

Strategic Framework for Web² Mobile Marketing

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Abstract

The purpose of this study is to develop and present a strategic framework for mobile Internet marketing in the Web² environment. The Web² mobile Internet marketing is characterized by services, such as augmented reality and social network services. Considering the changes in the effects and types of advertisements in the mobile Internet, few studies of mobile advertisements have been conducted thus far in the Web² environment, including the cloud computing environment. Accordingly, this research aims to identify the relationships between importance and satisfaction and to uncover the characteristics of mobile advertisements through smart phones using the IPA (Importance-performance Analysis) methodology in the Web² environment. To induce the minimum required characteristics of a mobile advertisement in terms of the importance and satisfaction of IPA, Kano's model is applied to this analysis. The study also probes the relationships between the overall satisfaction and factors of each dimension of IPA through a regression analysis. As a result, this study presents four types of Web² mobile Internet marketing strategies. It was also confirmed that the maintenance reinforcement factors of the IPA dimension affect the degree of overall satisfaction. This study has implications for businesses and researchers preparing Web² mobile services and marketing.

Keywords: Web², mobile marketing, IPA, Kano's model, strategic framework

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1. Introduction

Recently, the advertising media has shifted from using conventional forms of media such as television and newspaper to digital advertising on the Internet and on mobile phones, as digital media has many advantages, such as a low cost of circulation, personalized differentiation, and easy measurability of advertisement effectiveness [1]. Furthermore, according to the introduction of personalized services with the development of cloud computing technologies, personalized marketing by interactions has become an important issue in the advertisement market. Among these services, the mobile advertisement is, even in its early stage, expected to be very profitable in the future. Juniper Research forecasts that mobile advertisements will occupy 1.5% of the total advertisement market sector, which is equivalent to US \$5.7billion, by 2014 [2]. In addition, the amount of advertisement profits through mobile devices is rapidly increasing compared to other forms of digital media [1]. With the recent advent of smart phones, these trends have spread with the increased utilization of diverse applications on these devices, inducing new business opportunities and profit opportunities [3].

Therefore, the purpose of this research is to create a strategic framework for mobile advertisements on smart phone in the Web² environment. Determining the important factors for the framework through analyses is another goal of the paper. To compare the characteristic marketing differences with the environmental change from wired to wireless given the advancements in these devices, the degree of importance and satisfaction between each type of media and between each item in every environment is analyzed through the IPA (Importance-performance Analysis) method. Kano's model is used in the analysis because the impact on overall satisfaction varies according to the importance and satisfaction of IPA as well. The relationships between items in each quadrant and the degree of general satisfaction are deduced in the analysis. As a result of this research, the significant differences in several dimensions are uncovered. These are maintenance reinforcement, emphatic improvement, gradual improvement and continuous maintenance. Also, it is confirmed that the minimum characteristics of the 'reality' are required and that the items in the quadrant of Maintenance Reinforcement of the IPA affect the overall satisfaction in case of users having low satisfaction levels. These findings are expected to have important implications to researchers and businesses preparing Web² mobile services and marketing.

2. Related Works

This section examines related studies to depict the characteristics of mobile marketing.

2.1 Internet Marketing

Internet marketing has increased phenomenally since 1994 with various marketing activities that now operate through the two-way communications between companies and consumers via online services [4]. The Web and mobile Internet originally had differences in a few dimensions. Internet marketing has the advantages of content (informativeness) and form (entertainment), which are important predictors of their value and effect. Particularly, Ducoffe (1996) presented a number of features - entertainment, informativeness, and irritation - and proved that they have an effect on advertising values and on attitudes. However, Ducoffe's study only concerned the features of advertisement. Research on comparisons of these features

should follow. The following features of Internet marketing were drawn based on previous studies.

First, ‘individuality’ refers to the degree of the provision of customized products, services, and information to satisfy the needs of individuals. Second, ‘connectivity’ is the degree of feeling connected through hyperlinks to discussion rooms and newsgroups related to personalized individual concerns [5]. The third characteristic, ‘reactivity’ refers to the degree of responses that the web site system enacts properly to user behaviors; it is the degree of the provision of feedback quickly and properly as regards the requirements among the communicating parties.

2.2 Mobile Marketing

‘Mobile Marketing’ refers to the work of marketing activities through a connection of mobile terminals with existing media channels [6]. One of the merits of mobile marketing is the realization of direct marketing to customers. Commonly, mobile marketing has gained popularity with Short Messaging Service (SMS), which offers direct communication with consumers anytime and anyplace through one-to-one marketing. Unique features, available through the mobility and personalization associated with handheld devices, deliver new types of applications for mobile marketing [7]. Mobile marketing had been enhanced by the high penetration of mobile devices, but Tsang proved that sending SMS advertisements to customers without prior permission could be detrimental [8]. Tsang et al. also indicated that consumers feel negatively toward mobile advertising unless they have specifically consented to it [7]. According to the findings of previous studies, three features of mobile marketing should be considered. First, ‘identification’ is one of the characteristics, as mobile devices have one intrinsic identification number per terminal [9]. Because a typical device belongs to a single individual, it can help identify the individual. Therefore, this can provide the important foundation for 1:1 marketing and becomes a useful tool with which to analyze the consumption behavior of the customer. Second, ‘reliability’ in the sense of marketing has become a fundamental factor for successful relations via the feeling of confirmation [10] as regards credit and integrity with the exchanging counterpart. Third, ‘participation’ is regarded as the largest gain from utilizing social media marketing [11].

2.3 Web 2.0

Web 2.0 has evolved from Web 1.0 with the development of information technologies and with changes in user demand [12]. Text-centered HTML documents, where information or services were produced by a few experts and users had to accept them unilaterally, were a hallmark of Web 1.0. However, after web sites began to provide services using diverse data on platforms with the participation of users, the Web 1.0 developed into Web 2.0. The founder of O’Reilly Media Incorporation and the well-known expert Tim O’Reilly first coined the term Web 2.0 by announcing it as interactions between the web and the world, that is, between a cyber-world and the real world. Then, as technology advanced and smart phones appeared, the mobile Internet became available. The increased amount of data has served as a catalyst for the development web applications. After the exponential expansion of Web 2.0, the term Web² appeared [13].

2.4 Smart phone and Web²

Web² includes augmented reality, location information, and social networks. It becomes a reality in itself instead of an aggregate of static HTML pages and rather than an arithmetical

increase to Web 3.0. With this smart phone technology, users can easily obtain useful information on their surroundings in real time and can manage their personal connections [14]. Also, their participation becomes more active due to Web² technology [13]. Applications using Social Network Service (SNS), Augmented Reality (AR), and Location-Based Service (LBS) rely on a significant amount of real-time response, interest, and management data. Smart phones have transferred web from offices to pockets [14].

2.5 Web² Mobile Marketing

The Web² era is actively inducing more participation with the prominence of the AR, SNS and LBS [8]. In contrast to three-dimensional computer images, AR combines virtual information, such as a user's location and other social information, in the network with the real world in real time to present the information by superimposing it on real images. For example, the Sekai Camera application of iPhone, information known as "air tags" is used to present letter information with photos of buildings, streets and objects. Through AR, SNS, and LBS, it has become possible to share information by exchanging contents and services in real time [13].

Thus, mobile marketing requires research on mobile Internet marketing in the Web² environment. The use of smart phones has spread consumerism, which emphasizes timeliness and customization. Moreover, through the concept of 'omnipresence', which is one of the most remarkable features of mobile marketing as it is possible to engage in real-time PR and marketing, we can perform various marketing activities to provide information on events while utilizing smart phones.

Skyhook Wireless classifies feasible business models on smart phones into five major types and attempts to determine whether there will be different types of business models for each [15]. From the standpoint of companies, according to which business model they select, their strategic directions are subject to change.

In the Web² era, as the major remarkable characteristic features concerning the application businesses, AR and SNS are the top two characteristic services currently in the spotlight. First, AR has currently come into the commercialization stage with the help of the recent advent of the smart phone, which has reinforced terminals with cameras, higher graphics processing capabilities, wireless communications with sufficient speed, and with GPS functions [16]. Apart from VR (Virtual Reality), which shows only virtual images, AR has the advantage of realizing rare types of information which cannot be gained only in the real world or by Virtual Reality.

First, AR utilizes the 'identification of location'. Mobile devices have the capability of identifying the user's location in real time [17]. As the potential usefulness of this will be very high, this can provide many business opportunities [5]. Location-based applications deliver advertising messages direct to users who are located near the products or services which are being advertised [14]. Second, the concept of 'omnipresence' can affect the purchasing intention of the consumers, as the devices can accommodate customized information [5]. Third, the 'reality' of a smart phone with a camera reinforces the user recognition by combining visual information with the surrounding environment. Marketing will be easier than ever by utilizing the visual real world and by combining reality with the imagination.

The second characteristic service in the Web² era, SNS, relies on the same concept of consumer participation in existing feature phones in Web 2.0. However, it has different aspects because it makes the service exquisite and combines the service with AR.

Table 1. App Types and Business Models

App Type	Description	Ideal Revenue Model	Are there any subdivisions of this app type?	Examples
Free	Apps available from app stores free of charge	Advertising	Advertising can be in the form of direct sponsorship by one brand or advertising provided by ad enablers or ad networks	Flixster
Freemium	Free apps with less functionality accompanied by a paid app with additional features	Revenue from upgrades	n/a	RunKeeper Free/RunKeeper Pro, GasBag /GasBag Pro
Paid	Apps that charge per download through app store	Revenues from downloads	Differentiated by price, with higher value-added apps at higher price points	Tweetie
Content Extensions	Apps that enhance existing service or product	Loss Leader, revenue generated elsewhere	n/a	Bank of America, Facebook
Sales	Apps through which you can buy a product or service	Profits from sales or affiliate commission	Can also be affiliate sales model	Shazam, Amazon, ShopSavvy

Source: Skyhook Wireless (2009)

3. Research Method

3.1 IPA Method

The IPA (Importance-performance Analysis) technique is an evaluation method that compares and analyzes simultaneously the relative degree of importance and satisfaction of each attribute of a specific service to users [18]. IPA identifies the relative degree of importance and satisfaction of company-controllable variables via the logic of improvement first of underperforming variables contrasted with the degree of importance. It interprets strategically the quadrants of maintenance reinforcement, emphatic improvement, gradual improvement, and continuous maintenance (see Fig. 1).

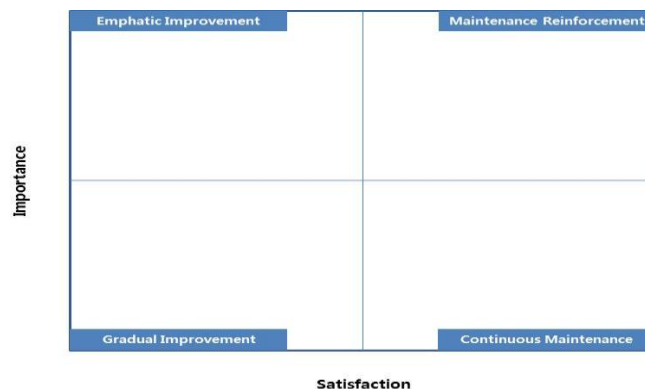
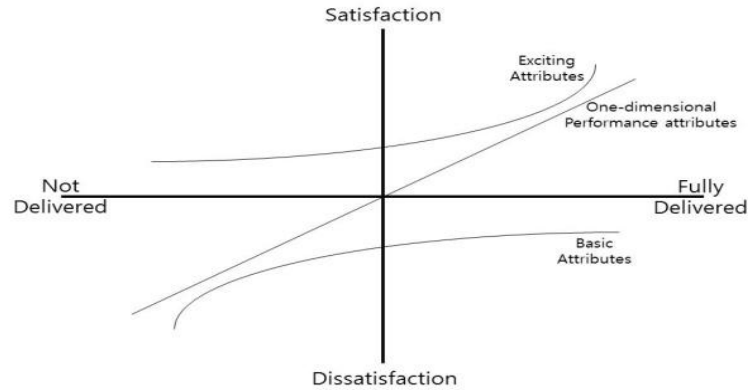


Fig. 1. IPA matrix

3.2 Kano's Model



Source: Busacca and Padula (2005)

Fig. 2. Kano's model

There are differences between the types of motivation which steer satisfaction and dissatisfaction among users. In other words, even if the bad experiences of users regarding a specific attribute of a product or service brings dissatisfaction, good experiences do not always bring satisfaction [19]. Kano et al. classified the attributes of products or service quality as basic attributes or 'dissatisfiers', performance or one-dimensional attributes, and exciting attributes or satisfiers [20]. As shown in Fig. 2, basic attributes refer to the minimum requirements that satisfy the users of products or services. Although this attribute does not bring clear satisfaction to users, unfulfilled cases raise their dissatisfaction levels. For instance, punctuality and safety are the basic attributes of an airline. Performance or one-dimensional attributes are the features that bring satisfaction or dissatisfaction to users according to the performance levels of these attributes. In the case of automobile fuel consumption, low consumption of petroleum brings satisfaction to users. Exciting attributes are the features that increase the degree of satisfaction among users if they are provided but do not cause dissatisfaction if they are not provided. The example of a 'one-plus-one' event in markets increases the satisfaction of some customers. Therefore, according to three factors of the Kano's model, the relationships between use' satisfaction and each attribute of a product or service can be explained as asymmetric [20].

4. Analysis Result

4.1 Descriptive Statistics

A questionnaire was composed on the basis of the precedent studies for this research. To examine the characteristics of Web² mobile marketing, we examined the services utilized on the smart phones. The questionnaire and a regression analysis were composed in order to test how advertisements are important and whether they satisfied smart phone users. Through previous studies, nine features of the Web and mobile devices are identified: 'identification', 'reliability', 'participation', 'individuality', 'connectivity', 'reactivity', 'identification of location', 'omnipresence' and 'reality'. The importance of the characteristics and the satisfaction levels with the features are identified as well. A five-point Likert scale is used for each factor; one for very unimportant or very unsatisfied and five for very important or very satisfied. The satisfaction of each platform is compared and the differences are tested. The

participants were 160 university students who use smart phones and have a good understanding of them. They were from two universities. We explained the purpose of the survey and the measurement items for this research. We conducted an IPA using SPSS on the 153 questionnaire items, excluding seven that showed errors.

The original sample consisted of 160 university students from Seoul and Gyeonggi-do. Seven were dropped from the study due to errors on the questionnaire. The demographic characteristics of the survey are shown in **Table 2**. The characteristics of the mobile advertisements in the Web² environment using the IPA and Kano's model are defined on the basis of the dataset.

Table 2. Descriptive Statistics

Respondents		Frequency	Percent (%)
Age	19~24	91	59.5
	25~30	62	40.5
Occupation	University Students	153	100
Sex	Male	80	52.3
	Female	73	48.7
Residence	Seoul	77	50.3
	Gyeonggi-do	69	45.1
	Other	7	4.6
Smart phone user status	Less than 6 months	19	12.4
	6 months~1 year	75	49.0
	1 year~1.5 years	48	31.4
	More than 1.5 years	11	7.2
Calling plan	General Plan	37	24.2
	Unlimited Data Plan	116	75.8
Mainly using network	Wi-Fi	70	45.8
	3G	83	54.2
Total respondents		153	

4.2 IPA Results

We used the IPA to determine the strategies according to the importance and satisfaction level of each type of media on desktops, existing mobile phones, and smart phones.

4.2.1 Results on Each Marketing Type

The degrees of importance and satisfaction in a wired environment are shown in **Fig. 3**. The variables of 'individuality', 'connectivity', and 'reactivity', which are considered as important in a wired environment, were also high in terms of the degree of importance and the degree of satisfaction compared to the other attributes. This likely demonstrates the characteristic differences between this form and the mobile environment. Although the applicability of the mobile Internet environment is regarded generally to be lower than that of a desktop computer, a wired Internet environment, the aspect of speed lags. However, it is considered to have strengths for the purpose of use in other respects.

Whereas participation, which is regarded as important in the mobile marketing environment, is important here too, it appears to be lower in terms of the degree of satisfaction compared with the other attributes (See Fig. 4). The use of existing mobile phones is known to be associated with ‘omnipresence’ more compared to other measurement items, implying that one can obtain and deliver the information desired via Internet access at anytime and anywhere. ‘Reality’, ‘participation’ and ‘connectivity’ exist in the quadrant where importance is high but satisfaction is low.

Maintenance Reinforcement: In the Web² mobile marketing environment, the data obtained from the information of user locations has stimulated the motivation of developers [21]. It is also stimulating the use of the mobile Internet among users. In this study, the ‘identification of location’ showed the most remarkable characteristic differences. Concerning the ‘individuality’, ‘connectivity’ and ‘reactivity’ factors, they are regarded as important in the wired Internet environment. The degree of satisfaction was slightly higher than in the existing form of mobile marketing. As the importance has increased, it clearly has become similar to that of the ordinary desktop environment.

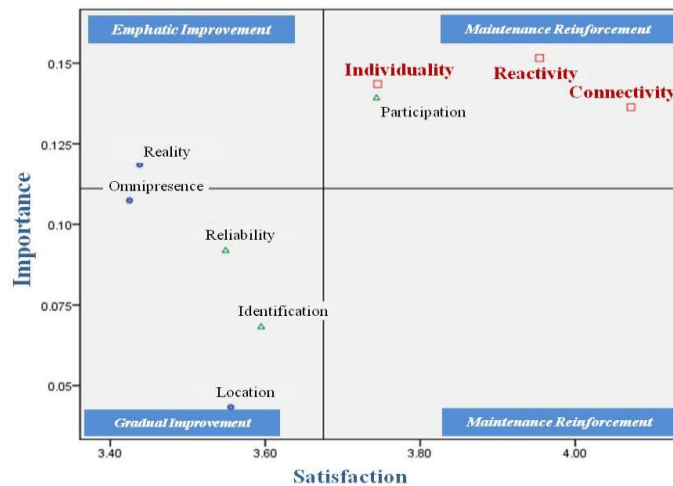


Fig. 3. IPA matrix for the Internet marketing

Emphatic Improvement: The ‘reality’ item for the AR of Web² is located in the sector of Emphatic Improvement. Even if the degree of importance is high, emphatic improvement is needed because the degree of satisfaction is low. Furthermore, because it has been improved more than it has in the existing mobile environment, it is the item of emphatic improvement for AR services that requires an upgrade. The ‘participation’ and ‘individuality’ factors, mentioned above, are also in this section.

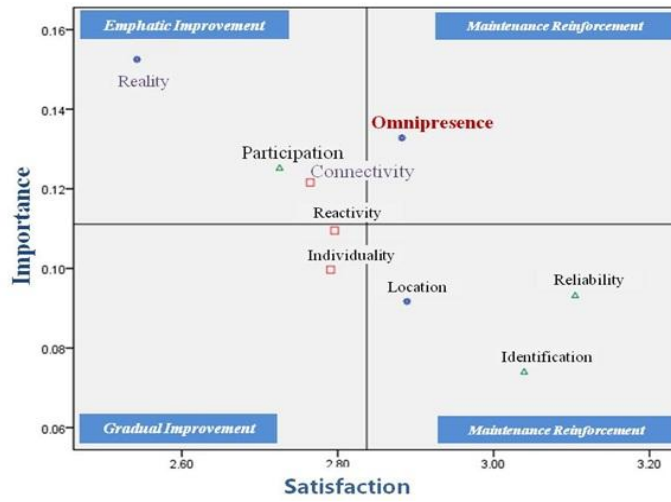


Fig. 4. IPA matrix for the mobile marketing

Continuous Maintenance: It was found that ‘omnipresence’ and ‘connectivity’ require continuous maintenance. The factor of ‘omnipresence’ shows the highest degree of satisfaction, although its degree of importance is very low. There is a plausible explanation for this: because most people are satisfied in the smart phone environment, its degree of importance is relatively low compared to the other items. The ‘connectivity’ factor as well has been reinforced compared to that of mobile phones.

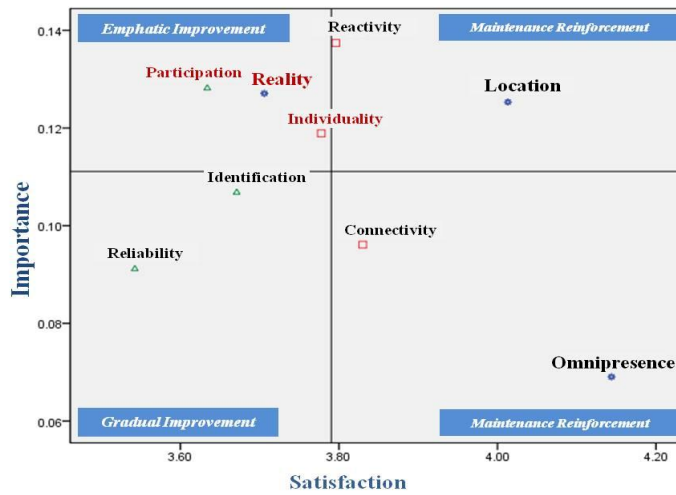


Fig. 5. IPA matrix for the Web² marketing

Gradual Improvement: It was noted that the degree of ‘reliability’ of the counterpart after identifying the person in the conversation and trading in the SNS environment and in the mobile Internet environment has been lessening. This is considered to be an item requiring gradual improvement to vitalize Web² marketing (See Fig. 5).

4.2.2 Results on Each Media

The importance between the items emphasized for each type of marketing and the differences in the degree of satisfaction among users were compared and analyzed. First, examining the ‘individuality’, ‘connectivity’, ‘reactivity’ of Internet marketing, ‘connectivity’ appears to be most important, as shown in Fig. 6. Concerning the degree of satisfaction, ‘connectivity’ had the largest values in terms of ‘individuality’. It was considered that the smart phone would lead in this regard. It was noted that the degree of satisfaction with existing phones declines on all counts.

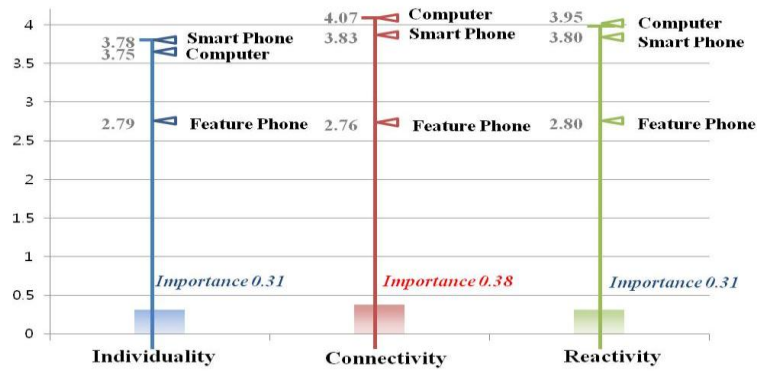


Fig. 6. IPA for each type of media for Internet marketing

In mobile marketing, as shown in Fig. 7, it was noted that ‘participation’, which emphasizes interaction with another person via SNS, is considered to be the most important aspect, even given the fact that the items emphasized in mobile marketing are higher in terms of the degree of satisfaction on desktop computers. However, it was considered that the characteristics of mobile marketing are emphasized by showing the lowest amount of difference overall in terms of the degree of satisfaction with existing feature phones.

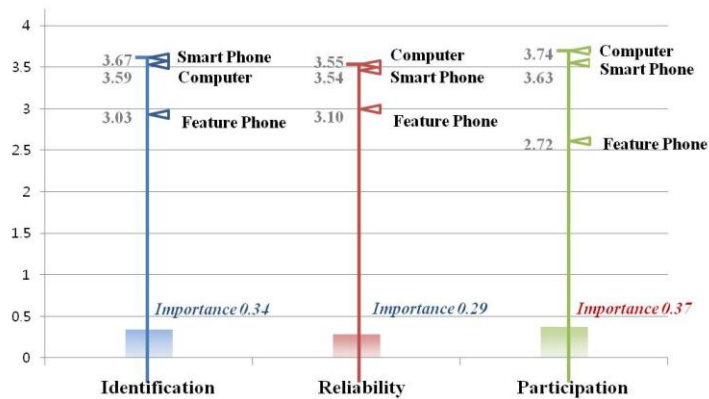


Fig. 7. IPA on each type of media for mobile marketing

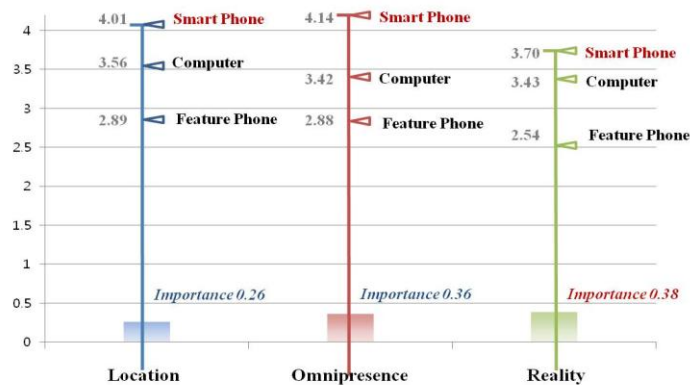


Fig. 8. IPA on each Media for the Web² Marketing

Concerning smart phones, which are regarded to be the major target in Web² marketing, the degree of satisfaction with the ‘identification of location’, ‘omnipresence’, and ‘reality’ factors, as shown in Fig. 8, was found to be much higher than it was on desktop computers. In particular, even if the ‘identification of location’ and ‘reality’ factors are items that are emphasized in the Web² era, existing mobile phones show a lower satisfaction level in terms of their use compared to a desktop computer.

4.3 Analysis through Kano’s Model

Kano’s model (Kano, 1984) distinguishes between three types of product requirements which influence customer satisfaction.

We adopt the methodology that Pezeshki et al. used to identify whether the features of mobile Internet advertisements through Kano’s model have an asymmetric relationship with the satisfaction levels of users [22]. However, in this research, we use the Pearson correlation instead of the regression coefficient to analyze the relationships between importance and the degree of overall satisfaction with the performance of each attribute. In IPA, as we consider the relative degree of importance, if we use the regression coefficient as in the case of Pezeshki et al. [22], it will be difficult to obtain precise results when applying the Kano’s model because statistical significance cannot be easily determined. Therefore, we should identify whether or not the degrees of importance are divided into three factors if the degree of importance is determined through methods other than the regression coefficient, as in Kano’s model.

We set up two sets of dummy variables according to the results of the degree of overall satisfaction, as in the case of Pezeshki et al. [22]. The first set of dummy variables denotes the basic attributes, and the second set represents the exciting attributes. The performance values of each attribute were recorded as a generally low degree of satisfaction (0, 1), a generally median level (0, 0), and a generally high level (1, 0). Thus, we present the following regression equations [22]:

$$SAT_{total} = a_0 + a_{1Att.1} X dummy_{1Att.1} + a_{2Att.1} X dummy_{2Att.1} + \dots + a_{1Att.n} X dummy_{1Att.n} + a_{2Att.n} X dummy_{2Att.n}$$

SAT_{total} : Overall Customer Satisfaction

n : Number of Quantity Attributes

a_i : The Incremental Decline in Overall Satisfaction Associated with a Low Satisfaction level

a_1 : The Incremental Increase in Overall Satisfaction Associated with a High Satisfaction level

$dummy_1$: Lowest Customer Satisfaction Level

$dummy_2$: Highest Customer Satisfaction Level

Table 3. The Asymmetric Impact of Attribute-level Performance Levels on Overall Satisfaction

Environment	Desktop		Mobile		Web ² Mobile	
	Low	High	Low	High	Low	High
Performance						
Individuality	0.260*					
Connectivity						
Reactivity						
Identification						
Reliability						
Participation					-0.449*	
Identification of Location	-0.573**					
Omnipresence						
Reality					0.325*	
R ² (F-value)	0.922 (49.088**)		0.927 (53.266**)		0.918 (46.612**)	

* $p < 0.05$; ** $p < 0.01$

According to the results shown in **Table 3**, the items assigned as basic attributes were found through an analysis to be specific to a desktop environment. Therefore, the ‘individuality’ of the desktop environment appears to be an attribute that can cause dissatisfaction in users if it is not fulfilled, although it cannot provide a high level of satisfaction. ‘Individuality’ as the attribute assigned to a desktop environment was found to be a minimum requirement when the degree of user satisfaction is low. In the existing mobile environment of feature phones, we did not find any basic or exciting items through the analysis. In the Web² mobile environment, ‘reality’ was found to be a basic requirement as a basic attribute. Given a high degree of overall satisfaction, there appears to be item that raises the degree of satisfaction much and does not draw dissatisfaction simultaneously. However, in the desktop environment, the item of ‘identification of location’, and in the Web² mobile environment, the item of ‘participation’ were found to be more fulfilled and showed generally lower levels of satisfaction. For the users who experienced generally low levels of satisfaction, if they dislike the disclosure of their location information, they may prefer to use the Internet on a desktop environment, and they may show reluctance to participate in communities in the Web² mobile environment.

4.4 IPA and the Degree of General Satisfaction

According to the analysis using Kano’s model, asymmetric items were very rare in this research. Therefore, we conducted a regression analysis, as shown in **Table 4**, to determine the items that influence the degree of general satisfaction regardless of the group classification and to identify the relationships between the items of each quadrant of the IPA and their degree of general satisfaction.

In the desktop environment, ‘individuality’, ‘connectivity’, ‘reactivity’ and participation were found to have a statistically significant influence on the degree of general satisfaction. According to the IPA results, these items are located in the quadrant of high importance, and

all showed high levels of satisfaction on each item. In the mobile environment, ‘reactivity’, ‘reliability’, ‘omnipresence’ and ‘reality’ were found to have a statistically significant influence on the degree of general satisfaction. In the IPA results, the quadrant where both importance and satisfaction are high contains the item ‘omnipresence’. In the Web² environment, ‘individuality’, ‘reactivity’ and ‘reality’ were noted to be statistically significant as regards their effect on the degree of general satisfaction. These items are also located in the quadrant where both importance and satisfaction are high on the IPA (‘individuality’ is an item which is close to the pertinent quadrant). Therefore, as the performance of the items in the Maintenance Reinforcement quadrant which show both high importance and high satisfaction becomes higher, the degree of general satisfaction was noted to increase as well.

Table 4. The Symmetric Impact of Attribute-level Performance on the Overall Satisfaction Level

Environment Performance	Desktop		Mobile		Web ² Mobile	
	Low	High	Low	High	Low	High
Individuality	0.233**				0.176*	
Connectivity	0.198**					
Reactivity	0.281**		0.182*		0.231**	
Identification						
Reliability			0.177**			
Participation	0.183*					
Identification of Location						
Omnipresence			0.175*			
Reality			0.353**		0.232**	
R ² (F-value)	0.414 (25.750**)		0.415 (26.076**)		0.232 (14.789**)	

* p < 0.05; ** p < 0.01

5. Conclusion and Implications

It is known that advertisers can be persuaded effectively by letting them identify who responsive customers to specific news or events are in mobile marketing. Thus, marketing has changed and now brings meaningful traffic with creative activity as opposed to existing traffic that generates an effect by achieving the maximized effect of advertisements by providing related information for customers of specific services. Related to this change, it is necessary to measure the items which are regarded as important by customers and their degree of satisfaction. This research sought to measure the important factors and the degrees of satisfaction, specifically the important factors in each type of media in the Internet environment, on wired devices, wireless means through an existing mobile phone, and wireless means through a smart phone, which is convenient for use and easy for visual decoding. Furthermore, because the influential relationships vary as to which affect the degree of general satisfaction according to the importance and satisfaction of IPA, we used Kano’s model to confirm these influences. We also investigated the relationships between the items in each quadrant of the IPA and the degree of general satisfaction. The implications from these results are discussed below.

As a result of the use of the IPA methodology, it was noted that inactivity in terms of the use of the mobile Internet was due to the failure of existing mobile phones in replacing the desktop

computer in the existing wired Internet environment. In addition, they appear inadequate to compete with the smart phone in the Web² mobile environment. From the standpoint of smart phone users, the degree of satisfaction with a smart phone in wired Internet marketing, mobile marketing, and the Web² marketing environment was close to that of the environment of a desktop - or rather ahead in some cases. However, because the IPA results in the Web² mobile marketing environment showed that 'participation', 'reality', 'individuality' should be items requiring emphatic improvement, and because these systems are at an immature stage for marketing to utilize the smart phone given this inactivity, these factors are becoming the necessary items for strategic control.

The results of the analysis by Kano's model show that even with a low satisfaction level of users, 'individuality' must be fulfilled on the desktop environment and the 'reality' must be fulfilled in the Web² environment. However, as the results of the analyses showed that the 'identification of location' aspect in a desktop environment and 'participation' in the Web² environment lower the degree of general satisfaction, further study is needed in that the users who experience low levels of satisfaction may dislike the features provided by mobile devices rather than the mobile device itself. Considering the relationships between the degrees of general satisfaction in each quadrant of the IPA, if the degrees of both general importance and satisfaction are high, the degree of general satisfaction then becomes high as well. To raise the degree of satisfaction by users, this study demonstrates that enterprises should fulfill the items of high importance above all.

To succeed in marketing utilizing the smart phone in the Web² and cloud computing era, it is necessary for us to provide distinguished services designed on the smart phone only in the context of function, design, and experience, recognizing it as a new method of marketing based on new media. This will become a good example for the recent advent of AR combined with SNS and this new technology, spurring its vitalization. It is the empirical result of this study that the PC on a handheld smart phone is connected in real time to Internet anytime, anywhere, having the feature of 'individuality' better than any other media. This type of feature on the smart phone will be recognized as a very attractive and powerful form of marketing media by companies who want to communicate with customers in the upcoming Web² era.

References

- [1] M.K. Suzanne, "Advertising Industry in the Digital Age," *Congressional Research Service*, 2009.
- [2] J. Research, "Mobile Advertising Delivery Channels, Business Models & Forecasts 2009-2014," 2009.
- [3] B.G. Lee, Y.H. Lee, S.J. Kim, "What is the Most Important Factor in Switching Blogs?," *International Journal of Web Based Communities*, vol. 7, no. 1, pp. 83-97, 2011. [Article \(CrossRef Link\)](#)
- [4] D.H. Lee, "Internet Marketing & Ads: Comprehensive Approach," *Ads Research*, vol. 8, no. 1, pp. 195-214, 1997.
- [5] D. Chincholle, M. Goldstein, M. Nyberg, M. Eriksson, "Lost or Found? A Usability Evaluation of a Mobile Navigation and Location-Based Service," *Human Computer Interaction with Mobile Devices*, 2002. [Article \(CrossRef Link\)](#)
- [6] C.W. Park, "Mobile Marketing-Moving Clients, Moving Marketing," *Sigma Press*, 2002.
- [7] M.M. Tsang, S.C. Ho, T.P. Liang, "Consumer Attitudes toward Mobile Advertising: An Empirical Study," *International Journal of Electronic Commerce*, vol. 8, no. 3, pp. 65-78, 2004. [Article \(CrossRef Link\)](#)
- [8] M. Salomon, "Would You Consider Using Online Virtual Worlds for Meetings,"

- Telecommunications Journal of Australia*, vol. 59, no. 3, 2009. [Article \(CrossRef Link\)](#).
- [9] R. Kalakota, M. Robinson, "M-Business: The Race to Mobility," *McGraw-Hill Trade*, 2001.
- [10] R.M. Morgan, S.D. Hunt, "The Commitment-trust Theory of Relationship Marketing," *Journal of Marketing*, 1994. [Article \(CrossRef Link\)](#)
- [11] KT Economic Research Ins., "Mobile App. Outlook on Carriers by AR Technologies," 2010.
- [12] S. Kurkovsky, K. Harihar, "Using ubiquitous Computing in Interactive Mobile Marketing," *Personal and Ubiquitous Computing*, vol. 10, no. 4, pp. 227-240, 2006. [Article \(CrossRef Link\)](#)
- [13] B.G. Lee, H.S. Seo, G.S. Byun, K.C. Park, S.K. Park, T. Kim, "Developing Security Assessment Models in Web² Mobile Environments," *Current Trends in Web Engineering*, vol. 6385/2010, 2010. [Article \(CrossRef Link\)](#)
- [14] T. O'Reilly, B. John, "Web Squared: Web 2.0 Five Years On," *Web 2.0 Summit Special Report*, 2009.
- [15] Skyhook Wireless, "Developer's Guide to In-Application Advertising," 2009.
- [16] D.Y. Chung, "Future Change by AR," SERI, 2010.
- [17] T.P. Liang, C.P. Wei, "Introduction to the Special Issue: Mobile Commerce Applications," *International Journal of Electronic Commerce*, vol. 8, no. 3, pp. 7-17, 2004. [Article \(CorssRef Link\)](#)
- [18] W.E. Hammit, D.N. Bixler, F.P. Noe, "Going Beyond Importance-Performance Analysis to Analyze the Observance- Influence of Park Impacts," *Journal of park and Recreation Administration*, vol. 14, no. 1, pp. 45-62, 1996.
- [19] S. Shiba, A. Graham, D. Walden, "A New American TQM, Four Practical Revolutions in Management," *Productivity Press*, Portland, OR, 1993.
- [20] N. Kano, N. Seraku, F. Takahashi, S. Tsuji, "Attractive Quality and Must-be Quality, English Transaction of the Article: 'Miryoku-teki Hinshitu to Atarima Hinshitu, Hinshitu'," *The Journal of the Japanese Society for Quality Control*, vol. 14, no. 2, pp. 39-48, 1984.
- [21] B.G. Lee, K.Y. Kim, C.H. Lee, K.Y. Chung, "Analyzing Value Networks for Creating Stakeholder Values in Mobile Communications Industry," *International Telecommunications Policy Review*, vol. 13, no. 4, pp. 183-213, 2006.
- [22] V. Pezeshki, A. Mousavi, S. Grant, "Importance-Performance Analysis of Service Attributes and its Impact on Decision Making in the Mobile Telecommunication Industry," *Measuring Business Excellence*, vol. 13, no. 1, pp. 82-92, 2009. [Article \(CrossRef Link\)](#)



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