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Customer Equity Promotion of Social Network Websites:
An Application Study of Renren

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Abstract: The service features of social network websites determined the crucial roles that customers play in their operation and development. So, qualitative and quantitative methods were used to explore the customer equity promotion strategies of social network websites. China's leading social networking platform, Renren, was taken as an example to analyze how it differs from entity enterprises in terms of customer characteristics and profit models. First, the traditional brand utility model was improved. Then, data were collected through the distribution of questionnaires while a principle component analysis and a logistic regression model were employed to analyze the driving factors of Renren's customer equity. Finally, the coefficients of all of the driving factors were achieved and strategies for customer equity promotion were proposed based on the qualitative analysis of the driving factors of Renren's customer equity.

Key words: Social network websites, customer equity, principal component analysis, logistic regression analysis

INTRODUCTION

In recent years, social network websites based on the concept of Six Degrees of Separation have developed dramatically to become the fourth network infrastructure after e-mails, instant messaging and search techniques. As an important tool for communicating, interacting and sharing with people (Nie, 2001), social network websites have spread throughout the world quickly, the most successful being Facebook in the US. Facebook gained more than 5 hundred million customers within 6 years and went public on NASDAQ in May 2012. In China, social network websites have also been developed on a grand scale and several prosperous websites have sprung up, including Renren, Kaixin, Douban and Shijijiayuan. Among these, Renren is considered the Facebook of China, attracting 137 million active users by September 2011 to become the largest social network website in China after going public on NASDAQ in May 2011.

Although, social network websites have experienced a period of quick development, there are still many problems to be solved. For example, Renren is at a standstill under the influence of microblogging. Its traffic has decreased continuously, resulting in a dramatic drop of 40% in its share price compared with its closing price on the day it went public in 2011. Facebook's performance after going public has been even more unsatisfactory because its share price has been below the offering price of its IPO. The features that social network websites offer determine their survival and development, because the number and activity level of users (customers) directly determines the website's success or failure. Therefore, knowing how to stabilize user bases and expand markets through efficient and reasonable resource allocation strategies is an important issue faced by every social network website. Given this background and considering the customer equity theory, this study takes Renren as a unique example of a social network website that differentiates itself from both traditional industry and ordinary business websites. We explore customer equity promotion strategies by combining qualitative and quantitative analyses, which produce results that are of great significance in both theory and practice.

THEORETICAL BASIS

The theory of customer equity maintains that customers are important assets, with the core-marketing goal being to attract and keep high-quality customers. Specifically, research on customer equity has mainly concentrated on the following four components: (1) Definition of customer equity (Blattberg and Deighton, 1996; Skiera et al., 2011), (2) Driving factors of customer equity (Verhoef et al., 2001), (3) Methods of measuring customer equity (Dwyer, 1997) and (4) Strategies for customer equity promotion. The most representative research on this topic is that of Lemon et al. (2001) and Rust et al. (2004), who contend that customer equity can be influenced by value equity, brand equity and relation equity. Additionally, Rust et al. (2004) build a

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measurement model of customer equity that not only has good applicability but also determines the weighting coefficients of each driving factor of the customer equity to more efficiently promote customer equity (Rust *et al.*, 2004). Unfortunately, there are still no customer equity promotion studies on social network websites. Moreover, due to the particularity of social network websites compared to entity enterprises and ordinary networks, traditional strategies for customer equity promotion cannot be directly applied to social network websites. Therefore, this paper is an investigation into strategies for promoting customer equity in social network websites using Renren as an example.

QUALITATIVE ANALYSIS

Value equity: Value equity is the customers' objective evaluation of a company's products and services. Value acts as the foundation of relationships between companies and their customers. If a company's products and services cannot meet its customers' requirements, then its work is futile, even if it employs the most efficient strategies for promoting brands and maintaining relations (Rust *et al.*, 2004). Value includes three driving factors: quality, price and convenience. Compared with entity enterprises, the quality of social network websites is mainly reflected in the following ways: the stability and safety of the network, the richness and interactivity of the content, the networks' updating speed and the content design. As for the price, although most of the resources offered by social network websites are free, some individual applications and VIP services require payment. Therefore, the establishment of reasonable price strategies such as promotion, cooperation between various payment platforms and free trials is significant to the operation of social network websites. In addition, apart from valuable information and interesting applications, people also pay close attention to convenience, which is embodied in the easy and accessible presentation of status, articles and photos.

Brand equity: Brand equity is the customers' subjective evaluation of the company and its products or services. It has three driving factors: customers' brand cognition, brand attitude and brand morality. Unlike entity enterprises, the following subdrivers are not explicitly reflected: media, transmitted message, information communication, product display, signatures of celebrity, environmental protection, kindness to employees and product commitment. Therefore, the brand equity of social network websites is analyzed from the following

perspectives: communication mix, special events, brand preference, brand cooperation, public benefit activities and privacy protection.

Communication mix is an important means by which a social network website is known, determining users' first impressions of its brand to a large extent. Generally speaking, people are repelled by uncertainty, so users prefer to visit a familiar website. Therefore, a successful strategy with respect to communication mix will improve brand cognition while increasing the possibility that customers will visit the site. Special events refer to chances for customers to develop brand associations with the help of special events, such as the Lenovo Group's sponsorship of the Olympic Games. For social network websites, special events not only expand brand influences but also promote brand image. Brand preference is a customer's unique bond with certain brands (Hoyer and Brown, 1990). For a social network website, if its design, methods of interaction, or other characters meet the approval of visiting customers, a special preference for that website might be developed. Brand cooperation allows a company to overcome the limitations of their resources and capabilities and make use of the cooperator's brand advantage to promote its brand popularity (He, 2011). For this reason, choosing appropriate brands as cooperators is of vital importance for expanding brand influences and promoting brand equity. Active participation in social benefit activities is a reflection of a company's social responsibility. This is true of social network websites with profits as their goals. Actively bearing social responsibility and holding and sponsoring social benefit activities have become important methods for social network websites to promote their brand image. For example, Renren held a benediction activity for an area affected by drought in southwestern China to promote its brand equity. Privacy protection is another important sub-driver. The information provided by users when they register with these websites is confidential and should not be shared with a third party or used for commercial purposes without authorization.

Relation equity: Given the increasingly fierce competition, the key to winning customers is building favorable relations with them while providing them with the products or services that they demand. Relation equity stresses the importance of such relations. Because the representation of two subdrivers- special appreciation and fellowship activity-is not obvious among social network websites, this study does not take them into consideration. For social network websites, the driving factors of relation equity include rewarding the activities

of regular customers, special treatment and group activities. The subdriver of rewarding the activities of regular customers comprises principally preferential policies that are represented as customer credits on social network websites. Registered users acquire corresponding credits in accordance with website rules and then users with a certain amount of credits enjoy corresponding privileges. Offering such programs helps social network websites maintain customers. For instance, by providing privileges for VIPs, such as head portrait identification and lifting limitations on the number of friends one can have, Renren has achieved the goals of turning general users into senior ones and maintaining customers. Moreover, group activities based on common interests and hobbies can increase members' conversion costs and their reliance on the website.

QUANTITATIVE ANALYSIS

This paper adopted a brand utility model to determine the weighting coefficients of all of the driving factors of customer equity. Brand utility refers to the influence that brand inertia and the effects of customer equity drivers have on customers' purchasing decisions or brand choice (Shao and Zhang, 2009). The traditional model of brand utility only takes individual customer's drivers and brand inertia into consideration, as Formula 1 reveals. However, owing to the unique nature of social network website users, the models of brand utility adopted by an entity enterprise may not be applied directly to social network websites. Social network websites facilitate interactions among people who exhibit great divergence in social behavior due to differences in gender, age, educational background and other essential characteristics. Thus, this study adds an essential variable to the traditional model of brand utility. The improved model is shown in Formula 2:

$$\text{Brand utility} = \text{Brand inertia} + \text{Influences of drivers} \quad (1)$$

$$\text{Brand utility} = \text{Brand inertia} + \text{Influences of drivers} +$$
$$\text{Influences of users' essential characteristics} \quad (2)$$

Establishment of index system and data collection: Based on the above analysis of the drivers of customer equity for social network websites and the qualitative analysis of Renren as an example, the index system is shown in Table 1. Herein, $X_1, X_2, X_3, X_4, X_5, X_6, X_7$ and X_8 reflect the essential characteristics of users; X_9 reflects inertia; X_{10}, X_{11} and X_{12} reflect the drivers of values; $X_{13}, X_{14}, X_{15}, X_{16}, X_{17}$ and X_{18} reflect the drivers of brand and X_{19}, X_{20} and X_{21} reflect drivers of relation.

Table 1: The index system

Variable	Index	Variable	Index
X_1	Gender	X_{12}	Price
X_2	Age 16-25	X_{13}	Privacy protection
X_3	Age 26-35	X_{14}	Brand preference
X_4	Age 36-45 or above	X_{15}	Public welfare activity
X_5	Middle school student	X_{16}	Communication Mix
X_6	Junior College or Undergraduate	X_{17}	Special event
X_7	Master	X_{18}	Brand cooperation
X_8	Doctor or above	X_{19}	Preferential policies
X_9	Inertia	X_{20}	Special treatment
X_{10}	Quality	X_{21}	Group activities
X_{11}	Convenience		

Table 2: Total variance explained

		Initial eigenvalue	
Component	Total	% of variance	Cumulative %
1	4.128	19.657	19.657
2	3.705	17.642	37.299
3	1.924	9.163	46.462
4	1.744	8.303	54.765
5	1.224	5.830	60.595
6	1.089	5.184	65.779
7	1.016	4.839	70.618

Data was collected by distributing questionnaires to Renren users, who are mainly college students. In addition, because the effects of the age and educational background of users on brand inertia were targeted in this study, questionnaires were distributed to users of different ages and educational backgrounds. Altogether, 293 questionnaires were distributed, of which 172 were accessed as valid.

Principle component analysis: To solve the problem of information overlap and to simplify the counting process, a principle component analysis was conducted, the results of which are shown in Table 2. Seven principle components were extracted with the standard being that the characteristic value was greater than 1. Their accumulated contribution rate was 70.618%. These seven principle components were defined as F_1, F_2, F_3, F_4, F_5, F_6 and F_7.

The score matrix of principle components is presented in Table 3. According to these coefficients, all of the principle components can be represented as linear combinations of the original variables, which reflects the relations between principle components and each original variable. Take the first principle component as an example:

$$F_1 = -0.049X_1 - 0.076X_2 + 0.047X_3 + 0.065X_4 + 0.018X_5 - 0.098X_6 + 0.067X_7 + 0.068X_8 + 0.016X_9 + 0.161X_{10} + 0.136X_{11} + 0.103X_{12} + 0.057X_{13} + 0.054X_{14} + 0.140X_{15} + 0.161X_{16} + 0.134X_{17} + 0.124X_{18} + 0.143X_{19} + 0.172X_{20} + 0.136X_{21}$$

Logistic regression analysis: Take the principle components obtained from principle component analysis

Table 3: Component score coefficient matrix

	Component						
	1	2	3	4	5	6	7
Zscore (X_1)	-0.049	-0.013	0.272	0.004	0.039	-0.243	0.114
Zscore (X_2)	-0.076	0.234	0.037	0.075	0.062	0.008	0.113
Zscore (X_3)	0.047	-0.182	0.064	-0.328	-0.027	-0.002	-0.139
Zscore (X_4)	0.065	-0.143	-0.162	0.361	-0.071	-0.012	0.008
Zscore (X_5)	0.018	-0.012	-0.042	0.013	0.706	-0.145	-0.072
Zscore (X_6)	-0.098	0.219	0.081	0.032	-0.168	0.051	-0.003
Zscore (X_7)	0.067	-0.151	0.084	-0.365	0.008	-0.021	0.046
Zscore (X_8)	0.068	-0.163	-0.183	0.313	-0.082	0.012	-0.009
Zscore (X_9)	0.016	-0.126	0.084	0.001	-0.191	0.280	0.518
Zscore (X_{10})	0.161	0.083	-0.194	-0.127	-0.057	-0.074	-0.032
Zscore (X_{11})	0.136	0.100	-0.216	-0.102	-0.161	-0.154	0.086
Zscore (X_{12})	0.103	-0.005	0.262	0.123	0.071	0.119	-0.231
Zscore (X_{13})	0.057	0.082	-0.080	-0.094	0.191	0.459	0.398
Zscore (X_{14})	0.054	0.030	-0.016	-0.010	-0.005	0.634	-0.493
Zscore (X_{15})	0.140	0.039	0.042	0.021	0.288	0.166	0.240
Zscore (X_{16})	0.161	0.017	0.190	0.132	0.091	-0.063	-0.157
Zscore (X_{17})	0.134	0.049	-0.227	-0.019	0.109	-0.142	0.110
Zscore (X_{18})	0.124	0.111	-0.078	-0.128	-0.158	-0.138	-0.250
Zscore (X_{19})	0.133	0.068	0.093	0.015	-0.146	0.000	0.133
Zscore (X_{20})	0.172	0.038	0.220	0.075	-0.123	0.007	-0.008
Zscore (X_{21})	0.136	0.020	0.215	0.078	-0.024	-0.175	0.162

Table 4: Result of logistic regression

Variable	B	S.E	Wals	df	Sig.	Exp. (B)
1	0.007	0.322	0.001	1	0.027	1.007
2	-0.613	0.518	1.399	1	0.237	0.542
3	-0.416	0.362	1.321	1	0.250	0.660
4	0.390	0.576	0.459	1	0.047	1.477
5	0.971	0.561	2.991	1	0.084	2.640
6	-0.139	0.383	0.131	1	0.017	0.870
7	1.071	0.339	9.963	1	0.002	2.918
Constant	1.955	0.291	45.201	1	0.000	7.061

Table 5: Coefficients of original variables

Original variable	Coefficient	Original variable	Coefficient
X_1	0.0898	X_{12}	-0.2522
X_2	0.2376	X_{13}	0.4947
X_3	0.2175	X_{14}	0.6362
X_4	0.0500	X_{15}	0.0866
X_5	0.3296	X_{16}	-0.1079
X_6	0.3732	X_{17}	0.3013
X_7	-0.0243	X_{18}	0.4814
X_8	0.2077	X_{19}	-0.0728
X_9	0.6586	X_{20}	0.2133
X_{10}	0.0531	X_{21}	0.1042
X_{11}	0.0979		

as independent variables and brand utility as a dependent variable. Conduct a logistic regression analysis to obtain the coefficients between brand utility and each principle component. The results are shown in Table 4. The regression coefficient between brand utility and the original variables can be achieved by combining the coefficients between each principle component and the original variables, as shown in Table 5.

RENREN'S STRATEGIES FOR CUSTOMER EQUITY PROMOTION

The quantitative analysis above shows that great divergence exists among the weighting coefficients of different variables which means that each variable exerts different influences on customer equity. Therefore, strategies for customer equity promotion from different angles should be proposed.

Strategies based on customer characteristics: Among all of the customer characteristics, the coefficient of educational background at the level of junior college or undergraduate was the largest (0.3732) and that of middle school was the second largest (0.3296), then age 16-25 (0.2376). This coincided with both the customer characteristics of social network websites and the essential characteristics of Renren's main user group.

Two problems require special attention when creating customer equity promotion strategies, from the perspective of customers' essential characteristics: the first is how to prevent the loss of current users due to changes in time, age and education. In fact, this is an existing dilemma faced by Renren. Renren users give the impression of concentrating on "undergraduate students," so the majority of users are likely to turn to other social network websites or applications, such as microblogs, after graduation (Zhou, 2011). How to increase current customers' lifetime value and maintain their use is a question that Renren must consider. This was the impetus behind the name change from Xiaonei (on-campus) to Renren (everyone), which is an attempt to solve this problem. Therefore, Renren should fully consider the various demands of customers from different age groups and design corresponding module applications. The second problem is how to win over a more diversified group of customers. One of the universal problems of Chinese social network websites is their simplification of user structure. For example, Renren mainly targets teenagers and students, which may be related to market limitations caused by the simplification of the Chinese netizen structure. However, the popularization of the internet has given Renren an opportunity to attract users from a great variety of social groups. For example, it can attract children and middle-aged users through visualized operations.

Strategies based on inertia: Compared with other drivers, inertia enjoyed the largest coefficient (0.6586), which expresses of the nature and features of social network websites. Social network websites are platforms for building and maintaining interpersonal relationships. If a user has built his or her interpersonal relationship network on a certain social network website, leaving this platform means abandoning his or her interpersonal group. The key for building inertia is to offer positive experiences to users and offering positive website experiences should begin with drivers of customer equity.

Strategies based on value: Among drivers of value, convenience had the largest coefficient (0.0979), followed by quality (0.0531). As tools of daily communication, social network websites must have the advantage of simple operation and convenience so that customers can easily find the information they need. As a first step, Renren can implement search engine optimization so that potential customers can quickly find their friends on the website. Then, it should consider establishing a vertical search option within the website to comprehensively meet all types of customer requirements with precision. As for quality, stability plays a vital role in the survival and development of a website, so Renren should continually increase the safety of hardware and accelerate its implementation of emergency hardware systems. Second, the mobilization of social network websites has become a general trend. Given this background, Renren should attach great importance to the user experience of mobile terminal customers and improve the quality of its mobile terminal software (Xue and Hu, 2010).

Strategies based on brand: Among drivers of brand, brand cooperation had the largest coefficient (0.6362). In addition, the coefficient of privacy protection was also relatively high (0.4947), followed by brand preference (0.4814) and special event (0.3013).

Renren has made many attempts to improve brand cooperation, such as collaborating with Douding and Tudou and has achieved satisfactory results. In the future, Renren must be careful and cautious in choosing cooperators so that a brand association of cooperation between strong companies can be constructed without the brand extension damaging customers' positive associations. Because most social network websites require users to provide authentic information during their registration such as name, age and family background, users pay great attention to their safety and the protection of their privacy. Renren should strictly protect the privacy of users, invest more technology and capital in the safety of the network system and promote brand image. Renren can increase its brand preference by perfecting its functions and content and strengthening its data mining. It can analyze the interests and preferences of the users and introduce information that they may be interested in to make users feel that the website knows them very well and all of its content has been customized to suit them. Renren has not paid enough attention to special events as a strategy but this could be improved by holding or sponsoring some special events that conform to its brand image to attract the attention of students and promote brand equity.

Strategies based on relation: Among drivers of relation, special treatment had the largest coefficient (0.2133). Given the fierce competition, providing high-quality, differentiated services has become an important means of attracting users, especially high-end users. Moreover, the value-added charge is usually the main source of a website's profits. However,in fact, many users do not care whether they are VIPs or not, which suggests that Renren's VIP privileges design is not attractive enough and the publicity of such VIP privileges is insufficient. Therefore, Renren should try to discover users' expectations regarding such privileges through interviews and investigations, then make corresponding design changes and enhance the introduction of the improved VIP privileges to attract more users.

DISCUSSION

The theory of customer equity was adopted, the main drivers of customer equity were analyzed by taking the peculiarity of social network websites into consideration and then strategies for customer equity promotion were proposed by combining qualitative and quantitative analysis.

First, the peculiar nature of social network website users determined that the traditional customer equity promotion strategies and the brand utility model could not be applied directly to social network websites. Thus, a variable based on the traditional brand utility model was added to give the model greater operability and practical application value. Additionally, regarding the qualitative analysis of the driving factors of customer equity in social network websites, data was collected by distributing questionnaires and a quantitative analysis using statistical software was conducted, then the key components that influence customer equity are obtained to improve the resource allocation of social network websites, increase customer equity and provide more specific guidance. Using Renren as an example, the results of our quantitative analysis reveal that the quality and convenience of value equity, brand cooperation, privacy protection, brand preference and special event of brand equity and the special treatment of relation equity are all important factors that influence Renren's customer equity. Therefore, it should invest more resources in these areas to attain, maintain and promote customer equity.

Although, this research is improvement of brand utility model and provides specific guidance for social network websites in promoting customer equity, it also has limitations. Because only Renren was chosen as an example, the results may not be suitable for other social

network websites, especially those operating under different cultural backdrops. Therefore, studies on social network websites operating in different cultures should be conducted in the future to provide guidance for the international operation of social network websites.

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