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An Analysis of APP for Bonus Point Activity Service Based on Conjoint Model

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ABSTRACT

Information data application has given rise to significant changes in many industries, and convenience stores have also started to use APP software for the bonus point activity in replacement of the original bonus point operation mode. The issue of how to attract more consumers to use APP for the bonus point activity is a very important research theme for managers of convenience stores. This paper first describes the development background and current situation of the bonus point activity. Next, the various factors and their attributes affecting consumers' behavioral intention to choose to use APP for bonus point service are discussed by adopting conjoint analysis. Finally, management implications are proposed based on the research findings as references for convenience stores.

Keywords: Bonus point activity, FamilyMart, APP, conjoint model

BACKGROUND

The density of convenience stores in Taiwan had surpassed Japan, thus making Taiwan the nation with the highest density in convenience stores in the world. This means that the competition between the convenience stores in Taiwan will be more intense than in other countries (such as Japan, Hong Kong or Shanghai, China). The brands of convenience stores in Taiwan currently include 7-Eleven, FamilyMart, Hi-Life and Circle K. Under fierce competition, many convenience stores are competing with not only other brands of convenience stores but also with their own brand. For example, in the case that a FamilyMart is located across from another FamilyMart (such situation is usually because the commercial zone allows for two convenience stores, so if FamilyMart does not open another shop across the street, it might attract other competitions like 7-Eleven to open one), as convenience store is a franchise business, such competing scenario indicates that the competition between convenience stores in Taiwan is much more intense than other industries.

In an industry with fierce competition, the perfect customer satisfying service quality provided by an enterprise can only count as the ticket for the enterprise to stay in the competition. Customer satisfaction is not enough for an enterprise to truly survive in an intensely competitive environment. Client loyalty is the only correct marketing strategy and management thinking. Brand loyalty refers to consumers' psychological reaction toward a brand they favor. This variable reflects the degree of trust and dependence of consumers toward the brand, and is used to describe the behavioral reaction of favoritism (instead of casualty) consumers express toward a certain brand when making purchase decisions. Loyalty not only describes the behavioral process of consumers but also focuses on their psychological decision-making and evaluation processes. The formation of brand loyalty does not rely

completely on the quality, brand awareness, brand association and spread of products. As it is closely related to the characteristics of the consumers themselves, it also depends on their product using experience. Increment of brand loyalty is extremely important to the survival and development of an enterprise as it is the key to expansion of market shares.

The appearance of Internet technology changed people's life styles dramatically. Applications for online shopping, online auctions, online learning, e-book reading and even interpersonal communications (e.g. LINE and Facebook) have gave rise to brand new transformations in people's living, shopping and communication methods. The popularization of smartphones brought another wave of change, further leading to another wave of appearances of social communication technology and platforms. For example, LINE and Facebook are platforms provided for people to carry out instant, dynamic and diversified interaction and communication with friends by using different communicating methods, such as texts, graphics and voice transmissions, and they have become the most important social communication tools nowadays.

Although bonus point promotion is already the most important marketing strategy of convenience stores, the execution of the activity could still use some improvements. For example, in traditional bonus point promotions, consumers must spend a certain amount of money to receive a sticker and then make exchanges at a convenience store when they have collected enough stickers. Such process may create the following problems:

- Production of stickers requires expenses, which would increase an enterprise's cost.
- Consumers might lose stickers, which would cause inconvenience.
- Employees at convenience stores might forget to give stickers, causing management troubles.

In order to mend the above defects in the method of bonus point promotion, FamilyMart began to use information and communications technology, e.g. the Internet, for optimizing their bonus point activity, hence the launch of APP bonus point activity. This innovative bonus point collecting method has the following features:

- APP for members: display the membership barcode on the APP to be scanned by the clerk when you pay for your purchase and the bonus points will be added to your account.
- Cellphone number of members: if you are a member of FamilyMart, give the clerk your cellphone number when you pay for your purchase and the bonus points will be added to your account.
- FamilyMart Point Card: physical FamilyMart Point Cards are available for non-members; bonus points can be accumulated using the barcode on a Point Card.

As FamilyMart launched the APP bonus point activity[1] in the hope of creating a whole new method for bonus point collection through new technology, thus further analysis on the factors

[1] Regarding the APP bonus point activity launched by FamilyMart, the form of accumulation of its points includes:
(1) Redeem points on member APP: Choose the gift and points that you want to redeem on the APP to yield a redemption code and take the code to the counter of a FamilyMart to exchange for the gift. (Operate on APP)
(2) Redeem points on point card: Consumers who have not completed the point card account entry can only redeem the points from a single point card through FamiPort. (Operate on FamiPort under Point Redemption)
(3) If you have multiple code cards with points that you wish to combine for redemption, you have to become a member of FamilyMart to complete the point card account entry. We strongly suggest card entry for convenient redemption. (Operate on APP or FamiPort under Account Entry)

affecting consumers' use of APP for bonus point collection and the structural relations between these factor is an important issue for managers of FamilyMart convenience stores.

This study will be using the Technology Acceptance Model (TAM) as basis, coupled with the variable of the subjective norm in the Theory of Planned Behavior (TPB), for constructing a behavioral intention model on the factors influencing consumers' use of FamilyMart APP bonus point collection service. The objectives of this study are as follows:

- Discuss the development of FamilyMart's bonus point activity and the methods and current situation of APP bonus point activity
- Through conjoint analysis, discuss the factors influencing consumers' behavioral intention toward using APP bonus point service, and further make suggestions for related marketing strategies

CASE STUDY ON CURRENT SITUATION OF BONUS POINT COLLECTION ACTIVITIES

Convenience stores started development in Taiwan in 1978, and because there were numerous retail stores of different types (such as wholesale stores, supermarkets, discount stores, department stores, etc.) and mutual competition existed between them, convenience stores needed continuously innovative ideas for customer attraction to stand out in the competitive market. 7-Eleven took the leading imitating Japan's concept of bonus point marketing in April of 2005 and launched the first bonus point promotion in Taiwan – receive a Hello Kitty 3D magnet for purchase of NTD 77, thus began the bonus point collection trend in Taiwan. The following are a few commodities exchange method seen commonly in FamilyMart's bonus point activities:

- Gift with purchase: receive a free gift with purchase of a designated amount or designated commodity. In the initial period of a bonus point promotion, most convenience stores adopt the method of "gift with purchase". For example, FamilyMart followed the steps of 7-Eleven in October of 2005 and launched the "MSN Emotions" activity, through which consumers received an MSN Emotion Magnet with purchase of NTD 75.
- Gift with bonus points: including free redemption and bonus points with additional purchase price. Promotions in the latter period mostly fall under this category, in which there are usually two redemption methods for the same commodity. Take the "Gudetama Delightful Delicacies" activity launched by FamilyMart in June of 2006 for instance, 1 point is given for every NTD 69 of a single purchase (tobacco product not included) and you can receive a free Gudetama squishy toy by redeeming 50 points or by redeeming 4 points plus NTD 69. This not only offers consumers more diversified ways for acquiring points and gifts, but also decreases the difficulty in bonus point collection.
- Additional purchase price: reach the threshold of the activity to purchase with a designated special price. Take the additional purchase price of FamilyMart's "Let's Café Aranzi" activity on August 19, 2015 for example, buy two or more cups of coffee and you can take the Aranzi's Cute Memo Notepaper home for an additional purchase price of NTD 29. This type of activity is usually shorter than the "gift with bonus points" activity and lasts for about one month.

Statistics are gathered, according to the promotions launched by FamilyMart from June of 2005 to August of 2015, on the redemption methods commonly seen in FamilyMart's bonus point collection activities, as shown in the analysis: (1) When FamilyMart launches a bonus point promotion, the "gift with purchase" method is mainly adopted for the early period, the "gift with bonus points" method takes the lead in the latter period, and the "additional purchase price" method is available throughout the promotion. Consumption limitations are mostly

applied for activities of certain series of products. For example: FamilyMart's Let's Café series are mostly this type of activity. (2) The number of FamilyMart's bonus point activities is increasing year by year with shorter interval periods and more concentrated activities, thus it can be deduced that bonus point promotions nowadays have become a

The threshold of FamilyMart's bonus point activity has changed constantly ever since bonus point collection was introduced in Taiwan in 2005. The amount of the "gift with purchase" method in the early period was mostly set at NTD 66 and NTD 75. The reason for establishing such thresholds was because the acceptance of consumers was not very definite when bonus point promotion was first launched, so an amount was added to the average consumption amount that consumers spend in convenience stores as the threshold of activities. Therefore, consumers only had to buy one more small item to earn one point, which was within the range of acceptance. Besides, bonus point promotion was a newly launched activity and consumers tend to go with new flows. In other words, the decision of the amount of consumption threshold is made in the hope of increasing the average transaction value of the store through the activity, and when the activity takes effect, it will enhance the overall operation of the store.

It was mentioned in the above analysis, the "gift with bonus points" method was the major redemption method in the latter period of a bonus point promotion. The threshold of the bonus point collection activity dropped from NTD 50 to NTD 40 and then gradually settled at NTD 69. The reason for such a great difference was deduced to be because, while FamilyMart was pushing bonus point promotions, firms were simultaneously testing consumers' acceptance toward the thresholds of the activities. Sometimes FamilyMart would launch more interesting projects for holidays and festivals. For instance, FamilyMart released the New Year Limited Edition of Crystal Ball in February of 2013 and consumers could acquire one product with every purchase of NTD 88 plus an additional purchase price of NTD 102. The pronunciation 88 is similar to "fa fa (become rich)" in Chinese, so it meant that "the entire family (the name of FamilyMart in Chinese)" would become rich that year, i.e. 2013. The promotion was launched based on the New Year's atmosphere, cleverly combining the holiday with marketing.

Regarding the "additional purchase price", as bonus point promotion gradually reaches climax in the latter period, the competition between firms become more intense and there are more types of gifts, which not only lowers risks but also provide consumers with more exquisite and diversified choices. The gifts are no longer limited to magnetic toy collectibles but have extended to include bolsters, pitchers, etc. The products are more refined, so the price eventually rises, and this is also a reason for the expansion in price changes. The products available for the "additional purchase price" activity are usually particular commodities. For example, in the activity held in January of 2015, if you spent NTD 50 on fresh foods, you could buy a set of Gudetama tableware for an additional purchase price of NTD 149.

The product types of FamilyMart's bonus point collection activity are analyzed at six-year intervals in the following: the gifts in the early period of bonus point promotion are mostly toys, which might be because the commodities sold at convenience stores in the past were mainly candies and cookies for customers were mostly children. It was easy to deduce what children favored, so magnets, charms and action figures of popular cartoon characters were highly accepted. FamilyMart was unfamiliar with children's likes and habits when bonus point promotion was first launched, so it decided to test the waters by focusing on children and the results apparently caused a trend. Gifts in the latter period of were mainly based on household items, such as bolsters, tea sets, tote bags, etc. As the consumer orientation gradually shifted

from children to young females, the practicality and quality of gifts were valued more. Regardless the period, stationery has always ranked second.

Bonus point promotion has been implemented for over a decade and all convenience stores use stickers as media for redeeming points. Traditional sticker points were easily lost in the past so about 30-35% of them were not redeemed every year. In addition, there were unscrupulous vendors buying in bulks and forcing up prices on the Internet, resulting in unfair collection of bonus points. Furthermore, the management of sticker issuance consumed a massive amount of labor power. Thus, FamilyMart started finding and planning alternative solutions years ago. Since smartphones have popularized these years, FamilyMart invested a budget of NTD 10 million in the promotion of APP bonus point collection in 2015, which was officially launched on April 16, 2016.

RESEARCH METHOD

A question often encountered in market research is: Among the products or services under study, products with which properties are most welcomed by consumers? A product usually possesses multiple features, such as price, color, style, specific function, etc. What is the degree of significance of each characteristic to consumers? Under the same opportunity cost, products with which features tend to earn more consumer satisfaction? In order to solve this kind of questions, traditional market study methods can only carry out qualitative research as it is difficult to give quantitative answers. Conjoint analysis is a market research method created for these needs (Green and Srinivasan, 1978).

Conjoint analysis, also referred to as multi-attribute compositional model or stated preference analysis, is a diversified method of statistical analysis created in 1964. Though conjoint analysis was not originally designed for marketing research, it was introduced into the filed soon after its proposal for analyzing the influence of products' multiple attributes on consumers' purchase decision. Conjoint analysis is a statistical analysis approach used for assessing the relative importance of different traits to consumers and the effectiveness of different attribute levels (Green and Srinivasan, 1990). The information required by this method is acquired from the overall preference determination (the scale of measurement for desire, purchase intention, preferences, ranking, etc.) of consumers toward products or services and consumers' overall evaluation of different attributes and their levels. Conjoint analysis (also referred to as interactive analysis or multi-attribute compositional model) is a theory of multi-variant analysis developed by psychologist Luce and statistician Tukey in 1964 (Hauser & Rao, 2002). It is a statistical analysis approach used for assessing the relative importance of different traits to consumers and the effectiveness of different attribute levels. Though conjoint analysis was not originally designed for marketing research, it was introduced into the filed soon after its proposal for analyzing the influence of products' multiple attributes on consumers' purchase decision. A question often encountered in market research is: Among the products or services under study, products with which properties are most welcomed by consumers? A product usually possesses multiple features, such as price, color, style, specific function, etc. What is the degree of significance of each characteristic to consumers? Under the same cost, products with which features tend to earn more consumer satisfaction? In order to solve this kind of questions, traditional market study methods can only carry out qualitative research as it is difficult to give quantitative answers. Conjoint analysis can develop related combinations of service features and solutions for these needs to investigate the overall preference determination (the scale of measurement for desire, purchase intention, preferences, ranking, etc.) of consumers toward products or services and consumers' overall evaluation of different attributes and their levels to obtain the information required (Smith and Fennessy, 2011).

DATA COLLECTION AND ANALYSIS RESULTS

Data is gathered through online survey, of which the term was from September to October of 2017. A total of 847 valid surveys were collected, among which 30.5% was male and 69.5% was female. In the aspect of year, sophomores had the highest ratio (44.5%), followed by seniors (21.7%), and those of freshmen and juniors are 17.1% and 16.6%, respectively. As for the location of residence, the north had the highest ratio (64.3%), followed by the south (14.0%), and those of the middle and the east are 10.5% and 11.1%, respectively. In the aspect of blood type, type O had the highest ratio (37.8%), followed by type B (29.2%), and those of types A and AB are 23.8% and 9.2%, respectively. The College of Liberal Arts accounts for 49.1%, the College of Science and Engineering accounts for 9.7%, the College of Management accounts for 29.2%, and the other colleges account for 12%. In regard to experience in bonus point activities of convenience stores, the ratio of two years of experience is 12.8%, above four years if 27.6%, three years is 6.3%, and one year or under is 49.1%. Respondents who believe they are early users of new technology or new products or services account for 9%, those who believe they are early majorities account for 49.4%, and the ratios of laggards and late majorities are 28.7% and 13%, respectively.

Regarding the reasons for collecting bonus points, 71.9% of the respondents replied it was because they liked the gift, 16.4% of them were because they were collecting the bonus point for others. As for the frequency of participation in bonus point activities, 24.9% of the respondents participated occasionally, and 30.8% of them were uncertain (depending on gifts). In the aspect of APP bonus point collection, 19% of the respondents are already using the APP, and 35.7% of them have a high chance of using it in the future; as for the reasons for not using the APP for collecting bonus points, 29.5% of the respondents were not aware of the matter, and 35.7% of them thought it was troublesome. With regard to preferred gifts of bonus point activities, the most popular gifts are action figures (26.2%), followed by 3C items (22%) and cups and plates (21.7%), and the ratios of stationery and drinks are 16.4% and 12.8%, respectively.

Based on FamilyMart's bonus point APP service and the strategic portfolios established in the research, this study adopts the method of conjoint analysis to discuss the structure of preferences of consumers toward the marketing strategies of APP bonus point service provided by FamilyMart. This study generalized seven levels based on three strategies, i.e. gifts, bonus points and lucky draws, adopted the full-concept approach to acquire information on respondents' overall preferences, and applies the orthogonal arrangement design to reduce the number of test subjects. Conjoint analysis is carried out with the data gathered from a questionnaire which was filled out by 847 respondents. The results indicate that Pearson's R is 0.997 and Kendall's Tau is 1, which are both greater than 0.5, meaning that the goodness of fit between the conjoint analysis model and information is very high (Hair et al., 1998) so the results of the analysis are reliable. The attributes' degree of significance and part-worth utilities determined according to the results of conjoint analysis are shown in Table 1.

Table 1: Results of conjoint analysis of integral respondents

Strategic Attributes	Significance	Level	Part-worth Utility
Gift strategy X	43.76%	X1: One small latte	0.306
		X2: One small Coca-Cola	-0.102
		X3: Two tea eggs	-0.204
Bonus point strategy Y	26.85%	Y1: Earn 300 points for first time accumulation on APP	0.45
		Y2: Earn 50 Line sticker points for first time accumulation on APP	-0.45
Lucky draw strategy Z	29.39%	Z1: Accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)	0.711
		Z2: Accumulate on APP five times to draw for iPhone SE (a limit of 10 customers)	-0.711

In the aspect of degree of significance, the rank of the three strategies ordered by the integral respondents is as follows: gift strategy (43.76%), lucky draw strategy (29.39%) and bonus points (36.84%). Generally speaking, the difference between lucky draw and bonus points is slight, while the gift strategy is the marketing tactics valued most by consumers. Besides importance, the attributes' part-worth utilities of levels are also substantial results of conjoint analysis. The part-worth utilities in Table 6 refer to the degree of preference of consumers toward the levels of the marketing strategies provided by convenience stores (the constant term is 4.424). Regarding the gift strategy, consumers prefer the strategy of "One small latte", and the gift least favored gift is "Two tea eggs"; as for the bonus point strategy, consumers preferred "Earn 300 points for first-time accumulation on APP" and least favored "Earn 50 Line sticker points for first-time accumulation on APP"; the most preferred lucky draw strategy is "Accumulate bonus points five times to draw for 30 small lattes (a limit of 200 customers)".

This study constructed five different marketing strategies according to varying strategic attributes (as shown in Table 2), and calculated the scores, max utilities and BTL (Bradley-Terry-Luce)[2] of individual strategies separately (Green and Srinivasan, 1990; Auty, 1995) for analysis. It can be determined from the results of analysis that the APP bonus point promotion most favored by integral respondents is Strategy A, which consists of "gift strategy: one small latte; bonus point: earn 300 points for first time accumulation on APP; lucky draw: accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)", and the total part-worth utility is 5.89. In addition, we also carried out conjoint analysis on different groups. The classification criteria of these groups are gender and acceptability of new technology or service. The former is divided into male and female, while the latter into early user, early majority, late majority and laggard. The results of conjoint analysis parameters of the different groups are shown in Table 3 and Table 4.

The results of cluster analyzing according to gender revealed that both genders cared more about the attribute of gift, but it was more significant to females. Furthermore, males had higher scores in the significance of the lucky draw feature. Regardless the gender, the scores for the significance of strategic attributes ordered from highest to lowest were: gifts, luck draws and bonus points. Based on the acceptability of new technology, we divided consumers

[2] Max utility: if it is assumed that consumers only buy products with max utilities, then the probability of decision making is the number of respondents predicted to choose the portfolio divided by the total number of respondents. BTL model: under the assumption that the probability of a product being selected is the linear function of utility, then the rate of utility brought by the product and the probability of consumers buying various products are directly proportional, and the probability of decision making is the ratio of the portfolio utility to all simulation observations. Logit model: similar to BTL model but the utility program is replaced by its natural algorithm.

into four groups: early user, early majority, late majority and laggard. We discovered from the results of cluster analysis that early users' rank of significance of strategic attributes was: gifts, bonus points and lucky draws. Such order is slightly different from the other clusters (of which the order is gifts, lucky draws and bonus points), which is a finding worth to be referred to by marketing executives.

Regarding the cluster analysis of gift feature, both genders preferred "one small latte"; females clearly did not reject "one small Coca-Cola" while males favored it least but were acceptable with "two tea eggs". As for the early user group, they preferred "two tea eggs" the most, followed by "one small latte", which is the same as the laggard group. The early majority group preferred "one small latte" the most, followed by "one small Coca-Cola" and then "two tea eggs". All clustered had the same preferences for the attributes of gifts and lucky draws: "earn 300 points for first time accumulation on APP" and "accumulate five times to draw for 30 small lattes (limited to 200 customers)".

Table 2: Preference probability of simulated strategies

Marketing Strategy		Utility	Max Utility	BTL	Logit
Strategy A	X1: One small latte Y1: Earn 300 points for first time accumulation on APP Z1: Accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)	5.89	46.4%	22.5%	25.6%
Strategy B	X2: One small Coca-Cola Y2: Earn 50 Line sticker points for first time accumulation on APP Z2: Accumulate on APP five times to draw for iPhone SE (a limit of 10 customers)	5.48	28.5%	20.9%	22.4%
Strategy C	X3: Two tea eggs Y1: Earn 300 points for first time accumulation on APP Z1: Accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)	5.38	24.1%	20.5%	21.2%
Strategy D	X1: One small latte Y2: Earn 50 Line sticker points for first time accumulation on APP Z1: Accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)	4.99	22.2%	19.0%	20.7%
Strategy E	X3: Two tea eggs Y1: Earn 300 points for first time accumulation on APP Z2: Accumulate on APP five times to draw for iPhone SE (a limit of 10 customers)	4.47	4.1%	17.0%	10.1%

Table 3: Results of conjoint analysis (cluster analysis)

Strategic Attribute	Gender		Clustering by new technology or new service			
	Male	Female	Early User	Early Majority	Late Majority	Laggard
X	39.68%	45.12%	45.32%	45.43%	39.07%	44.38%
Y	26.79%	25.78%	30.91%	25.08%	27.59%	23.78%
Z	33.53%	29.00%	23.77%	29.49%	33.34%	32.34%
Pearson's R	.987	.998	.972	.997	.996	.973
Kendall's tau	.929	.929	.909	1.000	.909	.857

Table 4: Part-worth utility of the groups in conjoint analysis

	X1	X2	X3	Y1	Y2	Z1	Z1	constant
Male	0.226	-0.387	0.161	0.462	-0.462	0.670	-0.670	4.443
Female	0.338	-0.065	-0.273	0.313	-0.313	0.693	-0.693	4.416
Early User	0.193	-0.478	0.285	0.704	-0.704	0.382	-0.382	4.452
Early Majority	0.531	-0.161	-0.370	0.505	-0.505	0.666	-0.666	4.367
Late Majority	0.058	-0.051	-0.006	0.065	-0.065	0.736	-0.736	4.486
Laggard	0.061	-0.198	0.138	0.211	-0.211	0.859	-0.859	4.485

CONCLUSION AND SUGGESTIONS

The competition between convenience stores in Taiwan is intense, so how to ensure market share through loyalty programs has become an important managerial task for convenience store operators, and increasing consumers' repurchase rate by holding bonus point collection activities has become the most important marketing event for convenience stores in Taiwan. FamilyMart is the first to offer bonus point collecting on APP. In addition to diversifying bonus point activities, the method of APP also allows convenience stores to gather consumption information on members for further mass data analysis in the future. This study describes the types and current situation of the APP bonus point collection service of FamilyMart, and constructs the factors influencing consumers' in their choice of APP marketing activities by using the method of conjoint analysis.

In the aspect of strategic attributes, the results of analysis conducted after the degrees of significance were ranked indicated that "gift" was the feature most favored by consumers, followed by "lucky draw" and "bonus point". As for gifts, the order of consumer preferences was "one small latte", "one small Coca-Cola" and "two tea eggs". For the attributes of "bonus point" and "lucky draw", the types favored the most by consumers were "earn 300 points for first time accumulation on APP" and "accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)". We discovered from the analysis on different strategic portfolios that the marketing portfolio with the highest score was: "gift strategy: one small latte; bonus point: earn 300 points for first time accumulation on APP; lucky draw: accumulate on APP five times to draw for 30 small lattes (a limit of 200 customers)". The analyses of max utility, BTL and Logit all indicated that this was the most popular strategic portfolio among consumers. In addition, this study found through cluster analysis that people of different genders or market segmentations vary in their preferences for different attributes and approaches of the activity. Thus, we suggest, when establishing marketing tactics, the marketing executives of convenience stores should consider the traits of the targets (e.g. male or female, early user or late majority) of each marketing activity to make plans for APP bonus point collecting events.

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