Evaluation effect of Internet word of mouth and application of big data

Te Ma
School of tourism, Dalian University, Dalian 116024, China
*Corresponding author’s e-mail: 717126748@qq.com

Abstract. The role of online word-of-mouth has been gradually recognized by enterprises, but enterprises are more concerned about the marketing effect of online word-of-mouth and how to improve the effect of online word-of-mouth. Based on the comparison of advertising, online word-of-mouth and traditional word-of-mouth, this paper introduces the evaluation methods of online word-of-mouth effect from the perspectives of enterprises, consumers and third-party websites, and expounds the significance of online word-of-mouth effect evaluation to the development of word-of-mouth theory and enterprise practice.

1. Introduction
In summary, there are two kinds of non-personnel promotion, one is mass media promotion, mainly for advertising; the other is interpersonal promotion, that is word-of-mouth. With the popularity of the Internet, especially the emergence of interactive marketing based on Web 2.0 technology, many enterprises have realized the important promotional role of online word-of-mouth. But, what is the effect of Internet word of mouth? How to evaluate and manage the effect of online word-of-mouth? These are the issues that enterprises are more concerned about in the process of online word-of-mouth marketing, and also the problems that need to be solved urgently in the field of online word-of-mouth marketing.

2. Research status of Internet word of mouth effect
Through the statistics of more than 60 publications (including top marketing publications) in EBSCO and Emerald database from 2005 to 2017, it is found that more than 100 articles have been published during this period, two-thirds of which have been published since 2000. Generally speaking, the research results of online word-of-mouth mainly focus on the motivation of communicators and receivers; and the influencing factors of the effect of online word-of-mouth communication. The research on online word-of-mouth effect evaluation is very limited. For the need of theoretical development and enterprise network marketing practice, the related research on online word-of-mouth effect evaluation needs to be carried out in depth.

2.1. Internet word of mouth communication process
Buttle and Goldsmith call this kind of information online word-of-mouth. The spread of online word-of-mouth differs from traditional word-of-mouth mainly in the following aspects: The basis of non-acquaintance communication is the weak relationship between website and netizens. Second, because of the weakness of network virtuality, anonymity and trust, online word-of-mouth information has a greater risk to consumers. Third, consumers can operate the Internet by clicking, browsing,
replying and registering on the Internet. With the ordering and so on, the enterprise may track the record through the "click stream" software, and carried on the analysis, thus appeared "the customer behavior management". Compared with the Internet, consumers have a great degree of freedom of search and expression, and the cost of reproducing online word-of-mouth is very low. This is an obvious feature of online word-of-mouth which is different from advertising and traditional word-of-mouth. Because of anonymity, corporate marketers may be involved in the dissemination or employment of network push hands.

2.2. Characteristics of Internet word of mouth

Previous studies have called word-of-mouth advertising, based on the fact that word-of-mouth is generally the same as the audience of advertising and produces similar effects. However, Alexander argues that advertising is distinguished from word-of-mouth by formal, paid and non-interpersonal communication. Word-of-mouth and advertising, as two main ways of information diffusion, are different in disseminators, channels and information dissemination. For Internet word of mouth, it preserves some basic characteristics of traditional word-of-mouth, but also has some characteristics of advertising.

2.3. The role of Internet word of mouth.

Word of mouth can affect people's cognition, emotion, expectation, attitude, behavior intention and behavior. Comparing with traditional word-of-mouth, online word-of-mouth has a wider scope, a faster speed and a greater influence on the community. For enterprises, its role lies in: First, promote products, reduce marketing costs and promote sales. Second, cultivate corporate brand and enhance corporate reputation. Improving products and services. Support customer information and relationship management. Through its own network or third-party network, enterprises can provide consumers with convenient and inexpensive channels of word-of-mouth communication. They can also track the process of word-of-mouth communication, collect and analyze the content of word-of-mouth communication, thus more effectively grasp consumer psychology, guide and control word-of-mouth communication, and achieve B C C marketing.

2.4. The effect of Internet word of mouth.

Effect is generally the result of the operation and function of things. In sociology, effect refers to the effective result of human behavior. In communication science, effect has two meanings: (1) narrow sense, communication effect refers to the change of psychology, attitude and behavior caused by communication behavior on the object of communication; (2) broad sense, communication effect refers to the change of audience and social property. The above two meanings constitute two basic aspects of the study of communication effects: one is the micro-process that produces effects on individuals; the other is the macro-process that produces effects on society.

The effect of online word-of-mouth refers to the psychological and behavioral reactions of consumers caused by the spread and acceptance of online word-of-mouth and the degree of its impact on enterprises. Buttle (1998) classifies word-of-mouth effects into pre-purchase effects and post-purchase effects. Pre-purchase effects are mainly the cognitive responses of consumers caused by word-of-mouth, such as awareness and understanding, purchase and re-dissemination intention. The post-purchase effect mainly refers to the re-purchase and re-dissemination behavior of consumers after purchase experience influenced by word-of-mouth. Research by Bickart and Schindler (2001) suggests that since online reviews can exist in a network system for a long time, they not only have a short-term promotional effect, but also have a lasting impact.

3. Evaluation of Internet word of mouth effect

The effect of online word-of-mouth is a practical problem that enterprises are more concerned about, and it is also the weakness in the current study of online word-of-mouth. The evaluation of online word-of-mouth can be carried out from three perspectives: enterprises, consumers and third parties, in
which consumer evaluation is the basis for the study of the effect of word-of-mouth, third party evaluation is the practical need, and enterprise evaluation is the ultimate destination.

3.1. Enterprise perspective evaluation

Similar to the evaluation of advertising effect, the effect of online word-of-mouth can be measured by comparing the input cost and sales revenue of enterprises. The problem is that online word-of-mouth input is generally difficult to be as specific as advertising input and can be clearly reflected in the financial statements. However, with the emergence of third-party online word-of-mouth service organizations, online word-of-mouth investment can not be as specific as advertising input. Income can be calculated gradually, such as network search ranking fees and third-party community network word-of-mouth promotion service fees, and can be included in the accounting of marketing costs, or the addition of network word-of-mouth promotional special subjects.

For sales revenue, enterprises can take the increase of sales in a certain period of time after the input of online word-of-mouth promotion as the performance of online word-of-mouth in this period, the time can be determined according to the accounting cycle, but also according to the cycle of sales promotion effect. One of the most prominent problems is how to ensure that sales growth is due to the input of online word-of-mouth, which proves that online word-of-mouth is the cause of sales growth in this stage may be a difficult problem. Therefore, the evaluation of the effect of online word-of-mouth from the perspective of enterprises needs to be repeated and verified, and the influence share of other causes needs to be excluded through experimental analysis.

3.2. Consumer behavior perspective assessment

There are many factors leading to the realization of sales in enterprise practice. It is difficult to determine which sales are produced by word of mouth. However, consumers are generally certain about what factors trigger their own purchase behavior, so the evaluation of word-of-mouth effect is more reasonable for consumers. Network word-of-mouth has both some characteristics of traditional word-of-mouth and network advertisement. The evaluation of network word-of-mouth effect can draw lessons from the evaluation method of advertising effect. Lavidge put forward the basic way to evaluate the effect of advertisement in the ladder-step model: it can evaluate the effect of advertisement by measuring consumers' cognition, emotion and behavior. According to TRA theory, if from the perspective of consumers, online word-of-mouth effect measurement dimension can also increase consumer behavior intention.

3.3. Third party perspective assessment

At present, some websites and consulting firms are engaged in the evaluation of the third-party online word-of-mouth effect. The main variable is "attention", which represents the degree of cognitive preference of the subject in a certain period of time. It reflects the influence of specific brands. The main research institutes in China are:

1) Baidu Index is a data analysis service based on Baidu web search and Baidu news search. It reflects the impact of online word-of-mouth with different keywords "user attention" and "media attention" over the past period of time. User attention is based on the amount of search done by netizens in Baidu. The weighted sum of search frequencies of each key word in Baidu web search is calculated and displayed in the form of a graph. Media attention is based on the number of news related to the keyword in Baidu News Search in the past. The final data is obtained by scientific weighting calculation and displayed in the form of a graph.

Word-of-mouth index (http://www.koubei.com) is the Word-of-mouth network according to the majority of members on the business of the key indicators of evaluation, with 5-star system, the higher the score, the higher the Word-of-mouth index. The accuracy of grading depends largely on the number of comments.

Zhongguancun online attention index (http://zdc.zol.com.cn), according to daily user visits, statistics of product and brand attention, and through the product attention, brand exposure and channel coverage
of these three aspects of weight analysis, calculate the ZDC concern index. This index is a weighted composite index, which mainly reflects the degree of attention and brand influence of brands and products in the market.

4. Conclusions
Network word-of-mouth is not only a promotion strategy, but also a good way for enterprises to cultivate brand, establish credibility and disseminate corporate culture. As online word-of-mouth is a C_C-based marketing, it may be an effective way to evaluate the effect of online word-of-mouth by evaluating consumers' attitudes and behaviors, and integrating controllable data of sales and network management, based on previous theories of communication effects and characteristics of online word-of-mouth. In the specific evaluation process, enterprises can choose the evaluation method according to the brand maturity and product characteristics. The effect of different products through the network word-of-mouth communication will be significantly different. Factors that affect the network word-of-mouth communication can be analyzed according to the specific situation, such as the network channel may be more suitable for the promotion of digital products.

Complicated products may be difficult to understand. At this time, we should increase the network experience and expand the network channel of group communication because of experience. Strategy generally promotes cognition, and the developed communication network promotes people to get information. If it is emotional problems, such as low consumer preferences for products, this can enhance product personalization. If it is the process of behavior intention behavior conversion, it may be that the way consumers get products is too narrow, the price is too high, then the problem is mainly reflected in the pricing and channel problems, so it is better to adjust prices and expand product channels.

References
[1] Hogan John E., Lemon,Katherinen. Libai Barak, Quantifying the Ripple: Word-of-Mouth and Advertising Effectiveness, September 2004 Journal of Advertising Research.
[2] Robert C,Brooks Jr, “Word-of-Mouth” Advertising In Selling New Products[J], Journal of Marketing, October 1957.
[3] Alexander, Ralph S, Marketing Definitions, Chicago: American Marketing Association.
[4] Barbara Bickart, Rutgers Robert M. Schindler, Rutgers, Expanding the Scope of Word of Mouth: Customer-to-Customer information on the Internet, Advances in Consumer Research Volume 29, 2002.
[5] Te Ma, Feng Ding. Research on the dynamic effect of the intelligent urban experience to the tourists' two-way internet word-of-mouth,November 2017,International Journal of Communication Systems.