Using Personal Knowledge Publishing to Facilitate Sharing Across Communities

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Abstract. The social and language barriers that exist between knowledge communities significantly hinder knowledge sharing and slow down progress. In this work, we investigate whether personal knowledge publishing, a web-based form of communication derived from weblogging, could facilitate the migration of knowledge across disciplinary boundaries. Case studies and the results of an online survey indicate that personal knowledge publishing is indeed helpful for interdisciplinary knowledge sharing. An important reason underlying this success is that this medium enables strong ties to develop between members of different knowledge communities.

1 Introduction

1.1 Background

The rapid evolution of our world means that learning and knowledge sharing are fast becoming a key challenge for individuals and organizations. The potential of virtual communities as social environments for knowledge sharing has been recognized [2, 8, 9] and explored in the literature on communities of practice [3, 11]. However, the questions of how healthy virtual communities operate and how to develop tools and structures that better foster, support, and enhance knowledge sharing activities have yet to be adequately understood.

In this work we focus on the problem of sharing knowledge *between* distinct communities. As Swan remarks [7], innovation often requires a pulling together of knowledge and expertise from different parts of an organization. However, most hypermedia systems that support knowledge sharing are structured with an already existing group, community, or organization in mind as the fundamental starting point. When working in the context of such systems, people who are inquiring into an emerging issue that has not yet crystallized a group around itself run into a peculiar problem: they don't have a "central place" where they can share ideas on that particular issue. In many cases, the issue borders on "off-topic" in most already established groups, and people likely to have an interest in it are typically scattered across existing communities.

These observations hold in various sectors of human activity, including business and art, and are particularly visible in the world of scholarship, where strong social and language barriers exist between disciplinary communities.

In this work we are asking whether it makes sense to take the *individual* as the fundamental unit in order to alleviate the problem of sharing knowledge across disciplines. The medium of *personal knowledge publishing*, which we describe below, has emerged in recent years as an individual-centered

(and thus radically decentralized) community discussion support system and appears as an interesting complement to other community media for interdisciplinarity-minded individuals who wish to share knowledge.

1.2 The Need for Interdisciplinary Exchange of Knowledge

As knowledge advances, knowledge workers become increasingly specialized. Language barriers inevitably arise between areas of specialization: few people in a given community can readily understand discourses that originate from other communities. This situation has a number of adverse consequences, two of which are described here.

The first problem is the obstacle that it poses to effective interdisciplinary work. Many important current scientific and technological challenges relate to several fields at once. In order to make progress on those problems, people with diverse backgrounds must join forces. This requires them to surmount the language barriers that lie between their respective fields.

The second issue has to do with knowledge reuse across fields. It is often the case that similar or related problems occur in different domains, which means that there is potential for knowledge reuse in the form of cross-fertilization. However, because of the relative lack of connections between knowledge communities, very few ideas ever make it out of the community they originate from; some are even forgotten; and, sadly, wheels are reinvented on a regular basis.

1.3 Paper Outline

The remainder of the paper is structured as follows. In Section 2, we define weblogging and personal knowledge publishing. Section 3 provides two case studies documenting attempts by researchers to use this medium to share knowledge across disciplines. Section 4 presents the results of a survey that investigated our hypothesis on a larger body of knowledge workers. Finally, the conclusion summarizes our findings and presents promising avenues for future work.

2 Personal Knowledge Publishing

Personal knowledge publishing is a particular form of the practice known as *weblogging*. In order to explain it, we therefore first provide a definition of the term *weblog*.

2.1 Weblogging: Background and Definition

Weblogs may be viewed as an evolved form of personal Web pages, or "home pages". The term, coined by Jorn Barger in 1997 (although the form had been in existence for a while), refers to a web site that is a "log of the Web", indicating a record that points to material available on the World Wide Web. The first weblog was Tim Berners-Lee's "What's New?" page[1], which pointed to new Web sites as they came online, starting in 1992. Several new weblogs appeared with the explosion of the web in 1996-1997. In 1999, however, several free or inexpensive weblogging services were introduced. As using these systems requires little technical knowledge, the practice suddenly became much more accessible, and the number of weblogs has grown to hundreds of thousands in recent years.

[1] originally at the URL http://info.cern.ch/;
archived at http://www.w3.org/History/19921103-hypertext/hypertext/WWW/News

Many definitions of the term "weblog" have been proposed (e.g. [4, 12]). Since the genre is evolving quickly, there is currently only a rough consensus on what properly constitutes a weblog. However, a number of features are commonly agreed to be defining characteristics of the genre. We will use the term "weblog" to refer to a web site that exhibits those features:

1. *Personal editorship.* The content of the site is under the responsibility of a single person (although visitors may post comments in designated sections) and to some extent reflects this invidual's personality. Whereas the creation of web pages may be outsourced, you cannot have someone else run your weblog, because then it would no longer be your weblog.
2. *Hyperlinked post structure.* The site's contents consists in typically short *posts* that usually feature hypertext links referencing material outside the site. These may be links to news items from organizations such as CNN.com, or to posts published in other weblogs. The selection of links is entirely up to the editor, who may link anywhere on the web. Most posts also include additional information and/or personal commentary on the issue under discussion. The presence of links is what distinguishes the weblog from the *online diary*, in which an author mostly recounts personal events and thoughts. Each post has a *permalink*, that is, a URL that leads specifically to it.
3. *Frequent updates, displayed in reverse chronological order.* A weblog is a continuously-running publication, much like a daily or weekly newspaper. The latest posts (hence the freshest content) appear at the top of the weblog's main page, and older content appears further down. New posts typically appear from several times a month to several times a day. This characteristic creates an expectation of updates that incites readers to visit the site on a regular basis. A relationship is established between author and reader and strengthened with each visit. This probably marks the most fundamental distinction between weblogs and personal "home pages", the latter often being seen once and seldom revisited.
4. *Free, public access to the content.* The site's content is freely accessible via the World Wide Web without restriction such as payment or membership. (This is often taken for granted on the Web, but it distinguishes weblogs from commercial forms that make sharing more difficult.)
5. *Archival.* While older posts may disappear from the front page, they are archived and may be accessed elsewhere on the site. Each post is assigned a permanent hyperlink or permalink which makes it possible to reference older material.

One of the most significant things that happened with the recent growth of the weblog community is that weblogs became a conversational medium. Many editors would use their weblog to discuss things that had been said by another editor, using links to enable readers to follow threads. Arbitrary numbers of people could participate in such conversations, provided they had their own weblog. Although the Web does not implement two-way linking, *referer logs* — records of where visitors to one's site came from — enabled people to find who had been talking about what they had written.

While this medium may appear on the surface like another incarnation of online many-to-many communication as already implemented in the form of newsgroups or mailing lists, there is a crucial difference. Since contributions are posted on their author's space, replying to someone else's post does not necessarily mean that the reply will be seen. This has a bearing on the quality of the material found in weblogs, because higher-quality content tends to get more linked and thus more visible.

2.2 Personal Knowledge Publishing and its Dynamics

This section provides a description of the essentials of personal knowledge publishing. A more in-depth look at this medium can be found in Paquet [5].

Definition and illustration Here, we build on the above definition of weblog to define personal knowledge publishing. Personal knowledge publishing quite simply consists in *an activity in which a knowledge worker or researcher makes his or her observations, ideas, insights, interrogations, and reactions to others' writing publicly available in the form of a weblog.*

A personal knowledge publication *is a specialized form* of a weblog; the characteristic that distinguishes it from other weblogs relates to the content. While the definition of a weblog places no restriction on the content that appears in the site, that of personal knowledge publishing asks that the content focus on documenting the conscious activity of creating new knowledge. As a result of this requirement, the content of a personal knowledge publication closely reflects the interests that its editor is researching.

Figure 1 provides an illustration of personal knowledge publishing. It represents the weblog of Lance Fortnow, who researches computational complexity at NEC Laboratories.

The site presents all the features enumerated in the previous section. The "About" box (1) shows that the site is written by a single person. Two posts (2) are visible on the snapshot (one completely, the other partially), and they feature hyperlinks going both within and outside of the weblog. The # sign seen to the right of the time of the first post is a permalink that enables anyone to reference that post. Chronological structure is evidenced by the dates displayed in the page (3). As seen from the dates, the weblog has been updated twice in the same week. Being accessible via the Web at the URL http://fortnow.com/lance/complog/, the site satisfies the free accessibility requirement (4). One of the links in the sidebar (5) gives access to archive pages for each week that blog posts were written. Fortnow's weblog additionally features subpages where readers may leave comments for the author and other readers (6). The author may reply to them in the same spaces, or in new weblog posts. (Private feedback is obviously possible using email.)

The content visible in this snapshot is representative of personal knowledge publishing. In the top post, the author discusses an algorithmics problem of interest to him, and links to a web page elsewhere that presents relevant papers and additional links related to the topic. The second post is part of a series that presents various complexity classes for the benefit of readers.

It should be noted that Fortnow's weblog is an example of the "regular" use of personal knowledge publishing, that is, discussing a specialized topic of interest to its author. Fortnow is not applying the tool to the problem of sharing knowledge with people outside his discipline. Whether this tool can indeed serve to share knowledge *across* disciplines is not obvious from looking at most instances of personal knowledge publishing, and it is the central question that this work addresses.

How Quality Emerges in Personal Knowledge Publishing At this point the reader may wonder, "If there are no reviewers and anyone can write anything in their weblog, how is it then possible to find high-quality content in personal publications?". The answer is that quality emerges in this medium largely as a result of the web of hyperlinks that is weaved by the community of editors. Although it is true that there is no review process prior to publishing, one definitely occurs immediately after publication.

As people read others' weblogs, they link selectively to the content that they find interesting. Content that has been referenced more often directly obtains more visibility. But this effect is

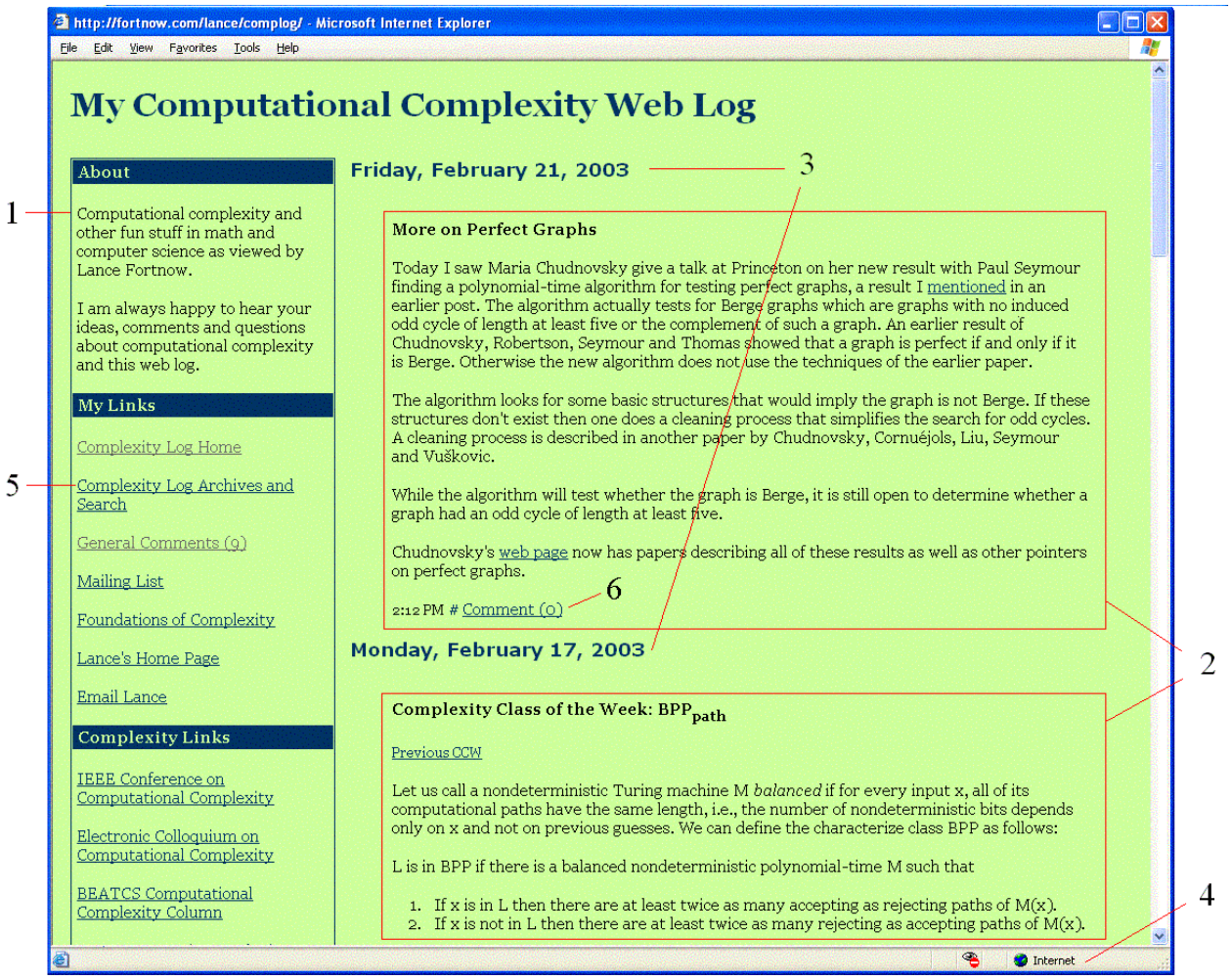

Fig. 1. Front page snapshot from the weblog of Lance Fortnow, a researcher at NEC Laboratories America, taken on February 21, 2003.

amplified by search engines such as Google that rank web pages according to the number of pages that link to them. As a consequence, when people search for a term, the pages that turn up first are the ones considered most relevant or authoritative by the overall community of editors.

Note that these dynamics mirror those of academic publishing: articles that are cited more often are more visible and are read more. This is useful in two respects: it encourages participants to strive for quality contributions, and it makes it more likely that people will find the most relevant documents. (Obviously, in both cases, relying on the number of citations as an indicator of quality requires that one trust that members of the community cite high-quality content more widely, which may not always be the case.)

The other factor that helps quality emerge in weblogs is personal ownership. Although webloggers participate in a community, the contents of a weblog is not a communal space; it is under the sole responsibility of its editor. Now, most people write in order to be read, to engage other minds. As with any publication, one of the best ways to build and keep a readership is to have an output of consistently high quality. As each individual makes personal decisions as to what to read, higher quality weblogs are read regularly by more people, and thus are linked to more often.

Personal ownership makes weblogs different from other electronic forums like mailing lists. In a mailing list, anyone can write anything and it will automatically end up in everyone's mailbox (unless a moderator is introduced; but this kind of centralized management does not scale easily). By contrast, although a weblog editor may say anything he pleases, in order to be read widely, he or she must build a reputation over time. In effect, readers who choose a site as a reliable source of guidance are saying to the site's author: "you make the choices I'd make if I had time". Also, as a weblog keeps all of a person's writing over months or years in a single place, people tend to care more about what they put in it.

To summarize the above two points, quality content is found in weblogs in spite of the absence of any centralized control because of the continuous post-publication review process and because good contributions can be published, read, and shared with clear links to their original author.

3 Case Studies

In this section, we describe the experience of two researchers who made use of the medium of personal knowledge publishing to exchange knowledge with people outside their discipline. The first is Lawrence Lessig, professor of Law at Stanford University. The second is Sébastien Paquet, a Ph.D. candidate at Université de Montréal and one of the authors of this paper.

3.1 Lawrence Lessig

Professor Lawrence Lessig is a world-renowned expert on constitutional law as it applies to cyberspace. He is the author of *The Future of Ideas* and *Code and Other Laws of Cyberspace*. Lessig teaches and writes in the areas of constitutional law, contracts, comparative constitutional law, and the law of cyberspace.

Lessig started a personal weblog of his own in August of 2002. What initially prompted him to do so was that he wanted to engage in public debate with software developer (and weblog pioneer) Dave Winer. Over the following months, Lessig used his weblog mainly to write posts in which he discussed political and legal ways to counteract excessively restrictive regulation on technology and copyright.

Lessig also successfully used his weblog to interact with several other scholars who also edit weblogs, among whom:

- Edward Felten, a professor of Computer Science and Director of the Security Internet Programming Laboratory at Princeton University. Felten edits the *Freedom to Tinker* weblog[2].
- Alex Golub, a graduate student of anthropology at the University of Chicago. Golub edits the *Golublog*[3].
- Eugene Volokh, who teaches "free speech law, copyright law, and the law of government and religion" at UCLA Law School. Volokh co-edits the *Volokh Conspiracy* weblog [4].
- David Weinberger, a writer, consultant and prominent thinker on the Internet and related issues. Weinberger has a philosophy background. He edits *JOHO the Blog*[5].

[2] URL: http://freedomtotinker.com/
[3] URL: http://lancelot.uchicago.edu/log
[4] URL: http://volokh.blogspot.com
[5] URL: http://www.hyperorg.com/blogger

- Dave Winer, a software developer and writer and fellow at Harvard University's Berkman Center for Internet and Society. Winer edits the *Scripting News* weblog and is leading, as of 2003, an initiative to introduce weblogs as a means of fostering the exchange of ideas between the various schools of Harvard University[6].

With the exception of Eugene Volokh, the people listed above do not specialize in Lessig's area. As Lessig's interests lie at the intersection of law, technology, collaboration, innovation, and even history, his weblog became a good platform to interact with people with different backgrounds who could contribute to advancing thinking on the themes he cared about. For instance, his weblog was the center stage for a discussion of the transparency of object code with Dave Winer and others in August and September 2002.

On several occasions, Lessig also used his weblog to request (and receive) help in preparing the Eldred case in which he attempted to convince the American Supreme Court that Congress should not be allowed to indefinitely extend copyright terms.

Here are a few quantitative indicators of personal connections and knowledge exchange that have taken place because of Lessig's publishing the *Lessig Blog*:

- Weblog statistics service Technorati reports 343 inbound weblogs (weblogs that have at least one link to the Lessig Blog) and 499 inbound links[7].
- More than 500 public comments on posts have been left by visitors.

3.2 Sébastien Paquet

Sébastien Paquet, a Ph.D. candidate in Computer Science at Université de Montréal, started a personal knowledge publication called "Seb's Open Research" in July 2002 [8]. In contrast to Lawrence Lessig, Paquet was hardly known outside his university when he began using the medium. He knew of only one researcher who shared his interest in personal forms of knowledge sharing: Jill Walker, whom he had found through a Google query for "research weblogs". He otherwise had not had any contact with other people active in personal knowledge publishing.

He started off his weblog chiefly by citing posts from other weblogs and writing the thoughts that had occurred to him as he read them. At the end of July, he contributed the contents of one post on a mailing list[9] and traffic started coming to his site twelve hours later, following a mention in David Carter-Tod's *Serious Instructional Technology* publication[10].

Tracing the new links pointing to his weblog that appeared in his referer log enabled him to discover different people who also wrote weblogs and had found his material. Many of those were unknown to him, but they shared his interest in new forms of knowledge sharing. Their backgrounds were very diverse, encompassing human factors, Web usability, information architecture, knowledge management, online learning, online communities, collective intelligence, and complex systems theory[11].

Through his weblog, he gradually found himself reading most of the weblogs mentioned above on a regular basis. He participated in many indirect conversations (about two or three per week)

[6] URL: http://blogs.law.harvard.edu
[7] URL: http://www.technorati.com/cosmos/links.html?url=http://cyberlaw.stanford.edu/lessig/blog/
[8] The weblog can be accessed at http://radio.weblogs.com/0110772
[9] URL:http://groups.yahoo.com/group/klogs/
[10] URL: http://instructionaltechnology.editthispage.com
[11] Links to these people's weblogs appear in the blogroll in the sidebar of Paquet's weblog.

involving the people mentioned above as well as some others on a variety of topics related to his research.

On October 3, 2002, he made available online a 15-page research article titled "Personal knowledge publishing and its uses in research" [5] and wrote a post on his weblog to introduce it. With no other particular effort, the article circulated appreciably, travelling from person to person over the weblog network and gathering links. Over the following months, it was mentioned by more than 70 different people, of which about half wrote comments of some sort on the content[12]. Paquet was offered to republish the article[13] on the Knowledge Board (the portal of the European KM community) in December, and a French translation was voluntarily prepared by another weblog editor.

Paquet's weblog also served as a jumping board to bring together people from diverse horizons with a shared interest in group-forming processes, resulting in the creation of the group-forming community site[14]. A close collaboration was borne out of this effort, resulting in a paper submission [6].

Paquet's personal publishing activity has also resulted in two organizations approaching him about possible employment, and invitations to a conference about the Web and a two-day brainstorming session aimed at defining scenarios for the future that was organized by the National Research Council of Canada.

Here are a few quantitative indicators of personal connections and knowledge exchange that have taken place because of Paquet publishing *Seb's Open Research*:

- Technorati reports 148 inbound weblogs (weblogs that have at least one link to *Seb's Open Research*) and 260 inbound links[15].
- His comment monitor reports 167 public comments on posts in his weblog[16].
- He has exchanged over three hundred substantial private emails in connection to his weblog presence with more than 30 different people in the last five months. (For comparison, prior to that he had almost no connections with people outside his institution and received about one substantial email per month.)

4 Quantitative Survey Results

Over the months of December 2002 and January 2003, we conducted a survey that enabled us to obtain quantitative data on the usefulness of personal knowledge publishing and open shared knowledge repositories for knowledge workers, and in particular for interdisciplinary communication.

The survey was advertised through weblogs and a number other online communities, and it was conducted online. Respondents visited a web page[17] listing 25 questions. Of these, 23 were multiple-choice questions and the remaining two were open-ended.

[12] A partial list of references to the paper, along with the date at which they were published, can be found at the URL :
http://www2.iro.umontreal.ca/~paquetse/cgi-bin/om.cgi?
Personal_Knowledge_Publishing_And_Its_Uses_In_Research/Backlinks

[13] URL: http://www.knowledgeboard.com/cgi-bin/item.cgi?ap=1&id=96934

[14] URL: http://aquameta.com/gf

[15] URL: http://www.technorati.com/cosmos/links.html?rank=links&url=http%3A%2F%2Fradio.weblogs.com%2F0110772

[16] URL: http://www.myelin.co.nz/commentmonitor/?blogname=Seb&usernum=0110772&url=http
%3A%2F%2Fradiocomments.userland.com%2Fcomments&stype=rcs

[17] URL: http://blogstreet.com/survey/weblog.html

Many questions were included to collect data for other studies on personal publishing for knowledge management and are not directly used in this work. The questions relevant to this inquiry follow:

1. Have you ever read a weblog?
4. What percentage of the time that you spend reading for professional purposes is devoted to reading weblogs?
7. Did reading weblogs help you find people whose opinion you would be willing to trust on certain matters of professional interest?
16. Has your blogging activity helped you find people with professional interests close to yours but with a different professional background than yours?
17. If you answered "Yes" to the previous question, do you think you could have connected with these people in another way than through weblogs?
19. How often does weblogging help you fruitfully exchange ideas with people who specialize in a different area than your own?
22. Professionally, you would describe yourself as? (a technologist, a journalist, a librarian, an educator, a lawyer, a consultant, a researcher, a knowledge worker but none of the above, not a knowledge worker)
23. How many years of professional experience do you have?
24. (Optional) In your own words, would you say that weblogging has changed the way you share and obtain work-related knowledge? In what way?

The complete results of the survey are available on the World Wide Web[18].

In all, 177 people responded to the survey. All but six had visited a weblog at some point. A hundred and forty people indicated their professional orientation. Of these, 23% described themselves as "a technologist", 21% as "another kind of knowledge worker" (i.e. not one of the choices given), 18% as "a consultant", 11% as "a researcher" and another 11% as "an educator"; the remaining 16% were distributed relatively evenly among journalists, librarians, lawyers, and people who were not knowledge workers. Concerning professional experience, 29% had five years or less, 21% had from 6 to 10 years of experience, 33% had from 11 to 20 years, and 17% had more than 20 years of experience.

Two hypotheses were put to the test. They are discussed in turn below.

Hypothesis 1: "Personal knowledge publishing, as a practice, *allows knowledge workers to establish meaningful personal contacts* with people in fields other than their own."

The responses to questions #7, #16, and #17 are relevant here. Table 1 represents the distribution of answers to question #7.

Table 1. Distribution of answers to question #7, "Did reading weblogs help you find people whose opinion you would be willing to trust on certain matters of professional interest?"

Global sample		Count	Percent	Valid %	Cum. %
Valid	Yes, >2	87	49.2	51.8	51.8
	Yes, 1-2	64	36.2	38.1	89.9
	No	17	9.6	10.1	100.0
	Total	168	94.9	100.0	
Missing		9	5.1		
Total		177	100.0		

It is apparent from this data that trusting relationships can be established through the medium of weblogs, with 90% of all respondents answering positively to the question.

[18] URL: http://www.iro.umontreal.ca/~paquetse/KnowledgeSharingSurvey.html

The next question that we consider examines the issue of interpersonal links across communities. Table 2 shows the distribution of answers to question #16.

Table 2. Distribution of answers to question #16, "Has your blogging activity helped you find people with professional interests close to yours but with a different professional background than yours?"

Global sample		Count	Percent	Valid %	Cum. %
Valid	Yes, >4	28	15.8	20.1	20.1
	Yes, 3-4	29	16.4	20.9	41.0
	Yes, 1-2	56	31.6	40.3	81.3
	No	26	14.7	18.7	100.0
	Total	139	78.5	100.0	
Missing		38	21.5		
Total		177	100.0		

In both cases, 80% of respondents said they had been able to find people with a common interest but a different background, and 40% had found three or more such people, which indicates that weblogs do enable interpersonal links across communities of knowledge. (The average number of links reported was 2.54)

It is however possible that these links could have been established in other ways. Question #17 was designed to address this issue. Table 3 illustrates the distribution of answers to this question.

Table 3. Distribution of answers to question #17, " If you answered "Yes" to the previous question, do you think you could have connected with these people in another way than through weblogs?"

Global sample		Count	Percent	Valid %	Cum. %
Valid	No	39	22.0	34.5	34.5
	Probably not	56	31.6	49.6	84.1
	Probably yes	17	9.6	15.0	99.1
	Definitely	1	.6	.9	100.0
	Total	113	63.8	100.0	
Missing		64	36.2		
Total		177	100.0		

The respondents said in about 84% of the cases that they would not, or probably not, have made such connections were it not for their involvement in a personal knowledge publishing network. Personal knowledge publishing thus appears to be superior to other means of communication in this respect: it enables interpersonal connections that are difficult or impossible to establish by other means.

To summarize, the data collected in connection with these three questions lends support to the first hypothesis.

Hypothesis 2: "Personal knowledge publishing *allows knowledge to be shared across fields*".

The responses to question #19 are relevant here. Table 4 shows the distribution of answers to this question.

In the overall sample, 60% of respondents claim that knowledge exchanges with people outside their area occur several times a month or more. Judging from this distribution it seems reasonable

Table 4. Distribution of answers to question #19, "How often does weblogging help you fruitfully exchange ideas with people who specialize in a different area than your own?"

Global sample		Count	Percent	Valid %	Cum. %
Valid	less than once a month	55	31.1	39.3	39.3
	several times a month	66	37.3	47.1	86.4
	several times a week	17	9.6	12.1	98.6
	several times a day	2	1.1	1.4	100.0
	Total	140	79.1	100.0	
Missing		37	20.9		
Total		177	100.0		

to infer that personal knowledge publishing does enable ideas to circulate across communities of knowledge. Moreover, it appears that for those researchers, the weblog has displaced other media and become the channel of choice for sharing (some of) their ideas. This lends support to the second hypothesis.

Further support comes by way of some answers to the open-ended question #24, "In your own words, would you say that weblogging has changed the way you share and obtain work-related knowledge? In what way?". Five responses directly alluded to the better circulation of knowledge across disciplinary boundaries over the personal knowledge publishing medium; three are reproduced here. (The two remaining ones expressed similar observations.)

One respondent indicated that weblogs help learn about people with different backgrounds:

> "More than work-related, blog reading has helped me learn quite a bit about people of different backgrounds, and cultures. In my opinion, it is the best way to get an up-close and personal view of the types of individuals you would never meet in real life. This alone makes the weblog an incredibly valuable resource."

Another one explicitly referred to creating interdisciplinary connections that he had previously been unable to make:

> "Yes it has; I now feel as if I have found other 'voices' with similar concerns... concerns that bridge disciplinary and geographic and even cultural boundaries."

A third respondent referred to diversity:

> "Absolutely... I've found it to be an extremely valuable way to communicate and collaborate with a diverse group of interesting and intelligent people."

5 Conclusion

Personal knowledge publishing is an activity in which individual knowledge workers or researchers regularly update a website whose content consists in individual posts that feature hyperlinks and are presented in reverse chronological order. The website is public and its contents are freely accessible on the World Wide Web. Archives of old posts are kept in such a way that links to them (be they internal or external) still work after they have left the front page.

Personal knowledge publishing fosters interdisciplinary knowledge sharing in several ways. First, acting as a radically open conversational medium with low barriers to entry, it allows ideas to be exchanged and feedback to be obtained easily in a manner that is unconstrained by disciplinary boundaries, even when those ideas are not fully worked out or break with tradition.

Second, acting as an information filter, it enables content relating to an emerging interdisciplinary issue to be clustered in one place and made visible.

Third, it enables a web of trust to be built that is again unconstrained by disciplinary boundaries. Since the frequent-update characteristic is prone to induce repeat visits and conversations, persistent interpersonal trust relationships can be established and gradually strengthened among researchers. This enables the development of a new, practically noise-free, social network where the linkage depends more on intellectual affinity than on membership in the same research community.

Fourth, the network can serve to efficiently assemble groups around emerging interdisciplinary ideas, because it implements a very efficient idea dissemination system. When a promising idea comes up, the word spreads quickly through the network and in a matter of days it is possible for people who do not know one another but happen to share a common interest to find one another.

Two case studies and a survey conducted with users of that tool have confirmed the usefulness of this tool with respect to the goal of interdisciplinary knowledge sharing.

Directions worth exploring in future research include:

- The development of *smart navigators*, that is, tools that take a user's profile and lead him to very relevant sites in a personal knowledge publishing network, is desirable because exploration can be time-consuming, especially for new users. In particular, automated indexing and dynamic hypertext [1] and social network analysis [10] could help users find their way around the complex, interconnected network of personal publications.
- Appropriate standards for conversation mapping, and the development of conversation visualization tools, that would make personal knowledge publishing an even more compelling communication tool.

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