Key Quality Indicators of Social Networking Service

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Abstract. Social Networking Service (SNS) is one of the most popular types of online services. To analyze the quality of the end-user experience, we study the key quality indicators (KQIs) of these services. Based on the servo model, we collect data from college students and obtain hierarchical KQIs. Using this KQIs system, we analyze three most popular SNSs as examples and give some improved suggestions.

Keywords: Key quality indicator · Social networking service · Quality of experience

1 Introduction

With the rapid development of the Internet in recent years, social networks have also developed rapidly [1–4]. And it has become an important channel for people to make friends and entertainment activities. Social software is characterized by a large number of user participation [5], large information scale, fast content update, diversified information communication methods, and the freedom of information editing. At present, there are many domestic social network operators, and fierce competition [6, 7]. In this case, the performance of social software platform services is very important and may affect user viscosity [8–10]. In the functions of social software, there are mainly five important performances: security, reliability, use experience, responsiveness and ease of use. It is found that these five important features can be improved again. Social software needs to pay attention to strengthening the response and security of its software and expanding its functions. Through these studies, we can promote each social software to enhance its value and development potential and enhance its competitiveness. On this basis, college students account for a large proportion of users, and their attention to performance is particularly important. Therefore, it is of great significance to study the service evaluation index system of socialized software.

The common methods of user experience evaluation [11] mainly include literature, interview, questionnaire survey, statistical analysis, hierarchical analysis, case analysis and statistical analysis [12–16]. By using the above methods, we can understand all the

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users feel when using social software. In the process of establishing an index system, it is necessary to design an index system first, and then through rating and analysis by the expert. This study used the above seven methods to take college students as the sample groups. Through literature, interviews and analysis, four first-level indicators and 11 s-level indicators were finally established to make the index system more objective and reasonable. The reliability, effectiveness, consistency, and index weights [17–19]. Reliability analysis makes the research results stable and reliable, the effectiveness analysis reflects the effectiveness of the research results, the consistency complex analysis and the index weight determination make the results real and accurate. Case description by WeChat [20] makes the research more specific. Through the above methods, relatively accurate research results can be obtained.

According to the survey results, college students pay more attention to the security and reliability [21, 22] of social software when using social media platforms. Social software can improve both aspects to improve the user service experience and user stickiness. This survey provides a future improvement direction for all social software, provides a reference for promoting the development of social software for multi-level personalized users, and promotes the positive cycle development of the platform ecosystem.

2 Investigation Method

Using the interview method, this research evaluates social software from the perspective of users. Understanding the daily use of social software, the problems and expectations of social software provide the basis for determining the metrics in this paper. The evaluation index of social software is based on previous studies, combined with the current situation of personal social software, the user characteristics of social software and the needs of information service groups. In the process of index construction, the index is revised and improved through interviews and other methods. Using the questionnaire survey method, this survey refers to the previous research rules, constructs the sample and conducts the survey. By consulting and sorting out the literature published by predecessors, combined with model, information construction and user experience theory, the questionnaire is mainly distributed through network and face-to-face survey. Using statistical analysis methods, this research adopts more statistical analysis methods in daily life, makes a quantitative analysis of the data obtained from the questionnaire, and then makes a descriptive statistical analysis and the reliability and effectiveness of the questionnaire. Using analytic hierarchy process, the structure of social software evaluation index system is very complex. In the face of this complex decision-making process, the quantitative analysis method can be used in the index analysis at all levels to decompose the complex problems, so as to make the problems more hierarchical, so as to sort the advantages and disadvantages of the decision-making schemes according to the analysis classification. This paper uses this method to evaluate the indexes at all levels, compare the relative importance of the indexes at the same level, then analyze and calculate the index weight, and calculate the weight of each index, in order to make the setting of the index system more reasonable. Using the case analysis method, this paper takes China's largest social software QQ and WeChat as examples, determines the sample size and questionnaire according to the established evaluation index system, verifies the collected data, establishes SERVQUAL model and analyzes it. Finally,

the feasibility and rationality of the model are proposed and demonstrated. Using the statistical analysis method, this survey determines the validity of the questionnaire data through SPSS reliability test and validity test, obtains the index system of social software service quality, makes descriptive statistics on the data, and obtains the overall situation of social software information service quality (Figs. 1 and 2).

Step 1	Based on the SERVPERF service model, combined with the particularity of social software and user needs, five first-level indicators were selected.
Step 2	By understanding how they feel about using social software and to discuss its most important performance.
Step 3	Summarize the main opinions of the interview and obtain 11 secondary indicators under literature classification as main indicators.
Step 4	Adjust to the established index system according to the reasonable results. After the adjustment, the quality investigation will be conducted until all the indicators are reasonable, and the social software service evaluation index system is obtained.
Step 5	After modification, four primary indicators and 11 secondary indicators were eventually formed

Fig. 1. Establishment table of the indicators

Primary indicators	The secondary indicators
Responsibility A	Response speed is fast A1
	Multiple-end login can be supported A2
	Update frequency is guaranteed A3
	File transfer is fast A4
Security B	Identity information security B1
	Authorized information security B2
	Transfer the file security B3
Ease of use C	Can be compatible with multiple browsing modes C1
Reliability D	Easy to use C2
	The stability is very good D1
	Can give timely help with difficulties D2

Fig. 2. Evaluation indicators of social software services

3 Results Analysis

3.1 Indicator Analysis

The questionnaire produced in this experiment will be distributed to full-time students by means of electronic questionnaire. A total of 15 questionnaires were collected this

time, all of which were valid. The questionnaire results were imported into spss22.0 for reliability and effectiveness analysis.

The evaluation matrix of social software evaluation index is constructed. T. The 1–9 scale method proposed by L. ssty is used to compare and obtain weights: primary indicators: reactivity a, safety B, ease of use C and reliability D. Secondary indicator: response speed A1, support multi terminal login A2, ensure update frequency A3 and file transmission speed A4. Identity information security B1, authorization information security B2, storage file security B3. Compatible with multi browser mode C1, easy to use C2. Software stability D1, timely help in case of difficulties, Through the calculation of survey data, the weight tables of primary indicators and secondary indicators are obtained. The specific values are shown in the table below (Tables 1, 2, 3, 4 and 5).

Table 1. A-D weights of grade I indicators

	Responsibility A	Security B	Ease of use C	Reliability D	Wi
Responsibility A	1	5	3	3	41.714%
Security B	1/5	1	1/5	1/5	6.339%
Ease of use C	1/3	5	1	3	31.696%
Reliability D	1/3	5	1/3	1	20.251%

Table 2. Weights of secondary indicators A1–A4

	Response speed is fast A1	Multiple-end login can be supported A2	Update frequency is guaranteed A3	File transfer is fast A4	Wi
Response speed is fast A1	1	3	5	5	47.979%
Multiple-end login can be supported A2	1/3	1	3	1/3	18.847%
Update frequency is guaranteed A3	1/5	1/3	1	3	16.587%
File transfer is fast A4	1/5	3	1/3	1	16.587%

Table 3. Weights of secondary indicators B1–B3

	Identity information security B1	Authorized information security B2	Transfer the file security B3	Wi
Identity information security B1	1	5	3	63.698%
Authorized information security B2	1/5	1	5	25.828%
Transfer the file security B3	1/3	1/5	1	10.474%

Table 4. Weights of secondary indicators C1–C2

	Can be compatible with multiple browsing modes C1	Easy to use C2	Wi
Can be compatible with multiple browsing modes C1	1	3	75.000%
Easy to use C2	1/3	1	25.000%

Table 5. Weights of secondary indicators D1–D2

	The stability is very good D1	Can give timely help with difficulties D2	Wi
The stability is very good D1	1	5	83.333%
Can give timely help with difficulties D2	1/5	1	16.667%

3.2 QoE Analysis

In recent years, with the rapid development of the Internet, social networks have also developed rapidly. And it has become an important channel for people to make friends and entertainment activities. Social software is characterized by a large number of user participation, large information scale, fast content update, diversified information communication methods, and the freedom of information editing. At present, there are many domestic social network operators and the competition is fierce. Manufacturers for limited market customers have launched their own special services to stand out in a wave of

social software. However, the functions of these social software tend to be very functionally similar, making it difficult for consumers to choose between chaotic and complex markets.

This paper takes China QQ, WeChat and microblog as examples. The two social software platforms are studied and analyzed to determine the judgment score samples of each secondary index. The evaluators of this questionnaire are mainly regular users of social software, almost college students. Questionnaires will be issued on each sample to ensure effectiveness.

In qualitative indicators, each secondary indicator is scored 5 points, 1–5 points "very unimportant, unimportant, general, important, very important", We rank according to our own understanding. According to the evaluation indicators and the importance of each indicator, we multiply it by the weight and the total score. Each indicator is weighted by 15 volunteers, and then multiplied by the corresponding indicators to get the weight of each indicator. Finally, we summarize the comprehensive score.

Table 6. Design of social software service quality evaluation questions

Index	Questions corresponding to the questionnaire
Response speed is fast	Please evaluate the speed of the most frequent social software response combined with your own experience
Support-terminal login on	Please evaluate the supporting multi-terminal login of the most frequent social software combined with your own experience
Can ensure the update frequency	Please evaluate the guaranteed update frequency of the most frequent social software combined with your own experience
File transfer speed	Please evaluate the file transfer speed of the most frequent use of social software, combined with your own use experience
Identity information security	Please rate the identity information security indicators in the security
License information security	Please rate the authorized information security indicators in the security
Store the file security	Rate the storage file security metrics in the security

(*continued*)

Table 6. (*continued*)

Index	Questions corresponding to the questionnaire
Compatible with multiple browser modes	Please rate compatibility with multiple browser mode metrics in ease of use
Easy to use	Please rate the easy-of-use indicators in the ease of use
Stability of the software	Please score the stability indicators of the software in the reliability
When encountering difficulties in use, you can give and help in time	Please score the and help indicators when using difficulties in reliability

This is based on the above theory of social software service quality assessment questionnaire, as shown in Tables 6, 7, and 8.

Table 7. We Chat service quality evaluation data sheet

Index	Average
Response speed is fast	4.27
Support-terminal login on	4.6
Can ensure the update frequency	4.2
File transfer speed	3.73
Identity information security	3.73
License information security	3.87
Store the file security	3.6
Compatible with multiple browser modes	4.07
Easy to use	4.13
Stability of the software	4.2
When encountering difficulties in use, you can give and help in time	3.53

According to the above scoring rules, when conducting a questionnaire survey on WeChat service quality, we can find that college students are not satisfied with file transmission speed, identity security information, authorization information security, storage file security and help in case of difficulties. These indicators are lower than 4.0, indicating that we still need to improve our security and reliability.

According to the above scoring rules, when conducting a questionnaire survey on QQ service quality, we can find that college students are not satisfied with file transmission speed, identity security information, authorization information security and storage file security. These indicators are lower than 4.0, indicating that we still need to improve our security.

Table 8. QQ service quality evaluation data sheet

Index	Average
Response speed is fast	4
Support-terminal login on	4.65
Can ensure the update frequency	4.23
File transfer speed	3.8
Identity information security	3.71
License information security	3.9
Store the file security	3.6
Compatible with multiple browser modes	4
Easy to use	4.14
Stability of the software	4.2
When encountering difficulties in use, you can give and help in time	4

4 Conclusion

The above research shows that the secondary indicators related to the security and reliability of wechat and QQ are lower than 4.0. According to this phenomenon, we find that college students are more concerned about the security and reliability of social software. Social software generally meets the expectations of users, but there is still much room for improvement in some indicators. Only by ensuring that it is in these areas can the user experience be greatly improved. The survey results not only provide a reference for users to choose social software, but also let social software companies understand the advantages and disadvantages of their products and clarify the optimization direction. It provides index system reference for social software service evaluation.

College students as the main force of social software, their social software service evaluation has a great impact on the improvement of social software functions in the future. Therefore, it is essential to discuss and study the social software service factors of college students. It can provide a reference for the future development of social software services.

Because sampling surveys are limited in scope and quantity, they do not fully represent the overall state of society. The results did not discuss the aspects of personalization, and the applicability needs to be improved. Without considering various influential regulatory factors, choosing only two social software from many social software as empirical research objects, so the conclusions have certain limitations. Further research is needed.

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