WHAT WE BLOG?
A QUALITATIVE ANALYSIS OF RESEARCHERS' WEBLOGS

Helena Bukvova; Hendrik Kalb; Eric Schoop

Chair of Business Informations, esp. Information Management,
Faculty of Business and Economics,
Dresden University of Technology
Dresden, Saxony, Germany
e-mail: {helena.bukvova, hendrik.kalb, eric.schoop}@tu-dresden.de

Abstract

Traditionally, academic researchers have been using platforms such as conferences, academic journals and books to present their findings and engage in academic discourse with their peers. The development of Information and Communication Technologies provides researchers not only with new tools, but also with new means of interaction. Among the new platforms are also weblogs (blogs). Formerly defined as `online logbooks', blogs can be used for a variety of purposes. A small but growing number of researchers write research related blogs. In this paper we present a qualitative, explorative study, carried out with the aim of describing and structuring information provided by academic researchers in their blogs. We describe a framework for categorising blogs and blog posts as well as patterns of blogging behaviour we have observed in research blogs.

Keywords: weblogs, blogs, research blogs, scientific blogging, scientific communication;

1. Introduction

Academic research as part of science has a long tradition. It has developed over centuries to gain today's form and rules and it is being developed still. The contact to other researchers, the academic discourse, plays an important role in academic research [1]. This exchange is often triggered by the publication of research results. By making their findings and their expertise public, academic researchers invite the opinions and criticisms of their peers. Through the issuing discussion, ideas and concepts can be refined and developed. Furthermore, the academic discourse and the social exchange among the researchers influences personal development and career paths. The platform for the communication of scientific finding depends on the progress of the inquiry. Traditionally, researchers were using conferences, academic journals and books for their publishing. The recent development of Information and Communication Technologies provides researchers not only with new tools, but also with new means of interaction [2, 3]. How far does this change the established practices? How do researchers use the new tools and platforms? In this article, we focus on the use of weblogs by academic researchers.

The term 'weblog' emerged in 1997/1998 and shortly afterwards it was abbreviated to blog [4, 5, 6]. Blogs are web pages with a list of dated entries that are typical displayed in a reverse chronological order [7]. Most blogs combine text, images, and links to other blogs and web pages and allow the readers to comment blog postings, generally in a mediated manner, where the blog host retains control [6]. Beside the reverse

chronological order, other typical features of blogs are an individual ownership, a hyperlinked post structure, and an archival of postings [8]. The aims and target groups of blogs can differ and the entries vary from short opinions or references to large reports with citations. Herring [6] names as the purpose of blogs filters (with postings about other web pages), personal journals (with the blogger's thoughts and internal workings), knowledge logs (with relevant references about a particular knowledge domain), and mixed purposes. In the scientific world, blogs are well established for a fast dissemination of information. Portals like ScienceBlogs [9] or Scientificblogging [10] have evolved, which aggregate and organize scientific blogs about different subjects.

The use of blogs in science has already been a subject to some interest. The existing literature focuses on the potentials and risks of blogs as well as the motives of bloggers [11, 12, 13]. Yet this field is comparatively new and blogging scientists still represent only a fragment of the scientific community. A systematic inquiry about the use of blogs by researchers is therefore still missing. In this paper we present a qualitative, explorative study, carried out with the aim of describing and structuring information provided by academic researchers in their blogs. Our findings show that other factors have to be considered when viewing research blogs besides just the type of produced content [6]. We also describe patterns observed in the studied sample that illustrate the blogging behaviour of the blog authors. Although still to be seen as a research in progress, our findings can offer a new approach to analysing the role of blogs in scientific communication.

2.   Method

This article describes an empirical study carried out to provide better understanding of the use of weblogs by researchers. At the moment, blogging behaviour particularly in science and research is still unexplored. We have therefore carried out an explorative study analysing the information that researchers publish in blogs. The study is a part of a larger research design, exploring what information researchers publish about themselves on the Internet.

To focus our work, it was necessary to operationalise and further to define the facets of this topic. Firstly, when defining who will be seen as researcher, we chose to concentrate on academic researchers. Academic research (also scholarly research, scientific research) is a crucial part of science. Science uses research, a process of systematic inquiry, as means of gaining new knowledge [14, 15]. However, not all research takes place in science. Academic research has to fulfil very specific criteria [16, 17], e.g. be public, replicable, unprejudiced, independent and it must advance the state of the art. Research outside these restrictions is non-scientific. An academic researcher, thus, is an individual professionally engaged in academic research. In the first place, we considered individuals working at academic institutions (mainly universities) to be academic researchers. As described below, we have sampled German researchers. In Germany, the understanding of academia is very much influenced by the Humboldian ideal of unity of research and teaching [18]. Viewing German academic staff as academic researchers thus appears appropriate. We have further viewed as academic researchers individuals working at scientific institutes. Also, individuals engaged in academic qualification (dissertation and habilitation [19]) and affiliated to academic institutions were considered academic researchers. Secondly, we viewed only the activity in blogs directly connected to the researchers. These were those blogs, where the researchers figured as authors or co-authors. Finally, we focused on research-related information and selected the blogs accordingly. Clearly private blogs (e.g. travel blogs, hobby blogs) were excluded from the study. Private information in blogs (e.g. blog post related to private interests or activities) were noted, but not analysed. The study was based on the following research question:

What professional information do academic researchers publish in their blogs?

The research design method was derived mainly from the Grounded Theory Method, also using aspects of analytic induction [20] and matrix analysis [21]. The research was based on the constructivist understanding of reality. We assume, that individuals create subjective reality in a process of construction [22]. The understanding of the subjective reality of other individuals is limited and can take place only through communication [23]. As researchers, we are thus not objective entities, but actively influence the findings by our interpretations. With regard to this position, we have based the exploration on the principles of constructivist grounded theory [24]. The Grounded Theory Method is "a systematic qualitative approach to data collection and analysis, that is concerned with generating theory" [25]. Key features of grounded theory are a structured, but highly iterative procedure of simultaneous data collection and analysis, based on constant comparison between already coded and new data samples [26].

Our study can be divided into two distinct though interconnected stages. In both stages, a sample of researchers was selected and analysed. In the first stage, a sample of n = 5 researchers has been purposively selected [27, 28]. Our aim was to find researchers, who not only had a research blog, but whom we also expected to be actively engaged online. We therefore chose researchers, who also had a Twitter account. We understood the engagement in both blogging and microblogging as an indicator of high level of online engagement. The Twitter streams were, however, not a part of our analysis. The researchers were all engaged at an academic institution in different positions (research assistants as well as professors). The sample included both male and female researchers, coming from three distinct areas: linguistics, literature, and cultural studies, social sciences, and natural sciences and mathematics. These areas were defined according to the German Federal Statistical Office. For each researcher, we viewed the blog and collected the last 15 blog posts and analysed. We chose not to collect more, because we assumed that blogging behaviour develops and changes through time. For our study, we preferred to take a snapshot of blogging activities. This data was analysed and coded using the qualitative-data-analysis software AtlasTI [29]. We started with in vivo coding (i.e. using terms or phrases used by the researchers) [30, 26], later developing further codes and categories. The analysis process was highly iterative. The results of the analysis were two categories describing information in blogs based on the researchers' engagement in the virtual environment (see Results). At this point a second sample was drawn using dimensional sampling [31]. Using the dimensions sex, academic position and area, we drew a sample of n = 12 blogging researchers, each representing one combination of the considered factors. Again, we viewed their blogs and collected and analysed 15 last blog posts for each researcher, leaning on the identified categories. As a result of this second stage, we have described five patterns of blogging behaviour.

When selecting the researchers for our analysis, we have also considered ethical issues. Although the data in the researchers' blogs is publicly accessible and thus technically public, we consider it a private property of the authors. As such, it has been created with a certain purpose. Although research blogs are generally addressed to the broad public, the authors still may not be comfortable with the use of their blogs for research purposes [32]. Therefore, all selected researchers were contacted per e-mail, informed about the research and asked for permission to use the content of their blogs. Three researchers did not give their permission and two did not reply. These were then removed from the samples and replaced, to gain the samples described above. Furthermore, to protect the researchers' privacy, we have used a very broad classification of the considered research areas and we refrained from using any direct quotes or material from their blogs.

3.   Findings

The findings discussed here are a result of an integrative analysis of the first sample and the subsequent analysis of the second sample with the developed categories. They are to be seen as preliminary results of a research still in progress (see Conclusions).

Before exploring the blog posts, we examined the blog itself, including static pages and widgets. Each blog included in the study was clearly attributed to an individual researcher. The researchers stated their names and nearly all of them also stated their affiliation to an academic institution or an institute. A photo was also mostly included. More than a half of the researchers also provided links to other online profiles (web pages, social networking profiles, Twitter and others). All researchers write their posts in the first person and address an audience, more or less directly. This includes directly stating the audience in the blog description, ordering the posts according to the audience as well as addressing or questioning the audience in the posts. Where researchers stated the purpose of their blogs, they often noted the desire to share. Even for researchers who did not make the purpose of their blogs explicit this desire was visible in their blog posts: to share knowledge, experience or simply interesting information.

In our analysis, we have recognised a key category, describing the researchers' engagement in the virtual world, in this case in their blogs. The engagement is defined by the type of the content the researchers produce and its verbosity. Content and verbosity can be each described by three subcategories.

Content. The content of the blog posts varied greatly not only among the blogs but also within each blog. We have isolated three types of content authored by the researchers: expertise, activity and identification. Expertise-related content provides information on particular topic. We have termed it 'expertise', assuming it is typically related to the author's research area or area of interest. This assumption is in most cases confirmed by the expression of the author within the blog post. Further, researchers often report about the activities they engage in, both related to research and teaching. Very typical are reports from conferences and workshops. Finally, some content is apparently dedicated to describing the researcher as a person. These include descriptions of interests, personal information or purely reflexive posts. Content of this type identifies the author as a 'real' person, existing outside the virtual platform. Although the three content categories are sufficiently clear-cut, they are often combined in single blog posts. For example, an activity related content triggers a fluent shift towards an expert explanation of a particular topic. Similarly, a description of experience can lead the authors to reflect on themselves as individuals.

It was interesting to observe the role of external resources in blog posts. These are resources (content, media, events, people) outside the blog. Blog posts often contain links or references to external resources. In some manner, this reminds us of the citation practice in scientific publication. However, in some posts, the external resource plays the chief role in shaping the content of the post. We have distinguished two cases: either the resource was the apparent trigger of the content (these are typically placed in the beginning of the post) or it is used as a major illustration (appearing further on). In both cases, such posts appear to be written with the purpose of presenting these resources. We have termed such crucial resources 'Fundstücke' (German for finds). Connected to their use is typically an explicitly declared wish to share them. Often the authors note that they have found them and wished to share them. A common note is also, that the authors had this Fundstück for some time and wished to show it to others. Fundstücke are very typical for expertise-type content and they appeared to play a major role in the blogs we have examined.

Verbosity. Besides viewing the content type, we have also recognised, that the researchers show different forms and level of involvement. This verbosity of content can be viewed and measured with regard to three areas: level of detail, personalisation, and interaction. Level of detail describes how much information do the researchers provide about the particular topic. Personalisation measures how far the authors relate to themselves (e.g. give their opinions, judgements). Interaction gives the intensity of the authors' exchange with the audience as well as the potential for such an exchange. None of these measures is simply quantitative. Each form of verbosity leads to the production of more words and thus longer posts. A text analysis is necessary to describe them in each post. The 'measuring' is thus subjective.

Patterns. Viewing the content and the verbosity, we have attempted to describe the distributions. Although this was not very meaningful, given the limited size of our sample, by combining the dimensions content and verbosity, we were able to identify patterns. These patterns described the individual use of blogs by researchers. Figure 1 illustrates these patterns within the content-verbosity portfolio. The content types are

given on the vertical axis and the verbosity on the horizontal axis. The width of the bars represents the frequency of the content type and the colour intensity depicts the level of verbosity. Not all blog posts have to follow the descriptions. The names of the patterns have a metaphoric meaning and should support quick association with the pattern description.

Presence. The first pattern is characterised through low levels of verbosity. The researchers (we found two in our sample) produced mainly expertise-type posts as well as some activity posts. These posts, although in one case numerous, however contained a low amount of information. Most of them were based on external resources and did hardly more than disseminate what was written elsewhere. Although the authors we present in the blogosphere, they showed little engagement.

Knowledge base. This pattern was most common particularly among the researchers on the level of research assistant as well as those coming from natural sciences. The posts are mainly expertise-oriented, with a high level of detail, but lower level of personalisation and interaction. The focus appears to be on the dissemination of information and the authors often mention the motive of sharing.

Expose. Particularly researchers on professorial level provided expertise- and activity-oriented posts, providing not only high level of detail, but also higher levels of personalisation. Researchers within this pattern focused not only on dissemination, but apparently also sharing their opinions and thoughts.
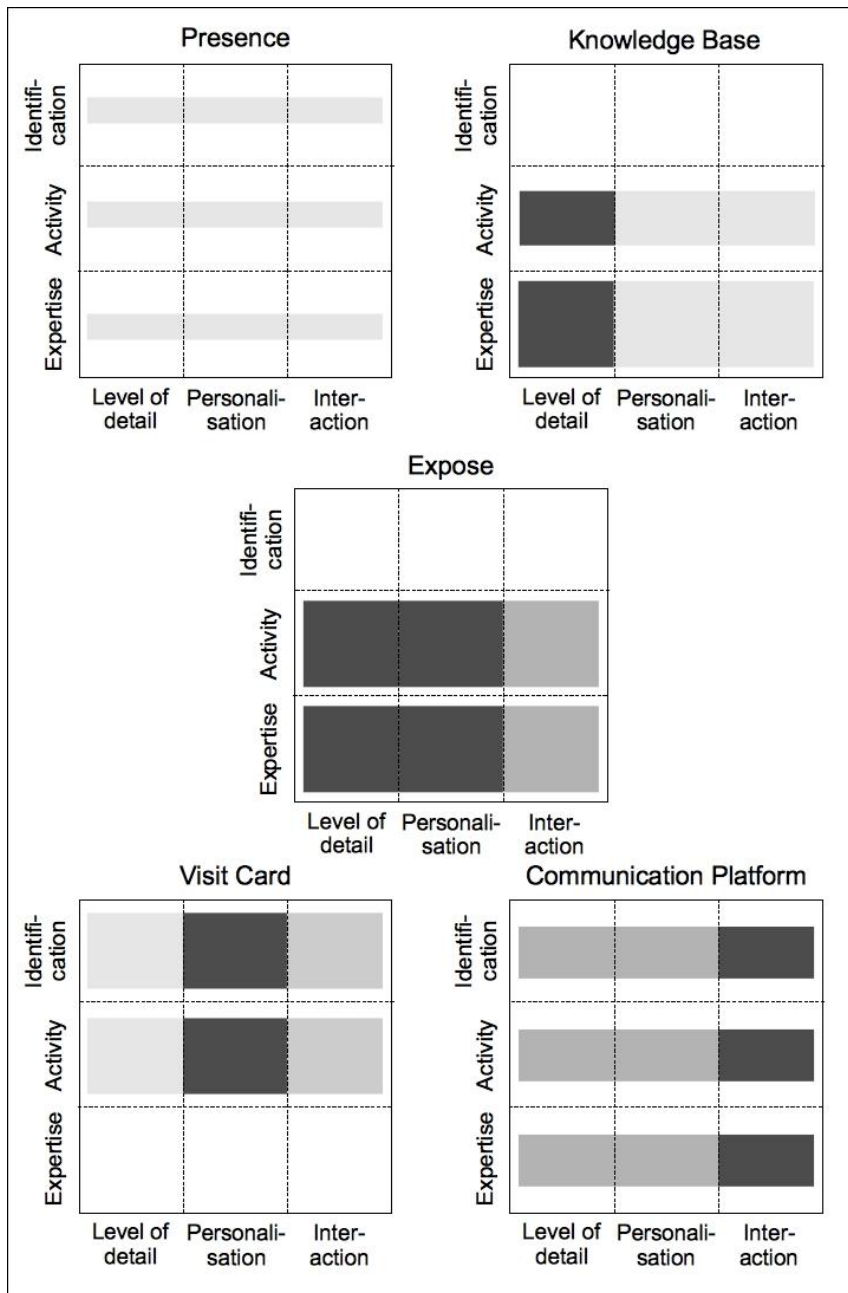
Figure 1: Blogging patterns

Visit card. Although we did not find this pattern in full, we have seen tendencies of development towards this pattern. A researcher writing a visit card blog would focus on activity and identification-oriented posts, with a high level of personalisation. Posts matching this pattern showed surprisingly low levels of detail - for more detail, the readers were supplied with links to external resources.

Communication platform. Again, we did not find a full demonstration of this pattern. However, some researchers would very actively call for interaction and attempt to actively interact with their readers. A blog

that would fully follow this pattern would be expected to contain posts of different content, but highly personalised and interactive.

4. Conclusions

First, we have to point out, that given the nature of our sampling procedures, the data does not allow any conclusions about the population of blogging academic researchers. Although some conclusions might be drawn through analytical generalisation, we refrained from it in this article. The research presented here is to be still seen as a research in progress. The small sample was acceptable in the described first stages of the research. It allowed a very detailed, iterative analysis, resulting in an analytical framework and a first typology of blog and blog contents. However, it does not allow further verification of the results. To verify and further develop the findings, further research blogs and bloggers have to be included in the analysis. It is also insufficient to include only German researchers. Only a fraction of German researchers uses either blogs or other Social Media and Web 2.0 applications [33]. We will therefore include international researchers in further research.

The purpose of our study was not to describe the blogging behaviour of the population of blogging academic researchers, but to explore the types of information that they provided in their blogs. In our study, we have viewed blog as a publication, possibly presentation platform of existing researchers. By seeing the author of the blog as a 'real' person engaged online, have been led to distinguish between the content and its verbosity. This is a different approach from existing typologies, which focused mainly on content [6, 34]. The verbosity can be interpreted as the authors' engagement with the posts as well as the blog itself. The patterns we have derived rely strongly both on the content type and the verbosity, supporting the importance of both factors. The patterns we have observed, though they cannot be viewed as verified or generalisable, underline the focus on the individual bloggers an their blogs. This approach could be inappropriate in analysing private blogs, because the offline identity of the authors is uncertain [35]. In case of research blogs, however, the authors' identity can be traced. Approaching blogs as platforms for *presentation* and not just for *publishing* offers new views for discussing blogs in research.

Acknowledgements

Notes and References

[1]   P. A. DAVID, Patronage, reputation, and common agency contracting in the scientific revolution: From keeping 'nature's secrets' to the institutionalization of 'open science', SIEPR Policy paper No. 03-039, 2004.

[2]   H. KALB, H. BUKVOVA, E. SCHOOP, The digital researcher: Exploring the use of social software in the research process, *Sprouts: Working Papers on Information Systems*, vol. 9, no. 34, 2009.

[3]   E. LEE, D. MCDONALD, N. ANDERSON, P. TARCZYHORNOCH, Incorporating collaboratory concepts into informatics in support of translational interdisciplinary biomedical research, *International Journal of Medical Informatics*, vol. 78, pp. 10–21, January 2009.

[4]   M. ALCOCK, Blogs - what are they and how do we use them?, *Quill*, vol. 103, no. 8, 2003.

[5]   R. BLOOD, Weblogs: a history and perspective, 2000.

[6]   S. C. HERRING, L. A. SCHEIDT, S. BONUS, E. WRIGHT, Bridging the gap: A genre analysis of weblogs, in *Proceedings of the 37th Hawaii International Conference on System Sciences* - 2004, Jan 2004.

[7]   A. WILLIAMS, Internet-based tools for communication and collaboration in chemistry, *Drug Discovery Today*, vol. 13, Jan 2008.

[8]   J. W. S. SIM, K. F. HEW, The use of weblogs in higher education settings: A review of empirical research, *Educational Research Review*, Jan 2010.

[9]   http://scienceblogs.com/

[10]   http://www.scientificblogging.com/

[11]   S. A. BATTS, N. J. ANTHIS, T. C. SMITH, Advancing science through conversations: bridging the gap between blogs and the academy., *PLoS biology*, vol. 6, September 2008.

[12]   L. BONETTA, Scientists enter the blogosphere, *Cell*, vol. 129, pp. 443–445, May 2007.

[13]   J. WILKINS, The roles, reasons and restrictions of science blogs, *Trends in Ecology & Evolution*, vol. 23, pp. 411–413, August 2008.

[14]   K. BORDENS, B. B. ABBOTT, Research Design and Methods: A Process Approach. New York, NY, USA: McGraw-Hill Humanities/Social Sciences/Languages, 7 ed., July 2007.

[15]   A. M. GRAZIANO, M. L. RAULIN, Research Methods: A Process of Inquiry. Boston, MS: Allyn & Bacon, 7 ed., February 2009.

[16]   L. J. HEINRICH, Wirtschaftsinformatik: Einführung und Grundlegung. München, Germany: Oldenbourg, 1993.

[17]   S. M. SHUGAN, Consulting, research and consulting research, *Marketing Science*, vol. 23, no. 2, pp. 173–179, 2004.

[18]   B. R. CLARK, The modern integration of research activities with teaching and learning, *The Journal of Higher Education*, vol. 68, no. 3, pp. 241–255, 1997.

[19]   Habilitation is the highest academic qualification available in Germany as well as in a number other European countries, where this qualification enables the individual to get a professorship. A habilitation can be earned after obtaining a doctoral degree, i.e. dissertation. The habilitation process is similar to the dissertation, however the level of scholarship is expected to be much higher.

[20]   J. LATHLEAN, Qualitative analysis, in *The research process in nursing* (K. Garrish and A. Lacey, eds.), pp. 417–433, London, UK: Blackwell Publishing, 5 ed., 2006.

[21]   M. B. MILES, A. M. HUBERMAN, Qualitative Data Analysis - An Expanded Sourcebook. London, UK: Sage, 2nd ed., 1994.

[22]   E. VON GLASERSFELD, Thirty years constructivism, *Constructivist Foundations*, vol. 1, no. 1, pp. 9–12, 2005.

[23]   G. RUSCH, Understanding – the mutual regulation of cognition and culture, *Constructivist Foundations*, vol. 2, pp. 118–128, March 2007.

[24]   J. MILLS, A. BONNER, K. FRANCIS, The development of constructivist grounded theory, *International Journal of Qualitative Methods*, vol. 5, no. 1, 2006.

[25]   I. HOLLOWAY, L. TODRES, Grounded theory, in *The research process in nursing* (K. Garrish and A. Lacey, eds.), pp. 192–207, London, UK: Blackwell Publishing, 5 ed., 2006.

[26]   K. CHARMAZ, Constructing Grounded Theory - A practical Guide Through Qualitative Analysis. London, UK: Sage, 2006.

[27]   J. M. MORSE, Sampling in grounded theory, in *The SAGE Handbook of Grounded Theory* (A. Bryant and K. Charmaz, eds.), pp. 229–244, London, UK: Sage, 2007.

[28]   D. A. DE VAUS, Surveys in Social Research. London, UK: Routledge, 5 ed., 2002.

[29]   http://www.atlasti.com/

[30] K. CHARMAZ, Qualitative interviewing and grounded theory analysis, in *Inside Interviewing: New Lenses, New Concerns* (J. A. Holstein and J. F. Gubrium, eds.), pp. 311–330, Thousand oaks, CA, USA: Sage, 2003.

[31] L. COHEN, L. MANION, K. MORRISON, Research Methods in Education. Abigdon, UK: Routledge, 6th ed., 2007.

[32] M. BAKARDJIEVA, A. FEENBERG, Involving the virtual subject, *Ethics and Information Technology*, vol. 2, pp. 233–240, December 2000.

[33] D. KOCH, J. MOSKALIUK, Onlinestudie: Wissenschaftliches arbeiten im web 2.0, 2009.

[34] W. MACIAS, K. HILYARD, V. FREIMUTH, Blog functions as risk and crisis communication during hurricane Katrina, *Journal of Computer-Mediated Communication*, vol. 15, no. 1, pp. 1–31, 2009.

[35] N. HOOKWAY, 'Entering the blogosphere': some strategies for using blogs in social research, *Qualitative Research*, vol. 8, pp. 91–113, February 2008.