The Impact Mechanism of Insufficient Social Interaction among Academic Social Networking Site Users: A Qualitative Exploration (Post-print)

Authors: Zhang Shuai, Li Jing, Wang Wentao

Date: 2023-08-26T00:00:00+00:00

Abstract

[Purpose/Significance] This study investigates the influence mechanism of users' social insufficiency on academic social networking sites, providing theoretical guidance for users to optimize their academic social behaviors, while also offering references for the exploration and development of social functions on academic social networking sites. [Method/Process] Using NVivo 11 qualitative analysis software, content analysis was conducted on 41 retrieved research documents, identifying nine key influencing factors of users' social insufficiency on academic social networking sites and condensing them into three main influencing factors, based on which a theoretical model of influencing factors for users' social insufficiency on academic social networking sites was constructed. [Results/Conclusion] The literature review reveals that individual intention factors are direct influencing factors and internal driving forces of users' social insufficiency on academic social networking sites, while platform objective conditions and information factors are indirect influencing factors and external contextual factors. Specifically, individual intention factors include academic capital, subjective norms, sharing awareness, and time/energy; platform objective conditions include academic reputation mechanisms and late-mover disadvantages; information factors include information benefits, privacy information, and professional knowledge.

Full Text

The Mechanism of Users' Social Insufficiency in Academic Social Networking Sites: An Exploration Based on Qualitative Methods

Zhang Shuai, Li Jing, Wang Wentao
School of Management, Anhui University, Hefei 230601

Abstract

[**Purpose/Significance**] This study explores the influencing mechanism of users' social insufficiency in academic social networking sites, providing theoretical guidance for users to optimize their academic social behaviors and offering reference for the development of social functions on these platforms. [**Method/Process**] Using NVivo 11 qualitative analysis software, we conducted content analysis on 41 research documents to identify nine key influencing factors of social insufficiency in academic social networking sites, which were further clustered into three main factors. Based on this analysis, we constructed a theoretical model of influencing factors for user social insufficiency. [**Result/Conclusion**] The literature review reveals that individual intention factors serve as direct influencing factors and internal drivers of social insufficiency, while platform objective conditions and information factors act as indirect influencing factors and external contextual elements. Individual intention factors include academic capital, subjective norms, sharing consciousness, and time/energy. Platform objective conditions encompass academic reputation mechanisms and late-mover disadvantages. Information factors comprise information benefits, privacy concerns, and professional knowledge.

2. Related Concepts and Research

2.1 Academic Social Networking Sites Against the backdrop of deepening integration between social networks and various industries, academic social networking sites have emerged to facilitate academic exchange and collaboration. In the early 21st century, foreign academia began experimenting with specialized social networks for users, providing online communication services such as ScientistSolutions, NatureNetwork, and Facebookforscience. However, these platforms suffered from criticism by researchers and ultimately failed [6]. It was not until 2008, when academic social networking sites incorporated open access mechanisms and social networking concepts, that online academic exchange platforms like ResearchGate and Mendeley regained scholars' attention [14]. Domestic academic social networking sites in China followed suit, with platforms such as ScienceNet, CNKI Scholar Circle, and Muchong emerging.

This study defines users as research personnel who utilize academic social networking sites, while academic social networking sites refer to online services, tools, or platforms that provide research-oriented social networking for users

[15-16]. These platforms can be categorized into three types (see):

TABLE:1 Three Types of Academic Social Networking Sites

Type	Representative Platforms	Main Services
Research-sharing	WikiUrfist, Gate, Lalision	Providing scientific collaboration platforms
Resource-sharing	Mendeley, Zotero, EndNote	Providing academic resource sharing
Achievement-sharing	Academia.edu, Research-	Providing academic achievement sharing

As shown in , although different academic social networking sites vary in type and service focus, their primary function is to provide academic information sharing services and promote academic exchange and collaboration—activities that inherently depend on social interaction.

2.2 Social Attributes of Academic Social Networking Sites Users and their generated traffic constitute the foundation for social networking sites' survival and sustainable development [18]. The social attribute emphasizes stimulating user interaction to attract more users and traffic, representing the basic operational logic of current mainstream social media [19]. However, specialized social media platforms serving researchers currently emphasize tool characteristics rather than social features in their operations, with users treating academic social networking sites more as literature-sharing databases than as social platforms [7].

This study uses "social insufficiency" to describe this operational phenomenon. Social insufficiency refers to users rarely or never using the site for online communication and interaction with others, manifested in two aspects: (1) rarely or never using online chat functions, resulting in low activity levels and minimal peer communication; and (2) rarely or never using online commenting functions, with users exhibiting passive behavior—opening accounts but seldom expressing opinions, following experts without participating in research discussions [20].

2.3 Related Research Current research on academic social networking sites primarily analyzes them from social network perspectives [21-23] or investigates user behavioral motivations [24-26]. Social network perspective studies reveal that discipline determines the structure of academic social networks, while academic seniority determines scholars' positions within these sites [9]. Research indicates that researchers exhibit institutional homogeneity in academic social networks [27-28]. Studies on user behavioral motivations show that researchers' participation is mainly influenced by peers [29]. In academic blogs, perceived value plays a key role in user participation [30], and researchers are also driven by entertainment value [10]. This study adopts the underexplored perspective

of social insufficiency, analyzing relevant literature to examine user behavior on academic social networking sites.

3. Research Design and Data Analysis

3.1 Research Methods and Tools Content analysis is a qualitative research technique involving objective, systematic analysis of literature content to draw valid conclusions [31], emphasizing procedural, qualitative characteristics and inferential foundations [32]. This study employs content analysis to examine literature on factors influencing social insufficiency in academic social networking sites. NVivo 11 is a powerful computer-assisted qualitative data analysis software widely used in literature reviews, behavioral research, content analysis, and interview analysis, helping researchers organize, code, and analyze unstructured data. Its high compatibility with qualitative analysis enhances research scientific rigor and reliability [33].

3.2 Research Steps 3.2.1 Data Collection
To obtain comprehensive literature, we employed a two-step collection process [34]. First, we searched for literature related to our research topic using broad keywords "academic social networking sites" and "scientific social networking sites" in the Web of Science Core Collection, retrieving 53 English documents. Simultaneously, we searched Chinese CSSCI journals using "academic social networking sites" and "scientific social networking sites" as keywords, obtaining 32 Chinese documents. Second, we screened and supplemented the initial retrieval. After careful reading and analysis, we excluded irrelevant documents based on whether they explored user social behavior on academic social networking sites. Considering timeliness, we focused on literature published within the last five years (2013-2017), yielding 30 documents. We then conducted citation tracing, retrieving 11 additional documents using the same screening criteria. The search was conducted on August 3-4, 2017. Ultimately, 41 documents were selected for content analysis and assigned Arabic numerals 1-41.

3.2.2 Data Coding
We designed a rigorous coding scheme including standardized document processing, coding rules, and result presentation. (1) We imported the 41 processed documents into NVivo 11 as raw data, sorted them by filename, and verified content integrity. (2) To improve efficiency and focus, we designated abstracts, literature reviews, and conclusions as primary coding areas, with other sections as secondary. (3) Using a bottom-up approach, coding proceeded in three steps: First, coders deconstructed and analyzed documents, assigning concepts to gradually extract each influencing factor, marked as free nodes. Second, coders categorized common concepts, establishing relationships and summarizing them into higher-level categories marked as child nodes. Third, child nodes were further integrated into broader core categories marked as tree nodes. (4) To ensure reliability and consistency, another coder reviewed the results, with discrepancies resolved through group discussion. (5) We employed theoretical saturation

to test reliability, searching Google Scholar for three additional relevant documents not in our list. Following the same coding rules, no new categories emerged across these three documents [36], indicating our sample had reached theoretical saturation.

3.2.3 Results Reporting

After coding, we used NVivo 11's analytical functions supplemented by quantitative methods to describe material sources and reference points for each factor, constructing a theoretical model of influencing factors. We then qualitatively analyzed the main factors.

3.3 Data Analysis Through preliminary analysis and following grounded theory coding procedures [37], we first identified common concepts such as sharing consciousness, time/energy, social recognition, peer pressure, platform resources, standardized management, and academic incentive mechanisms, forming 14 free nodes. In the second coding stage, we used these nodes as axes to identify relationships, merging "standardized management" and "information interaction functions" with "platform resources" into the category "late-mover disadvantage." Ultimately, nine main categories emerged as child nodes: academic reputation mechanism, late-mover disadvantage, information benefits, academic capital, subjective norms, sharing consciousness, privacy information, professional knowledge, and time/energy. These were further integrated into three broad tree nodes: individual intention factors, platform objective conditions, and information factors (see).

TABLE:2 Data Coding Summary

Main Category	Subcategory	Reference Points	Material Sources
Individual Intention Factors	Academic Capital	13	[2,6,12,15-17,25,32,36]
	Subjective Norms	7	[2,3,8,10,19,23,37]
	Sharing Consciousness	7	[2,5,8,10,15,19,32]
	Time/Energy	2	[10,38]
Platform Objective Conditions	Academic Reputation Mechanism	6	[15-18,21]
	Late-mover Disadvantage	4	[5,9,16,17]
Information Factors	Information Benefits	14	[10,11,13,14,16-18,21,22,29,30-32,35,40]
	Privacy Information	9	[15,21,25,26,27,29,30,34,37]

Main Category	Subcategory	Reference Points	Material Sources
	Professional Knowledge	5	[5,9,17,31-33,35]

Using NVivo 11's modeling function, we constructed the theoretical model shown in [Figure 1: see original paper]. The model reveals that social insufficiency in academic social networking sites can be distilled into three main aspects: individual intention factors, platform objective conditions, and information factors, comprising nine key influences: academic capital, subjective norms, sharing consciousness, time/energy, academic reputation mechanism, late-mover disadvantage, information benefits, privacy information, and professional knowledge. Individual intention factors are internal, direct influences, while platform objective conditions and information factors are external, indirect contextual influences.

4. Research Findings

4.1 Individual Intention Factors

Individual intention factors are internal influences on social insufficiency, including academic capital, subjective norms, sharing consciousness, and time/energy. These accounted for 36.7% of all coding references, indicating significant impact.

Regarding academic capital, users' social activities are driven by the pursuit of maintaining academic reputation and online visibility. Research shows scholars use social functions to maintain academic influence [38] (10), with disseminating research becoming their primary social need [42] (32). Platform popularity correlates with increased online visibility [43] (37), prompting users to maintain presence across multiple sites [44] (15).

Subjective norms reveal that passive registration due to environmental pressure leads to social insufficiency, including peer pressure and hierarchical rank. Users joining due to peer influence show lower activity than active participants [45] (7), resulting in social insufficiency [11] (19). Offline hierarchical status also discourages proactive online social behavior [9] (38).

Sharing consciousness significantly contributes to social insufficiency. Academic resource sharing follows the "80/20 rule," where 20% of users provide 80% of resources, indicating weak overall sharing consciousness [46] (18). Users lack awareness for research collaboration and information sharing, resulting in low interaction levels [47] (21), with only a minority of active scholars engaging regularly [48] (16).

Time/energy constraints also affect social insufficiency. Due to research demands, users lack adequate time for social activities and perceive social networking as time-consuming [49] (9).

4.2 Platform Objective Conditions

Platform objective conditions are external contextual influences, manifested in academic reputation mechanisms and late-mover disadvantages, accounting for 35.7% of coding references.

The academic reputation mechanism is the most significant factor, as immature reputation systems affect social insufficiency [50] (30). Despite many registered users, low activity relates to platform incentive systems [51] (11). Digital reputation remains unrecognized in traditional academic evaluation, failing to satisfy users' reputation pursuits [52] (16).

Late-mover disadvantages compared to leading non-academic sites include information interaction functions, platform resources, and standardized management. Users see no urgent need to replicate non-academic social activities on academic platforms. Research suggests enriching information interaction functions would enhance communication [53-54] (26,29). Current platforms feature large but low-quality resource volumes [55] (33) with unguaranteed quality [49] (9), and suffer from emphasis on creation over maintenance [56] (28), severely hindering academic exchange [57] (35).

4.3 Information Factors

Information factors are external contextual influences comprising information benefits, privacy concerns, and professional knowledge, accounting for 27.6% of coding references.

Information benefits drive user participation, with platforms serving as free paper databases. Perceived lack of benefits severely impacts social initiative [58-59] (3,4). Researchers tend to consume rather than share information [60-61] (1,13).

Privacy concerns also hinder participation [62] (24). Researchers fear that sharing project details may create intellectual property issues [63], with some institutions prohibiting use to prevent leaks [64] (5).

Professional knowledge characteristics impede social interaction, requiring specialized background and comprehension that hinders communication [7] (17). Studies suggest using accessible language to facilitate interaction [47] (21).

5. Discussion and Implications

Our analysis shows three main factors significantly influence social insufficiency: individual intention factors, platform objective conditions, and information factors. Individual intention factors are direct, internal drivers, while platform conditions and information factors are indirect, external contextual influences. Based on these findings, we propose optimization strategies:

(1) For Research Users

As primary actors, users should value both "academic professionalism" and "social attributes." They can expand academic influence and gain capital through

online visibility and research sharing, while strengthening collaboration to generate "Medici effects" [65]. Users should enhance information sharing consciousness to maximize utility while protecting privacy to avoid intellectual property disputes.

(2) For Platform Operators
Platforms should: (1) Establish academic reputation evaluation systems to gain social recognition for social activities and incentivize participation; (2) Improve information interaction functions by reducing barriers like cluttered pages, delays, and complex operations to encourage sustained social function usage; (3) Strengthen standardized management by balancing publication with maintenance, reducing spam, and highlighting important information to enhance user experience; (4) Enhance privacy protection using big data authentication and advanced anonymization to build trust and promote participation; (5) Learn from leading non-academic sites by designing engaging features like paid Q&A, tipping, and disappearing messages to boost efficiency.

This qualitative study analyzed the mechanism of social insufficiency, addressing: (1) Why social insufficiency occurs—resulting from internal drivers (individual intention) and external contexts (platform conditions and information factors); and (2) Which key factors shape it—nine factors including academic capital, subjective norms, sharing consciousness, time/energy, academic reputation mechanism, late-mover disadvantage, information benefits, privacy information, and professional knowledge.

Limitations include incomplete literature coverage, subjective data analysis, and reliance on existing literature. Future research could employ surveys or interviews for validation.

References

[1] China Internet Network Information Center. 40th Statistical Report on China's Internet Development [R/OL]. [2017-08-04]. http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/hlwtjbg/20170
[2] Krause J. 5-Tracking references with social media tools: organizing what you've read or want to read [EB/OL]. [2018-01-06]. http://www.sciencedirect.com/science/article/pii/B978184
[3] ResearchGate. Recruiting [EB/OL]. [2017-08-04]. https://solutions.researchgate.net/recruiting.
[4] We're Hiring [EB/OL]. [2017-08-04]. https://www.academia.edu/hiring.
[5] Muchong [EB/OL]. [2017-08-04]. http://muchong.com.
[6] Richard VN. Online collaboration: scientists and the social network [J]. Nature, 2014, 512(7513): 126-129.
[7] Jeng W, He D, Jiang J. User participation in an academic social networking service: a survey of open group users on Mendeley [J]. Journal of the Association for Information Science and Technology, 2015, 66(5): 890-904.
[8] Gruzd A, Goertzen M. Wired academia: why social science scholars are using social media [C]//2013 46th Hawaii International Conference on System Sciences (HICSS). Washington, DC: IEEE, 2013: 3332-3341.
[9] Jordan K. Academics and their online networks: exploring the role of

academic social networking sites [J]. First Monday, 2014, 19(11): 1-21.
[10] Chakraborty N. Activities and reasons for using social networking sites by research scholars in NEHU: a study on Facebook and ResearchGate [J]. Nflibnetcentre, 2012, 5(3): 19-27.
[11] Meishar-Tal H, Pieterse E. Why do academics use academic social networking sites? [J]. The International Review of Research in Open and Distributed Learning, 2017, 18(1): 1-22.
[12] Hu R. Research and application of user analysis methods in academic social networking sites [D]. Guangzhou: South China Normal University, 2015.
[13] Jia XL, Wang YF. Concepts, characteristics and research hotspots of academic social networking sites [J]. Library Science Research, 2016(5): 7-13.
[14] Zhao Y, Li LQ. Review and reflection on domestic and international academic social networking site research [J]. Information and Documentation Services, 2016(6): 41-47.
[15] Oh JS, Wei J. Groups in academic social networking services—an exploration of their potential as a platform for multidisciplinary collaboration [C]//IEEE Third International Conference on Privacy, Security, Risk and Trust. Boston: IEEE, 2011: 545-552.
[16] Thelwall M, Kousha K. Academia.edu: social network or academic network? [J]. Journal of the Association for Information Science & Technology, 2015, 65(4): 721-731.
[17] Rebiun. Science 2.0: the use of social networking in research [EB/OL]. [2017-08-05]. https://gredos.usal.es/jspui/bitstream/10366/104135/1/DBD_{{{Rebiun}}*{{Ciencia20}}*{EN}.pdf.
[18] Zhang XJ, Zhou XC. Community governance strategies, user readiness and knowledge contribution: a case study of Baidu Baike virtual community [J]. Management Review, 2016, 28(9): 72-82.
[19] Li XF. Incentive design and knowledge sharing—research on knowledge sharing systems in Baidu content open platform [J]. Science Research, 2015, 33(2): 272-278.
[20] Krrkup G. Academic blogging: academic practice and academic identity [J]. London Review of Education, 2010, 8(1): 75-84.
[21] Gao H, Hu C, Jiang T. An exploratory study of paper sharing in Mendeley's public groups [C]//iConference 2015 Proceeding. Illinois: iSchools, 2015: 659-667.
[22] Piwowar H. Introduction altmetrics: What, why and where? [J]. Bulletin of the American Society for Information Science & Technology, 2013, 39(4): 8-9.
[23] Liu CL, He QC. Research on evaluating paper relevance using different types of selective metrics—based on three academic social networking tools: Mendeley, F1000 and Google Scholar [J]. Journal of the China Society for Scientific and Technical Information, 2013, 32(2): 206-212.
[24] Jeng W, Desautels S, He D, et al. Information exchange on an academic social networking site: a multidisciplinary comparison on ResearchGate Q&A [J]. Journal of the Association for Information Science and Technology, 2017, 68(3): 638-652.
[25] Wang YF, Jia XL, Fu Z. Research on user content usage behavior in

academic social networking sites—an empirical analysis based on popular posts on ScienceNet [J]. Modern Library and Information Technology, 2016, 32(6): 63-72.
[26] Gu F, Widen-Wulff G. Scholarly communication and possible changes in the context of social media: a Finnish case study [J]. The Electronic Library, 2011, 29(6): 762-776.
[27] Ortega JL. How is an academic social site populated? A demographic study of Google Scholar citation population [J]. Scientometrics, 2015, 104(1): 1-18.
[28] Mewburn I, Thomson P. Why do academics blog? An analysis of audiences, purposes and challenges [J]. Studies in Higher Education, 2013, 38(8): 1105-1119.
[29] Salahshour M, Dahl HM, Iahad NA. A case of academic social networking sites usage in Malaysia: drivers, benefits, and barriers [J]. International Journal of Information Technologies & Systems Approach, 2016, 9(2): 88-99.
[30] Deng L, Yuen AH K. Understanding student perceptions and motivation towards academic blogs: an exploratory study [J]. Australasian Journal of Educational Technology, 2012, 28(1): 48-66.
[31] Weber RP. Basic content analysis [M]. London: Sage publications, 1990: 49.
[32] Yan SM. Content analysis method and its application in human resource management research [J]. Soft Science, 2008, 22(9): 133-139.
[33] Bazeley P. Qualitative data analysis with NVivo [M]. London: Sage publications, 2007: 82-83.
[34] Ellis T, Levy Y. A systems approach to conduct an effective literature review in support of information systems research [J]. International Journal of an Emerging Transdiscipline, 2006, 9(9): 181-212.
[35] Xue T, Liu Y, Liu YQ. Influencing factors of embedded teaching implementation in university libraries [J]. Library and Information Service, 2013, 57(15): 83-87.
[36] Francis JJ, Johnston M, Robertson C, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies [J]. Psychology and Health, 2010, 25(10): 1229-1245.
[37] Chen XM. The ideas and methods of grounded theory [J]. Educational Research and Experiment, 1999(4): 58-63.
[38] Nicholas D. New ways of building, showcasing, and measuring scholarly reputation in the digital age [J]. Information Services & Use, 2017, 37(1): 1-5.
[39] Augg H, West R, Tateishi I, et al. Mendeley: creating communities of scholarly inquiry through research collaboration [J]. Techtrends, 2011, 55(1): 32.
[40] Nicholas D, Herman E, Jamali HR, et al. New ways of building, showcasing, and measuring scholarly reputation [J]. Learned Publishing, 2015, 28(3): 169-183.
[41] Ajzen I. The theory of planned behavior [J]. Organizational Behavior and Human Decision Processes, 1991, 50(2): 179-211.
[42] Hu WJ, Wang R. Analysis of academic activity characteristics in social

networks and coping strategies [J]. Information and Documentation Services, 2017(1): 34-41.
[43] Zhang YK, Zhang WJ, Hu FD. Survey on Chinese high-impact scholars' usage behavior of academic social networking sites [J]. Information and Documentation Services, 2017, 38(3): 96-101.
[44] Elsayed AM. The use of academic social networks among Arab users: a survey [J]. Social Science Computer Review, 2016, 34(3): 378-391.
[45] Ortega JL. Disciplinary differences in the use of academic social networking sites [J]. Online Information Review, 2015, 39(4): 520-536.
[46] Veletsianos G. Open practices and identity: evidence from educators' social media participation [J]. British Journal of Educational Technology, 2013, 44(4): 639-651.
[47] Zhou XL, Ma HQ, Hou CM, et al. Enlightenment of Kudos platform for enhancing influence of Chinese journal publishing platforms [J]. Chinese Journal of Scientific and Technical Periodicals, 2016, 27(10): 1061-1067.
[48] Nandez G, Borrego A. Use of social networks for academic purposes: a case study [J]. The Electronic Library, 2013, 31(6): 781-791.
[49] Collins K, Shiffman D, Rock J. How are scientists using social media in the workplace? [J]. PloS One, 2016, 11(10): e0162680.
[50] Zhang SF, Zhang XX. Analysis of influencing factors of user behavior tendency in scientific social networks [J]. Journal of the National Library of China, 2014, 23(4): 36-41.
[51] Ahmed EB, Tebourshi WK, Karaa WB, et al. Ontossn: scientific social network ontology [C]//2014 15th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD). Nevada: IEEE, 2014: 1-4.
[52] Zylas V. The impact of social networking 2.0 on organisations [J]. Electronic Library, 2009, 27(6): 906-918.
[53] Li LL, Wu XN. Analysis of development status and trends of scientific social networks [J]. Library Science Research, 2013, 34(1): 36-41.
[54] Chen MH, Qi XJ, Liu Y. Research on influencing factors of scientific social network usage behavior [J]. Information Studies: Theory & Application, 2015, 38(10): 73-79.
[55] Qu BQ. Research cooperation behavior and reflection in online academic forums—taking the "Muchong" academic forum as an example [J]. Science and Technology Management Research, 2010, 30(10): 215-218.
[56] Wang G, Huang Y, He XR, et al. Impact of scientific social networks on scientific paper dissemination [J]. Chinese University Technology Transfer, 2017(6): 43-45.
[57] Liu XJ, Liu XZ. Research on characteristics of virtual academic groups—from a user analysis perspective [J]. Library and Information Service, 2015, 59(24): 83-92.
[58] Bullinger AC, Hallerstede S, Renken U, et al. Towards research collaboration: a taxonomy of social research network sites [C]//Sustainable IT Collaboration Around the Globe, 16th Americas Conference on Information Systems. Lima: AMCIS, 2010: 1-10.

[59] Chen JM, Tang Y, Li JG, et al. Community-based scholar recommendation modeling in academic social networking sites [C]//International Conference on Web Information Systems Engineering. Berlin: Springer, 2013: 325-334.
[60] Holmberg K, Bowman TD, Haustein S, et al. Astrophysicists' conversational connections on Twitter [J]. PloS One, 2014, 9(8): e106086.
[61] Willian MS, Woodacre M. The possibilities and perils of academic social networking sites [J]. Online Information Review, 2016, 40(2): 282-294.
[62] Li LL, Wu XN, Zhang F. Investigation and analysis of open scientific social networks—taking Academia.edu as an example [J]. Information and Documentation Services, 2013, 34(1): 90-93.
[63] Collins E, Hide B. Use and relevance of Web 2.0 resources for researchers [EB/OL]. [2017-08-13]. http://elpub.scix.net/cgi-bin/works/Show?119_{elpub2010}.
[64] Gruzd A, Staves K, Wilk A. Connected scholars: examining the role of social media in research practices of faculty using the UTAUT model [J]. Computers in Human Behavior, 2012, 28(6): 2340-2350.
[65] Johansson. The Medici effect: breakthrough insights at the intersection of ideas, concepts, and cultures [M]. Translated by Liu ED, Yang XZ. Beijing: The Commercial Press, 2006: 3.

Author Contributions:
Zhang Shuai: Literature collection and data processing, paper writing and revision;
Li Jing: Research proposition and methodology, paper revision;
Wang Wentao: Research framework, paper revision.

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