considerably.

Table 5 shows the correlations between satisfaction and other questions based on the two clusters.

Table 5. Correlations of store-visit feedback (Satisfaction of 2 Clusters)

Satisfaction of each Cluster		Cluster 1	Cluster 2
Satisfaction	Pearson Correlation	1	1
	Sig. (2–tailed)		
Q1: Do you like what you ordered for today?	Pearson Correlation	.581	.730**
	Sig. (2–tailed)	.226	.003
Q2: Would you recommend what you ordered today to friends?	Pearson Correlation	.447	.507
	Sig. (2–tailed)	.374	.06
Q3: Are you satisfied with the conversation you had with the clerk today?	Pearson Correlation	.632	.105
	Sig. (2–tailed)	.178	.720
Q4: Are you satisfied with the cup message card you received from the clerk today?	Pearson Correlation	.430	−.161
	Sig. (2–tailed)	.395	.581
Q5: What is your impression of the experimental cooperative store?	Pearson Correlation	.430	.270
	Sig. (2–tailed)	.395	.351
Q6: Would you come back to this store again?	Pearson Correlation	.430	−.054
	Sig. (2–tailed)	.395	.854

**. Correlation is significant at the 0.01 level (2–tailed).

Cluster 1 showed some correlation between all the questions and satisfaction. However, no statistically significant difference was observed at a significance level of 1%. In Cluster 2, there was a statistically significant difference between Q1 (Do you like what you ordered for today?) and satisfaction at a significance level of 1%. In addition, when we focused on Q4(Are you satisfied with the cup message card you received from the clerk today?), the correlation coefficient for cluster 1 was 0.430, which indicated a slightly positive correlation; while the correlation coefficient for cluster 2 was -0.161, which indicated no correlation (negative).

4.2   The Customer Side

Responses to the employee side were obtained from two people. Responses (changes) to the common three questions asked in both the pre- and post-questionnaires are shown in Figure 1.
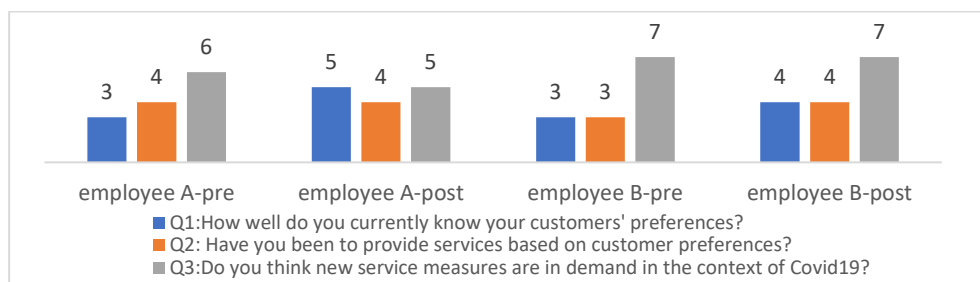

Figure 1. Scores of common questions in the pre-and-post employee questionnaires

In Q1, both employees increased their ratings which meant that through the Caffe System, employees had a better grasp of customer preferences. In Q2, employee A's rating was

unchanged; however, employee B's rating went up, which meant that through the Caffe System, employees had the tendency to provide services that matched the customer preferences. Furthermore, in Q3, employee B's rating was unchanged and employee A's rating went down which showed that through the demonstration experiment, offering the service of cup message cards to customers had led to a tendency for employees to reduce the demand for other new means of service.

The other 10 questions in the post-questionnaire are shown in Table 6.

Table 6. Scores of questions in the post-questionnaires (without the common questions)

	employee A	employee B	Mean	Std. Deviation
Q4: Has the "Caffe System" made it easier for you to understand your customers' preferences?	5	5	5.00	.000
Q5: Have you been able to have conversations with customers based on their preferences?	5	4	4.50	.707
Q6: Have you been able to provide cup messages based on your preferences with your customers?	4	3	3.50	.707
Q7: Do you think that providing cup messages can bring satisfaction to customers instead of conversation?	6	4	5.00	1.414
Q8: Do you refer to your customers' feedback?	5	6	5.50	.707
Q9: Do you think your motivation is enhanced by referring to customer feedbacks?	6	6	6.00	.000
Q10: Do you refer to your own and other employees' contributions to customer service information?	6	6	6.00	.000
Q11: Do you think you can be more motivated by sharing your own and other employees' evaluations?	6	6	6.00	.000
Q12: Are you (your employees) satisfied with the service provided to customers through the "Caffe system"?	5	5	5.00	.000
Q13: Have you achieved customer satisfaction through our "Caffe system"?	5	5	5.00	.000

All questions were rated on a 7-point scale, and all questions except Q6 (Have you been able to provide cup messages based on your preferences with your customers?) were rated above the middle of the scale. Therefore, it was observed that through the practical use of the Caffe System in the demonstration experiment, the various satisfaction ratings and utilization of the Caffe System were relatively positive for the employee side. However, the distribution of cup message cards originated from the automatic distribution of the system, which did not achieve 100% conformity to the customer preference. Hence, in the future, prior service preparation using customer personality categories could be attempted.

Regarding standard deviation, the variation in Q7 (Do you think that providing cup messages can bring satisfaction to customers instead of conversation?) was relatively large. Furthermore, it was shown that the degree of availability of system-set cup message cards in different scenarios might vary significantly compared to conversations where the topic could be changed at any time.

5   CONCLUSION

In this study, we prepared various interface designs for the Caffe System, applied our system to customer service, and conducted a demonstration experiment in a coffee shop. However, the actual number of participants in this experiment was minimal due to the prevalence of the COVID-19. Hence, the conclusions were somewhat limited and incomplete. This study was a fascinating and timely attempt to use the "cup message card" service as a new means of communication between store employees and customers. The overall satisfaction of both the employees and customers was investigated in various aspects. Furthermore, the development of the relationship between them was also investigated in an innovative and futuristic way.

Although the personality trait survey existed only as an analytical method in this study, it showed the potential of "finding customer preferences through personality profiling." If we can find a connection between these two in the future, it may be possible to meet the needs of more customers while making the work of store employees more efficient and humane.

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