

A Comparative Review of Research Literature on Microblogging Use and Risk in Organizational and Educational Settings

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Abstract. Although the enterprise and education are very different sectors of activity and have diverse research traditions, this review argues that there is a benefit to be derived from comparing research work across the two settings. A thematic analysis of research literature collected for the two fields was undertaken, and a generic framework of uses and risks of microblogging produced, which is the main contribution of the paper. Two of the main aspects of microblogging in organisations are found to be communication and awareness; and in education the main aspect is learning. Some of the ideas about how to use microblogging are potentially useful for the other context, particularly the concept of awareness from the organisational literature. While the organisational literature has a major focus on risk, this appreciation is far less developed in the educational context, increasing such an emphasis would increase impact on employability.

Keywords: Microblogging, Enterprise microblogging, Microblogging in Higher Education, Twitter, Yammer.

1 Introduction

The number of active users on Twitter has increased beyond those predictions made by Bennett (2012), where it was suggested that Twitter would have more than 250 million active users by the end of 2012. Microblogging (MB), on Twitter and using other tools such as weibo and yammer, is the most recent social phenomena of Web 2.0 (Hauptmann and Gerlach 2010) enabling users to broadcast information about their activities, opinions and status, as well as to receive quick notifications (Günther et al. 2009; Java et al. 2007; Zhang et al. 2010). Users can stay connected to their friends, family members and co-workers through their computers and mobile phones (Huberman et al. 2008). Inevitably the phenomenon of microblogging has already attracted much research interest.

The use of microblogging has been investigated across a number of contexts by researchers, such as a learning tool (Ebner and Maurer 2009), describing phenomenon (Huberman et al. 2008), for facilitating collaborative processes among employees

(Riemer et al. 2011a), as a form of electronic consumer word-of-mouth (Jansen and Zhang 2009) and in professional communities of practice (Dunlap and Lowenthal 2009). Some other research attempts to identify global patterns in Twitter usage, without recognizing differences between contexts (Java et al. 2007). But most research to date has been limited to a particular sector of use. Research that explores experiences across different sectors is rather lacking.

The present study explores the value of a comparative literature review. It compares the literature on microblogging applications in two different areas, namely, Enterprise Microblogging (EMB) and in Higher Education (MIHE) with a view to integrating understanding across the two domains, be that copying practices between sectors or emulating theoretical viewpoints.

More formally the research questions that the review sought to answer were:

1. What does the research literature tell us about how MB is being used in the two contexts?
2. Which practices in use could be borrowed between the sectors?
3. Which theoretical perspectives and methods might be borrowed between sectors?

2 Methodology

The review is based on a thematic analysis of peer reviewed research literature collected in October 2012. The collection comprised around 30 papers on enterprise microblogging (EMB), defined as use of microblogging primarily with internal audiences behind the firewall. Around 25 papers on microblogging in Higher Education (MIHE) made up the rest of the corpus. The literature was identified through specialized journals and conference proceedings database for research publications. For EMB these included the HCI conference, Information Systems conferences, International conference on Collaboration Technologies and Systems, Information security management conference, Business and information systems engineering, IEEE and ACM. For MIE, these included ERIC, Sage journals online, relevant e-learning conferences, such as ALT-C, ASCLITE. Additionally, web of sciences was used, using keyword searches on terms including: 'Microblogging' 'Twitter' 'Yammer' 'Social Media' 'Web 2.0' 'Higher Education' 'Enterprise'. The selection criteria included articles that contained the description, methodology, trials, results of the use of microblogging in EMB and MIHE.

For the EMB literature, the researchers found the first paper to be published in 2009. Most of the research to date has been published about examples from the USA and Europe and have been about uses in large organisations, often IT consultancies. They are typically of single case studies, rather than surveys of a number of organisations or a whole industry sector. Typically the research is the result of trials of microblogging tools internally. Much of the research in MIHE has centred on integration of microblogging in educational systems, particularly use of Twitter to support learning and teaching in higher education. Research on MIHE was mostly published in USA and Europe, with the first paper in 2008. Most of the publications have been

experiments on the effects of microblogging in learning and classroom activities, and single case studies, rather than a comparison between several classrooms or activities.

Thematic analysis was carried out by the researchers. Relevant themes were identified from both literatures focusing on uses and risks. These themes were then analysed and cross-compared repeatedly for consistency and validity. The thematic analysis led to the development of a generic framework identifying themes of the uses and risks of microblogging in the two settings (Figures 1 and 2).

The two literatures from which the papers are drawn have their own distinctive theoretical traditions, methods and terminology and clearly the two sectors have very different underlying purposes, yet it is hoped that the common framework allows useful comparisons to be drawn between the two fields.

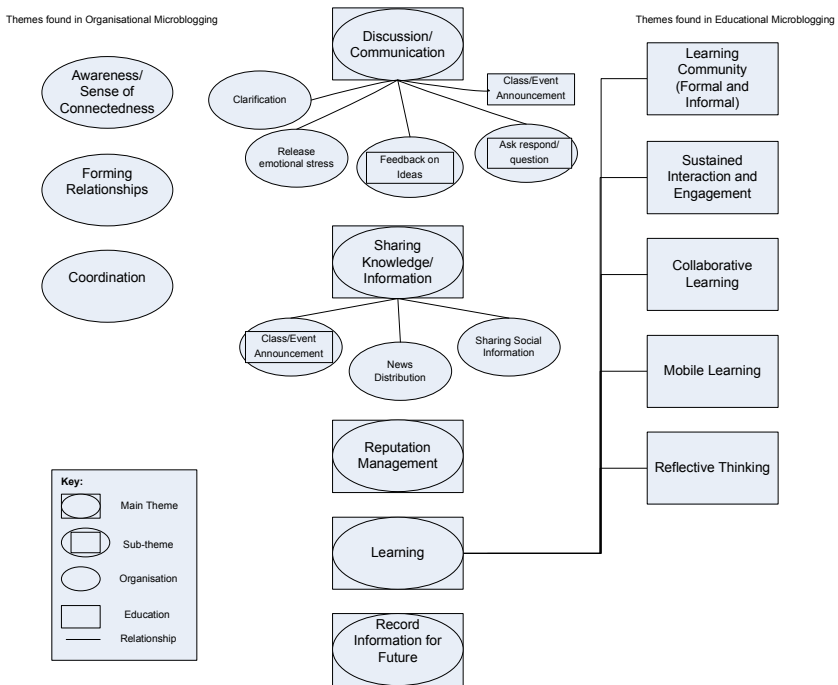


Fig. 1. Thematic Framework of Microblogging Uses in Organisation and Education

3 Discussion

The research reported in this paper made a comparison between companies’ use of microblogging for business directed purposes (i.e. marketing, project management and collaboration) and higher education uses to improve quality education outcomes / enhance pedagogy system (i.e. teacher-student interaction, promoting social media tools, academic professional development). It demonstrated the falsity of the perception that most Web2.0 technologies are being used mainly for personal purposes such

as for socialising, networking and interacting with friends. As Hannay and Fretwell (2011) have argued Web 2.0 has great potential to be implemented in higher education because these technologies provide substantial implications enable interactivity, excite learners, and foster greater student participation. Likewise, many companies are investing on Web 2.0 tools for internal employees' communication and collaboration (Faroughi 2011).

Given the very different contexts and differing theoretical traditions in the two areas there might be a view that a comparison would not be likely to be fruitful. It is argued here, however, that there is considerable benefit in comparing literatures from two different settings, although researchers in different fields tend to use different theoretical frameworks and methodologies and this may make comparison hard.

Making the comparison has led to the development and evaluation of two generic frameworks, which together are the main contribution of the paper. By placing a number of works in such a simple, visual generic framework differences and gaps in the literature can be identified. A number of benefits arise from such a comparison, both in identifying practices that could be transferred between contexts and theoretical and methodological approaches for researchers. The framework also could be expanded for a review across other contexts.

As regards Figure 1, and uses of microblogging, the framework identifies several areas which have been investigated in both literatures such as discussion/communication, knowledge sharing and reputation management (Riemer et al. 2011a; Zhao et al. 2011; 201; Kassens-Noor 2012; Grosseck and Holotescu 2008; Ross and Terras 2011; Valetsianos 2011). Themes only found in organisational microblogging are forming relationships and coordination. Awareness/sense of connectedness through microblogging has also been an influential concept in organisational contexts (Zhao et al. 2011; Günther et al. 2009) much more than in educational settings, but seems to be potentially applicable there too. This illustrates how in some areas similarities are masked by different terminology. Arguably, Dunlap and Lowenthal's (2009) exploration of social presence in the MIHE literature relates to the widely used concept of awareness from EMB literature. Nevertheless, on the whole the perspective of awareness seems to be under-developed in MIHE and could probably be usefully applied to a greater degree there.

The majority of published studies in education have focused on Twitter to support learning in higher education. Themes of uses found in educational microblogging, but not in the organisational context, are learning community (Dunlap and Lowenthal 2009, Ebner and Maurer 2009), sustained interaction and engagement (Dunlap and Lowenthal 2009), collaborative learning (McWilliams et al. 2011; Perifanou 2009), mobile learning (Holotescu and Grosseck 2011) and reflective thinking (Wright 2010). It might be beneficial for organisations, therefore, also to conceptualise microblogging as a learning tool. For instance in education, learning community (formal and informal) stresses the value of continuous communication about work regardless of the location and time. Mobile learning can also be encouraged in organisations more, for encouraging with employees to build a learning network. These microblogging uses might have applicability in the corporate sector too.

Risks (see Figure 2) identified in the enterprise microblogging literature were difficulty/unfamiliarity in using microblogging (Grit 2009; Grosseck and Holotescu 2008), distraction and (Case and King 2010; Raeth et al. 2009) wasting time (Günther et al. 2009; Othman and Siew 2012), and noise- to-value ratio (Raeth et al. 2009), privacy of the users (Mayfield 2009), security concerns (Grosseck and Holotescu 2008; Zhang et al. 2010) and length restrictions (Ebner et al. 2010; Riemer et al. 2011). As regards risks, the analysis identified that there was less concern with risk in the literature of microblogging in education, compared to the preoccupation with the topic in the organisational literature. This may be because educational uses are in their early stages, but seems to reflect a greater all round consciousness of risk in organisations. This comparison suggests the argument that educators are not introducing users enough to the possible risks of microblogging. The focus on positive uses does not expose users to the same sense of risk. In terms of future employability in organisations (Foroughi 2011), learners could be introduced to the risks of microblogging as a more central issue, even if this was through creating exercises that explicitly place learners imaginatively in organisational contexts.

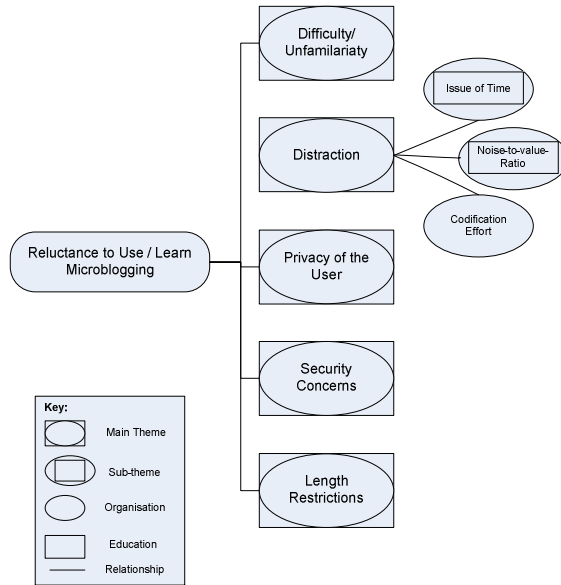


Fig. 2. Thematic Framework of Microblogging Risks in Organisation and Education

The review also identified a number of possible guidelines and policies to address such risk concerns, mainly developed within the organisational literature. For instance, continuously emphasizing the usefulness of internal systems (Othman and Siew 2012) and providing training for early adopters and users (Raeth et al. 2009) is proposed as a way to help reduce difficulty/unfamiliarity in using microblogging (Lowe and Laffey 2011), distraction (Case and King 2010) and issue of time (Müller and Stocker 2011; Ehrlich and Shami 2010; Günther et al. 2009). Also, in terms of

security Mayfield (2009) suggested that there should be privacy restrictions on content, and documents and workspaces should be provided for users to only view activities they should have access to. These aspects could be introduced in the educational context too.

The review also points to some lessons for researchers in terms of methodology. On the whole the EMB literature uses a wider range of methods: logs, social network analysis, genre analysis, interviews and questionnaires. Sometimes information about staff members can be matched to their microblogging activity. MIHE tends to use a narrower range of methods. Small class room studies tend to have quite restricted sample sizes and duration. Reference to the EMB literature could inspire researchers to undertake larger scale more longitudinal studies. In fact, both literatures are relatively limited in these terms.

4 Conclusion

This has been the first review that we are aware of which has concentrated on the uses and risks of microblogging technologies in two different contexts of organisation and education. The comparison of literature on microblogging in the two sectors has led to the development and evaluation of a generic framework, which graphically presents its use and risks. The framework could also be a useful guide for other researchers to explore issues around microblogging in different settings, such as educators using microblogging for research or use in professional contexts. The framework is hospitable to expansion. Understanding of the ways microblogging can be used most effectively can lead to sharing of best practices. It is helpful to researchers to see how different theoretical concepts and research methods might be deployed in another context. The framework might also be used for comparing other technologies apart from web2.0/microblogging.

References

1. Bennett, S.: Twitter on track for 500 million total users by March, 250 million active users by end of 2012 (2012), http://www.mediabistro.com/alltwitter/twitter-active-total-users_b17655
2. Case, C.J., King, D.L.: Cutting Edge Communication: Microblogging at the Fortune 200, Twitter Implementation and Usage. *Issues in Information Systems XI* (1), 216–223 (2010)
3. Dunlap, J.C., Lowenthal, P.R.: Tweeting the night away: using Twitter to enhance social presence. *Journal of Information Systems Education* 20(2), 129–155 (2009)
4. Ebner, M., Maurer, H.: Can weblogs and microblogs change traditional scientific writing? *Future Internet* 1(1), 47–58 (2009)
5. Ebner, M., Lienhardt, C., Rohs, M., Meyer, I.: Microblogs in higher education—a chance to facilitate informal and process-oriented learning? *Computers & Education* 55(1), 92–100 (2010)
6. Ehrlich, K., Shami, N.S.: Microblogging Inside and Outside the Workplace. In: *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media*, pp. 42–49 (2010)

7. Foroughi, A.: A Research Framework for Evaluating the Effectiveness of Implementations of Social Media in Higher Education. *Online Journal for Workforce Education and Development* 5(1), 5 (2011)
8. Grit, J.W.: Stumble upon hidden Knowledge: Microblogging in Organizations, Master thesis Communication Studies, University of Twente, pp. 1–58 (2009)
9. Grosseck, G., Holotescu, C.: Can we use Twitter for educational activities? In: *Proceedings of the 4th International Scientific Conference: eLearning and Software for Education*, Bucharest (2008)
10. Günther, O., Krasnova, H., Riehle, D., Schöndienst, V.: Modeling Microblogging Adoption in the Enterprise. In: *Americas Conference on Information Systems 2009 Proceedings*, pp. 1–10. Association for Information Systems (2009)
11. Hannay, M., Fretwell, C.: The higher education workplace: Meeting the needs of multiple generations. *Research in Higher Education Journal* 10, 1–12 (2011)
12. Hauptmann, S., Gerlach, L.: Microblogging as a Tool for Networked Learning in Production Networks. In: *Proceedings of the 7th International Conference on Networked Learning*, pp. 176–182 (2010)
13. Holotescu, C., Grosseck, G.: Mobile learning through microblogging. In: *Procedia-Social and Behavioral Sciences. 3rd World Conference on Educational Sciences*, vol. 15, pp. 4–8 (2011)
14. Huberman, B.A., Romero, D.M., Wu, F.: Social networks that matter: Twitter Under the Microscope (2008)
15. Jansen, B.J., Zhang, M., et al.: Twitter power: Tweets as electronic word of mouth. *Journal of the American Society for Information Science and Technology* 60(11), 2169–2188 (2009)
16. Java, A., Song, X., Finin, T., Tseng, B.: Why we twitter: Understanding microblogging usage and communities. In: *SNA-KDD Workshop on Web Mining and Social Network Analysis*, pp. 56–65. ACM (2007)
17. Kassens-Noor, E.: Twitter as a teaching practice to enhance active and informal learning in higher education: The case of sustainable tweets. *Active Learning in Higher Education* 13(1), 9–21 (2012)
18. Lowe, B., Laffey, D.: Is Twitter for the birds?: using Twitter to enhance student learning in a marketing course. *Journal of Marketing Education* 33(2), 183–192 (2011)
19. Mayfield, R.: *Enterprise Microblogging Whitepaper*, Social text, pp. 1–11 (2009)
20. McWilliams, J., Hickey, D.T., Hines, M.B., Conner, J.M., Bishop, S.C.: Using collaborative writing tools for literary analysis: Twitter, fan fiction and the crucible in the secondary English classroom. *Journal of Media Literacy Education* 2(3), 238–245 (2011)
21. Perifanou, M.A.: Language micro-gaming: fun and informal microblogging activities for language learning. *Communications in Computer and Information Science* 49, 1–14 (2009)
22. Müller, J., Stocker, A.: Enterprise Microblogging for Advanced Knowledge Sharing: The References@BT Case Study. *Journal of Universal Computer Science* 17(4), 532–547 (2011)
23. Othman, S.Z., Siew, K.B.: Sharing knowledge through organization’s blogs: The role of organization, individual and technology. In: *3rd International Conference on Business and Economic Research Proceeding*, pp. 562–581 (2012)
24. Raeth, P., Smolnik, S., Nils, U., Butler, B.S.: Corporate Adoption of Web 2.0: Challenges, Success, and Impact, pp. 1–10 (2009)
25. Riemer, K., Diederich, S., Richter, A., Scifleet, P.: Tweet Talking - Exploring The Nature of Microblogging at Capgemini Yammer. *Business and Information Systems*, 1–15 (2011)

26. Riemer, K., Altenhofen, A., Richter, A.: What are you doing?- Enterprise Microblogging as Context Building. In: European Conference on Information Systems (ECIS) Proceedings, pp. 1–13 (2011a)
27. Ross, C., Terras, M., et al.: Enabled backchannel: conference Twitter use by digital humanists. *Journal of Documentation* 67(2), 214–237 (2011)
28. Veletsianos, G.: Higher education scholars' participation and practices on Twitter. *Journal of Computer Assisted Learning* (2011)
29. Wright, N.: Twittering in teacher education: reflecting on practicum experiences. *Open Learning* 25(3), 259–265 (2010)
30. Zhang, J., Qu, Y., Cody, J., Wu, Y.: A Case Study of Micro-blogging in the Enterprise: Use, Value, and Related Issues. In: Proceedings of the 28th International Conference on Human Factors in Computing Systems, Atlanta, USA, pp. 123–132 (2010)
31. Zhao, D., Rosson, M.B., Matthews, T., Moran, T.: Microblogging's Impact on Collaboration Awareness: a field study of microblogging within and between project teams. IEEE International Conference on Collaboration Technologies and Systems, Philadelphia, pp. 31–39 (2011)