

Consumer Behavior Modeling of Adoption of Alternative Food Delivery Packaging

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1. Introduction

Food delivery has become increasingly popular worldwide, especially in China, and the waste produced from this industry has also resulted in significant environmental issues. After the outbreak of COVID-19, the demand for delivery service soared, and the subsequent environmental issue intensified. More importantly, the pandemic broke the sustainable pattern that was starting to establish before and again promoted the normalization of single-use plastic.

The government has come to realize the pressing issue, though the alternative being advocated is not sufficient in solving the problems in the long run. According to the Plastic Pollution Management Policy of Cheng Du published at the end of 2020, the use of non-biodegradable plastic packaging in food delivery should be reduced by half by 2025 (Chengdu Municipal Development and Reform Commission, 2020). At the same time, the government promoted biodegradable materials as alternatives. However, according to a recent study on the life cycle assessment of different alternatives to single-use plastic packaging, paper alternatives are even more environmentally damaging. Instead, reusable/sharing packaging is the ultimate sustainable solution (Zhou et al., 2020).

The barriers in promoting reusable packaging are also obvious. The cost burden of equipping reusable tableware and re-collecting and washing the dishes restricted restaurants, especially the small-scale ones, from taking this option. On the other hand, customers tend to reject the reused packaging based on the assumed hygienic conditions, even though it reaches the

standard. However, a systematic analysis of the barriers in promoting reusable packaging is yet to be conducted.

In this research, we analyzed the people's pro-environmental behavior by focusing on the case of adopting reusable delivery food tableware. First, we conducted phone interviews with NGOs that have been focusing on food delivery waste (e.g., Bai Tuo Su Fu 擺脫塑縛) to gain insights into the problem from their experience and figure out which stakeholders we should target. Second, we conducted surveys with the consumer groups using a behavior analysis framework - the Pro-environmental Behavior Model (Kollmuss & Agyeman, 2002) to model the behavior and identify the barriers in adopting reusable packaging. Finally, with the information gathered, we advised on the possible campaign strategies in promoting reusable packaging in food delivery.

The main questions we addressed through this project are:

1. What are the key barriers of concern in adopting new packaging (including the potential new logistic chain) for customers?
2. What are the key customer needs to be addressed in the solutional campaigns for promoting new packaging in food delivery in the context of China?

2. Methods

2.1 Theoretical framework

The theory adopted in this study is the Pro-environmental behavior framework developed by Kollmuss and Agyeman (2002) as shown in Figure 1. The black boxes in the figure indicated the blockers of the formation of pro-environmental behaviors. Based on this framework, we designed the questionnaire in order to find out what blockers existed in people's adoption of Reusable Food Delivery Tableware.

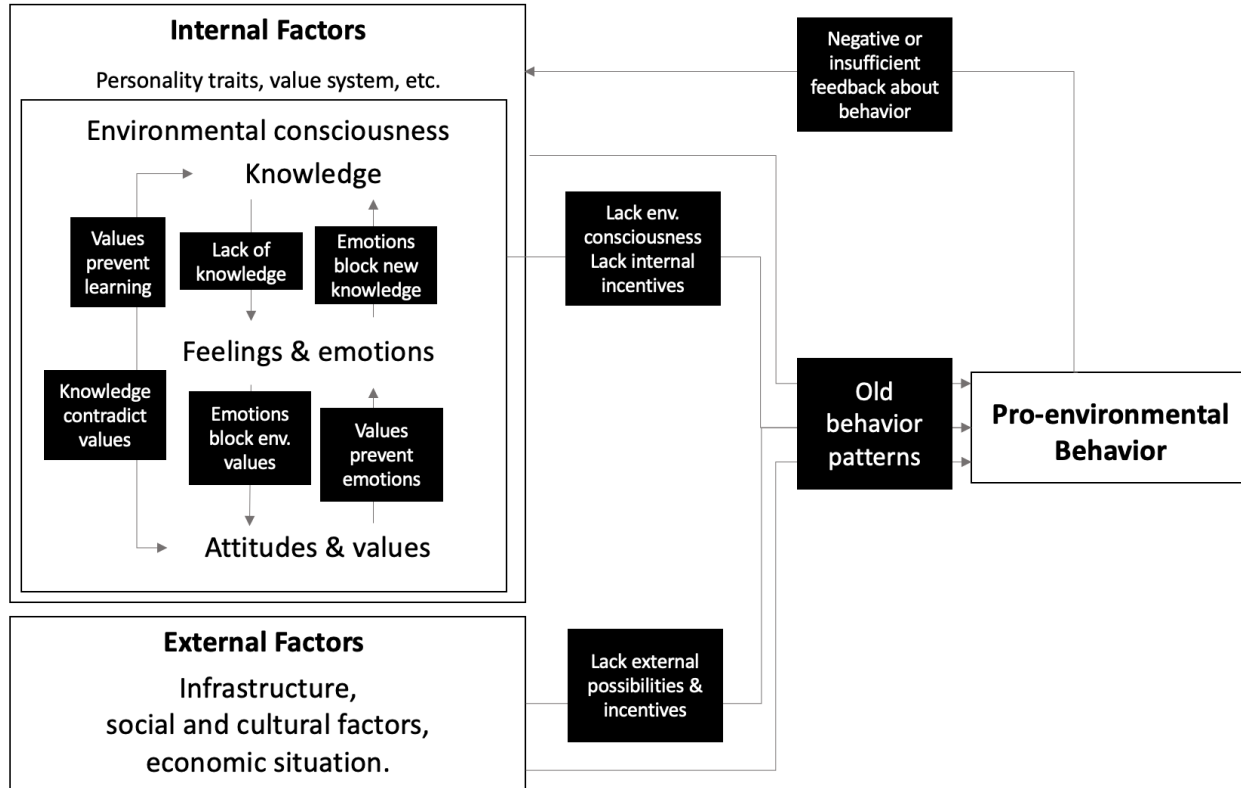


Figure 1. Pro-environmental behavior framework, adapted from Kollmuss & Agyeman (2002).

2.2 Questionnaire

We collected 340 answer copies of an online questionnaire using the non-random convenience sampling to get insights from our target group - the users of delivery food services - in two weeks' time.

The detailed survey questionnaire contained 26 questions and was designed on the platform Wenjuanxing. Based on the Pro-environmental Behavior framework, the questions were divided into sections:

1. Past experiences and current habits of ordering food delivery (including preferences and complaints).

2. Understanding and acceptance of the Reusable Food Delivery Tableware (including the perception of the environmental influence of the food delivery).
3. Perceptions of the environmental issues of delivery food services, and their basic demographic information. The specifics are attached in the appendix.

In this paper, Reusable Food Delivery Tableware is abbreviated as RFDT for convenient reference. As specified in the questionnaire, RFDT is defined as tablewares (including utensils and cutleries) that could be recollected, cleaned for reuse after usage. This definition was adapted from the RFDT company Shuangti (2020). The complete process of reusable tableware service can be defined as following steps:

1. Restaurant packing food using RFDT
2. Food delivery services out distributing the food to consumers
3. Consumer consuming the food (consumers involved)
4. Consumer returning the tablewares to the returning point, or delivery man collecting the used RFDT (consumers involved)
5. RFDT cleaned and sterilized uniformly by professional cleaning services
6. RFDT distributed to restaurants for the next usage cycle.

2.3 Sampling

The combined non-random sampling method of purposive, convenience, and snowball sampling techniques was adopted to maximize the participatory rate with the limited time and resources available (Biernacki & Waldorf, 1981; Etikan et al., 2016). Only the data of participants who aged 18 and above and consented digitally to participate and who had the experience of ordering delivery food in the past three months were collected. We first distributed the questionnaire online via WeChat on July 16th, 2021, by sharing it with friends, colleagues,

and family members. Then the participants were invited to share the questionnaire with their friends and families. By adopting the combined sampling method, we approached as many participants as possible in two weeks. Moreover, people with whom we already had established relationships were also more likely to spare their precious time to fill in the questionnaire. By July 30th, 2021, we collected 340 valid answer copies from participants.

2.4 Data analysis

The original data were downloaded from the survey platform Wenjuanxing. Descriptive data were analyzed for the multiple choices questions. The score of ranking was calculated using the following formula:

$$ranking\ score = \frac{\sum_{(n=0)}^{count} (8 - ranking_n) \cdot ranking\ count_n}{count}$$

The textual data from the open questions were first translated from Chinese to English using Google translate, which was later revised by two researchers. Then the English data were imported in R to calculate the frequencies of words, and the results were presented in the form of word clouds.

We analyzed the correlation between three important terms that segment the consumers' groups: age, gender, and occupation with other factors, using the pandas correlation function in Python with the standard correlation coefficient method. Correlated factors were sorted by absolute values indicating the strongness of the correlation and the minus sign indicating negatively correlated. The algorithm of the correlation coefficient is calculated using the formula:

$$\rho_{X,Y} = \frac{\mathbb{E}[XY] - \mathbb{E}[X]\mathbb{E}[Y]}{\sqrt{\mathbb{E}[X^2] - (\mathbb{E}[X])^2} \sqrt{\mathbb{E}[Y^2] - (\mathbb{E}[Y])^2}}.$$

All data analysis was conducted in R (R core team, 2021) and Python (Python Software Foundation, 2019).

3. Results

The results were analyzed wholly based on the questionnaire results. Here we summarized the results by structuralized factors involved in the Pro-environmental Behavior framework (Kollmuss, 2002), breaking down into internal factors of consumers including knowledge, values and feelings, along with external factors including infrastructure, economic situation, political and social factors.

3.1 Current behavior and preferences

Most of the participants were not daily users of delivery food services. According to the survey result, half of the respondents ordered delivery food less than once a week. Only less than ten percent of them ordered delivery food once or more every day.

The chance of ordering delivery food at workplaces or homes was similar for people of different occupations. For the composition of the respondents, one-third of the respondents were students, and others are workers of all kinds. Nevertheless, regardless of their occupations, half of the respondents ordered at home, and the other half ordered at their workplaces.

Not surprisingly, using delivery food services was mainly for the sake of saving time or effort. When asked to rank the important reasons for ordering delivery food, nearly 80% of the respondents ranked time-saving or convenience as the top reason for ordering delivery food.

These two reasons also received the highest overall score. Noticeably, low prices and good taste of delivered food were factors that significantly matter more to students than working

professionals. On the other hand, hygiene was at the bottom of the list as the most unimportant reason for ordering delivery food, meaning that the respondents were least likely to order delivery food for hygienic concerns.

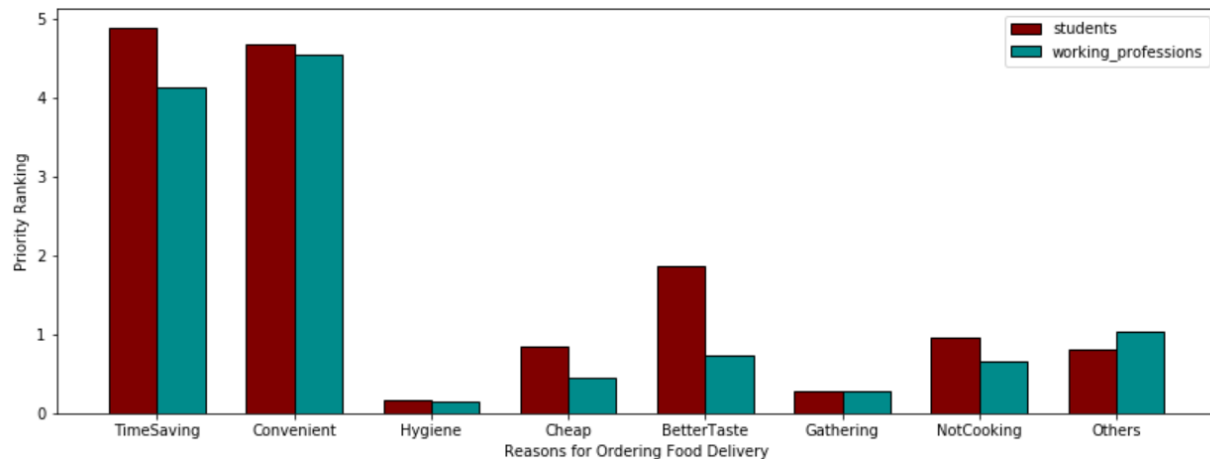


Figure2. Bar plot of reasons for ordering food delivery, categorized by occupation

The current food delivery packages had many potential problems, and in respondents' opinions, the most prominent ones include the packaging being not eco-friendly, the materials being not safe, and the leaking problem. More than 70% percent of the respondents thought that the current package is not eco-friendly, and nearly half of them thought the material used for the current package was not safe. Almost 40% of them were worried about the leaking problem. Consequently, though there were other functional deficiencies concerning the packaging, the environmental consequences caused by the current single-used packages were the most important problems waiting to be addressed.

On the other hand, when asked to rank the factors determining an optimum food delivery packaging, the score showed that the single most essential requirement by consumers is hygiene. The qualities ranked second and third that matter was material safety and eco-friendly. The aesthetic qualities ranked at the bottom for respondents' requirements for the packaging. We would like to state the potential bias of receiving a high response in the dimension of eco-

friendly, which was discussed in the later section of this paper. Compared with the top limitations of the current packaging, eco-friendly was a quality that people deemed to be important but not yet fulfilled.

Priority ranking	Reason for ordering food delivery	Score	Standard of delivered food packaging	Score
1	Convenience	4.58	Hygiene	5.57
2	TimeSaving	4.38	MaterialSafety	4.31
3	BetterTaste	1.11	EcoFriendly	3.82
4	Others	0.96	LeakProof	3.26
5	NotCooking	0.76	HeatInsulation	2.63
6	Cheap	0.58	AestheticDesign	0.91
7	Gathering	0.28	CreativeDesign	0.36
8	Hygiene	0.14	Others	0.06
9			LuxuriousDesign	0.04

Table1. Priority rankings for reasons for ordering food delivery and for standard fo delivered food packaging

3.2 Knowledge

Despite that only a small portion of the respondents was aware of the exemplar alternative to the current single-used tableware chosen for this study - reusable and sharing

delivery food tableware, the acceptance rate was relatively high. According to the survey result, the reusable delivery food tableware was only known to 17% of the respondents. Nevertheless, three-quarters of the respondents answered that they might try or accept reusable packaging.

After reading the brief introduction prepared by us in the questionnaire, the respondents were asked to list the main advantages and disadvantages of reusable tableware. As shown in the word cloud, the respondents thought that the reusable tableware was environmentally friendly. The most important concerns about sharing tableware were the hygienic conditions and the inconvenience of recycling the tableware. It was noted that “recycle” here referred to returning the tableware in Chinese. In other words, the perceived main advantage of reusable food packaging solved the aforementioned main limitation of the current single-used packaging. However, the main disadvantage in the respondents’ perception - hygienic concern, is the most fundamental requirement for food delivery packages in their opinions. Another disadvantage - the burden of recycling the tableware, is also contradictory with people’s main reason for using delivery food services in the first place.

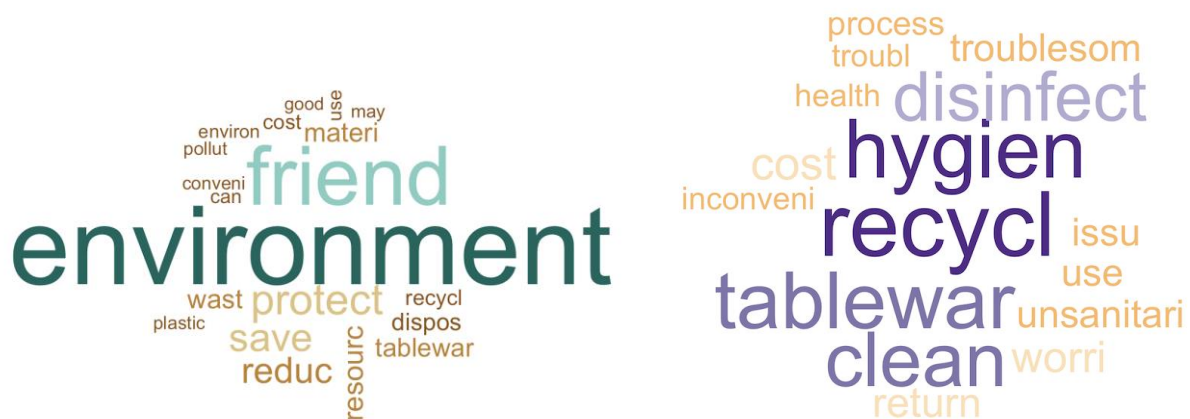


Figure3. Word cloud images of word frequencies for advantages of RFDT (left) and the concerns of RFDT (right).

3.3 Infrastructure

Using this RFDT as a real-life application of alternative packaging methods to the current single-use packaging, we peeked into people's acceptance of various properties of the packaging. These were as well features of the infrastructure that are set by the food package manufacturer and service providers.

For the price of food packaging, more than 60% of the respondents thought the acceptable charge for reusable packaging should be less than 3 yuan, which was the current price of disposable food packages. Only less than 10% of the respondents were willing to pay more than 5 yuan for the food packages per meal.

Noticeably, the RFDT actually comes with a different service operation chain besides the material difference. There may be an additional step for the consumers to return the tableware to the collection points after food consumption, which could lead to more properties being considered.

Considering the physical distance of returning the reusable tablewares by themselves, one-quarter of the participants did not accept returning the reusable package by themselves at all, and more than half of the participants only accepted the returning concept if the returning point was within 100m of walking distance.

With the thought of returning the tableware by themselves, half of the participants could not accept reusable packages weighing less than 300g (median), which in our reference system is heavier than a stainless steel bowl and lighter than a glass bowl.

The hygiene level has been an often-mentioned doubt discussing reusable tableware. Three quarters of the participants were tolerant of the hygiene standard of the RFDT as the same as the usual dine-in table standard, while the remaining one-quarter required the reusable tableware to be as clean as the disposable packaging.

In the main, under the presumption of advantages of the reusable tableware, people have shown high leniency to the RFDT in terms of weight, hygiene level, and walking distance, however, the acceptable price didn't rise much from the current single-use packaging.

3.4 Values

Generally, people were aware of the possible environmental impact caused by the consumption of delivered food, including the production of plastic waste, plastic garbage, and environmental pollution. Nevertheless, the respondents' perception of how much responsibility they should bear for the possible environmental impact varied. As shown in the graph below, there were conspicuous individual differences in terms of how they view their responsibilities for their consumption behavior.

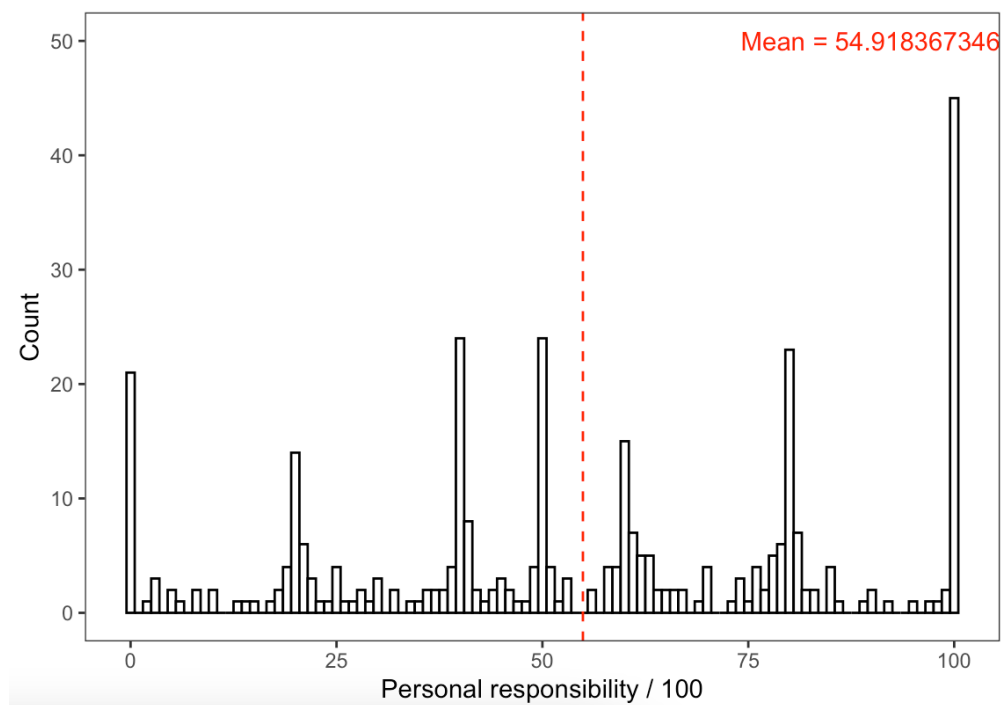


Figure4. Histogram for personal responsibility rating of respondents

Out of the alternatives aiming at mitigating the tremendous environmental damage caused by the current disposable packaging, RFDT was not the preferred solution. The

respondents would rather switch to more eco-friendly materials, or straightforwardly order less delivery food, use less packaging than adopt RFDT.

Most participants thought that consumers, among all four stakeholders on the list, were most responsible for promoting the application of reusable packages. Specifically, more than 70% of the respondents think consumers are responsible, while 60% of them consider restaurants are responsible, the same as the ratio of respondents choosing policymakers. Half of the respondents also pointed out that delivery platforms play an important role in promoting the innovative solution.

3.5 Correlation analysis

For factor “age”, the top correlated element was occupation (0.59) as expected. Since the occupations of our participants were mainly students and working professionals, the younger groups of them mostly also belonged to the student group. The second highest correlated element, but negatively correlated was frequency (-0.30). This revealed the fact that the younger the consumers, the more they ordered delivered food. The next correlated element was the concern of the leakage issue of the current food packaging (-0.26), with the fifth correlated element being the need for leak-proof food packaging (-0.22), responding to the current leaking issue. Obviously, the leakage of delivered food was more of a problem for younger people, and they had a high demand for leak-proof food packaging. We also found that the younger generation tends to put the blame on the delivery platform more than older consumers (-0.26).

The answer to “gender” was defined as 1 for female and 2 for male, and the answer 3 for “unwilling to reveal” was removed for the sake of correlation analysis. Generally, no distinct correlation was seen with gender, but we could find a slightly higher awareness of responsibility for female consumers. Females were more often to find the food packaging not eco-friendly (-

0.14), and they rated their personal responsibility of pollution by food packaging higher than males did (-0.13).

While for factor “Education Level”, we observed that the higher the consumer’s education, the more he/she is willing to use delivered food less packaging (0.17). The higher education people considered the Policymakers the most influential power in solving food delivery packaging issues (0.17). They also had more sense of the eco-friendliness of the food package (0.16).

4. Discussion

Aiming at exploring the barriers preventing customers from adopting the alternative delivery food packaging, which was more environmentally friendly, we surveyed 340 delivery food service users about their current behavior patterns, acceptance of the RDFT, and their perceptions of the environmental consequences caused by the delivery food industry. The results showed that despite people being aware and caring about the environmental impact of food packaging, convenience and hygiene were two factors hard to be compromised for the sake of the environment.

4.1 Hygiene: emotional blocking of new knowledge

Instead of topping the priority list of standards for food packaging, oppositely, hygiene was the least of reasons for ordering food delivery. This reflected a hidden fact that, under the context of the food delivery industry of China, delivered food was not considered any more hygienic than self-cooked or dine-in food. Out of the complete product of food delivery service, the only controllable component on the hygiene dimension is the food packaging. And it may be caused by the different definitions of hygiene for the food itself and packaging, for hygiene food meaning fresh and properly processed while packing meaning nontoxic and food-grade safety.

At the same time, as the most important quality that respondents ask for a delivery food package, hygiene also limited people's acceptance of the reusable packaging because, according to people's perception, the reused packaging is never as clean as the single used tableware, despite most of them indicate that they only require the reusable package to reach the standard of dine-in tableware. According to the Pro-environment Behavior Framework, the internalization of new knowledge learned could be blocked by the negative emotions of the users, which were invoked by their previous beliefs of certain elements involved in the new behavior. In this case, even though the hygiene level of RFDT was guaranteed to be the same as dine-in tableware by the questionnaire setting, many people still rejected RFDT due to their inertial ideas that reusable tableware may be insufficiently cleaned.

4.2 Convenience: values prevent emotional involvement

As aforementioned, people used delivery food services mainly for convenience and time-saving. This was in accordance with the mainstreaming linear economy where everything else could be sacrificed for efficiency (Sariatli, 2017). Evidently, the value of convenience was the highest on the list of priorities rooted deeply in people's minds.

Consequently, the trouble of recycling (returning) was one of the major disadvantages of the RFDT. As one respondent indicated, "my only intention to order delivery food is to save effort and time, and the troublesomeness of the RFDT made delivery food meaningless." This thought was likely to be popular since it was supported by the vote. When asked which alternative packaging solution was preferred for protecting the environment, people would rather order less delivery food than using the RFDT. Moreover, the alternative that most people chose was using more eco-friendly materials, such as paper, instead of plastic. Nevertheless, as

mentioned before, studies had shown that biodegradable materials were not always more environmentally friendly than plastic if taken the whole life cycle into consideration.

In conclusion, it might be hard for people to sacrifice convenience for a more eco-friendly delivery food packaging solution.

However, it should be noted that most people were aware of the environmental consequences despite the importance of convenience in their minds. The problem was that people would not think they were personally responsible for the environmental consequences caused by the delivery food industry. As the result showed, people's score of how much responsibility they should bear for the environmental consequences caused by the use of delivery food services varied significantly among individuals: some thought they were one hundred percent responsible, while some believed that they were least responsible for the environmental issues. The overall average score was slightly more than 50 points. According to the Pro-environmental Behavior Framework, one's value could block one's emotional involvement in environmental issues. In our case, the high priority of convenience in people's value dissuaded them from thinking that they were personally responsible for the environment.

4.3 Potential application

From the analysis result, we came to realize the unignorable relation between people's needs and perceptions of the food delivery service and their attitudes and acceptances towards the food packaging. Delivered food packaging is an individual issue to solve, however, it shall not be put alone and analyzed without discussion of the food delivery service chain and lifecycle as a whole. It is extremely important to involve more questions about food delivery in general that correlate the delivered food packaging, which will give us more useful observations and insights.

The result also gave pragmatic advice to the disposable food packaging design and innovation campaign. According to the ranking of desired attributes of food packaging, people showed low demand in creative or aesthetic, especially luxurious food packaging design. More attention was paid to the leak-proof and low price of the food packaging.

Taking further consideration for the future campaign for eco-friendly delivered food packaging, we concluded that group segmentation is crucial in promoting, as the application scenarios and needs for students and working professionals are evidently different shown in our results. By focusing on appropriate attributes of the new food packaging in the campaign, people will be more motivated to adopt the new packaging products.

4.4 Limits and future implementation

Even though we have collected answers from over 340 people across the country with different ages, gender and occupation, due to the limit of time and financial support, some limits are not neglectable in our data. Given the fact that the survey participants are all voluntary and non-paid, there is an inevitable bias of eco-friendly tendency revealed by the results, even though we never explicitly indicate the purpose of the survey is environment pollution focused.

Another limit of our questionnaire data comes with the current situation of Covid 19. This worldwide incident has led to a prevalent situation of work/study from home and stimulated the explosive increase of the need for food delivery service. Thus, the statistics of current experience and habit of ordering food delivery may not be a consistent practice for many people in the longer term.

Inspired by the results, more ideas for future implementation are found. Comparing the result of “standard of food packaging” and “reason for ordering food delivery,” we found that the definition of “hygiene” in terms of the food itself is a far cry from the definition of food

packaging. By looking into this distinction, we may discover more insights that would guide the shift in people's concept and knowledge of food delivery packaging.

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Appendix: questionnaire

Consumer demand survey on food delivery packaging

Hello! Thank you for clicking the link to the questionnaire. We are students from Hong Kong University, conducting a food delivery packaging survey to gain insight into consumers' food delivery packaging needs. This questionnaire is completely anonymous. If you have any doubt, we will not collect any other information that will indicate your identity, or whether any information you provide can be obtained and used for research purposes. By participating in the questionnaire, you will help us to understand the real needs of consumers for packaging in the food delivery industry and find ways to solve the problems caused by the packaging of food delivery. There are 25 questions in the questionnaire, able to be finished in around 10 minutes. If you no longer want to participate in the survey while answering the questionnaire, you can exit and end the survey at any time. If you encounter problems throughout the participation process, please contact researcher Zhang Zheng (tristaz@connect.hku.hk) or the core curriculum team of the University of Hong Kong (commoncore@hku.hk).

1. If you have understood the above statement and agree to continue participating in the questionnaire, please tick agree:
 - a. I am over 18 years old and agree to participate in the questionnaire
 - b. I am under the age of 18, or I do not agree to participate in the questionnaire
(please skip to the end of the questionnaire and submit the answer sheet)

Part 1: Your past experience of using takeaway services

2. Have you used the takeaway service in the past three months?

- a. Yes
- b. No

(please skip to the end of the questionnaire and submit the answer sheet)

3. How often do you order food delivery?

- a. Less than once a month
- b. 1 ~ 3 times a month
- c. Once a week
- d. 2 ~ 4 times a week
- e. Once a day
- f. more than once a day

4. What is your most common use of takeaway services?

I am _____ (professional) and I usually order takeaways at _____ (location).

*For example:

I am a student, and I usually order food delivery at school.

I am a worker, and I usually order food delivery at the workplace.

I am a salesperson, and I usually order food delivery at home.

5. Why do you order food delivery? Please rank the following reasons.

- a. save time
- b. Convenience
- c. Hygiene

- d. Cheap
 - e. Tastes better
 - f. Can gather for dinner with people who choose different restaurants
 - g. Don't know to cook
 - h. Others (please specify)
6. In the past experience of ordering food delivery, what do you think are the overall shortcomings of food delivery packaging? Check all appropriate options
- a. Not clean
 - b. Not leak-proof
 - c. Do not keep warm
 - d. Not aesthetic
 - e. The design is not creative enough
 - f. The material is not safe enough
 - g. Not environmentally friendly
 - h. Others (please specify) _____
7. In your standard, what is a good food delivery packaging? Please rank the following factors.
- a. Hygiene
 - b. Insulation(keep warm)
 - c. Leakproof
 - d. Aesthetic

- e. Material Safety
- f. Innovative design
- g. Luxury packaging
- h. Environmental friendly
- i. Others (please specify) _____

Part 2: Understanding of Recyclable Food Delivery Tableware

8. Do you know Recyclable Food Delivery Tableware?
- a. Yes
 - b. No

In this questionnaire system, Recyclable Food Delivery Tableware refers to food delivery tableware (including lunch boxes, such as bowls, chopsticks, forks and spoons) that can be recollected, cleaned, and reused after one use.

The service process of Recyclable Food Delivery Tableware System is roughly as follows: the store uses the recyclable tableware to deliver meals -> food delivery -> consumption and usage -> tableware return [self-return to the tableware return point; or collect by food delivery man from home] -> unified cleaning and disinfection -> distribute tableware again to the store and waiting for the next use.

The consumer's participation involves consumption, no need to wash, and may need to return the tableware by themselves.

9. From a consumer's perspective, do you think there are any advantages to using Recyclable Food Delivery Tableware compared with traditional disposable tableware?

[Fill in the blanks] *

10. From a consumer's perspective, do you think there are any disadvantages to using Recyclable Food Delivery Tableware Compared with traditional disposable tableware?

[Fill in the blanks] *

11. In your opinion, in order to realize the widespread use of Recyclable Food Delivery Tableware, which stakeholder's support is the most important? Check all appropriate options

- a. Consumer
- b. Takeaway merchants
- c. Takeaway platform
- d. Policy maker
- e. Others (please specify) _____

Part 3: Acceptance of take-out recycled tableware

12. Assuming that there is an option to order Recyclable Food Delivery Tableware when ordering food delivery, in your most commonly used food delivery scenario, are you likely to accept Recyclable Food Delivery Tableware?

- a. may accept (please skip to question 14)
- b. Will not accept (please skip to question 13)

13. Why is it impossible to accept Recyclable Food Delivery Tableware?

14. Take the traditional disposable food packaging (charge of 3 yuan packaging fee) as an example, how much can you accept the cost of Recyclable Food Delivery Tableware?

- a. less than 3 yuan
- b. less than 4 yuan
- c. Less than 5 yuan
- d. less than 6 yuan
- e. equal to or higher than 6 yuan

15. In the recycling process of Recyclable Food Delivery Tableware, what is the distance you can accept for self-service tableware return point?

- a. Self-service return of tableware is not accepted. The staff must come to my place to collect it
- b. Within 10 meters of walking distance
- c. Within 50 meters of walking distance
- d. Within 100 meters of walking distance
- e. Within 200 meters of walking distance
- f. Within 500 meters walking distance

- g. More than 500 meters walking distance
16. For reference, in general, a plastic bowl is 100g, a stainless steel bowl is 200g, a ceramic bowl is 400g, and a glass bowl is 550g. What is the weight (in grams) of a recyclable lunch box you can accept? [Enter a number from 0 to 1000] *
- _____
17. What is the minimum standard of hygienity you can accept for Recyclable Food Delivery Tableware?
- a. the hygienity of dining tableware in the restaurant
 - b. the hygienity of brand new disposable tableware
 - c. Other _____
18. As a consumer, to what extent do you think you are personally responsible for the environmental impact caused by the use of food delivery services? [Enter a number from 0 (no responsibility) to 100 (large responsibility)] *
- _____
19. What environmental impact do you think the use of food delivery services will cause?
- _____
20. For the purpose of environmental protection, you would be more willing to [multiple choice] *

- a. Choose food delivery packaging made of environmentally friendly materials
- b. Choose reusable takeaway packaging
- c. Choose minimal packaging as possible
- d. Try to order food delivery as little as possible
- e. I am unwilling to change my consumption habits for environmental protection purposes
- f. Others (please specify) _____

21. Finally, do you have any personal suggestions for the packaging of the food delivery service?

Not required _____

Finally, we will collect some demographic information that will not reveal your identity.

22. Your gender is

- a. Female
- b. Male
- c. No gender
- d. Unwilling to disclose gender
- e. other

23. What is your age

24. Your education level (including current) is [multiple choice] *

- a. Primary school and below
- b. Junior High
- c. High school
- d. University or college
- e. Graduate students and above