

Acceptance and Quality Perception of Social Network Standard and Non-Standard Services in Different Cultures

Katsiaryna S. Baran^(✉) and Wolfgang G. Stock

Department of Information Science, Heinrich Heine University Düsseldorf,
Düsseldorf, Germany
Katsiaryna.Baran@hhu.de

Abstract. Language and culture play important roles in social computing and social media research. Due to network effects, on national or regional social network service (SNS) markets there is only one “standard,” which is broadly accepted by the users. Sometimes users additionally check out another SNS (a “non-standard”) but do not or only rarely use it after adoption. For typical evaluation dimensions of perceived quality (ease of use, usefulness, trust, fun) and dimensions of acceptance (adoption, use, impact, diffusion) we analyze the importance of the evaluation dimensions and the correlations between all dimension for both, the standard and a non-standard SNS as well as for two cultures, namely Russia and Germany. In our study, the SNS standards are Facebook in Germany and Vkontakte in Russia, the non-standards are Vkontakte in Germany and Facebook in Russia.

Keywords: Social network services · TAM · UTAUT · ISE · Perceived quality · Acceptance · Facebook · Vkontakte · Standard · Culture

1 Introduction

Along the last decade, social network services (SNSs) became popular in nearly all parts of the world. With Boyd and Ellison [3], we define SNSs as Web services allowing users to construct profiles, to connect with other users, and to view other profiles on the service. Due to network effects, we are able to identify exactly one SNS player, which became “standard” on a national information market [16]. For example, in the U.S. the standard SNS nowadays is Facebook, while in Russia and neighboring countries Vkontakte is very popular [1].

Why are SNSs that popular? What drives successful SNSs [13]? In the literature of information services acceptance we bank on well-established models such as the Technology Acceptance Model (TAM) [6], the Unified Theory of Acceptance and Use of Technology (UTAUT) [23] and the Information Service Evaluation Model (ISE) [20], which in turn is a modified version of the DeLone/McLean [7] and the Jennex/Olfman [11] model. Some of the models are applied to describe the success of SNSs. Most authors use modified (i.e., enriched) versions of TAM [4, 5, 10, 12–15, 17, 22] or (to a lesser extent) UTAUT [9, 19].

Our theoretical base is the ISE model [20]. We are going to study both, the importance of the dimensions of ISE for the users as well as the correlations between indicators of perceived quality and indicators of acceptance of SNSs. Additionally, we study SNSs across cultures and countries [18, 21]. For two countries (Russia and Germany), we analyze perceived quality and acceptance of SNSs for both, the actual standard and another (known and used) service. Our research questions (RQ) are: Are there differences of the perceived quality values and the acceptance values between the standard SNS and the non-standard SNS (RQ 1)? How do all dimensions of SNSs' perceived quality and SNSs' acceptance correlate? Are there differences in the correlation values between the standard and the non-standard (RQ 2)? Our exemplary SNSs are Facebook [8] and Vkontakte [1].

Under what conditions is IT accepted and used? Davis' empirical surveys [6] lead to two dimensions of perceived quality, namely perceived usefulness and perceived ease of use. In the further development of technology acceptance models, it is shown that additional dimensions join in determining the usage of information systems. On the one hand, there is the trust that users have in a system, and on the other hand, the fun that users experience when using a system [20]. Our literature study yields that all four dimensions of perceived quality (ease of use, usefulness, trust, and fun) were applied in nearly all studies of SNS success.

We consider information acceptance as a concept consisting of the four aspects of adoption, usage, impact and diffusion of an information service [2, 20]. If the "right" person in an appropriate situation meets the "right" service, she or he will adopt this service for the first time. Adoption does not mean use. One can adopt a service and stop to use it or use it only rarely. And one can adopt it and use it permanently. In the case of use it is possible that the user's information behavior will change. This aspect we will call "impact." Finally, an information service will diffuse into a society, when many people use it and it has impact on their information behavior. Diffusion is a typical phenomenon of network economics following the principle of "success breeds success." The more users an information service is able to attract the more the value of the service will increase. More valuable services will attract further users, etc. Other authors call the diffusion dimension "perceived connectedness" [21], "perceived critical mass" [22], "network externalities" [26] or "perceived social capital" [4, 5].

2 Method

The participants of this study were current SNS users in Russia (Moscow) and in Düsseldorf (Germany). Empirical data was collected by a questionnaire and additionally by in-depth qualitative interviews in February and March 2014. Our test persons were students from Lomonosov Moscow State University (N = 54) and students from Heinrich Heine University Düsseldorf (N = 27). A total of 81 test persons finished the questionnaire and the interview. All Russian participants had a Vkontakte account and used it frequently; all Russian students had also a Facebook account, but most of them did not use it actively. German students had a Facebook account and used it very actively. They did not have a Vkontakte account. So our test persons were instructed to create it for this study and used it actively about one month. All test

Table 1. Importance of quality and acceptance dimensions for the standard (Vkontakte/Russia: N = 54; Facebook/Germany: N = 27; Scale: 1 to 10) and the non-standard (Facebook/Russia: N = 54; Vkontakte/Germany: N = 27; Scale: 1 to 10).

	Vkontakte Russia Mean (SD)	Facebook Germany Mean (SD)	<i>Vkontakte Germany Mean (SD)</i>	<i>Facebook Russia Mean (SD)</i>
Ease of use	9.13 (0.94)	7.91 (1.32)	7.82 (1.61)	4.95 (2.47)
Usefulness	3.93 (2.02)	5.67 (1.65)	4.38 (1.40)	2.49 (1.82)
Trust	6.38 (2.52)	5.90 (2.24)	3.83 (2.14)	2.46 (2.01)
Fun	5.77 (2.39)	4.80 (1.95)	3.73 (1.94)	2.59 (1.84)
Adoption	7.98 (2.76)	7.33 (2.65)	4.41 (2.99)	2.57 (2.53)
Use	7.47 (2.06)	7.05 (1.70)	2.98 (1.59)	2.13 (1.70)
Impact	5.17 (2.64)	4.89 (2.12)	2.32 (1.52)	1.76 (1.53)
Diffusion	6.95 (2.65)	6.26 (2.41)	4.19 (2.70)	3.87 (3.08)

Bold: standard; italics: non-standard; SD: standard deviation.

persons were familiar with both SNSs. The questionnaire included 50 items. On a scale between 1 (not at all) and 10 (highly applying), every test person had to estimate the importance of an indicator for his/her SNS behavior for both services. Besides the language all questions were identical. We calculated the mean values for the two analyzed standards and the two non-standards as well as additionally the correlations (Pearson, two-sided) for all pairs of dimensions.

3 Results

In Table 1 we see the mean importance values of the studied eight dimensions for the standard SNSs and for the non-standard SNSs. For the both standard SNSs, the values are (more or less) similar. But the differences between the values for the national standard and the non-standard are, for nearly all dimensions, huge.

In Tables 2.1 and 2.2 we present the correlations between the eight dimensions for the standard and for the non-standard SNSs. A very important dimension is the SNS's use. Use correlates independently from standard or non-standard positively with all other dimensions. Remarkable correlations for the Russian standard (Table 2.1) are between use and trust (+0.54***), use and fun (+0.55***), use and adoption (+0.55***) as well as use and impact (+0.70***). The more the standard SNS in Russia is used, the more it is perceived as trustworthy and funny (and vice versa).

In Russia, there is a high interdependence between use and impact: the more a user applies an SNS the more his or her information behavior has changed. For the German standard SNS (Table 2.2), use is highly correlated with impact (+0.53**; similar to Russia), but here use is also highly correlated with diffusion (+0.61**). The more diffusion is perceived the more the SNS is used (and—of course—vice versa).

Especially for Germany (standard and non-standard) we observe high correlations of diffusion with fun (standard: +0.68***; non-standard: +0.74***) and with impact

Table 2.1. Russian standard (Vkontakte) vs. Russian non-standard (Facebook) by Russian SNS users (n = 54)

	Ease of use	Usefulness	Trust	Fun	Adoption	Use	Impact	Diffusion
Ease of use	1							
Usefulness	+0.12 <i>+0.15</i>	1						
Trust	+0.27* <i>+0.20</i>	+0.38** <i>+0.40**</i>	1					
Fun	+0.02 <i>+0.32*</i>	+0.44** <i>+0.78***</i>	+0.61*** <i>+0.50***</i>	1				
Adoption	+0.19 <i>+0.30*</i>	+0.13 <i>+0.29*</i>	+0.41** <i>+0.42**</i>	+0.31* <i>+0.49***</i>	1			
Use	+0.17 <i>+0.32*</i>	+0.33* <i>+0.40**</i>	+0.54*** <i>+0.52***</i>	+0.55*** <i>+0.64***</i>	+0.55*** <i>+0.75***</i>	1		
Impact	+0.21 <i>+0.22</i>	+0.34* <i>+0.19</i>	+0.54*** <i>+0.30*</i>	+0.65*** <i>+0.52***</i>	+0.38** <i>+0.41**</i>	+0.70*** <i>+0.59***</i>	1	
Diffusion	+0.13 <i>+0.17</i>	-0.10 <i>-0.06</i>	+0.17 <i>+0.21</i>	+0.14 <i>+0.09</i>	+0.26* <i>+0.23</i>	+0.34* <i>+0.09</i>	+0.25* <i>+0.11</i>	1

Bold: standard; italics: non-standard; *: p < 0.05; **: p < 0.01; ***: p < 0.001; all other: not significant.

Table 2.2. German standard (Facebook) vs. German non-standard (Vkontakte) by German SNS users (n = 27)

	Ease of use	Usefulness	Trust	Fun	Adoption	Use	Impact	D.
Ease of use	1							
Usefulness	+0.35* <i>+0.44*</i>	1						
Trust	+0.40* <i>+0.43*</i>	+0.77*** <i>+0.63***</i>	1					
Fun	+0.28 <i>+0.57**</i>	+0.59** <i>+0.53**</i>	+0.68*** <i>+0.67***</i>	1				
Adoption	+0.22 <i>+0.43*</i>	+0.36* <i>+0.38*</i>	+0.54** <i>+0.62**</i>	+0.35* <i>+0.49*</i>	1			
Use	+0.30 <i>+0.59**</i>	+0.40* <i>+0.33*</i>	+0.43* <i>+0.59**</i>	+0.35* <i>+0.50**</i>	+0.38* <i>+0.66***</i>	1		
Impact	+0.45* <i>+0.45*</i>	+0.37* <i>+0.48*</i>	+0.48* <i>+0.69***</i>	+0.53** <i>+0.57**</i>	+0.47* <i>+0.62**</i>	+0.53** <i>+0.78***</i>	1	
Diffusion	+0.24 <i>+0.54**</i>	+0.39* <i>+0.35*</i>	+0.41* <i>+0.41*</i>	+0.68*** <i>+0.74***</i>	+0.42* <i>+0.46*</i>	+0.61** <i>+0.51**</i>	+0.79*** <i>+0.59**</i>	1

Bold: standard; italics: non-standard; *: p < 0.05; **: p < 0.01; ***: p < 0.001; all other: not significant.

(standard: +0.79***; non-standard: +0.59**). For Russian users, the correlations of diffusion (for the standard as well as for the non-standard) are not that high. For some correlations, there are huge differences between the standard and the non-standard SNS. E.g., the correlation value of fun and ease of use is not very high or around zero in Germany (+0.28) and in Russia (+0.02) for the standard, but is moderately high for the non-standard (Germany: +0.57**; Russia: +0.32*). However, for other correlations, there hardly are differences between the national standard and the non-standard, but between the studied countries (Russia versus Germany) as, for example, the mentioned differences of the correlations of diffusion.

4 Discussion

What is new in this study? To our knowledge, this is the first study on social network services (SNSs) which incorporates the difference between a standard service (which is broadly accepted and used in a country or region due to network effects) and the non-standard services (other services, which are thoroughly known, but not or only rarely used in the same country or region). There are clear differences in the mean values of perceived quality and acceptance between the respective information services. While here (RQ 1) is a decisive result, this holds not true for the correlations between the single dimensions (RQ 2). For some correlation values we find remarkable differences between the standard SNS and the non-standard SNS (e.g., fun and ease of use). But for most correlations, we are not able to present such clear differences between the standard and the non-standard SNS. There are also clear similar patterns inside one culture (Russia versus Germany), e.g., all correlations of diffusion—independently from the standard/non-standard dichotomy. Here, obviously the cultural environment plays an important role.

References

1. Baran, K.S., Stock, W.G.: Facebook has been smacked down. The Russian special way of SNSs: Vkontakte as a case study. In: Proceedings of the 2nd European Conference on Social Media (ECSM 2015), 9–10 July 2015, Porto, Portugal (2015)
2. Baran, K.S., Stock, W.G.: Acceptance and quality perceptions of social network services in cultural context: Vkontakte as a case study. In: Proceedings of the 9th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2015), 12–15 July 2015, Orlando, Florida, USA (2015)
3. Boyd, D.M., Ellison, N.B.: Social network sites: definition, history, and scholarship. *J. Comput. Mediated Commun.* **13**(1), 210–230 (2007)
4. Choi, G., Chung, H.: Elaborating the technology acceptance model with social pressure and social benefits for social networking sites (SNSs). *Proc. Am. Soc. Inf. Sci. Technol.* **49**, 1–3 (2012)
5. Choi, G., Chung, H.: Applying the technology acceptance model to social networking sites (SNS): impact of subjective norm and social capital on the acceptance of SNS. *Int. J. Hum. Comput. Interact.* **29**(10), 619–628 (2013)
6. Davis, F.D.: Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* **13**(3), 319–340 (1989)
7. DeLone, W.H., McLean, E.R.: The DeLone and McLean model of information systems success. a ten-year update. *J. Manag. Inf. Syst.* **19**(4), 9–30 (2003)
8. Facebook: Our Mission (2014). <http://newsroom.fb.com/company-info>
9. Gruzd, A., Staves, K., Wilk, A.: Connected scholars: examining the role of social media in research practices of faculty using the UTAUT model. *Comput. Hum. Behav.* **28**(6), 2340–2350 (2012)
10. Jih, D., Zhou, M.-M.: A study on the user acceptance model of SNS websites based TAM. In: Proceedings of the 19th International Conference on Industrial Engineering and Engineering Management: Assistive Technology of Industrial Engineering, pp. 1409–1420. Springer, Berlin (2013)

11. Jennex, M.E., Olfman, L.: A model of knowledge management success. *Int. J. Knowl. Manag.* **2**(3), 51–68 (2006)
12. Kwon, O., Wen, Y.: An empirical study of the factors affecting social network service use. *Comput. Hum. Behav.* **26**(2), 254–263 (2010)
13. Kwon, S.J., Park, E., Kim, K.I.: What drives successful social networking services? A comparative analysis of user acceptance of Facebook and Twitter. *Soc. Sci. J.* **51**(4), 534–544 (2014)
14. Leng, G.S., Lada, S., Muhammad, M.Z., Ibrahim, A.A.H.A., Amboala, T.: An exploration of social networking sites (SNS) adoption in Malaysia using technology acceptance model (TAM), theory of planned behavior (TPB) and intrinsic motivation. *J. Internet Bank. Commer.* **16**(2), 1–27 (2011)
15. Lin, K.-Y., Lu, H.-P.: Why people use social networking sites: an empirical study integrating network externalities and motivation theory. *Comput. Hum. Behav.* **27**(3), 1152–1161 (2011)
16. Linde, F., Stock, W.G.: *Information Markets: A Strategic Guideline for the I-Commerce*. De Gruyter Saur, Berlin (2011)
17. Rauniar, R., Rawski, G., Yang, J., Johnson, B.: Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *J. Enterp. Inf. Manag.* **27**(1), 6–30 (2014)
18. Rohn, U.: Social networking sites across cultures and countries: Proximity and network effects. *Qual. Res. Rep. Commun.* **14**(1), 28–34 (2013)
19. Salim, B.: An application of UTAUT model for acceptance of social media in Egypt: a statistical study. *Int. J. Inf. Sci.* **2**(6), 92–105 (2012)
20. Schumann, L., Stock, W.G.: The Information Service Evaluation (ISE) model. *Webology* **11**(1), article 115 (2014)
21. Shin, D.-H.: Analysis of online social networks: a cross-national study. *Online Inf. Rev.* **34**(2), 473–495 (2010)
22. Sledgianowski, D., Kulviwat, S.: Using social network sites: the effects of playfulness, critical mass and trust in a hedonic context. *J. Comput. Inf. Syst.* **49**(4), 74–83 (2009)
23. Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D.: User acceptance of information technology: toward a unified view. *MIS Q.* **27**(3), 425–478 (2003)