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## Researchers' Blogging Practices in Two Epistemic Cultures The Scholarly Blog as a Situated Genre

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*This article presents a study of 16 scholarly blogs with the aim to gain an in-depth understanding of what characterizes blogging as part of the scholarly communication. Eight blogs from high energy physics (HEP) and eight from digital history were closely followed. The analysis was made by employing an analytical framework based on genre theory. The results reveal common communicative purposes in the scholarly blogs; there are many similarities in form features and content, which also relate to the purposes of the blogs. In addition, the context in which the blogs are situated is based both in the blogging researchers' epistemic cultures and in their knowledge about blogging practices.*

*A conclusion is that the scholarly blogs is an addition to the landscape of scholarly communication, including communication with the public, and that the scholarly blogs contribute to our understanding of how research is done.*

*Keywords: blogs, genre theory, scholarly communication, social media*

In news reports today it is not uncommon to discuss bloggers' reactions to events of different kinds, including bigger political happenings and lifestyle-oriented events. A range of blog types covering all kinds of topics has evolved since the first blogs were launched in the late 1990s (Blood, 2002; Rettberg, 2008). One area of blogging that has emerged during

this time is blogs written by researchers. Scholarly blogging has sometimes been called a new version of science journalism, and there are several aggregators with directories of blogs with a research focus available. Universities offer software for their staff to start blogs, individual researchers blog, and groups of researchers use blogs to discuss joint projects. Whereas a great deal of attention has been paid to specific types of blogs, including corporate blogs, personal diary blogs and political blogs (Efimova & Grudin, 2007; Karlsson, 2006; Notaro, 2006), some research has been conducted also on researchers' blogging practices (Peters, Beutelspacher, Maghferat & Terliesner, 2012; Shema, Bar-Ilan & Thelwall, 2012). However, this research often departs from a quantitative and metrics perspective.

In this article, I will use genre analysis to investigate how the scholarly blog is developing as a part of scholarly communication. Blogs differ in many ways from the traditional genres of scholarly communication. For example, the communication in blogs is conversational (cf. Efimova, 2009), and opens up the discussion to a large group of readers. Furthermore, in blogs the reader can react and create a dialogue with the writer, thus leaving a permanent mark on the web. Just like other online phenomena, for instance web sites or online forums, blogs have already been investigated as a genre (Herring, Scheidt, Bonus & Wright, 2004; Kjellberg, 2009a; Lomborg, 2009; Miller & Shepherd, 2004; Puschmann, 2009). In this article genre is used to examine the role of blogs in scholarly practices.

Today, scholarly blogs are found in most areas of research. How the scholars' activities manifest themselves within different disciplines has been described as springing from the social and epistemic aspects of their respective communities (Becher & Trowler, 2001; Knorr-Cetina, 1999). This is a central finding in Knorr-Cetina's (1999) study of the local practices of what she calls "epistemic cultures". Two conclusions from Knorr-Cetina's work are particularly important for this study: that research is not a homogenous set of practices that are alike across disciplines, and that technologies can be made explicit as components in a larger social machinery. This, in turn, also means that a technology

cannot be studied without taking its users and uses into account. In science and technology studies with the approach that considers technologies to be dynamically created, has developed over a long time (Bijker & Law, 1992; Latour, 1987). In accordance with these assumptions, my point of departure is twofold: firstly, I assume that scholarly communication differs between epistemic cultures and secondly, I start from an understanding of technology as sociotechnical, that is as being constructed in interplay between social and technical aspects.

My aim is to gain an in-depth understanding of what characterizes blogging as part of the scholarly communication within epistemic cultures. The analysis is based on a genre-theoretical approach, which derives from an understanding of genres as situated in social practices (Miller, 1984; Swales, 2004; Yates & Orlikowski, 1992). A genre-theoretical approach enables a discussion on how specific practices as well as formal technical features are made visible in a blog, and is thus well suited for a sociotechnical perspective.

The study includes blogs from two different research areas, representing one epistemic culture in the natural sciences and one in the humanities. The blogs, eight from high energy physics (HEP), and eight from digital history, were selected in the summer of 2009 and I followed them closely over a period of six months. For the analysis I employ an analytical framework, outlined in an article about scholarly blogging practices as a situated genre (Kjellberg, 2009a), which I will present in more detail below. However, prior to that I will describe the epistemic cultures in which the bloggers in the study are active as researchers, specifically in terms of scholarly communication.

### **Scholarly Communication**

When looking at blogs as situated in a scholarly setting, it is important to bear in mind the researchers' disciplinary background, and to take into consideration how communication varies in different areas of research. A number of researchers have been studying research practices in different disciplines and, as mentioned above, my understanding derives from the

viewpoint that a discipline is constructed by the interplay between epistemic and social circumstances (Becher & Trowler, 2001; Knorr-Cetina, 1999). I will use the concept “epistemic culture” from Knorr-Cetina to highlight this (Knorr-Cetina, 1999). Communication practices are not standardized, and it is sometimes hard to explain the tacit and implicit knowledge that forms part of a specific epistemic culture (Dormans, 2009).

In this line of research, research products, such as articles or books, are seen as emerging out of discursive interactions or negotiations between researchers as part of their research practice. The products of reported research should be regarded not only as a certain way of disseminating the results, but the preparation of these writings is also part of the knowledge production (Knorr-Cetina, 1981). The informal communication that is part of producing, for instance, a scholarly article, become part of the formal outcome of scholarly communication practices. Informal communication, however, is ephemeral and typically not stored, and thus not retrievable in the same way as formal, publically available published documents are (Meadows, 1998, p. 7). One aspect to consider is if researchers’ blogs can be considered as retrievable records of *informal* scholarly communication? Here, it is also relevant with Latour’s (1987) metaphor of the black box that he used to explain the production of statements as scientific facts. He introduces this as a way of describing how negotiations lead to the construction of knowledge about a certain phenomenon. Latour pointed out that within the black boxes “only their input and output count”, and not what is happening in the processes in the middle, in the black box itself (ibid., p. 3). He mentions, for example, that the process of writing is part of establishing new factual knowledge claims (cf. Knorr-Cetina 1981). Accordingly this study investigates if blogs can open the black boxes of research. In the following, I take a closer look at scholarly communication in the two disciplines examined in this study, physics and history.

### High Energy Physicists

Physicists' practices have been the object of study in science and technology studies for a long time; high energy physics (HEP) in particular has been investigated repeatedly (see e.g. Hallonsten, 2009, pp. 35 for an historical overview; Traweek, 1988). In the late 1990s, Knorr-Cetina (1999) did an ethnographic study of HEP in her work on epistemic cultures. She described physics as a laboratory science that is largely dominated by the collective. The very expensive equipment required in HEP demands that researchers collaborate in order to make the research efforts scientifically and economically viable. Membership and authorship in large collaborations within HEP is controlled by the collective in a guild-like fashion. This strongly influences who co-authors publications and how these are distributed (Kling, 2004). According to the practices of HEP, researchers are supposed to post their papers to repositories. Co-authorship of large numbers of individuals is common (Kling, 2004; Knorr-Cetina, 1999). The large collaborative efforts might result in "the erasure of the individual as an epistemic subject" (Knorr-Cetina, 1999, p. 166). In their study of HEP researchers, Kling, McKim, and King (2003) found that "only research results that have been officially 'blessed' by the research group may be shared with the world on the collaboration web site" (ibid., p. 56). Physicists have been early adopters of the use of CMC. Preprints or working papers, as deposited in *arXiv*<sup>1</sup>, are important ways of communicating their findings with peers, while the traditional journals still give important credits necessary for an academic career (Kling & McKim, 2000). Cronin (2001) says that the use of preprints in HEP indicates a mutual trust within the community in the sharing of results prior to publishing. This trust builds on their organization in large collaborative research groups and their internal review systems. For the purpose of communicating with others, the preprint culture is central. It has furthermore been a part of scholarly communication practice in physics long before the digital archives arrived (Kreitz, Addis, Galic & Johnson, 1996). However, the researchers subsequently publish their work in journals for the sake of the formal merit. In addition, the language in physics is specialized and formalized

to enable effective communication amongst peers (Bazerman, 1988, p. 182).

### ***Digital Historians***

Previous research has discussed the epistemic and social aspects in history as one of the disciplines of the humanities (cf. Becher & Trowler, 2001). The monograph is the norm for publishing in the humanities, as is the idea that one work requires one author (Cronin, 2001). This forms the basis for how merit is awarded among history researchers (Cronin, 2001; Griffiths, Dawson, & Rascoff, 2006). Trustworthiness comes from the reputation of academic publishers and journals, and university presses are important publishing venues for academic works in history. This also means that the choice of publishing outlet includes an aspect of prestige (Harley, Acord, Earl-Novell, Lawrence & King 2010; Townsend, 2003). However, various collaborative efforts have been part of research in history for some time, and are developing further (Dormans, 2009; Steckel, 2007). This holds especially true for researchers in digital history (Cohen *et al.*, 2008). Digital history is not an established discipline as such; in fact, it is somewhat difficult to define. Thomas III makes an attempt at a definition in an interchange about “the promise of digital history” published in *The Journal of American History*:

*Digital history is an approach to examining and representing the past that works with the new communication technologies of the computer, the Internet network and software systems. On one level, digital history is an open arena of scholarly production and communication, encompassing the development of new course materials and scholarly data collections. On another, it is a methodological approach framed by the hypertextual power of the technologies to make, define, query, and annotate associations in the human record of the past. To do digital history, then, is to create a framework, an ontology, through the technology for the people to experience, read, and follow an argument about a historical problem. (Cohen et al., 2008 p. 454).*



Digital history accords with the scholarly communication practices in many of the disciplines in the humanities, which often assume that a work has one creator and owner. In history, informal communication with laypeople and amateurs interested in history has formed the accessible style of the scholarly writing employed (Becher & Trowler, 2001, p. 117). History researchers share “well-polished” pieces, and conference presentations are seldom published in proceedings (Harley *et al.*, 2010, p. 389). According to Becher and Trowler (2001), it is hard to “gossip” about the way in which research is performed. Instead, historians tend to talk about their sources rather than methods as such (*ibid.*, p. 109). Previous research has pointed out that historians use mailing lists to keep up-to-date with what others are doing and to monitor new literature (Talja, Savolainen, & Maula, 2004). The existence of a variety of mailing lists, serving as discussion forums, is proof of that. Two examples are the “Humanist Discussion Group”<sup>2</sup> and the H-net discussion networks<sup>3</sup>, which include email lists in several historical specialties.

### **Blogging Practices**

Certain common traits in blogging have been generally identified in previous research. In such research, blogs are often defined in relation to their technological capabilities (Bruns & Jacobs, 2006). Frequent postings is often mentioned as constituting a part of blogging practices, as is continuous linking activity, even though the linking behaviour differs greatly depending on what kind of blog the author maintains (Bruns & Jacobs, 2006; Herring *et al.*, 2005). For instance, it has been found that diary-like blogs tend to contain fewer links than other types of blogs (Herring *et al.* 2004). The linking activities in blogs make blogging conversational and open to possible dialogue, while supporting the idea of a creation of networks and communities (Herring *et al.*, 2005). Miller and Shepherd (2004) found a personal content typical for the blog as a genre of social action. They placed the blog in a space between the public and the private spheres, and described cultivating and validating the self as a typical function of blogs. Being a blogger often

means that you take an active part in a discussion through linking to other blogs by means of trackbacks or RSS and comments (Rettberg, 2008, p. 62; Efimova, 2009, p. 20). In this vein, blogs have been studied as a space for discussion and the blogosphere has been presented as the new agora and public sphere (Bahnisch, 2006), where the audience has the possibility to participate.

A number of researchers have concluded that it is important to take blogging practices into account when studying the use of blogs (boyd, 2006; Schmidt, 2007). These practices are tightly knit to the particular group where the communication takes place. In a framework proposed by Schmidt (2007), he discusses blogs in terms of “communities of blogging practices” and stresses that groups form a common understanding for the use of a blog. A study by Kouper (2010) investigated science blogs and particularly focused on the blogs’ possibilities for facilitating public engagement. She found that in most cases these blogs had an inside-science perspective in terms of jargon and also regarding who was communicating (*ibid.*). Another recent study looked at the practices of citing and what research was given preference in the discussion, it was obvious that the bloggers in this study preferred high impact journals and thereby mirrored the way the traditional communication looked in the disciplines included (Shema, Bar-Ilan & Thelwall, 2012). Linking behaviour and sharing was also studied by Peters, Beutelspacher, Maghferat and Terliesner (2012) where the results showed a degree of self-citation rather than interaction. Academic blogs have been described by using metaphors such as “the notebook”, “the coffee house”, and “the opinions page” (Halavais, 2006), as well as in terms of providing a political platform, being a pure research blog, or a blog about academic life (Walker, 2006). In a study of Swedish academic blogs by Kjellberg (2009b), a content analysis showed that filter blogs<sup>4</sup> containing discipline-related material were the most prominent among the academic blogs present. However, other types of blogs, like personal diaries and k-logs, could also be found in this particular context. Furthermore, in an interview study the functions of scholarly blogs were identified as something that can be used to disseminate content, express

opinions, keep up-to-date and remember, write, interact, and create relationships (Kjellberg, 2010). The researchers in this particular study were motivated by the possibility of sharing, by the ways in which the blog gives them room for creativity and makes the researchers feel connected (Kjellberg, 2010). This can be related to findings about blogging practices in other studies, where it is frequently mentioned that blogs are used for information or knowledge management, for social purposes and interaction, for establishing an identity and self-representation, and for expressing opinions and acting politically (Davies & Merchant, 2007; Efimova, 2009; Nardi *et al.*, 2004; Schmidt, 2007).

### **Research design**

In order to gain an understanding of scholarly blogs as expressions of scholarly communication I have studied a number of them closely. Patterns and variations in 16 blogs have been identified with the help of an analytical framework based on genre theory. In the following two sections I will describe the selection and collection of material and the different aspects included in the framework.

### ***Material***

I chose to use blogs from two very different epistemic cultures – high energy physics and digital history – to make it easier to analyze how disciplinary context influences the ways in which scholarly communication can be expressed in blogs. That is to say, I have included the two areas to get variety, rather than to compare or contrast them to each other. Physics blogs have been around for a long time and because physicists are early adopters of web applications and frequently share their papers online, I chose it as an interesting discipline to study closer. Historians, come from a humanities discipline, and digital history is still developing as a methodological approach with a special interest in digital tools. I was especially interested in seeing how these practices are mediated in the blogs.

The following selection criteria were applied: The blogs had to be recently updated and written by one individual; the blogger should be a

non-anonymous, active researcher; the postings should be published with a frequency of at least one update per month. These criteria were chosen to make sure that the bloggers were active and that the blogs were written by researchers. Group blogs were excluded because of the difficulty in checking multiple authors' backgrounds. A limitation was that the language used had to be English or one of the Scandinavian languages.

A selection was made based on two different blog aggregators: history blogs from the *Cliopatria*<sup>5</sup> part of *History News Network*, and HEP blogs from the blog list in the journal *Nature*<sup>6</sup>. In the *Nature* list, all blogs with the "physics" tag were reviewed. After applying the criteria mentioned above, eight blogs written by researchers in HEP were included in the study: *atdotde*, *A Quantum Diaries Survivor*, *Entropy Bound*, *Information Processing*, *Life as a Physicist*, *Life on the lattice*, *Musings*, and *Symmetry factor*<sup>7</sup> (Appendix A). In the *Cliopatria* collection, all blogs under the heading "digital history" were reviewed, as well as their blog rolls, and eight blogs with researchers from history and archaeology with a slant towards the digital humanities were included in the study: *Dan Cohen's Digital Humanities Blog*, *edwired*, *eHistory*, *Electric Archaeology*, *Found History*, *Middle Savagery*, *The Archaeology of the Mediterranean World*, and *Trevor Owens* (Appendix A). I will use the label "digital history" to refer to these blogs' disciplinary affiliation even though digital history cannot be regarded as a discipline as such. Altogether, the empirical material consists of 16 blogs, eight from each epistemic culture.

Half of the HEP bloggers were professors or associate professors, while the others held other types of research positions. The blog that was first started began in 2002, but the majority of blogs started in 2004 and 2005. The blogs are published in commercial blogging tools, four of them using *Blogger*, two using *WordPress*, one using *Movable Type*, and one was part of a portal solution.

<b>Name of blog</b>	<b>Software</b>	<b>Start year</b>
atdotde	Blogger	2004
A Quantum Diaries Survivor	Part of blog portal	2005
Entropy Bound	Blogger	2004
Information Processing	Blogger	2004
Life as a Physicist	Wordpress	2006
Life on the lattice	Blogger	2005
Musings	Moveable Type	2002
Symmetry factor	Wordpress	2006

*Table 1. HEP blogs*

The digital history bloggers included historians with very different specialties as well as archaeologists. Among the selected blogs there were two kept by graduate students, but most of the bloggers were associate professors or held similar positions. Six blogs used *WordPress* while two used *Blogger* or *TypePad*. The blogs in this sample started no earlier than 2005 when three bloggers begun, followed by a couple of blogs starting each of the years 2006, 2007, and with the last blog created in 2008.

<b>Name of blog</b>	<b>Software</b>	<b>Start year</b>
Dan Cohen's Digital Humanities Blog	Wordpress	2005
Edwired	Wordpress	2005
eHistory	Blogger	2008
Electric Archaeology	Wordpress	2006
Found History	Wordpress	2005
Middle Savagery	Wordpress	2006
The Archeology of the Mediterranean World	Typepad	2007
Trevor Owens	Wordpress	2007

*Table 2. Digital history blogs*

The collection of the material was inspired by online ethnographical studies of researchers' practices as mediated in digital settings (Beaulieu, 2005; Hine, 2002). Since the bloggers did not update very regularly or in a similar pattern I chose to read closely 10 blog posts in reverse chronological order from when I started the study. In addition, I closely read the first blog post in each blog, because this posting often contains some statement about the reasons for starting a blog. Moreover, I familiarized myself with the other contents in the blog, and read a number of blog entries during the blog's lifetime, to make sure that I had a thorough picture of each blog. I then followed the blog updates during the entire period from September 2009 to February 2010 and visited the blogs frequently, as well as kept a subscription of their RSS-flows.

During the entire period of collecting material, I kept field notes for each blog, which resulted in 3-4 pages of notes for every blog by the end of the period. The 10 blog entries, which were read closely, were printed and kept with my notes, and in addition I wrote comments on them. I also made a screen dump of the first page of the blogs to keep an image of what the blog looked like. This made it easier to make comments directly in connection to form elements shown in the interface of the blog while I was doing the analysis. I worked alternately with the printed material and with the blogs on the web.

I did not participate in the blogs or interact with the bloggers, resulting in a lack of closeness that could be wished for in an ethnographically inspired study on the web. This might be perceived as a limitation of the study. However, a high level of familiarity with the blogs was achieved by my following them during a relatively long period of time, and I also used their archives to broaden the empirical material.

### ***Analysis***

To examine the blogs, I used an analytical framework based on a genre theoretical approach. Genre analysis has previously been used to study different online phenomena like web sites, online forums and blogs (e.g. Crowston & Williams, 2000; Erickson, 1997; Shepherd & Watters, 1999). However, in these previous studies little attention has been paid to the community where the genre is enacted. For example, Herring *et al.* (2004) formed an understanding of blogs by using genre antecedents. They also divided blogs into five different types, namely filter blogs, personal journals, k-logs, mixed, and other, based on their understanding of the digital genre, but they did not include the blogs' contexts as part of the analysis. However, a few genre-based studies that include contextual factors have been made on specific types of blogs, like personal diary blogs (Lomborg, 2009) or corporate blogs (Puschmann, 2009).

An important part of my approach to the genre consists in analyzing blogs as part of the researchers' situation and to analyze how this situation may shape the use of the blog. In an earlier article I built on

previous genre studies and developed a framework for such a situated genre analysis, which I tested on three researcher blogs in physics (Kjellberg, 2009a). This framework highlights how social practices contribute to establishing a genre and builds especially on Miller (1984), Yates and Orlikowski (1992), and Swales (2004). The framework includes four aspects that can be used to describe a genre's characteristics based on aim, form, content and context. Aim is used in the analysis to describe the communicative purpose of the researcher's use of a blog (cf. Miller, 1984; Swales, 2004). Form describes the way in which the communicative purpose is structured as formal traits in the interface of the blog, as well as visually and verbally in the blog. Content describes the themes addressed in the blog. Form and content are often used as basic criteria for exemplifying a genre (cf. Yates & Orlikowski, 1992). Context basically describes the environment in which the blog is situated, in terms of a discourse community with a shared knowledge about the genre in question (Swales, 1990). I will elaborate further on how I have used these aspects for analyzing the blogs in relation to each subheading in the genre analysis.

### **Scholarly blogs as a situated genre**

In this section, the framework for the situated genre analysis is applied on the selected blogs. I will on occasion use quotes from the blogs to illustrate certain genre traits. Furthermore, I will make explicit connections to the epistemic cultures in the two different groups of researchers where it is applicable. However, the different aspects – aim, form, content, and context – cannot be analyzed in isolation from each other, which is obvious in some parts of the analysis.

#### ***Aim***

Aim is used here to represent the communicative purposes expressed in the genre, which the genre is intended to fulfil. In genre theory a shared communicative purpose, or purposes, is part of how recurring activities can be established as an expression of a genre. In the analysis I have asked, “what reasons for the researchers to blog are discernable in the



blogs?” I have analyzed the aims of the blogs by a close reading of blog postings and the “about” pages in each blog. In particular, I have looked for similarities between the bloggers’ ways of addressing their audiences and how they express what they want to accomplish with the use of their blogs.

The researchers’ purposes for blogging are often found in blog posts in which they reflect on their own blogging activities. However, the purposes vary in different postings within the same blog and there is no one dominating aim across the blog. Instead, the scholarly blogs display several different aims. It is obvious in one way or another that the bloggers want to talk to their peers, but also reach out to other people. The aims that come across in the blogs are connected to which audience the researcher is addressing and I will discuss this further below.

One common aim is to write about research and disciplinary matters addressed to an audience of peers. One example of this is when one of the bloggers in digital history reflects on his blogging by looking back on the three years he has kept a blog and says: “In that time, I think I’ve remained more or less true to the ‘mission’ of Electric Archaeology – to try out new techs, recount experiments, disseminate my research, in new media for archaeology and history”<sup>8</sup>. The blogs do not necessarily cover topics that would fit in formal research publications. For some of the bloggers, the purpose of having a space where they can write about things that come to mind includes a hope for some response from colleagues. One of the HEP bloggers writes about leaving one workplace for another and how his blog filled the purpose of coffee-table talk with his peers:

*I started this blog two and a half years ago when I had just moved to Bremen and discovered (not too surprisingly) that IUB is not as busy physics wise as DAMTP had been. I wanted to have some forum to discuss whatever crossed my mind and what I would have bored the other people at the morning coffee/tea meetings in Cambridge with.*<sup>9</sup>

This aim can be summarized as *enabling a dialogue with peers* and can be related to a view of informal communication or shop talk as a

necessary element of the research practices in any discipline (Becher & Trowler, 2001, p. 108).

Another part of the blogging practices relates to *promoting the blogger's discipline*. In the quote by the researcher in digital history above, he explicitly mentions the use of new media for archaeology and history as one aim for his blogging. Another researcher in digital history says that his blog “considers the intersection of digital technologies and history”. In this case, the blog seems to be an important tool for communicating about digital history. In digital history the blogs are used for providing an opinion and promoting the bloggers' ideas in this particular domain of history research, which is a rather new and developing field (cf. Cohen *et al.*, 2008). The bloggers explain what digital history or digital humanities is. They provide good examples on how to perform digital history for others to follow. For instance, one blogger in digital history discusses how he views the role of digital archives in history research:

*In my mind this contributes to ongoing discussions about the role that digital tools should play in re-framing conversations about historical methodology. Since the structure of the archive plays a significant role in the structure and character of the kinds of questions a historian can ask it's crucial for historians to be involved in helping shape these archives.*<sup>10</sup>

This quote shows that not only topics of research but also the tools for doing digital history form an important part of the content of the blog, as well as of “how to perform digital history”. In a way, this advances the idea of making digital history known, especially to other historians, and showing what is possible. “The era of the digital archaeologist has arrived”<sup>11</sup>, says one researcher in one of the blogs in digital history, pointing to how digital history is not yet an established discipline.

Another way of *promoting a discipline* is expressed when the bloggers have a wider target group than their peers in mind. In 2005, during the so-called “World Year of Physics” to commemorate the 100<sup>th</sup> anniversary

of three of Einstein's ground-breaking discoveries, the portal *Quantum Diaries* was created. The idea behind the portal was that by enabling about 30 researchers in physics to start blogging, about their research as well as about their daily lives as scientists, it would be possible to reach out to an interested public and tell them more about what physics is about. One of the bloggers in this study calls his blog *A Quantum Diaries Survivor*, indicating that not many continued blogging after 2005. Two more blogs in this study belonged to *Quantum Diaries: Entropy Bound* and *Life as a Physicist*. The joint platform and initiative gave these physics researchers a taste for this way of communicating with others outside the physics community. The idea behind the *Quantum Diaries* blog portal was to write about physics in a way that is comprehensible to non-physicists. A number of the HEP bloggers in this study write blog postings for people other than their peers, the public or laypeople, in the vein of the thought behind the *Quantum Diaries*.

At the same time, the researchers from *Quantum Diaries* read each other's blogs and have continued to do so. From the contents in the HEP blogs, it is obvious that they have a desire to discuss physics with each other, and thereby create a dialogue with their peers. In an interview study with researchers who keep a blog, it was suggested that what motivates researchers' blogging is not only a possibility to communicate with others, but also a possibility to be creative and write for oneself (Kjellberg, 2010). In addition in the current study one blogger says in a comment to a post in one of the other HEP blogs that he gains a lot from blogging, even if it is perhaps more often concerned with explaining current physics findings, rather than regular research discussions: "It really is not only a game for me – rather, a work tool. I have learned more physics explaining it in my blog than in the five years before I started blogging."<sup>12</sup> In this extract, the researcher calls the blog a work tool. The blogging activity as a means for the researchers to write, manage information and learn, with themselves as the target group, is also present in this study. This suggests that the scholarly blogs are used to *boost the researcher's work*.

Blogs in general, just like other kinds of web sites, often contain an “about” page. In the blogs in this study these pages are called different things, for instance “About me”, “My profile” and “Who am I”. They are more often about the researcher as a person than about explaining why he or she keeps the blog. Yet, judging by the overall look of the blogs and how the bloggers represent and present themselves in the blogs, some of the scholarly blogs also include an aim to *promote the individual researcher* (cf. Davies & Merchant, 2007; Miller & Shepherd, 2004).

As we have seen, no single aim dominates the reasons for blogging. Rather, the communication in the blogs serves the purposes to *enable a dialogue with peers*, to *promote the blogger’s discipline* (to an audience that is both intra and extra disciplinary), to *boost the researcher’s work* and to *promote the individual researcher*. However, promotion is not seen as unidirectional, but also includes a possible dialogue with the target group that the researcher wants to share information with. The possible interaction is considered important both in earlier research and as it is expressed in the blogs studied. Interestingly, the physicists more often talked explicitly about the public. In the digital history blogs there are, on the other hand, a purpose of making digital history known to peers in history. It is, however, likely that the style of the blogs in digital history, following the tradition of the humanities, makes them more easily accessible to audiences other than their peers without having to be explicit about it (cf. Becher & Trowler, 2001). In addition, there is a correspondence between the purpose that the researchers have in mind at a particular moment and what they write about in their blogs.

### **Form**

Form describes how the content is structured and displayed visually to realize a communicative purpose. In the analysis, form-related choices for making content and style visible are captured by the question of “how is the blog’s expression accomplished?” Focus is on verbal and visual strategies.

The form expressed in the blogs studied can partly be observed as visual elements in the blogs’ interfaces and partly in the style of the blogs’

verbal content. There are several recurring elements, even though the scholarly blogs differ somewhat in appearance and in the way in which the form elements are distributed on the web site to structure the content. The analysis of the appearance of the blogs shows that most of the details in the interfaces correspond to things that have been stressed in definitions of what distinguishes a blog from other kinds of web sites (cf. Bruns & Jacobs, 2006; Herring *et al.*, 2005; Puschmann, 2009; Rettberg, 2008). The blog entries – the body of the text – are positioned as the centre of attention of the scholarly blogs' interfaces. Comments are placed in close connection to the entries, the date is marked in the entries, and images or other types of media are used both in the entries and in the elements enclosing the entries. The verbal characteristics are similar to what has been mentioned in other genre studies of blogs (Puschmann, 2009; Miller & Shepherd, 2004). The researchers write with an active voice in the first person. They often include a meta-discussion about blogging, and also use a specialized language that is part of the researcher's discipline. Below I will highlight some form aspects that are connected to the purposes of scholarly blogs mentioned earlier.

The blogging software provides a structure, which is not transgressed by the bloggers. They stay within the software's structure despite the fact that most of the physics bloggers, as well as several of the digital historians, are familiar with programming. The blog entries contain metadata such as title, date, author, assigned tags or categories that describe the contents of the record, and a notification if there are comments. A new entry is published at the top of a list of the recent entries on the first page of the blog. All of these form elements are often strictly connected to the software used and the theme for the interface selected within that particular software. A blog is not intended to be read in its entirety, at least not all at once. However, it is the construction of the blog out of the individual postings that creates a whole that offers the possibility to promote a blogger's discipline, or the individual researcher, with a multidimensional approach.

Two of the digital history blogs are explicit examples of how a blog promotes the individual researcher. These two bloggers use their own

names as titles for their blogs (*Dan Cohen* and *Trevor Owens*) and include sub-pages with publications and project information. Another way of signalling a self-promoting purpose is through a picture of the blogger; this appears on half of the first pages of the blogs. However, only three HEP blogs and three of the blogs in digital history indicate, with both name and position, who the blogger is on the front page. In most cases, it is not clear from just a brief look at the first page who the blogger is. As has already been mentioned, all of the blogs in the study have a page with more information about the blogger or blog, even though there is a clear difference between *Blogger* and *WordPress* users. *Blogger* contains a profile page that is used as a standardized presentation page. These pages are often not filled out in any great detail, and the information about the blogger in the *Blogger* profiles is therefore relatively scarce.

Illustrations are few in the entries. Despite the fact that current blogging software makes it easy to include other kinds of media than text, text and links make up the bulk of the blog postings in the study. However, there are exceptions. At one point a researcher writes: “If anyone is curious why this post looks different than the others, it’s that I’ve discovered Flickr and am starting to use this to post photos to Blogger. Will wonders never cease?”<sup>13</sup> The inclusion of *Flickr* and *YouTube* items often serves as a way to introduce humor or trivial topics in the blogs. However, especially the archaeologists sometimes include pictures in their postings to illustrate a research discussion. In a few cases, videos and screen shots are used to describe how to do things in digital history and add a pedagogical feature through explanations that contribute to the creation of new knowledge. The strict text-bound publishing might be due to the fact that most of the researchers started blogging between four and six years ago and a lot has happened during the lifetime of the blogs, with developments in the software as well as in the use of other social media.

The frequency of updating is something that is regularly mentioned in blog postings. In definitions of what constitutes a blog, frequency was early on pointed out as an important feature (cf. Blood, 2002). The blog

*Life on the lattice* started as a group blog written by two authors. When it changed to being updated by only one of them, the researcher who continued wrote: “I’m running this blog all alone at the moment, which leads to the relatively low activity seen in recent weeks”.<sup>14</sup> Some of the bloggers are decidedly more frequent in their updating, but few of the blogs are updated as often as *A Quantum Diaries Survivor*, which is updated several times a week. However, the scholarly blogs in the study lead an uneven existence depending on how much time the researchers devote to their blogging, and only a couple of the researchers update several times a week. Frequency is acknowledged by the researchers as important for their understanding of what blogging is, but not important enough for them to actually live up to publishing frequently in their blogs.

Microblogs become visible in a number of the digital history blogs. In a sense, *Twitter* replaces some of the blogging activities, which has consequences for the content: the essay-like texts have to stand back to the short comments in the form of tweets. The use is mentioned as a new development in one of the blogs from an archeologist:

*More interesting, however, is the development of alternatives to blogging within the archaeological community. A number of veteran bloggers have moved seamlessly into Tweeting [...] Several projects, including mine, the Pyla-Koutsopetria Archaeological Project, Twittered from the field allowing a global audience of interested observers to follow the day-to-day or hour-to-hour working of their project.*<sup>15</sup>

*Middle Savagery* has something called “Middle Savagery lite” included in the blog feature through the microblogging software *Tumblr*, and in *Found history* there are blog entries called “Briefly noted” which also are published with *Tumblr*. Some of the other bloggers in digital history use *Twitter*, made visible in the blog, even though it is not necessarily a live RSS-feed. Mostly it is just a link to the *Twitter* account. *Twitter* and other microblogging services function as a way of sharing information

quickly. The sense of immediacy has been mentioned as important in blogging practices (cf. Miller & Shepherd, 2004; Nardi *et al.*, 2004). One of the bloggers in digital history commented on this when *Twitter* changed its prompting question, to the new “What’s happening”. He observes that such a phrase captures better how *Twitter* is used in the digital humanities community since it “uses Twitter largely as a place to share links, content, and news”.<sup>16</sup> The digital historians have embraced *Twitter* or microblogging as a part of the blogging activity, which in a way boosts their idea of digital scholarship. It is similar to findings about historians’ use of mailing lists in their research practice for keeping up to date (Talja *et al.*, 2004).

All of the physics blogs use formulas, in one way or another. However, only one of the physics bloggers gives the impression that he has actively influenced the blog’s appearance to be able to include formulas in a neat way in the entries. In that blog (*Musings*) there is a function that is developed for dealing with formula writing in *LaTeX*<sup>17</sup>. In a column on the right side of the blog, where links of various kinds are grouped, there is also information about the LaTeX functionality, and an image, which is used as a marker in those postings in the blog where this special feature is used. Formulas are part of the specialized language that physicists use to be efficient in their communication and it enables a discussion with peers (Bazerman, 1988). Yet, while it is particularly obvious in the physics blogs, a specialized language is also part of the blogs in digital history. Here it is based on the knowledge of digital tools and of historical research.

At the same time, the language used in the blogs is often quite different from other academic writing. One example of the style is made apparent when one of the researchers in digital history tries to convince his colleagues to write blog postings in a group blog about teaching. He writes: “I usually press that this [is] as much like a conversation as an academic paper. It’s a lunchtime chat among scholars or the informed discussion of conference participants after the panel has concluded.”<sup>18</sup> In this way, dialogue is enabled not only by means of linking and commenting features, but also through the language used (cf.



Puschmann, 2009). Thus, informal communication with a wider audience is more explicitly part of the knowledge creation in the scholarly blogs, compared to in formal publications (cf. Knorr-Cetina, 1981).

Earlier studies have highlighted that there are certain formal features that blogs share that can be seen as distinguishing characteristics. This includes dated entries and reverse chronological order. These features are present in scholarly blogs. In addition, it became obvious that there are also numerous formal similarities between researchers' blogs and that this is often due to a framing by the technology in the platforms and the software used, which is seldom transgressed. The content is dominated by texts and links even though it would be technically easy to include other media. The language is related to the blogger's discipline, for example HEP blogs all include formulas.

### ***Content***

The topics addressed are an important part of what constitutes a genre (Yates & Orlikowski, 1992). By reading the blog postings carefully and noting patterns and similarities that appear in the blogs I analyzed which major themes are present in the researchers' blogs. On a general level, content can be the selection principle for a study of blogs, for example political blogs. An analysis based on the question "what are the blogs about?" brings out thematic similarities, but also shows that the blogs often include a fairly diverse set of topics.

The content in the blogs is closely related to which aims the communication is meant to fulfil. The researchers write a lot of postings related to their disciplines, although with different angles depending on whether they target their peers or the public. In broad terms, the most common themes appearing in the blogs are issues regarding research and content of personal character. Below I will exemplify how this content appears in the scholarly blogs analyzed.

*Research discussions* are a recurring theme in both the digital history and the HEP blogs. A study of Swedish academic blogs found that it proved difficult to identify the bloggers' own ongoing research, e.g. pre-

publishing of reports of findings, in the blog entries (Kjellberg, 2009b). Sometimes, the discussions about science and research are expressed in the form of anecdotes based on something that is currently on the researcher's mind. However, most of those discussions concern problems or issues that are closely connected to the researcher's own specialty and discipline-related content. At one point, one of the HEP bloggers refers to how he uses the blog to sort out his thoughts regarding a specific physics problem, which he teaches in class:

*Where to start — not for the kids, mind you, but for my own satisfaction? Clearly, we should start with the Navier-Stokes equations. Neglecting viscosity, these equations have five locally-conserved quantities: mass, energy, and (three components of) momentum. The equations we are dealing with are...*<sup>19</sup>

By writing about it in his blog, he can sort out the problem and at the same time easily retrieve it another time. Often, the content is connected to what is going on at a particular moment of a researcher's life, for example going to a conference, preparing a presentation or, as in the example above, teaching.

A theme in the HEP blogs is *physics in the news*, which is connected to the aim of promoting physics. In the blog postings there are reactions on how the media reports on certain physics-related issues. In particular, this kind of postings concern the Large Hadron Collider (LHC) and the Higgs particle, which have become hot topics in the news a couple of times. One example was in 2007, when rumors in the blogosphere had it that the Higgs particle had been found. Other typical news items that made it into the blogs were the Wagner lawsuit in Hawaii<sup>20</sup>, and Austria's plans to withdraw its engagement in CERN in 2009.

Another theme that appears in a number of the digital history and the HEP blogs concerns the *free availability of research results*, in the form of articles, papers or research data. Several researchers promote the idea that this facilitates open research. A number of the physicists discuss the publication of results from different angles. As can be expected from a

discipline with a high use of preprints (Cronin, 2001; Kling *et al.*, 2003), HEP bloggers sometimes link to papers they have submitted to *ArXiv* and ask for comments. Yet, more often they write about thoughts and ideas derived from reading someone else's article which they then link to. This can be seen as being in line with the blog's purpose of enabling a dialogue with peers.

Both in the physics blogs and in the digital history blogs there are *comments on tools* used in the bloggers' research practices. Some of the physicists discuss small programming solutions like a journal club script in *atdotde* or an *ArXiv* template in *Musings*. In digital history the bloggers write about tools such as *Zotero* for reference management, but also about other tools and how to use them. It has been pointed out that it is hard to discuss "how to perform history", so rather than touching upon methodology, the discussions have concerned the tools or sources as such (Becher & Trowler, 2001; Dormans, 2009). Digital history is no exception, and tools is clearly a staple topic. In the following example a researcher asks about advice on how to best take a photograph of an artefact:

*I've been trying to come up with a better strategy for photographing artifacts while in the field in Jordan. There is a lot of nice, natural light but it's so windy all the time that a rig with sheets or with paper scales can be difficult to manage. I decided to try out an inexpensive light tent.*<sup>21</sup>

The blogger shows how a light tent is used and the resulting photographs and then gets comments and suggestions from the readers of the blog.

Content that has a *personal, private or social character* also finds its place in the blogs. For example, there can suddenly appear a blog posting with a photo of a small baby and an excuse for not blogging for a while, like in *Entropy Bound*<sup>22</sup>. One researcher says about the content in his blog that: "I tend to write about things I can clack off without having to do any reading or extra research. This usually boils down to physics I'm working on or support work I'm working on, hobbies, or my

social/family life.”<sup>23</sup> Revealing something about the blogger behind the postings adds a personal touch. Personal things that are brought into the text may contribute to defining the style of the writer, something which was also mentioned as important by researchers in a study of scholars who blog (Kjellberg, 2010). In a similar vein, Miller and Shepherd (2004) showed how blogs were positioned between the public and the private. They also pointed out that the personal content made explicit in the blogs formed a part of making the blog a specific genre. Personal content does exist in the researchers’ blogs and can be about their family and friends, but it can also concern things happening at the work place. At the same time, it is not private in the sense of a private journal, as in a personal diary blog (Karlsson, 2006; Lomborg, 2009).

I have shown that most of the times the content appearing in the blogs is clearly related to the researchers’ work. Put bluntly, the HEP bloggers write about physics and the digital historians write about history or archaeology. However, it is unusual for them to discuss their ongoing research by revealing research ideas or publishing results prior to formal publishing, which agrees with how merit and trust are built in both areas. It is important to use the formal communication channels for meriting (Harley *et al.*, 2010; Kling *et al.*, 2003; Townsend, 2003). Rather, the research issues mentioned in the blog entries stem from different aspects of being a researcher and deal for example with teaching, reading other researchers’ articles and using tools of different kinds. Personal content in the blogs contributes to profiling the individual blogger.

### **Context**

To fully understand the aim of a blog, the context of which the blog and blogger are part is important. The context of the blog has to do with the practices in which it takes part and the conversations that take place in and around it. For instance, blogs can be part of a known blog ring (Wei, 2004) or the bloggers can form some other type of network (Efimova, 2009), but this was not the case with the scholarly blogs studied here. Rather, I have asked the questions “in which surroundings is the blog located and who takes part in that communication?” The analysis started

from the observable social dynamics that were played out in the blogs in terms of comments and linking activities and include bloggers, their audiences, and other web sites. In addition, it has been important to investigate what can be understood from the blog about a blogging researcher's background.

The writer is often at the centre of attention in the scholarly blogs, as in many other blog types. This is obvious from how the researchers present things from their point of view in the first person, as mentioned earlier. All of the scholarly blogs in the study lack a clear connection to the author's place of work in the form of being situated on the researchers' departmental websites; instead, they reside on their own domains or in commercial blog tools. In this way, the communication takes place outside the researcher's institutional setting. Moreover, surprisingly often the blog lacks a direct link to the official website of the researcher's place of work. In digital history, the blogs provide the base for the researcher's online presentation. However, in the physicists' blogs, the information about the researchers themselves is often sparse. More information about the physicists can be found on their personal websites where they describe their research. In that sense, the online presence of the blogging researchers can be found on different sites, such as the blog, their departmental or personal web sites, *Twitter* and *Flickr*.

As indicated above, HEP is characterized by large experiments and collaborations in the research itself as well as in the reports of the results. However, in the physicists' blogs, a tension is created between the collaborative culture in physics and the individuality of blog authors. One of the researchers mentions the collaborative efforts in contrast to how a single blogger can get a lot of attention through blogging even if the research is not conducted individually, and continues: "We need to be out there and in the public: heck, the public funds the science we do. On the other hand, we are large experiments and it isn't the individual: all of us contribute to these results."<sup>24</sup> Almost all of the HEP bloggers I have studied are part of collaborative project groups. However, in the blogs there is remarkably little evidence of how the researchers participate in these collaborations. Instead, the blogs are personal outlets, in contrast

to how articles are almost exclusively collaborative products in HEP (Knorr-Cetina, 1999; Kling, 2004). The blogs cannot be assessed in the same manner as the jointly written reports of research in physics (Kling *et al.*, 2003), or the monographs from highly reputable publishers in historical research (Townsend, 2003). They are not part of the formal reward system in the research communities, but represent an informal way of communicating for the researchers.

The analysis showed that links and comments are exchanged between some, but not all, of the researchers studied in the HEP blogs. Only one physics blog (*Information Processing*) does not have any kind of blog roll. There are a number of blogs to which several of the physicists link in their blog rolls. One of these is the group blog *Cosmic Variance*. In addition, all the studied HEP blogs except one (*Information Processing*) are included in *Planet Musings*<sup>25</sup>, an aggregator for physics blogs with RSS feeds from the collected blogs. These shared links illustrate a common interest. However, the physicists' blogs do not form a blogging community where they all show their awareness of each other by reciprocal linking between the blogs.

When it comes to indications of awareness of each other's blogs in digital history, and of who participates in the communication in the blogs, three of the eight blogs do not have a blog roll, and one of these (*eHistory*) seems to be isolated from the others. Nevertheless, blog rolls do not show the whole picture about bloggers' knowledge of each other. The links in the lists are included by the blogger's choice. This means that the blog rolls, besides being rarely updated, deliberately do not always reveal all of the blogs the blogger follows. The archaeology bloggers comment on and link to each other's blogs. In addition, they show a common interest in several aggregators of ancient world bloggers that they link to. Four of the historians belong to the same institution and link to each other, even though two of them do not have a blog roll (*Trevor Owens* and *Dan Cohen*). In addition, three of them (*Found History*, *Dan Cohen*, *edwired*) all contribute to a pod cast called "digital campus".

The physics bloggers belong to the same epistemic culture. One expression of this is their use of the specialized language. Another way in which the epistemic culture becomes visible is in how they distribute publications and how they acknowledge *arXiv* by accessing and commenting papers from that service. In addition, a common denominator among the physicists, either in the blogs or on the researchers' personal web sites, is *SPIRES*; a bibliographic database for HEP literature hosted by Stanford University. All of the physicists have links to their publications in *SPIRES*; if not from their blogs, then at least from their websites.

The possibility of addressing several different audiences at the same time emerged as a unique characteristic of scholarly blogs in a previous study (Kjellberg, 2010). The blog *A Quantum Diaries Survivor* has a clear purpose of "reaching out", which influences the type of content that the blogger finds appropriate to write about. Most of the postings aim at explaining physics or disseminating news about new findings in particle physics. However, there are also postings addressed to peers with an element of physics that requires knowledge of the field from the reader. The researcher who runs the blog is aware of this:

*I have decided that my long, detailed articles about particle physics are not exactly meeting the demand of the audience. I am not going to change my writing style because of that, of course, but I will try to also offer some thirty seconds physics bits here, every once in a while.*<sup>26</sup>

A comment to this particular entry shows that it is possible to maintain a balance between different audiences:

*I just wanted to say I am not a scientific person. I do not work in a science related field. Any scientific formulas that are used is complete gibberish to me, yet I find science fascinating and your site is one my favorite sites to read on a daily basis, and makes me appear much smarter to my friends and family than I actually am.*<sup>27</sup>

The idea of an imagined or intended reader motivates the researchers to engage in their blogs and influences the topics. Brake (2009) found that the audience is highlighted as being important in the formation of blogging practices, and also found, in research about personal blogs, that an imagined recipient was enough. As in Brake's study, the researchers studied here do not seem to know exactly who their readers are. Statistics based on the counters available within the blogging platforms are mentioned by the bloggers as a way of keeping track of their audience, but they also mention how hard it is to interpret the number of hits. *The Archaeology of the Mediterranean World* contains a posting about statistics, and the blogger notes that the number of comments is a more appropriate way of seeing that there are readers who care: "I have about 300 comments so far and they might be a better measure of how my readers engage with my blog".<sup>28</sup> The bloggers often direct questions or comments to their audience, like in *Symmetry factor*, when the blogger includes an image and addresses a reader: "The image is rather large, I apologize to those of you with slower connection", which gives the blog a conversational tone. This kind of comment is common in all of the blogs. In one of the blogs (*atdotde*), the blogger reflects on how he notices that his blog has readers, even though it does not have a statistics tool or counter, because people mention it when they meet him. This relation between an intended reader and how the blogs work in connecting the researcher with others confirms earlier findings about the blog as a way of facilitating a feeling of being interconnected (Efimova, 2009; Kjellberg, 2010). However, in terms of links, this is not necessarily explicitly shown in the blogs at hand.

In this section I have shown that the scholarly blogs are situated in a context closely tied to the individual researchers' blogging practices in terms of commenting and linking activities. In many ways their blogging corresponds to earlier findings of the blog as genre: they reply to comments, some of them try to keep track of their readers, and they use links as a means of creating a dialogue. However, there are no tightly knit disciplinary networks constructed between all of the blogs in each



selected group of blogs. The blogs are vaguely coloured by their epistemic cultures, for instance by the use of formulas and specialized language in the HEP blogs and the focus on digital tools in the digital history blogs.

### **Conclusion**

Today, scholars from the whole spectrum of different disciplines maintain blogs. In this article I have analyzed scholarly blogs as a genre in scholarly communication, and specifically investigated blogs created and maintained by researchers from two particular epistemic cultures: high energy physics and digital history. It has previously been pointed out that it is hardly possible to treat blogs as one genre based solely on the fact that they share some technical aspects (cf. Puschmann, 2009). I have approached blogs from a sociotechnical perspective, where both social and technical aspects are equally important. This point of departure leads to an understanding of the genre as manifesting how social practices in a particular community are enacted (Kjellberg, 2009b; Miller, 1984; Swales, 2004; Yates & Orlikowski, 1992). My approach shows that several aspects shape the scholarly blog, and I have been able to give an account of how these are interrelated with each other, contributing to an understanding of blogs used in scholarly communication.

The scholarly blogs analyzed here have similar communicative purposes. These purposes also demonstrate a close connection to the bloggers' epistemic cultures and emphasize the fact that the blogger is an active researcher, and not just someone who keeps a blog about science. The blogs serve the purposes of enabling a dialogue with peers, promoting the blogger's discipline, promoting the individual researcher, and boosting the researcher's work. Consequently, it is a collection of shared communicative purposes that establishes the rationale for scholarly blogs. The construction of a scholarly blog, its form, is related to these purposes and is expressed as interrelated social and technical aspects.

The formal traits of the blogs have often been the point of departure when discussing blogs in earlier research. Since the researchers studied tend to use “out of the box” blogging software, there are many similarities between the blogs in this study and other descriptions of blogs when it comes to technical features. The researchers in this study use blog features like the comment and trackback functions, and RSS in purposeful ways. In the meta-referential postings on their own blogging activities, they typically refer to knowledge about blogging practices. However, the form features supplied by the blogging software relate to how the purposes of a scholarly blog are realized. For example, adding new entries over time builds the image of the researcher, and makes the blog differ from a static web page. There are also discernable, although minor, form-related differences in the blogs that stem from the researchers’ epistemic cultures. For instance, the HEP blogs all include formulas and the digital historians include digital tools like *Twitter*, as well as discuss the use of such digital tools as part of the content.

The scholarly blogs are based on the researchers’ shared understanding of how to use blogs in their epistemic cultures and their knowledge about blogging practices. In this way, knowledge about norms and values from both blogging and disciplinary practices shape the researcher’s blogging. However, the blogging practices visible in the blogs in the study suggest that these can be viewed as something that unifies the scholarly blogs despite the bloggers’ different epistemic cultures. For example, the researchers’ disciplines colored the content of the blogs, but they rarely took advantage of the possibility of using the blog as an outlet for publishing their own results. Whereas formal scholarly communication is rewarded in the award systems prevailing in both epistemic cultures, the scholarly blogs are used differently from journal articles or monographs and have an informal conversational character and covering other kinds of topics.

The content in the blogs is in many different ways about the bloggers’ research. By writing about various aspects of being a researcher, including discussions about how to use tools, commenting on other researchers’ articles, problems or issues that occur during their research,

the bloggers invite their audiences to read about their research practices. Knorr-Cetina (1981) describes how a journal article is constructed from informal interactions before it is released to public view. The blog can publicize and democratize parts of such informal interactions. The inclusion of informal communication in the blog is another aspect of what makes it special. The informal interaction between the blogging researcher and others, not only peers, can potentially contribute to the production of new knowledge. Still, even if the blog posts are informal, the individual researcher has deliberately shaped the material that is made public in the blog; the scholarly blogs in the study are not examples of self-revealing public diaries. It could be argued that some of the researchers slightly open the lid to the “black box” of scientific knowledge claims (Latour, 1987), and show some of what goes on in their daily life as researchers, the work which leads up to the polished results published in formal publications. Some of the blogs studied also have an expressed purpose of describing a scientist’s day-to-day work to students and other potential future scientists. In this way, and as an addition to the landscape of scholarly communication, including communication with the public, the scholarly blogs contribute to our understanding of how research is done.

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## Notes

1. arXiv, <http://arxiv.org/>, is a repository for papers in the fields of physics, mathematics, nonlinear sciences, computer science, quantitative biology, quantitative finance, and statistics operated by Cornell University.
2. <http://digitalhumanities.org/humanist>
3. <http://www.h-net.org/lists/>
4. The blog types used were fetched from a study by Herring *et al.* (2004). The authors make a distinction between five different types of blogs: a *filter blog* reports content with a great number of links; a *personal journal* is more introspective, looking at the bloggers own life; a *k-log* is concentrated on a specific topic; a *mixed blog* is a blog where none of the types dominates; and *other* was used for a kind of blog that was difficult to match to any of the types.
5. <http://hnn.us/blogs/entries/9665.html/#digital>
6. <http://blogs.nature.com/blogs?tags=physics>
7. *Entropy Bound*, *Life as a Physicist*, and *A Quantum Diaries Survivor* were included in a previous article which outlined the framework of situated genre analysis (Kjellberg, 2009a).
8. <http://electricarchaeology.ca/2010/01/20/electric-archaeology-3-years-in-the-blogoverse/>
9. <http://atdotde.blogspot.com/2007/04/packing-again.html>
10. <http://www.trevorowens.org/2009/09/mining-old-news-for-fresh-historical-insight/>
11. [http://mediterraneanworld.typepad.com/the\\_archaeology\\_of\\_the\\_me/2010/01/blogging-archaeology-2-years-later.html](http://mediterraneanworld.typepad.com/the_archaeology_of_the_me/2010/01/blogging-archaeology-2-years-later.html)
12. <http://gordonwatts.wordpress.com/2008/03/25/what-do-i-spend-my-time-on-how-do-i-choose-a-topic-to-write-about/>
13. <http://entropybound.blogspot.com/2004/12/typical-day-at-work.html>
14. <http://latticeqcd.blogspot.com/2006/05/calling-lattice-bloggers.html>
15. [http://mediterraneanworld.typepad.com/the\\_archaeology\\_of\\_the\\_me/2010/01/blogging-archaeology-2-years-later.html](http://mediterraneanworld.typepad.com/the_archaeology_of_the_me/2010/01/blogging-archaeology-2-years-later.html)
16. <http://www.foundhistory.org/2009/11/22/briefly-noted-for-november-22-2009/>

17. LaTeX is a mark-up language used by for example physicists, mathematicians, engineers, philosophers, linguists, and others. It facilitates the separation of style and content and is used for typesetting, <http://www.latex-project.org/>
18. [http://mediterraneanworld.typepad.com/the\\_archaeology\\_of\\_the\\_me/2009/11/blogging-at-70000.html](http://mediterraneanworld.typepad.com/the_archaeology_of_the_me/2009/11/blogging-at-70000.html)
19. <http://golem.ph.utexas.edu/~distler/blog/archives/002058.html>
20. In 2008 a civilian, Walter Wagner, filed a lawsuit because he was concerned about the LHC's safety measures.
21. <http://middlesavagery.wordpress.com/2009/11/23/archaeological-photography-experimenting-with-a-light-tent/>
22. <http://entropybound.blogspot.com/2009/09/meet-clea.html>
23. <http://gordonwatts.wordpress.com/2008/03/25/what-do-i-spend-my-time-on-how-do-i-choose-a-topic-to-write-about/>
24. <http://gordonwatts.wordpress.com/2007/03/16/blogs-the-press-and-science/>
25. <http://golem.ph.utexas.edu/~distler/planet/>
26. [http://www.scientificblogging.com/quantum\\_diaries\\_survivor/plot\\_week\\_upsilon\\_puzzle](http://www.scientificblogging.com/quantum_diaries_survivor/plot_week_upsilon_puzzle)
27. [http://www.scientificblogging.com/quantum\\_diaries\\_survivor/plot\\_week\\_upsilon\\_puzzle](http://www.scientificblogging.com/quantum_diaries_survivor/plot_week_upsilon_puzzle)
28. [http://mediterraneanworld.typepad.com/the\\_archaeology\\_of\\_the\\_me/2009/11/blogging-at-70000.html](http://mediterraneanworld.typepad.com/the_archaeology_of_the_me/2009/11/blogging-at-70000.html)

## Appendix A

### HEP Blogs

*atdotde*

<http://atdotde.blogspot.com/>

*A Quantum Diaries Survivor*

[http://www.scientificblogging.com/quantum\\_diaries\\_survivor](http://www.scientificblogging.com/quantum_diaries_survivor)

*Entropy Bound*

<http://entropybound.blogspot.com/>

*Information Processing*

<http://infoproc.blogspot.com/>

*Life as a Physicist*

<http://gordonwatts.wordpress.com/>

*Life on the lattice*

<http://latticeqcd.blogspot.com/>

*Musings*

<http://golem.ph.utexas.edu/~distler/blog/>

*Symmetry factor*

<http://apetrov.wordpress.com/>

### **Digital history blogs**

*Dan Cohen's Digital Humanities Blog*

<http://www.dancohen.org/>

*Edwired*

<http://edwired.org/>

*eHistory*

<http://i-history.blogspot.com/>

*Electric Archaeology*

<http://electricarchaeologist.wordpress.com/> URL changed since study to

<http://electricarchaeology.ca/>

*Found History*

<http://www.foundhistory.org/>

*Middle Savagery*

<http://middlesavagery.wordpress.com/>

*The Archeology of the Mediterranean World*

<http://mediterraneanworld.typepad.com/>

*Trevor Owens*

<http://www.trevorowens.org/>

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