

Analysis of Consumer Needs on 3G Services Based on Kano Model

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Abstract—Product designs come from consumer needs and the purpose of designing products which can satisfy consumers' demands. In order to have a better understanding of college students' needs to 3G services, it chose three representatives of 3G services and made a case study on it based on KANO model. Specifically, it designed KANO questionnaire about consumer needs, conducted a survey among college students in BUPT and distinguished basic quality factors, unary quality factors, and attractive quality factors. It concluded that efforts should be concentrated in improving Unary quality factors such as cell phone video service and also gave advice about how to promote cell phone video service and increase the number of users among college students, such as establishing strategic partnership with Internet companies, enriching content about video entertainment and so on.

Key words-3G services; Kano model; Consumer demands

1. Introduction

In our country, development of 3G businesses started late compared with Japan or some other developed countries and 3G brands are still on promotion. Focused on college students, fierce competition of 3G businesses has been conducted among three telecom operators. So it's quite necessary to have a better understanding of college students' detailed needs about 3G businesses.

Since 3G businesses started and three telecom operators began to promote their own 3G business brands, scholars made some case studies on 3G consumers and college students have become objects of study because of characteristics of pursuing fashion, easy to accept newborn things and having influence on other groups. Researchers mainly focused on these characteristics, conducted SWOT analysis and made marketing programs. The article would try to choose videophone, high-speed internet access, mobile videos to analyze consumer needs, thus providing the decision making reference for telecommunication operators.

2. Literate Review

Tseng, FM, Yuan Ze Univ, applied Hierarchical fuzzy integral stated preference method into the study of Taiwan's broadband service market. This study combines the Choquet integral and the stated preference method to propose the hierarchical fuzzy integral stated preference (HFISP) method, and then analyze the narrowband service users' preferences for broadband service.

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Lin, CT, Da Yeh Univ, discussed about Salesman-like recommendation system based on visitor product knowledge and browsing actions when consumers are unable to effectively select the products that really to meet their needs.

Lin CL, Natl Kaohsiung Normal Univ, suggest planning the development strategy for the mobile communication package based on consumers' choice preferences and find their corresponding functions of products.

3. Objects Of Study

3.1. Age structure

According to statistics of reports by CNNIC and CR-NIELSE, the 3G users with age between 14 and 29 years old account for 55.6%. Compared with the age structure of 2.5G users, most 3G users are relatively young.

3.2. Education background structure

People of bachelor degree account for 19.5% among the whole. Compared with users of 2.5G, group holding advanced academic degrees have higher demands for the use. People with technical secondary school background or above are all important users of 3G services.

Nowadays, university students have extensive knowledge and have intense desire to communicate with others. Most of them surf on the Internet everyday to get closer to the outside and record the world of their eyes by words, videos. In addition, they don't have much dependence on old brands and are easy to accept newborn things. Although their values are not so high, we shouldn't ignore the future value along with their development. College students are best groups to promote 3G services. The article made a case study on students group and analyzed their demands for 3G services.

4. Kano Model

Kano model was put forward by a Japanese scientist, Dr. Kano in 1970s as shown in a Figure 3. On the customer satisfaction curve, the ordinate is customer satisfaction, while the abscissa is technological level of products. KANO model defines three types of customer needs: The basic needs, expected needs, excited needs.

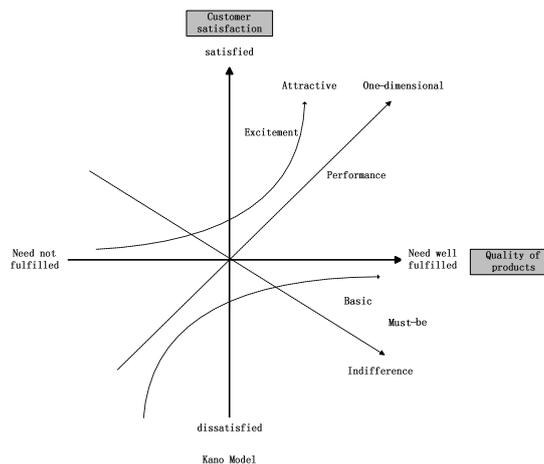


Fig.1. Kano Model

Basic needs (curve Basic in fig3): Basic needs are fundamental functions of products in the view of customers. They are basic requirements to the product. If the product doesn't satisfy these basic needs, customers would be extremely dissatisfied; on the contrary, when the product fully satisfies the basic needs, consumers will not show a particular satisfaction either as they think it's the fundamental function of products.

Expected needs (Linear One-dimensional in fig3): What customers are talking about are often expected needs. The more Expected needs are achieved in the product, the more satisfied customers are; while the

product does not meet these requirements, customers will also be dissatisfied. It forces enterprises to continuously investigate and understand of users and reflect these requirements in the product by proper ways.

Excited needs (curve Attraction in fig3): Excited needs are referred to unexpected product features. If the product does not provide this type of demand, customers will not be dissatisfied, because they often do not think about these requirements, on the contrary, when the products provide such demands; the customer would be very satisfied with the products.

These three categories of demands reflect the needs of users on different levels of products. As market and time changes, demands change, too. For example, excited needs would degenerate into Expected needs even Basic needs, such as camera phones. Expected needs would degenerate into Basic needs, thus leading to the decrease of consumer satisfaction. Enterprises must add new features or develop new products in order to maintain the competitiveness of their products and high customer satisfaction.

5. Questionnaire Design

Kano model was first used in the product quality development of Manufacturing. They conducted a survey about two-dimensional quality factors for "TV" and "decorative clock" and found out projects of attractive qualities through the customer point of view to raise current quality functions and raise quality standards. Schvaneveldt applied Kano model to four industries of banks, dry cleaners, restaurants and supermarkets. Huiskonen applied Kano model to service industry and pointed out that three different service factors have different influence on consumer satisfaction. At present, Kano model has been more widely used in products and services. It offers evidence for improving quality of products and services and consumer satisfaction by carrying on Kano questionnaire research and frequency analysis of the survey results to identify quality factors. Since industry of communication has a high degree of service, Kano model has quite relevance during analysis of consumer needs.

5.1. Kano questionnaire designs on consumer needs

Questions should be raised through pro and con two aspects so as to understand consumers' view on some product factor when analyzing consumer needs by Kano questionnaire. For example, the design of Kano questionnaire about videophone of 3G services is shown in Table 1. Forward questions is "what do you think about your cell phone with videophone". Reverse question is "what do you think about your cell phone without videophone". The answer could list five options: I like; it should be so; it does not matter; I can bear; I do not like.

TABLE I. KANO QUESTIONNAIRE

What do you think about your cell phone with videophone?	What do you think about your cell phone without videophone?
I like	I like
It should be so	It should be so
It does not matter	It does not matter
I can bear	I can bear
I do not like	I do not like

The survey collected information through questionnaires on objects of students in BUPT and a total of 200 questionnaires were issued, 192 questionnaires were collected, among which there were 187 valid samples, 123 males and 64 females. Fill in answers to the typical attribute classification .

5.2. Analysis of Kano model

We could obtain qualitative results by analysis of Kano evaluation table., among which frequency distribution table is the most simple and effective way to show analysis results. The frequency of every quality factor is listed in Table 4, what's more. As factor Q isn't among analysis, proper adjustments were conducted on the Table 2, according to the identification of consumer needs on 3G services by Kano model.

TABLE II. CATEGORY OF 3G SERVICES

number	product	A	O	M	I	Category

1	Videophone	18.1%	0	0%	81.4%	I
2	Cell phone video	63.6%	0	0	36.3%	A
3	High-speed internet access	26.4%	45.2%	18.8%	9.4%	O

According to statistics analysis, videophone is independent attribute, which means that it's not essential 3G services to college students; Cell phone video is charm attribute and excited demands, continuous improvement will result in more consumers' returns; High-speed Internet access is one-dimensional attribute which is also expected demands of consumers.

As charm quality factors, cell phone video has gained great attention of telecom operators because of its wide applications such as mobile TV, video on demand (VOD), real-time video information, video conferencing (for business video collaboration), mobile video surveillance, remote collaboration, 3D map service and so on..

Pyramid Research, a marketing research institution, has released reports and claimed that the number of worldwide mobile phone video and TV services subscribers will reach 534 million till 2014 as increase of bandwidth, reduction of the data cost and the introduction of more advanced mobile phones, which also points out that more demand will come from Europe and Asia-Pacific.

As 3G business started late in our country, cell phone video hasn't been widely used and has a huge market. As shown in CNNIC's survey on mobile phone business. penetration of mobile video services reached only 15.7% among four well-developed cities involved in the investigation (Beijing, Shanghai, Guangzhou and Shenzhen). Users between 19 to 29 years old have a big proportion(70.3%) among mobile video users. It has a high popularity among young users because of a stronger expression and rich content of mobile video. So it's likely that operators would obtain both revenue and satisfaction when promoting mobile video service.

6. Advice On Promotion Of Mobile Videos

Questionnaire has been designed and primary data has been collected and analyzed through bringing Kano model into demands analysis of 3g services in order to ensure the properties which affect 3G services' quality. The research of such properties can provide operations with decision-making reference, thus helping them to promoting 3G services, enhancing consumers' satisfaction, and finally improving operations integrated competency.

1)As students have suffered too much promotional activities, which are likely to turn out to be a mere formality and have little effect on students, the article doesn't recommend school promotion as the approach to promote mobile video service.

2) According to the survey, applications such as mobile QQ, net school have been most often used except for fundamental functions like calls, SMS. And current 2.5G mobile Internet access doesn't allow users to watch the video online. Therefore the article suggests that operators establish strategic partnership with Internet companies such as Tencent QQ, Tudou, The school net, software clients of partners will be planted into mobile terminals and convenient access to partner sites would also be set up.

3)The current lack of content about video entertainment is one of its critical weaknesses. It's quite necessary for operators to develop attractive videos to students such as online videos in websites of Youku, Potatoes so that students

users can enjoy the convenience and entertainment of mobile videos, thus successfully promoting its mobile video business. In addition, integration of industrial chain and a good relationship with CP will be extremely important in order to achieve rich contents.

Of course, analysis of 3G service quality factors by Kano model also has its deficiencies. It cannot establish a direct, measurable link between quality of service factors and customer demand and satisfaction. Some scholars try to connect Kano model with QFD (Quality Function Deployment), or fuzzy integration to make it more digital, specific, and have received good results.

Wang Lu, Han Jie, Sun Wei, Pan Sheng contributed equally to this work.

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