

ACCESS ANALYSIS OF MONTHLY-CHARGED MOBILE CONTENT PROVISION

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ABSTRACT

Customer retention is a critical challenge for mobile content providers. This paper presents an access analysis aiming at prolonging the subscription period of the users. First, the incentive system adopted by a quiz content site is evaluated based on the trend of users' subscription and gaming activity, through which the target segment for customer retention is identified. Secondly, some of the findings from the user survey were materialized through a change of the rules in the site, which decreased the number of unsubscribers and resulted in a significant increase of subscribers.

INTRODUCTION

The mobile content market, which has been expanding rapidly since around 1998, is said to have become a 300 billion-yen market. NTT DoCoMo's annual turnover from the content fee has exceeded 120 billion yen. There is no other country or region in the world other than Japan where the mobile content market has grown so eminently. We can think of several reasons but the price difference in particular is significant. In other words, (1) the combination of a fixed monthly content fee and a variable packet charge is reasonable for the users and (2) the commission charged by the carriers for collecting the content fee is very low at 10%, which prompts the participation of content providers. However, the users actually have to pay a large sum of packet charge and the share of monthly content fee of the total payment is extremely low. Also, the carriers only collect the monthly content fee as an allocation for the content provider. Content providers must therefore carry out an effective marketing to attract more users and prolong the subscription period per user. In this paper, we will make an access analysis for retaining

the users effectively from the viewpoint of the content provider.

The authors of this paper have been providing quiz game contents (hereinafter referred to as the content) on the official menus of three domestic carriers since 2002. An incentive has been set as part of the rules involving the game, for prolonging the subscription period in the monthly charged system. This paper (1) evaluates the effect of this incentive system through an access analysis and (2) conducts an analysis and survey of the prime reasons for unsubscribing, takes an action based on the findings and evaluates the effect.

OUTLINE OF THE GAME

Game Provision

The game is provided through three mobile carriers. It is provided in the Web system although there are minor differences according to each carrier.

Game Rules

The game is provided in the form of quiz, and one game consists of 15 questions. If the 1st question is answered correctly, the player will receive 10,000 points, and the points double every time the player gets a correct answer. It is possible to acquire 10,000,000 points if the player answers all 15 questions correctly. On the assumption that a number of players will be able to score full points, as it is easy to cheat through a mobile phone, we count not only the points but also the time required to answer the question into the final score.

Game Fee

The content fee is JPY 180 per month. The packet charge is about JPY 3.5 per 1 quiz = 1 page.

The maximum number of games that can be played per month is set at 150. For instance, if the average number of quiz achieved in one game is 8, a total of 10 pages,

including the page before and after the game, will be forwarded per game and therefore the packet charge will amount to about JPY 35. If the player plays the game 150 times a month, it will cost JPY 5,250 per month (JPY 5,430 including the content fee).

INCENTIVE FOR RETAINING LONG-TERM SUBSCRIBERS AND ITS EFFECT

Concept of Incentive Provision

In order to prompt more users to subscribe, we provided a prize to the leading scorers. The cost of the prize is limited by the Law for Preventing Unjustifiable Extra or Unexpected Benefit and Misleading Representation, to under 20 times the cost of the product. If we apply this law to the monthly fee of JPY 180, the limit cost of the prize will be JPY 3,600, which can hardly be considered as an attractive prize. Therefore, we increased the cost of the prize by adding up several months of fees and targeting only the continuous subscribers. Next, we decided how to select the winners – by competition or through random selections such as lottery. Considering the nature of the contents, it was decided that the competition system would suit better and that the incentive system should follow this principle. It was also decided that the ranking should be defined according to the score and the time required to answer the question correctly. Furthermore, four levels of ranking—1st stage (lowest stage) through 4th stage (highest stage)—were set up and the prizes were given to the leading scorers in the highest stage only. The ranking is announced at the end of each month and only the top 20% players of each stage can move up to the next stage. Therefore, it takes at least 3 months to move up to the 4th stage. According to a rough calculation, less than 1% of the users are able to move to the 4th stage in the 4th month.

Analysis of Users and Aspect of Each Stage

In figure 1, the number of users categorized by age and stage is distinguished by according to the length of subscription period (less or more than 4 months). The largest number of users belongs to the 1st stage, and the number of users declines toward the higher stage. If we look at the subscription period, users with the subscription period of 5 months or more are gathered in the 2nd stage and above. The share of subscribers in their 4th month account for less than 3% of the subscribers in the 4th stage. The largest age group is the users in their 20s, followed by teenagers, then those in their 30s. This is especially preminent in the first stage. However, the age span rises

toward the higher stage, with teenage subscribers disappearing and age groups of 30s and 40s gaining ground. This is a distinctive feature that can be seen in quiz games where knowledge is essential for playing the game.

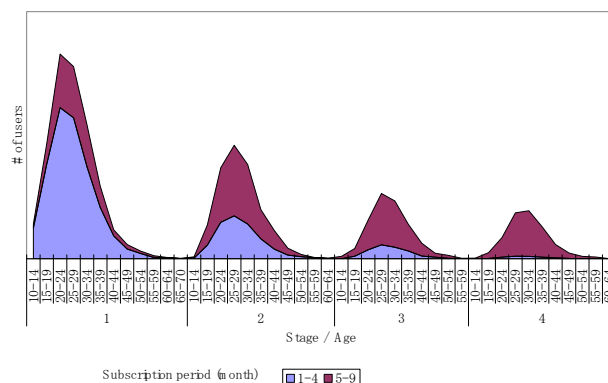


Figure 1: Stage and age distribution of subscriber

Game Count Pattern for Each Stage

Figure 2 indicates the number of games played per month by users in each stage. The game count for 1st and 2nd-stage users in their 1st and 2nd month of subscription is extremely high. Meanwhile, the number of users narrows down as the stage becomes higher and as the period of subscription prolongs. There are, however, heavy users in the higher stages. Therefore, for instance, although the number of users in stage 1 is 10 times that of stage 4, the game count in stage 1 is only 5 times higher than the count in stage 4.

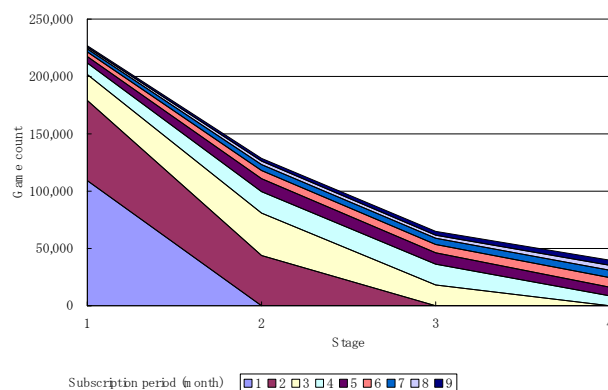


Figure 2: Total game count per stage

Let us look at the game count for each stage. Figure 3 shows the subscription period and the monthly game count of each user with the horizontal axis while distinguishing the game count of users in different stages by colors. As the subscription period becomes longer, the absolute number of users declines. Meanwhile, the total game count increases toward the right side within each subscription period. Therefore, the mountainous curve slanted toward

the right indicates that there are many heavy users that play until the limit in the corresponding subscription period. There are especially many heavy users among the subscribers in their 2nd to 4th month of subscription. Meanwhile, the mountainous curve of the first subscription month is slanted toward the left, meaning that a large number of light users are raising the game count. Also, as the subscription period lengthens, the structural ratios of the upper stages become high. This means that there are dropouts and unsubscribers along the way. From these facts, the following four types of user segment can be acknowledged.

- 1) Quiz mania (competitive users aiming for prizes)
- 2) Enthusiastic/unsubscribers (play many games but give up after 3-4 months)
- 3) Unconstraint users playing to kill time (play less game but continue for long period of time)
- 4) Short-term members (quit without playing much)

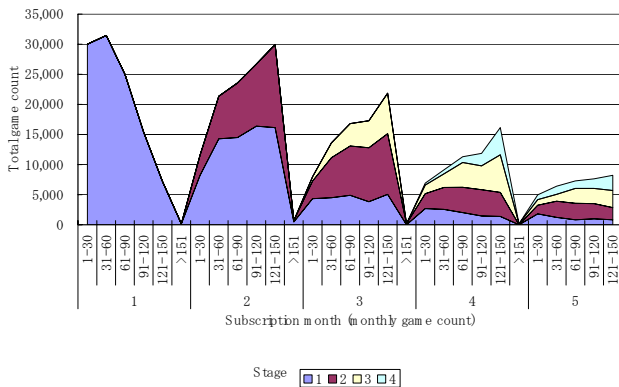


Figure 3: Total game count per subscription period and monthly game count of each user

Players that become one of the leading players in the 4th stage are limited to game manias (refer to 3.4). Players that discover the presence of these manias are the ones that unsubscribe in the 3rd and 4th stage. On the other hand, there are players that remain in the 1st-2nd stages and continue to subscribe for a long period of time—those who we refer to as unconstraint players. Lastly, there are the short-term members who play only a little and unsubscribe within one month. This type of players occupies the most share, and if we can prompt them to become enthusiastic players, the effect would be extremely high.

Evaluation of Incentive System

Figure 4 shows the ratio of (1) average subscription months, (2) game count, (3) age of users, (4) monthly unsubscription rate and (5) number of users in each stage. The values for the 1st stage are set to 100. The curves represent (1) through (5) from top going down. In the 4th

stage, the subscription period (1) increases by 3 times, the game count (2) rises by two times and the unsubscription rate (4) declines by half, indicating the soundness of the heavy users. The age of the players (3) is also about 20% higher in stage 4.

We found out that the trend of (1), (2) and (3) in the higher stages prompts competitive users as we had initially aimed, while contributing to retaining long-term subscriptions. This incentive system can therefore be basically considered as effective.

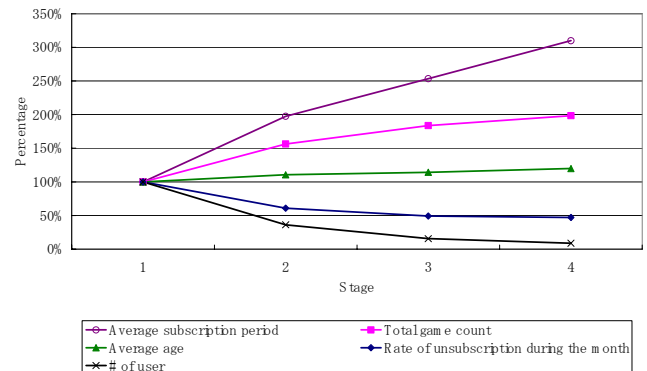


Figure 4: Comparison of stages

If we can increase the ratio of users in the higher stages in the future, we can expect a favorable influence in the overall subscription period. In other words, it will be extremely effective if we can develop a system that can maintain these favorable trends while gradually easing the conditions for players to move up to the next stage in order to increase the ratio of users in the upper stages. To achieve this, we must reduce the number of unsubscription during the 1st-3rd month of subscription in the 1st and 2nd stages that include the largest number of subscribers (to be explained later). We must therefore ease the conditions limiting the players to move upward or add a random ingredient to the incentive. For instance, enabling 1st and 2nd-stage players to move up by good effort or luck even if they do not have the actual ability to move up, or providing a system where some kind of prizes can be obtained in the lower stages as well. However, this will have an adverse effect on the users, although minor in number, that have already moved up to the higher stages. We must therefore make changes in gradual phases.

Adverse Effect of Competition

We have so far explored the quantitative issues but there is another issue that must be considered—the prizes are repeatedly won by certain quiz manias. These quiz manias that move up the stages in a short period of time by answering all the questions correctly in a surprising fast speed, occupy the top rankings, and obtain the prizes most

of the times. As we have chosen to give out the prizes through a competitive system, this is somewhat unavoidable. But it is our constant source of worries as there are many cases where general users unsubscribe when they feel that ‘they cannot compete with the manias (to be explained later).

FACTOR ANALYSIS AND COUNTERMEASURES OF UNSUBSCRIPTION

In order to clarify the cause and reduce the number of unsubscription, we examined the possibility of foreseeing future unsubscription by analyzing the quantitative information such as the shift in game counts. Next, we conducted a questionnaire survey to the unsubscribers and carried out the most effective countermeasures that can be conceived from the result and evaluated its effect.

Quantitative Evaluation of Unsubscription Reasons

By referring to the Churn Analysis Model [Berry] of mobile carriers, we checked if it is possible to predict future unsubscription by analyzing information such as the decline of game count and subscription period.

We tried data mining methods such as the decision tree, but could not obtain a sufficient result and therefore an exploratory data analysis was utilized.

The game count for n-2 month and n-1 month of members at a certain point of time (referred to as n month) were extracted per user, and the difference in the game count of players that unsubscribe in n month or n+ 1 month from that of other players were compared. The analysis carried out in a certain month in 2002 is shown in figure 5.

During the first 3 months of subscription (horizontal axis), the game count increases from the previous month, possibly because none of the players have reached the 4th stage. However, when they reach the 4th month, the game count shifts to a downward trend as the players begin to realize the difficulty of moving up to the 4th stage. The game count continues to decline gradually although the decline rate narrows down after the 4th month. In the months after the 5th month, the decline rate of the game count between the unsubscribers and the others begin to take a different track. Although there is an error of about 10 games due to the fluctuation that occur when changing the n month, it can be considered as one of the indexes that indicate unsubscription in the near future.

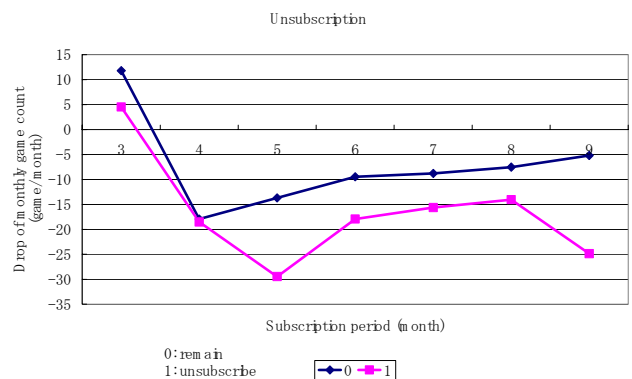


Figure 5: Bigger drop of monthly game count implying higher rate of unsubscription.

Questionnaire Survey of Unsubscribers

It is possible to insert a questionnaire in a series of Web screens that the users go through during the unsubscription procedures. The reason for unsubscription was asked with following multiple choices and a field for entering the text was provided in the questionnaire:

- A) Do not use it anymore
- B) Too few prizes
- C) Unable to win
- D) Discontent with the quiz
- E) Bored with the quiz
- F) Game count limit (5 per day) is too few
- G) Too few Fastest Finger quiz
- H) Have a hard time with the connection
- I) Content fee (JPY 180) is too expensive
- J) Packet charge is too expensive
- K) Poor support service

As a result, four reasons—A, C, F and J—were chosen the most. As mentioned in 3.3, we can expect to achieve the biggest effect by reducing the number of 1st and 2nd-stage unsubscribers in their 1st to 3rd month of subscription. Stratification of the result by focusing on this point is shown in figure 6. The prime reason for users unsubscribing within their 1st month of subscription was “(F) Game count limit is too few”, but unsubscribers in their 2nd and 3rd month of subscription indicated “(J) Packet charge is too expensive” and “(A) Do not use it anymore” as their prime reasons. First-month users tend to have the desire to play the game repeatedly because their scores are still low and complain about the game count limit, but it seems that the complaint soon shifts to the expensive packet charge.

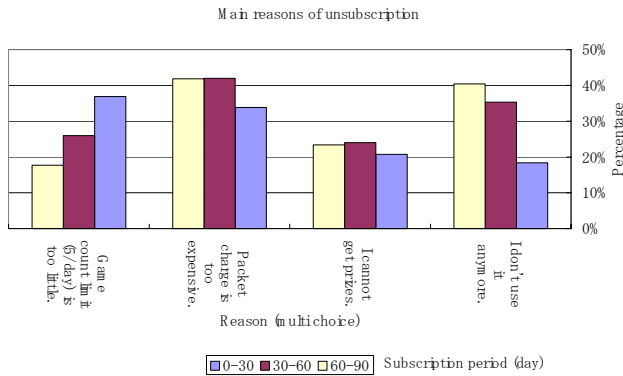


Figure 6: Survey result

As for the limit indicated in the “F) Game count limit is too few”, the limit was set to prompt long-term subscription and so that the players do not get bored with the questions.

Countermeasures and Its Result

The game count limit was changed from 5 plays per day to 150 plays per month. Also, the percentage of players that can move up to the next stage was eased from 20% to 25%. Figure 7 shows the number of subscribers and unsubscribers during 2 months before and 1 month after the change. The number of unsubscribers was reduced to half (over the preceding month) immediately after the change, which possibly had the influence on the increase of subscribers. We believe that the news spread by word of mouth. The number of game count also surged, increasing by as much as 3.5 times (over the previous day) on the day after the change was made. The surge hit the peak in the middle of the month but the cause is still unclear.

When comparing the averages of the two months before the change and the month following the change, the number of subscribers increased by 15% while the number of unsubscribers declined by 10%, increasing the net number of members by 2.83 times. If we look at the result according to each stage, 70% of unsubscription decrease was seen in the 1st stage and 20% in the 2nd stage, which was close to our initial target.

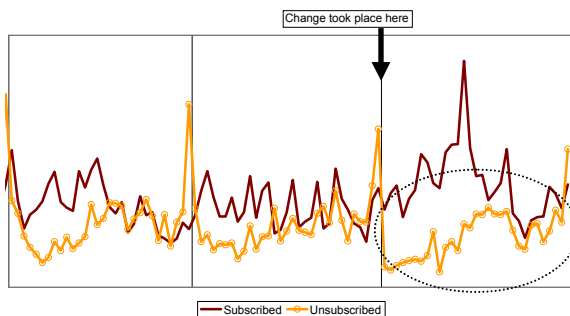


Figure 7: Daily subscribed / unsubscribed

CONCLUSION

As a result of analyzing the incentive system—which we had set up to increase the subscription period—from the attribution of users and from the access trend, we were able to find out that it had an effect of securing a stable heavy-user group and also contributing to prolonging the subscription period. We also discovered that we must target the “short-term unsubscribers”. When we analyzed the main factors for unsubscription, it became clear that a decline in the game count after 5 months of subscription indicates the possibility of future unsubscription. Lastly, as the result of taking actions based on the prime unsubscription factors revealed from conducting the unsubscription questionnaire, we were able to achieve a dramatic effect of 10% decline in the number of unsubscribers over the precedent month.

REFERENCES

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