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A Survey of Web 2.0 User Behavior: A Case Study of Social Software Usage Among Students at the Chinese Academy of Sciences

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Date: 2016-06-11T00:00:00+00:00

Abstract

From 263 valid questionnaires surveying doctoral and master' s students at the Chinese Academy of Sciences, the following conclusions were obtained: Mobile phones significantly influence Chinese students' communication behavior, representing an important Web 2.0 platform; Without personal or institutional purchase, 55% of students would choose alternative methods to obtain desktop software, indicating that free software is well-received; As an effective tool for communicating with others, 91.3% of students use instant messaging; 75% of students use P2P, primarily for entertainment; 51.1% of students have blogs, with sharing feelings being the most important function; Students hope that RSS can help them learn, for example by providing more academic information; Students do not truly understand what social bookmarking is, but are willing to try using it; for librarians and system resource administrators on network service platforms, this survey is very helpful for understanding users' thoughts and needs.

Full Text

User Behavior Research: A Case Study of Chinese Academy of Sciences Students' Use of Social Software

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Abstract

Based on 321 valid questionnaires from a survey of doctoral and master' s students at the Chinese Academy of Sciences, this study draws the following

conclusions: (1) Mobile phones significantly influence Chinese students' communication behavior, serving as an important platform. (2) Without personal or institutional purchase, 65.2% of students obtain desktop software through other means, indicating a preference for free software. (3) As an effective tool for interpersonal communication, 92.8% of students use instant messaging. (4) 61.1% of students use P2P file sharing, primarily for entertainment. (5) 54.5% of students maintain blogs, with sharing feelings being the most important function. (6) Students express interest in using RSS to support their studies, such as by providing more academic information. (7) Students do not truly understand what social bookmarking is but are willing to try using it.

For librarians and system administrators managing online resources, this survey provides valuable insights into users' thoughts and needs.

Keywords: Web 2.0; social software; user behavior; instant messaging; blog; RSS; social bookmarking

1. Research Background and Questions

Web 2.0 is a concept without a clear definition, with its meaning evolving alongside the network environment. The term emerged from brainstorming sessions between O' Reilly Media and International Media Corporation at a pre-conference meeting of the O' Reilly Media Web 2.0 Conference in October 2004. According to concept originator Tim O' Reilly, Web 2.0' s significance lies in attitude rather than technology—the network is merely a platform that enables mass participation and sharing, with its focus on users' social network effects.

Following extensive discussions about Web 2.0, O' Reilly proposed a clear framework (see Figure 1) explaining that Web 2.0 can be understood from technical architecture, social, and commercial perspectives. This research primarily investigates relevant social software usage behaviors from the social perspective.

2. Literature Review and User Behavior

Scholars have discussed Web 2.0 and social software from multiple angles. From a technical perspective, Web 2.0 applications are characterized by personalization and nine other features. From a business perspective, Web 2.0 remains focused on attracting users for advertising revenue. From an educational perspective, social software such as blogs and wikis can be applied to e-learning. From an information services and digital library perspective, Web 2.0 presents significant challenges and opportunities, and libraries should learn from companies like Amazon, Google, and Apple to establish broader information exchange spaces. From a cultural dissemination perspective, Web 2.0 transforms the network from a data tool into a communication tool. From a social function perspective, social software features include: (1) dialogue between people or groups, (2) social feedback support, (3) establishment of new social relationship channels, and (4) low-cost connectivity that enables millions to connect.

Empirical research on Web 2.0 user behavior remains in its infancy, with more related studies expected in the future. The China Internet Network Information Center published the "China Web 2.0 Development Status and Trends Survey Report" in 2005, surveying Chinese internet users and Web 2.0 companies through questionnaires and interviews. Other studies have examined knowledge management and social software intersections, virtual reality technology' s role in capturing enterprise expert knowledge, and social software applications in academic settings.

3. Research Design

This study employs a questionnaire survey method. The research process references Earl Babbage' s "Social Science Research Methods," with questionnaire design informed by the American Statistical Association' s guidelines. The survey instrument, titled "Student Group Web 2.0 Trends Questionnaire," consists of six sections: (1) personal basic information (name pinyin, gender, age); (2) computer usage (operating system, acquisition method, electronic communication devices); and (3)-(7) social software usage and perceptions, covering instant messaging (5 questions), P2P file sharing (4 questions), personal blogs (5 questions), RSS (4 questions), and social bookmarking (4 questions), totaling 30 closed-ended questions.

4. Research Methods

The survey targeted a concentrated sample of student groups: residents of the Zhongguancun Youth Apartments at the Chinese Academy of Sciences in Beijing, including doctoral and master's students. Their lifestyle and internet usage environment share common characteristics: adjacent living quarters, cafeteria dining, life confined to Beijing' s Haidian District, focus on scientific research and degree pursuit, and primary study and internet access locations being dormitories, laboratories, and classrooms.

Data collection involved questionnaire distribution in Buildings A, B, and C. Initially, using statistical software, random sampling was conducted by building, floor, and room units with face-to-face distribution and collection. After one week, this shifted to drop-off and centralized collection. From May 15 to June 15, 2006, 500 questionnaires were distributed, 321 were returned (64.2% response rate), yielding 321 valid responses.

Data analysis employed SPSS software, with results presented in six areas: (1) personal communication systems survey, (2) instant messaging usage survey, (3) P2P file sharing usage survey, (4) blog usage survey, (5) RSS usage survey, and (6) social bookmarking usage survey.

5. Survey Results Analysis

5.1 Personal Communication Systems Survey The sample was predominantly male (67.6%), with age distribution concentrated in the 25-30 range

(68.8%). Students primarily used Windows operating systems (95.3%). Regarding acquisition methods, non-personal and non-institutional purchases accounted for the majority (54.5%). Among personal electronic devices, mobile phones were most common (86.9%), followed by personal computers (78.5%), with 68.2% owning both devices.

5.2 Instant Messaging Usage Survey The survey revealed that instant messaging usage is universal among students, with only 1.6% not installed and 2.2% no longer using it. The most frequently used software was QQ (94.7%). Regarding user behavior, the majority (62.9%) keep instant messaging open during study or work hours, yet over half (53.9%) do not use it for discussing coursework or work matters. The vast majority perceive instant messaging as a tool for promoting interpersonal relationships (79.4%) and sharing feelings (63.9%).

5.3 P2P File Sharing Usage Survey The survey showed that 61.1% of students use P2P file sharing, with primary software being BitTorrent (48.3%), Xunlei (45.5%), and eMule (29.0%). User behavior indicates that P2P is mainly used for movie/music transmission (primary reason: 73.8%, secondary: 44.9%) and software downloads (primary: 48.3%, secondary: 44.9%), demonstrating recreational usage characteristics.

5.4 Blog Usage Survey The survey found that blog browsing is common among students (only 3.1% never and 1.9% never heard of it), but regular browsing is less frequent (occasional browsing: 58.3%, regular: 36.8%). Over half of students maintain personal blogs (54.5%). Regarding user behavior, primary reasons for browsing blogs are attractive content (73.8%) and knowing the author (51.7%), with passing time as a secondary reason (36.8%). Reasons for maintaining personal blogs are recording life (73.8%) and sharing feelings (68.5%), while expressing opinions (23.4%) and information exchange (13.1%) are less valued.

5.5 RSS Usage Survey The survey indicated that 38.3% of students subscribe to news, blogs, or academic information via RSS, with 45.5% continuing to use it. Half of the students (50.2%) express willingness to understand and try this subscription method. Regarding user perceptions of RSS, the majority are unwilling to pay for information. While willingness to pay for academic information subscriptions is slightly higher than for news or blogs, the proportion of students who would not subscribe to news and blog information is much higher than for academic information.

5.6 Social Bookmarking Usage Survey The survey revealed that over 60% of students have not engaged with social bookmarking (cannot use/never heard: 60.7%). However, nearly 60% express willingness to learn about it (try to understand: 58.9%). Regarding perceptions, 80% hope to browse others'

social bookmarks, and over 70% hope others will browse their own bookmarks, yet students are ambivalent about spending time creating social bookmarks themselves (willing: 38.6%, unwilling: 38.0%).

6. Discussion

In summary, under the premise of social characteristics, Web 2.0 is defined by four features: (1) interactive non-unidirectional communication, (2) participatory co-creation and sharing of information content, (3) unrestricted sharing of information resources, and (4) integrative services requiring multi-source combination. Social software exhibits a tendency to build interpersonal relationships within Web 2.0.

From an educational perspective, teachers wishing to use social software to enhance teaching effectiveness face short-term cognitive gaps with students regarding these tools. From an information services and digital library perspective, Web 2.0 presents enormous challenges and opportunities. Success requires grasping relevant technologies and addressing user needs—particularly recognizing that sharing feelings and maintaining interpersonal relationships are primary reasons students use social software.

Among various social software applications, student usage of instant messaging, P2P file sharing, and blog browsing is widespread, while personal blog ownership, RSS usage, and social bookmarking are less common. Social bookmarking remains particularly unfamiliar to most students. However, students' expressed willingness to learn about unfamiliar tools like RSS and social bookmarking indicates significant development potential. Additionally, given that most students own mobile phones and personal computers, developing mobile applications for social software could attract substantial potential users. Low-cost or free distribution models also facilitate promotion within student groups.

Students primarily use instant messaging tools like QQ and MSN to enhance interpersonal relationships and share emotional experiences, rather than for academic discussion. Software choice is less influenced by others and more by linguistic and cultural proximity. P2P usage via BitTorrent, Xunlei, and eMule also relates to leisure rather than scientific literature or data transfer. Blog browsing is content- and author-driven, while personal blogs serve to record life and share feelings. Analysis of RSS and social bookmarking usage reveals that current social software applications lack clear academic communication behaviors.

While students show interest in whether RSS can aid learning and research, they remain hesitant about paying for information or spending time sharing information with others. The sharing and participatory nature of Web 2.0 can gain student group support when free and efficient, but not otherwise. Across instant messaging, P2P, and RSS usage, students demonstrate a self-centered tendency, preferring freedom from team or task constraints.

From a commercial perspective, the strategy of capturing long-tail users for advertising will continue, as student groups prefer free information and software. From a technological development perspective, Web 2.0 applications will spread beyond personal computers to other electronic devices like mobile phones. From a user experience perspective, students will learn new network tools to solve increasingly complex information acquisition challenges. From a cultural dissemination perspective, cultural impact and language transformation will accelerate, though whether this reflects in student groups requires further investigation. From a social function perspective, student groups are already utilizing social software to build new social relationships.

7. Future Research

Future research should: (1) employ stratified random sampling to increase sample size; (2) use interview methods to gain deeper understanding of motivations; (3) continuously monitor Web 2.0 user behavior as technological development generates new research questions; (4) conduct focused group discussions to summarize group characteristics for comparison with quantitative data; and (5) incorporate additional variables such as cultural and policy factors.

Acknowledgments: This research received guidance from Professor Zhang Xiaolin and Professor Michael B. Twidale from the University of Pittsburgh during the research process.

Note: The final section of the original document appears to be from a different article about enterprise knowledge management and has been omitted as irrelevant content.

Note: Figure translations are in progress. See original paper for figures.

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