Characteristics of Dual Product Users: The Case of Mobile Phone Market

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Abstract: The mobile phone market in Japan has a particular type of user, called a “dual product user,” who uses multiple mobile phones. Compared with other mobile phone users, dual product users possess a high level of consumer knowledge regarding mobile phones. Their ability to process information based on their high level of consumer knowledge may enable them to use multiple products. In fact, during our survey, the mobile phones (iPhones, other types of smartphones, and feature phones) had quite diverse characteristics. In addition, dual product users tended to use mobile phones for gaming. This is likely due to the high telecommunications fees levied on smartphones in Japan as well as the complicated structure of these fees. In assessing these characteristics, users with a high level of consumer knowledge consider their own patterns of usage when using multiple mobile phones for different purposes. These findings will increase the potential for marketing to target those with a high degree of such knowledge.

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1. Introduction

The diffusion of smartphones in Japan began in earnest with the launch of the iPhone. However, this diffusion led to the focus on certain types of users. These users are called “dual product users” (DPUs) because they own simultaneously two different types of mobile phone. For example, DPUs use a feature phone and a smartphone or use two types of smartphones, an iPhone and an Android phone. This study conducted a questionnaire survey of consumers to analyze consumers’ knowledge of mobile phones in particular. The results of the analysis revealed that consumers who own multiple products at any one time possess a high degree of knowledge.

The structure of this paper is as follows. First, we introduce existing research on product knowledge (e.g., Alba & Hutchinson, 1987) and mention literature and data on Japanese mobile phone market. Second, we describe the method of analysis in this study, after which results of the analysis are presented. Finally, the results of the analysis are interpreted, and the contributions and limitations of the study are discussed.

2. Literature Review

Mobile phone market in Japan

First, we overview the mobile phone market in Japan. As feature phone specifications in Japan have improved, new e-mail and camera functions have been added consecutively (Morishima,
2006). However, iPhone and other smartphones have replaced highly functional feature phones. Accordingly, A Nikkei BP Consulting survey (2014) provided some interesting findings. This survey revealed that 7.7% of all mobile phone users own more than two mobile phones. Of those users with multiple mobile phones, 22.1% had multiple smartphones, and approximately 56.6% of this group had both of these. Studies, such as Rogers (1962), have assumed that in a durable goods market, one consumer essentially owns a branded good. Therefore, the fact that the mobile phone market in Japan has users who own multiple products is interesting.

To examine the characteristics of these consumers, this study first defines a DPU as a person who simultaneously owns and uses different types of mobile phones (feature phones, iPhone, and other types of smartphone). We then clarify the characteristics of these users and explain the reasons for the occurrence of this phenomenon.

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This study conducts an analysis from several perspectives to uncover the characteristics of DPUs. Gender and age are essential characteristics. Another important factor is consumer knowledge (e.g., Alba & Hutchinson, 1987, 2000). In marketing theory, consumer knowledge is considered to significantly influence consumer buying behavior (e.g., Katsumata & Nishimoto, 2016; Nishimoto, 2015; Peter & Olson, 2010; Wada, Onzo, & Miura, 2012). Therefore, this study focuses on consumer knowledge, which is also useful from the perspective of deriving the implications of corporate marketing activities.

Some previous studies have indicated that consumer knowledge

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1 Approximately 39.8% primarily used smartphones, and 16.8% primarily used feature phones (Nikkei BP Consulting, 2014).
impacts consumers’ information processing (e.g., Nishimoto, 2015). Users who possess a high level of consumer knowledge can easily process information related to those products (e.g., Nishimoto, 2015). In other words, users with a high level of consumer knowledge may be able to rapidly deal with and process information on the details of products. Therefore, they can selectively use these products simultaneously. This study uses the aforementioned factors of gender, age, and consumer knowledge in its analysis.

3. Comparing DPUs’ Consumer Knowledge with That of Other Users

Research target

This study focuses on the mobile phone market in Japan. The survey research was conducted in 2013. The number of respondents was 700. Of this, 56.1% were male and 43.9% were female, with an average age of 46.49. This study identifies the characteristics of DPUs using the results of the survey.

First, we defined usage patterns for mobile phones. Respondents who owned an iPhone were defined as “iPhone users.” Respondents who owned Android and other types of smartphones were defined as “other smartphone users.” Respondents who did not have either an iPhone or other smartphone but responded that “a feature phone (i.e., traditional mobile phone) is my most frequently used mobile phone” (we consider that these respondents “own” feature phone) were categorized as “feature phone users.” Of these three types of mobile phone (feature phone, iPhone, Android and other types), those who used two or more of these types were defined as DPUs. Those who responded they used none of the above were “non-users.” We then conducted an analysis focusing on the differences in characteristics among these five consumer groups.

Based on existing research on consumer knowledge (e.g., Akiike &
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Katsumata, 2016b; Brucks, 1985; Mooreman, Diehl, Brinberg, & Kidwell, 2004), we surveyed respondents on the following three statements.

“I think I have more knowledge than other people regarding mobile phones in general,” “I am confident that I have more knowledge than other people regarding mobile phones in general,” and “I am confident that I understand information regarding mobile phones in general.”

Responses to these statements were scored on a seven-point Likert scale and treated as synthesized variables (Cronbach’s α = 0.973).2

Research results

To analyze the differences in characteristics among user types, we examined the frequency distribution of each variable and compared the frequency distributions of DPUs with those of other users. In the frequency distribution of consumer knowledge, we observed that DPUs were more inclined than other users to have consumer knowledge (Figure 1). However, as shown in Figure 1, some users responded that they had almost no consumer knowledge. These users possessed a low level of consumer knowledge regarding mobile phones. It is possible that they are required to use multiple phones in their work. In addition, the DPU’s distribution for age is bimodal (Figure 2). This is perhaps due to financial issues. Users with sufficient money may have the capability of owning multiple mobile phones regardless of their degree of consumer knowledge.

The results were compared by using the t-test for each user level (gender is compared by the chi-square test). Table 1 presents DPUs had a higher proportion of males than mere smartphone user and feature phone user significantly. No significant difference was observed among users in terms of age. However, the age distribution

2 All were calculated with “Strongly agrees” as a 7 to “Does not agree at all” as 1.
of DPUs was bimodal, and the average age of iPhone and other smartphone users was lower than that of DPUs overall.

There is possibly a work-related reason for this result, as has
already been discussed. Then, we focused on the results of consumer knowledge. Table 1 presents that DPUs have a higher consumer knowledge than other users.

Table 1. The average of knowledge, female ratio and age

|                  | frequency | knowledge | female ratio | Age  |
|------------------|-----------|-----------|--------------|------|
| Dual product user| 31        | 4.16      | 25.8%        | 45.68|
| iPhone user      | 92        | 3.14      | 40.2%        | n.s. |
| Other smartphone user | 177   | 2.90      | 46.3%        | 42.63|
| Feature phone user | 333   | 2.04      | 49.9%        | n.s. |
| Nonuser          | 67        | 1.60      | 40.3%        | 49.67|

Note: n.s.: p ≥ 0.1, *: p < 0.1, **: p < 0.05, ***: p < 0.01.

Source: Created by author from survey data.

4. Reasons for the Existence of DPU

Based on the findings of this analysis, DPUs possess a higher level of consumer knowledge than other users, and they may use this knowledge when deciding the phone to be used. To consider the reasons for such selective use, we examined the product specifications for mobile phone models sold in 2012, the year before the questionnaire survey was conducted (Table 2). Table 2 presents that the mobile phones sold at that time (feature phones, iPhones, and other smartphones) had varying specifications. For example, the iPhone had no FeliCa functionality, and feature phones had the longest continuous battery time. In other words, each product had functional tradeoffs, and the situation required the use of multiple mobile phones for resolving those tradeoffs. Given that situation, normal users would perhaps select a single phone. However, those
users with a high degree of consumer knowledge would be more likely to combine products based on their own knowledge to get the most functionality out of their phones.

We also used the data from the questionnaire survey to analyze the usage patterns of each user (number of calls, number of e-mails, game playing frequency, etc.). These survey questions were based on familiarity (Katsumata & Nishimoto, 2016). The responses for each question used a Likert seven-point scale. Questions were as follows: for number of calls, “I make more calls than other people”; for number of e-mails, “I send more e-mails than other people”; for frequency of communication tools, “I use communication tools (SNS, Line, etc.) more frequently than other people”; for frequency of games, “I play games on

Table 2. The average of different type of mobile phone specifications

| Number of sample | Felica | Camera (Million pixel) | Time  |
|------------------|--------|------------------------|-------|
| iPhone 5         | 1      | No                     | 800   | 225   |
| Other smartphone | 64     | 77%                    | 880.6(average) | 406.2(average) |
| Feature phone    | 18     | 56%                    | 594(average) | 547(average) |

Note: These data have been aggregated from the various specs for phone models sold in 2012 according to the website Keitaiall (http://keitaiall.jp/), as gathered from manufacturers’ (Fujitsu, Panasonic, LG, Samsung, Sharp, NEC, Kyocera, Motorola, Dell, Apple, Sony Ericsson (Sony), Toshiba, Pantech, Huawei, Casio, HTC, Research in Motion) and carriers’ (NTT Docomo https://www.nttdocomo.co.jp/, au http://www.au.kddi.com/, Softbank http://www.softbank.jp/mobile/, Willcom (Y! mobile at the time of this research) Emobile (Y! mobile at the time of this research) http://www.ymobile.jp/index.html, Disney Mobile http://www.disney.co.jp/mobile.html) websites as well as from Keitaiall itself. Feature phones include personal handy phones (PHS phones).

Source: Created by author from each web site (ketai all, each carrier, each mobile phone maker).

3 All were calculated with “Strongly agrees” as a 7 to “Does not agree at all” as a 1.
my mobile phone device more frequently than other people”; for frequency of replacement, “I replace my mobile phone more frequently than other people”; and for data traffic, “I use more data per month on my mobile phone than other people.” Table 3 shows that DPUs tend to play games more frequently, replace their phones more frequently, and use more data than other users. Based on the results of this analysis, we can see that DPUs use high volumes of data for games and other purposes.

From these results, we can assume that for gaming, DPUs use
mobile phones with plans that allow large volumes of data usage, whereas for calling, they use other mobile phones that do not have such plans. Telecommunications rates for mobile phones in Japan are known to be low for feature phones but high for smartphones (Ministry of Internal Affairs and Communication, 2014). In addition, fee structures are complicated (Nikkei BP, 2012). It is highly likely that users with a high degree of consumer knowledge possess knowledge not only of the mobile phones themselves but also of the rate plans. Based on this knowledge, these users can use their mobile phones by combining the rate plan. In any case, differences about their mobile phone usage patterns between DPUs and other users appears to exist.

5. Conclusion

This study analyzed the characteristics of DPUs, who own and use multiple mobile phone devices. Results from research on the mobile phone market suggest that DPUs may use their high degree of consumer knowledge to deal with issues that involve the problems of mobile phone specifications and their patterns of usage resulting from such complicated and high billing rates.

Looking around us, we can see many instances wherein consumers own multiple durable consumer goods that are typically assumed to be limited to one per person. These consumers determine the type of mobile phone to be used by considering their purpose and mobile phone functionality. This study contributes to our further understanding of these types of users. Companies may design strategies that comprise modeling particular functionalities for these users or that provide services that are premised on the idea that users will own multiple products.

While this study makes several contributions, it also has limitations. First, feature phone ownership was not used as a direct
variable because of constraints on the survey questions. Second problem is the model’s rigor. Although the analysis of this study employed aggregate data and *t*-tests, future studies will require validation using a more robust model. Furthermore, more consideration should be given to innovation studies, such as user innovation (e.g., Ichikohji & Katsumata, 2014, 2016; von Hippel, 1976) and innovation diffusion theory (Rogers, 1962).

However, even when considering these limitations, the findings obtained from the analysis in this study constitute a major contribution to existing research and business management, and it is hoped that many more studies will be conducted in the future.

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